



2019

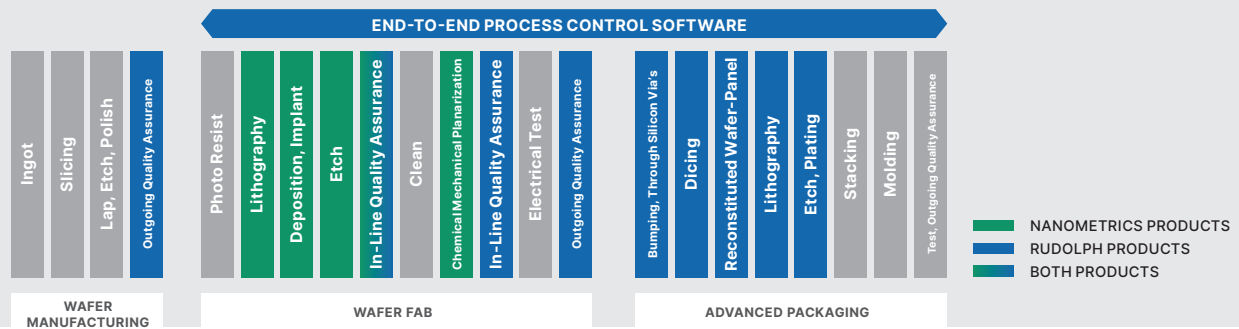
Annual Report + 2020 Proxy

DEAR SHAREHOLDERS

The semiconductor industry plays an increasingly larger role in many of today's most exciting megatrends. Technological breakthroughs are happening all around us as machine learning is being facilitated by high-power computing combined with high-bandwidth memory. Massive amounts of data are being generated and uploaded to data centers with cloud computing consuming additional processors and memory. In parallel, the anticipated 5G communication channels are increasing data transfer speeds to satisfy the needs of infrastructure, industrial, commercial and consumer systems that will all require more processing power, memory, and wireless (RF) systems. The increasing complexity and smaller sizes of all these devices requires inclusive, factory-wide manufacturing controls to achieve higher yields and the long-term reliability that is needed today.

With this exciting backdrop, this past June, Nanometrics and Rudolph Technologies announced our intention to merge as equal companies. We recognized that our complementary technologies and teams would accelerate our ability to serve our markets as well as expand our opportunities with strategic customers. Our customers now require a more collaborative and inventive supply chain to maintain their rapid pace of innovation. As our name suggests, Onto Innovation is advancing manufacturing innovation by providing comprehensive solutions to emerging process challenges across the semiconductor value chain.

Complementary Products: Throughout the Entire Semiconductor Process



Since the merger completed in late October, our integration has been progressing very well. We have already identified and implemented \$14 million in annualized cost synergies and we are confident in ending the year with \$20 million in annualized synergies two years ahead of our initial estimate. More importantly, by combining our core competencies in software and optics we are now able to accelerate our pace of innovation and expand our served available markets. As a result, our new product pipeline is currently expanding, and we expect to see several exciting new product releases in 2020. Looking forward, we expect to significantly increase the total available markets we will be able to address.

Given the more important role semiconductors are playing in helping to create a smarter, greener, and more sustainable planet, we are also focused on our social responsibility and sustainability. We have formed an environmental team to focus on raising awareness and implementing sustainable practices and measures at each of our offices. Onto Innovation has already increased our human resources team and our focus on employees, with employee benefits extending above the level of the two legacy companies. The result has been an incredible amount of employee enthusiasm and inter-company collaboration as the two legacy teams begin creating "best sustainable and responsible business practices" for Onto Innovation.

Amid the global pandemic of COVID-19, our primary focus is ensuring our worldwide employee base and their families are safe. Since the beginning of the year, we have implemented a number of global policies and initiated a team to anticipate and react to the evolving situation. We have a strong customer-focused, innovative team supported by a balance sheet of over \$300 million in cash, which provides us with many options to manage through this and position ourselves for continued growth both organically and inorganically.

Lastly, a sincere thank you and appreciation to our loyal shareholders, customers, employees, suppliers and all who contributed to Onto Innovation's success as we look forward to continued growth in 2020.

Sincerely,

Michael P. Plisinski
Chief Executive Officer

Christopher A. Seams
Chairman of the Board

SAFE HARBOR STATEMENT

This Annual Report contains forward-looking statements, including those regarding anticipated growth and trends in our businesses and markets, industry outlooks, market share, technology transitions, our business, strategies and financial performance, our development of new products, technologies and capabilities, and other statements that are not historical fact, and actual results could differ materially. Risk factors that could cause actual results to differ are set forth in the “Risk Factors” section of, and elsewhere in, our 2019 Annual Report on Form 10-K included in this report and other filings with the Securities and Exchange Commission. All forward-looking statements are based on management’s estimates, projections and assumptions as of the date hereof, and Onto Innovation undertakes no obligation to update any such statements.

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549**

FORM 10-K

(Mark One)

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the Fiscal Year Ended December 31, 2019

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from _____ to _____

Commission File No. 001-39110

ONTO INNOVATION INC.

(Exact name of registrant as specified in its charter)

Delaware

(State or other jurisdiction of
incorporation or organization)

94-2276314

(I.R.S. Employer
Identification Number)

16 Jonspin Road, Wilmington, MA 01887
(Address of principal executive offices) (Zip Code)

Registrant's telephone number, including area code: (978) 253-6200

SECURITIES REGISTERED PURSUANT TO SECTION 12(b) OF THE ACT:

<u>Title of Each Class</u>	<u>Trading Symbol</u>	<u>Name of Exchange on Which Registered</u>
Common Stock, \$0.001 par value per share	ONTO	New York Stock Exchange (NYSE)

SECURITIES REGISTERED PURSUANT TO SECTION 12(g) OF THE ACT:

None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes No

Indicate by check mark whether the registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.:

Large accelerated filer	<input checked="" type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input type="checkbox"/>	Smaller reporting company	<input type="checkbox"/>
		Emerging growth company	<input type="checkbox"/>

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes No

The aggregate market value of the registrant's voting Common Stock held by non-affiliates of the registrant was approximately \$811,997,653 based on the closing price of the Common Stock on the Nasdaq Global Select Market on June 28, 2019.

The number of shares of the registrant's Common Stock outstanding as of February 6, 2020 was 50,282,160.

DOCUMENTS INCORPORATED BY REFERENCE

Items 10, 11, 12, 13 and 14 of Part III of this Annual Report on Form 10-K incorporate by reference information from the definitive proxy statement for the registrant's annual meeting of stockholders scheduled to be held on May 12, 2020.

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Explanatory Note

On October 25, 2019, Onto Innovation Inc. (the “Company” or “Onto Innovation,” formerly known as Nanometrics Incorporated (“Nanometrics”)) consummated its previously announced merger (the “Merger”) with Rudolph Technologies, Inc. (“Rudolph”). Onto Innovation accounts for the Merger as a reverse acquisition using the acquisition method of accounting in accordance with generally accepted accounting principles, with Rudolph being treated as the acquiring entity for accounting purposes. Because Rudolph is treated as the accounting acquirer in the Merger, the financial statements filed with this annual report on Form 10-K include the financial results of Rudolph for all periods presented and the financial results of the former Nanometrics for the periods on or after October 26, 2019. As used in this report, unless the context suggests otherwise, the terms “we,” “us” or “our” refer to (i) Rudolph and its consolidated subsidiaries for periods through October 25, 2019 and (ii) Onto Innovation and its consolidated subsidiaries for periods on or after October 26, 2019. The terms the “Company” and “Onto Innovation” refer to the combined company following the consummation of the Merger.

FORWARD-LOOKING STATEMENTS

Certain statements in this Annual Report on Form 10-K of Onto Innovation are forward-looking statements, including those concerning our business momentum and future growth, acceptance of our products and services, our ability to deliver both products and services consistent with our customers’ demands and expectations and to strengthen our market position, our expectations of the semiconductor market outlook, future revenue, gross profits, research and development and engineering expenses, selling, general and administrative expenses, product introductions, technology development, manufacturing practices, cash requirements, our dependence on certain significant customers and anticipated trends and developments in and management plans for our business and the markets in which we operate, our anticipated revenue as a result of acquisitions, and our ability to be successful in managing our cost structure and cash expenditures and results of litigation. The statements contained in this Annual Report on Form 10-K that are not purely historical are forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934, as amended (the “Exchange Act”), and within the meaning of the Private Securities Litigation Reform Act of 1995. Forward-looking statements may be identified by words such as, but not limited to, “anticipate,” “believe,” “continue,” “estimate,” “expect,” “intend,” “plan,” “should,” “may,” “could,” “will,” “would,” “forecast,” “project” and words or phrases of similar meaning, as they relate to our management or us.

The forward-looking statements contained herein reflect our expectations with respect to future events and are subject to certain risks, uncertainties and assumptions. Actual results may differ materially from those included in such forward-looking statements for a number of reasons including, but not limited to, the following: variations in the level of orders which can be affected by general economic conditions; seasonality and growth rates in the semiconductor manufacturing industry and in the markets served by our customers; the global economic and political climates; difficulties or delays in product functionality or performance; the delivery performance of sole source vendors; the timing of future product releases; failure to respond adequately to either changes in technology or customer preferences; changes in pricing by us or our competitors; our ability to manage growth; changes in management; risk of nonpayment of accounts receivable; changes in budgeted costs; our ability to leverage our resources to improve our position in our core markets, to weather difficult economic environments, to open new market opportunities and to target high-margin markets; the strength/weakness of the back-end and/or front-end semiconductor market segments; the imposition of tariffs or trade restrictions and costs, burdens and restrictions associated with other governmental actions; the ability to successfully integrate the businesses of Rudolph and Nanometrics promptly and effectively and to achieve the anticipated synergies and value-creation contemplated by the Merger within the expected time frame; unanticipated difficulties or expenditures relating to the Merger and integration of the Rudolph and Nanometrics businesses; the response of business partners and retention as a result of the Merger; the diversion of management time in connection with the integration; the effect of litigation related to the Merger; and the “Risk Factors” set forth in Item 1A. You should carefully review the cautionary statements and “Risk Factors” contained in this Annual Report on Form 10-K. You should also review any additional disclosures and cautionary statements and “Risk Factors” we include from time to time in our quarterly reports on Form 10-Q, current reports on Form 8-K and other filings we make with the Securities and Exchange Commission (the “SEC”). The forward-looking statements reflect our position as of the date of this report and we undertake no obligation to update any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by law.

PART I

Item 1. Business.

General

Onto Innovation is the new entity resulting from the completion on October 25, 2019 of the Merger between Nanometrics and Rudolph, two long-time leaders in the semiconductor equipment industry that began operations in 1975 and 1940, respectively. Onto Innovation has been publicly traded since October 2019 (NYSE: ONTO).

Onto Innovation is a worldwide leader in the design, development, manufacture and support of process control tools that perform macro defect inspections and metrology, lithography systems, and process control analytical software used by semiconductor wafer and advanced packaging device manufacturers. Our products are also used in a number of other high technology industries including: silicon wafer substrates; light emitting diode (“LED”); vertical-cavity surface-emitting laser (“VCSEL”); micro-electromechanical system (“MEMS”); CMOS image sensor (“CIS”); power device; RF filter; data storage; and certain industrial and scientific applications. We have a combined installed base of over 9,000 systems in the majority of advanced semiconductor device production factories worldwide.

We provide process and yield management solutions used in bare silicon wafer production and wafer processing facilities, often referred to as “front-end” manufacturing and device packaging and test facilities (or “back-end” manufacturing), respectively through a portfolio of standalone systems for macro-defect inspection, packaging lithography, probe card test and analysis, as well as transparent and opaque thin film measurements. Our automated and integrated metrology systems measure critical dimensions, device structures, topography, shape, and various thin film properties, including three-dimensional features and film thickness, as well as optical, electrical and material properties. Our primary area of focus is products that provide critical yield-enhancing information, which is used by microelectronic device manufacturers to drive down costs and to decrease the time to market their devices. All Onto Innovation systems feature sophisticated software and production-worthy automation. In addition, our advanced process control software portfolio includes powerful solutions for standalone tools, groups of tools, factory-wide, and enterprise-wide suites to enhance productivity and achieve significant cost savings. Onto Innovation’s systems are backed by worldwide customer service and applications support.

Nanometrics and Rudolph Merger

On October 25, 2019, Nanometrics and Rudolph consummated their previously announced Merger pursuant to the agreement and plan of merger, dated as of June 23, 2019 (the “Merger Agreement”), by and among Nanometrics, Rudolph and PV Equipment Inc. As a result of the Merger, Rudolph became a direct wholly-owned subsidiary of Nanometrics, which was renamed “Onto Innovation Inc.” At the effective time of the Merger, each issued and outstanding share of common stock of Rudolph, par value \$0.001 per share (“Rudolph Common Stock”) (other than shares owned by Rudolph or Nanometrics), was automatically converted into the right to receive 0.8042 (the “Exchange Ratio”) shares of Onto Innovation common stock, par value \$0.001 per share (“Onto Innovation Common Stock”), and cash in lieu of any fractional shares of Onto Innovation Common Stock any former holder of Rudolph Common Stock would otherwise be entitled to receive. Immediately following the effective time of the Merger, each of Nanometrics’ and Rudolph’s stockholders owned approximately 50% of the combined company, Onto Innovation. Pursuant to the Merger Agreement, Onto Innovation accounts for the Merger as a reverse acquisition using the acquisition method of accounting in accordance with generally accepted accounting principles, with Rudolph being treated as the acquiring entity for accounting purposes.

Industry Background

We participate in the sale, design, manufacture, marketing and support of process control systems for optical critical dimension metrology, thin film metrology, wafer inspection, 2D and 3D macro inspection and lithography tools for advanced packaging as well as advanced analytical software for semiconductor manufacturing and certain industrial applications and scientific research. Our principal market is semiconductors. Semiconductors, primarily packaged as integrated circuits within electronic devices, include consumer electronics, server and enterprise systems, mobile computing (including smart phones and tablets), data storage devices, and embedded automotive and control systems. Our core focus is the measurement and control of the structure, composition, and geometry of the devices as they are fabricated on silicon wafers to improve device performance and manufacturing yields. Our end customers manufacture many types of integrated circuits for a multitude of applications, each having unique manufacturing challenges. This includes integrated circuits to enable information processing and management (logic integrated circuits), memory storage (3D NAND and DRAM), analog devices (e.g., Wi-Fi and 5G radio integrated circuits, power devices), MEMS sensor devices (accelerometers, pressure sensors, and microphones), image sensors, and components for hard disk drives, LEDs, and power management.

Current Trends

Advanced Nodes refer to leading edge integrated circuits in which the feature sizes of transistors and other features continue to shrink in specified steps, or nodes measured in nanometers (nm). Demand for our products continues to be driven by our customers' desire for higher overall chip performance without increasing the chip size, while improving power efficiency, logic processing capability, data storage volume and manufacturing yield. To achieve these goals, our customers have increased their use of more complex materials and processing methods in their manufacturing flow. The primary paths for performance gains are geometric scaling, known as node shrinks, or scaling in three dimensions. In some cases, our customers are implementing new materials and methods in high volume manufacturing, including materials and device architectures to reduce power consumption, and stacked devices. To scale NAND memory a new 3D stacking architecture has been implemented with as many as 128 device layers in production. Additional innovation continues in Data Storage, Power Devices, MEMS, and Image Sensors. We believe the use of these new materials and manufacturing methods has increased demand for our products such as the Atlas III+ that is capable of measuring these advanced nodes as certain features shrink to 7nm, 5nm and 3nm.

To shrink features, new methods, including multiple patterning lithography and extreme ultra-violet ("EUV") lithography, have been developed. The EUV process is driving significantly higher requirements for the silicon wafers that are entering the EUV chamber. Small particles on the backside of the wafer measuring a few micrometers (microns) can distort the images being projected onto the top side. Our NovusEdge inspection tool has been installed at major silicon wafer manufacturers to detect backside contamination and edge cracking as a final quality control mechanism before wafers are shipped to the semiconductor fabrication manufacturers. The top side of these wafers must also be scanned for any impurities contained in the silicon. This compositional analysis is measured using Onto Innovation's Fourier Transform Infrared ("FTIR") systems.

Advanced Packaging refers to a variety of technologies that enable the miniaturization of electronic products, such as portable consumer devices, including smartphones, watches, and tablets. In electronics manufacturing, integrated circuit packaging is the final stage of semiconductor device fabrication, in which a single circuit made from semiconducting material (a die or chip) is encased in a molded package that provides external connections to a printed circuit board and also prevents physical damage to the chip and corrosion. Advanced Packaging refers to the conductors and other structures that often connect multiple die, feed them with electric power and create signal paths to and from the PC board, dissipate their heat, and protect them from damage. Today, the drive to pack more functions into a small space and reduce their power requirements demands that chip packages do much more than ever before to combine multiple chips and functions into a single molded package.

One example of the technology used in Advanced Packaging is the 3D integration of semiconductors and other devices. The technology involves stacking individual die in one integrated package. Through-silicon vias ("TSVs") are vertical copper interconnects that are embedded from the bottom surface of a die to the top surface, which allows power and communication to be shared among the individually stacked components. The processes required for 3D integration vary from one manufacturer to another and many continue to be optimized for yield and to ensure the functioning of individual stacked chips.

Fan-out wafer level packages are another advanced packaging technology using copper pillars/bumps to vertically connect a wide variety of stacked die and are considered the next disruptive technology for several reasons. First, fan-out wafer level packages significantly reduce the space needed inside an electronic device, such as a smartphone, by combining multiple chips/functions into a single package, often called a System-in-Package ("SIP"). Next, it improves the system's performance by reducing power and signal conductor lengths, which previously were routed from package to package through a printed circuit ("PC") board. Using thin redistribution layers ("RDLs") to "fan out" power and signal connections to the larger contacts on the PC board eliminates the need for a ceramic or laminated substrate, which accounts for 35 percent of the packaging cost. As a result of the small overall form factor, fan-out wafer level packages provide the functionality needed in high-end mobile and wearable products. We believe the growth of advanced packaging has increased demand for our products such as the Dragonfly G2 System that is capable of inspecting two-dimensional (2D) features to find flaws/defects and detect unwanted residual residue as well as measuring and reporting vertical attributes of 3D pillars and bumps.

Panel Manufacturing. The current process to manufacture advanced packaging involves attaching known good die to a 300mm wafer, used as a temporary carrier when adding components such as RDLs and copper pillars. SIP packages can often contain side-by-side die, meaning the package can be large and limit the number of packages being placed on a reconstituted wafer. In order to meet the growing demand at reduced average selling prices, manufacturers are looking to scalable technology. Advanced packaging facilities looking to improve cost of ownership and increase productivity are transitioning from round 300mm wafers to large rectangular panels, which can be as large as 600mm x 600mm. This larger size and shape enables companies manufacturing large area packages to efficiently increase the number of devices being processed at each step as they are no longer limited to operating within the constraints of a round wafer. By responding to market opportunities and addressing the stringent demands of customers' technical roadmaps, we believe that Onto Innovation is optimally positioned to capitalize on the emerging market of high-volume panel manufacturing. For example, the JetStep® S lithography system is designed for processing RDLs on both glass and organic laminate panels in the semiconductor Advanced Packaging market. The Firefly™S Series, designed for high resolution inspection, can provide metrology and location information to the JetStep S tool for each

die, which greatly improves lithography throughput using Onto Innovation's exclusive StepFAST™ process. The Firefly also delivers a combination of defect detection and substrate flexibility in a single platform, reducing capital investment requirements and providing a reliable pathway to transition from wafer to panel-based processes.

Technology

We believe that our expertise in our core technologies of optics and software and our combined investment in research and development will enable us to rapidly develop new technologies and products in order to quickly respond to emerging industry trends and competitive challenges. The breadth of our technology enables us to offer a diverse combination of process control products and solutions. Unique features have been designed into our lithography systems to meet our customers' changing process requirements. Our metrology and inspection technologies provide process control for the majority of wafers processed today in a semiconductor wafer fab. In front-end processes, optical critical dimension ("OCD") metrology, thin film metrology, wafer stress metrology and macro defect detection and classification technologies allow yield enhancement for critical processes such as photolithography, diffusion, etch, chemical mechanical planarization ("CMP") and outgoing quality control. Within the final manufacturing (back-end) processes, our 2D/3D advanced macro defect inspection provides our customers with critical quality assurance and process information. Defects may be created during probing, bumping, dicing, assembly processes (RDLs, TSVs, copper pillars, etc.) or general handling and can have a major impact on device and process quality. Lastly, we turn all of the data gathered into useful knowledge for our customers to make yield-enhancing decisions, which lower their cost of goods sold ("COGS") and improve their margins.

Onto Innovation's Products

Metrology

Automated Metrology Systems. Our automated systems primarily consist of fully automated metrology systems that are employed in semiconductor production environments. The Atlas® family of products represents our line of high-performance metrology systems providing OCD and thin film metrology and wafer stress metrology for transistor and interconnect metrology applications. The thin film and OCD technology in the Atlas is supported by our NanoCD suite of solutions including our NanoDiffract® software, SpectraProbe™ software and NanoGen™ scalable computing engine that enables visualization, modeling, and analysis of complex structures. Additionally, the S3000SX™ System is used for ultra-thin transparent films metrology in advanced semiconductor fabrication applications for advanced nodes.

NanoDiffract® is a modeling, visualization and analysis software that takes signals from the metrology systems, providing critical dimension, thickness, and optical properties from in-line measurements. The software has an intuitive three-dimensional modeling interface to provide visualization of today's advanced and complex semiconductor devices. There are proprietary fitting algorithms in NanoDiffract that enable very accurate and very fast calculations for signal processing for high fidelity model-based measurements. SpectraProbe is a model-less fitting engine that enables fast time to solution for in-line excursion detection and control. SpectraProbe complements the high-fidelity modeling of NanoDiffract with a simple machine learning interface for rapid recipe deployment. The software is supported by NanoGen, an enterprise scale computing hardware system that is deployed to run the computing intensive analysis software. NanoGen leverages commercial server chips and networking architecture and is optimized to support the workload of NanoDiffract and SpectraProbe analysis.

Integrated Metrology Systems. Our integrated metrology ("IM") systems are installed directly onto wafer processing equipment to provide near real-time measurements for improved process control and maximum throughput. Our IM systems are sold directly to end user customers. The IMPULSE family of products includes the latest technology for OCD, and thin film metrology, and have been successfully qualified on numerous independent Wafer Fabrication Equipment Suppliers' platforms. Our NanoCD suite of software solutions including NanoDiffract and SpectraProbe, is sold in conjunction with our IMPULSE systems.

Opaque Film Metrology. The MetaPULSE® systems allow customers to simultaneously measure the thickness and other properties of metal or non-metallic opaque film layers in a non-destructive manner without physically contacting product wafers. PULSE Technology is used in copper or aluminum interconnect processes, as well as various layers in 3D NAND chips and thick advanced packaging interconnect applications. PULSE technology is expanding into new process applications such as RF filters and modules, driven by the need for on-product metrology as feature sizes decrease and pattern densities increase.

Inspection & Yield Management

Silicon Wafer All-surface Inspection/Characterization. All-surface refers to inspection of the wafer frontside, edge, and backside as well as the locator notch on the wafer. The AWX and NovusEdge tools utilize optical scattering and imaging technology to inspect these surfaces. A primary reason for all-surface wafer inspection is to detect and contain any

contamination that may spread throughout the wafer fab. For instance, it is critical that the wafer backside be free of defects prior to the EUV lithography process to prevent focus and exposure problems on the wafer frontside.

Epitaxial Thickness and Composition. Our materials characterization products include systems that are used to monitor the physical, optical, electrical and material characteristics of discrete electronic industry, opto-electronic, HB-LED (high brightness LEDs), solar PV (solar photovoltaics), compound semiconductor, strained silicon and silicon-on-insulator devices, including composition, crystal structure, layer thickness, dopant concentration, contamination and electron mobility. Our portfolio of products for materials characterization includes photoluminescence mapping in the RPM Blue and Vertex, and Fourier Transform Infrared (“FTIR”) spectroscopy in the QS Family (QS1200, QS2200, QS4300) systems for substrate quality and epitaxial thickness metrology.

Macro Defect Inspection. Chip manufacturers deploy advanced macro defect inspection throughout the production line to monitor key process steps, gather process-enhancing information and ultimately, lower manufacturing costs. Field-established tools such as the F30™, NSX® and the latest Dragonfly G2 inspection systems are found in wafer fab (front-end) and packaging (back-end) facilities around the world. These high-speed tools incorporate features such as wafer-less recipe creation, tool-to-tool correlation and multiple inspection resolutions. Using Discover® yield management software, the vast amounts of data gathered through automated inspection can be analyzed and classified to determine trends and locate root causes that directly affect yield.

Automated Defect Classification and Pattern Analysis. Automating the defect detection and classification process is best done by a system that can mimic, or even extend, the response of the human eye, but at a much higher speed, with higher resolution and more consistency. Our TrueADC software performs this rapid comparison and classification enabling yield improvement across facilities with consistent results.

Yield Analysis. Using wafer maps, charts and graphs, the massive amounts of data gathered through automated inspection can be analyzed to determine trends across bumps, die, wafers and lots. Discover Yield and other tools in the Discover suite enable enterprise-wide analysis. This analysis may determine where a process variation or deviation has occurred, allowing process engineers to make corrections or enhancements to increase yields. Defect data analysis is performed to identify, analyze and locate the source of defects and other manufacturing process excursions. Using either a single wafer map or a composite map created from multiple wafer maps, this analysis enables identification of defect patterns and distribution. When combined with inspection data from strategically placed inspection points, this analysis may pinpoint the source of the defects so corrective action can be taken.

Industrial, Scientific, and Research Markets: 4D Technology. In November of 2018, Nanometrics acquired 4D Technology Corporation, based in Tucson Arizona. The 4D business unit offers a line of interferometry systems for the measurement and inspection of high precision surfaces. End markets include high precision optics surfaces and components, aerospace and defense components, automotive and powertrain systems, and unique research and scientific instrumentation that requires the unique high-speed results of the 4D systems.

Lithography

Advanced Packaging Lithography. Our lithography steppers from the JetStep product family, use projection optics to expose circuit patterns from a mask or reticle onto a substrate to expose images with optimal fidelity. The JetStep systems are used principally for package level interconnect and bump layer patterning. Our JetStep systems have been specifically designed for these layer applications. The JetStep W Series is designed for wafers and other round substrates while the JetStep S Series is designed for rectangular substrates (panels). Both systems boast a large printable field to maximize throughput while not limiting resolution. High-fidelity optics are able to image the fine features required while at the same time managing the non-flatness that is typical for advanced packaging applications.

Flat Panel Display Lithography. In addition to semiconductor device applications with the JetStep S and W products, the JetStep G Series is engineered to address the needs of the flat panel display market. The JetStep G is principally used in Gen 4 and Gen 5 panels for displays used in high resolution, smaller form factor devices, such as smart phones and smart watches.

Enterprise Software Solutions

Process Control Software. We provide a wide range of advanced process control solutions, all designed to improve factory profitability, including run-to-run control, fault detection, classification and tool automation. Our Advanced Process Control solutions are sold under the Discover™ brand and include Discover Enterprise, Discover Run-to-Run and other solutions. Discover software can automatically detect or predict tool failure (fault detection) as well as calculate recipe settings for a process that will drive the yielded output to meet and exceed the target, despite variations in the incoming material and minor instabilities within the process equipment. These process control software solutions enable the factory to increase capacity and yield while decreasing rework and scrap.

Yield Management Software. Semiconductor manufacturers use yield management software to obtain valuable process yield and equipment productivity information. Our Discover Yield, Discover Enterprise, and Discover Patterns software enables fab wide and enterprise wide (multiple factory) yield management based on data analytics from a broad range of sources. These data sources include wafer fab inspection and metrology systems, tool sensors, tool recipes, electrical tests and the fab environment. The Discover platform utilizes machine learning, advanced analytics, and other analysis and visualization to enable yield management and excursion prevention, and to maximize productivity across the entire semiconductor manufacturing value chain.

Products

WAFER AND CHIP MANUFACTURING		
Market	Applications	Products
Unpatterned Silicon Wafer	Bare wafer edge and backside inspection	NovusEdge™ Wafer System AWX™ Series
	Epitaxial Thickness and Composition / Impurity Detection	QS1200 System QS2200 System QS4300 System RPM Blue & Vertex Systems
OCD Metrology	Leading-edge 3D chip manufacturing	Atlas III+ System IMPULSE+ System
Metal Film Metrology	Opaque metal and semi-transparent film metrology system	MetaPULSE G System
Transparent Film Metrology	Transparent thin film metrology system	Atlas III+ System IMPULSE+ System S3000™ System
Macro Defect Inspection	Front-side macro defect inspection system	DragonFly G2 System F30™ Inspection Module NSX® Inspection Systems
ADVANCED PACKAGING		
Market	Applications	Products
System-in-Package Inspection	2D/3D Advanced Packaging inspection and bump metrology	Dragonfly™G2 System NSX® Systems
Fan-out Panel Level Packaging	Sub-micron defect panel inspection	Firefly™ Systems
	2x reduction step and repeat system for advanced packaging lithography on square or rectangular substrates up to Gen 3.5 size	JetStep® X700 System
	Alignment metrology and lithography optimization	StepFAST Software
INTEGRATED SOFTWARE SOLUTIONS		
Market	Applications	Products
Enterprise / Fabwide Data Management	Fabwide yield management system	Discover® Enterprise Software Discover Yield Software Discover Defect Software TrueADC® Enterprise Software
Tool Centric Analytics	Tool-centric yield management system	Discover® Run-to-Run Software Discover Patterns Software
	Automatic defect classification software	Discover Review Software

Customers

Over 150 microelectronic device manufacturers have purchased Onto Innovation tools and software for installation at multiple sites. We support a diverse customer base in terms of both geographic location and type of device manufactured. Our customers are located in over 20 countries.

In 2019, sales to Taiwan Semiconductor Manufacturing Co. Ltd. and SK Hynix Inc. accounted for 13.4% and 13.1%, respectively, of our revenue. In 2018, sales to SK Hynix Inc. accounted for 12.2% of our revenue. No individual end user customer accounted for more than 10% of our revenue in 2017. We do not have purchase contracts with any of our customers that obligate them to continue to purchase our products.

Sales, Customer Service and Application Support

We believe that the capability for direct sales and support is beneficial for developing and maintaining close customer relationships and for rapidly responding to changing customer requirements. We provide local direct sales, service and application support through our worldwide offices located in the United States, South Korea, Japan, Taiwan, China, Singapore and Europe, and work with selected dealers and sales representatives on a more limited basis in various countries. Our applications team is composed of technically experienced sales engineers who are knowledgeable in the use of metrology systems generally and the unique features and advantages of our specific products. Supported by our technical applications team, our sales and support teams work closely with our customers to offer cost-effective solutions to complex measurement and process problems. As of December 31, 2019, we employed 647 sales and marketing, service and applications support personnel.

We believe that customer service and technical support for our systems are crucial factors that distinguish us from our competitors and are essential to building and maintaining close, long-term relationships with our customers. We generally provide a warranty for our products which range from twelve to fourteen months to cover defects in material and workmanship. We provide system support to our customers through factory technical support and globally deployed field service personnel. The factory technical support operations provide customers with telephonic technical support access, direct training programs, operating manuals and other technical support information to enable effective use of our metrology and measurement instruments and systems. We have field service operations based in various locations throughout the United States, South Korea, Taiwan, China, Japan, Singapore, Israel, and European locations.

Manufacturing

Our manufacturing operations are in Milpitas California, Tucson Arizona, Wilmington Massachusetts, Bloomington Minnesota, and at various contract manufacturers around the world. It is our strategy to outsource all assemblies that do not contain elements that we believe lead to a direct competitive advantage. Most of our automated and integrated products are currently manufactured at our Milpitas and Bloomington facilities. We currently do not expect our manufacturing operations to require additional major investments in capital equipment.

We manufacture key modular assemblies and integrated tools and make reasonable efforts to ensure that externally purchased parts or raw materials are available from multiple suppliers, if possible. Certain components, subassemblies and services necessary for the manufacture of our systems are obtained either from a sole supplier or limited group of suppliers. We also have long-term supply agreements with strategic suppliers for the supply of key assemblies for use in our products.

We rely on a number of limited source suppliers for certain parts and subassemblies. This reliance creates a potential inability to obtain an adequate supply of required components, and reduced control over pricing and time of delivery of components. An inability to obtain adequate supplies would require us to seek alternative sources of supply or might require us to redesign our systems to accommodate different components or subassemblies. To date, we have not experienced any significant delivery delays. However, if we were forced to seek alternative sources of supply, manufacture such components or subassemblies internally, or redesign our products, this could prevent us from shipping our products to our customers on a timely basis, which could have a material adverse effect on our operations. As of December 31, 2019, we employed 184 manufacturing personnel.

Research and Development

We continue to invest in research and development to provide our customers with products that add value to their manufacturing processes and that provide a better and differentiated solution than our competitors so that our products stay in the forefront of current and future market demands. Whether it is for an advancement of current technology, yield and manufacturing improvement, enabling new end device technology, or the development of a new application in our core or emerging markets, we are committed to product excellence and longevity.

The markets for equipment and systems for manufacturing semiconductor devices and for performing OCD metrology, macro-defect inspection, advanced packaging lithography and thin film transparent and opaque process control metrology are characterized by continuous technological development and product innovations. We believe that the rapid and ongoing development of new products and enhancements to existing products is critical to our success. Accordingly, we devote a significant portion of our technical, management and financial resources to research and development programs. As of December 31, 2019, we employed 376 engineering personnel in research and development.

Intellectual Property

We believe that our success will depend to a great degree upon innovation, technological expertise and our ability to adapt our products to new technology. As a result, we have a policy of seeking patents on inventions governing new products or technologies as part of our ongoing research, development, and manufacturing activities. As of December 31, 2019, we have been granted, or hold exclusive licenses to, 484 U.S. and foreign patents. The patents we own, jointly own or exclusively license have expiration dates ranging from 2020 to 2038. We also have 85 pending regular and provisional applications in the U.S. and other countries. Our patents and applications principally cover various aspects of metrology, macro-defect detection and classification, altered material characterization, lithography techniques and automation.

Our pending patents may never be issued, and even if they are, these patents, our existing patents and the patents we license may not provide sufficiently broad protection to protect our proprietary rights, or they may prove to be unenforceable. To protect our proprietary rights, we also rely on a combination of copyrights, trademarks, trade secret laws, contractual provisions and licenses and non-disclosure agreements. There can be no assurance (i) that any patents issued to or licensed by us will not be challenged, invalidated or circumvented, (ii) that the rights granted thereunder will provide us with a competitive advantage or (iii) that we will be able to fully protect our technology. Additionally, others may obtain patents and assert them against us. From time to time, we receive communications from third parties asserting that our systems may contain design features that such third parties claim may infringe upon their proprietary rights.

The laws of some foreign countries do not protect our proprietary rights to the same degree as do the laws of the United States, and many U.S. companies have encountered substantial infringement problems in protecting their proprietary rights against infringement in such countries, some of which are countries in which we have sold and continue to sell products. There is a risk that our means of protecting our proprietary rights may not be adequate. For example, our competitors may independently develop similar technology or duplicate our products. If we fail to adequately protect our intellectual property, it would be easier for our competitors to sell competing products.

Competition

We offer various products for various semiconductor manufacturing process steps, and several of our products extend across the same process flow. However, for process control of each of these process steps, we have multiple established and potential competitors, some of which may have greater financial, research, engineering, manufacturing and marketing resources than we have. We may also face future competition from new market entrants from other overseas and domestic sources. We expect our competitors to continue to improve the design and performance of their current products and processes, and to introduce new products and processes with improved price and performance characteristics. In order to remain competitive, we believe that we will require significant financial resources to offer a broad range of products, and to maintain customer service and support centers worldwide, and to invest in product research and development.

In every market in which we participate, the global semiconductor equipment industry is intensely competitive, and driven by rapid technological adoption cycles. Our ability to effectively compete depends upon our ability to continually improve our products, applications and services, and our ability to develop new products, applications and services that meet constantly evolving customer requirements.

In automated systems for the semiconductor industry, our principal competitors are KLA Corporation (“KLA”) and Nova Measuring Instruments Ltd. (“Nova”) for thin film and critical dimension OCD metrology. Our principal competitor for advanced packaging inspection is Camtek Ltd. (“Camtek”). While the advanced packaging lithography market is served by various competitors, our primary competitors are Veeco Instruments, Inc. (“Veeco Instruments”) and, to a lesser extent, Nikon Corporation (“Nikon”). Our primary competitor for integrated metrology systems for the semiconductor industry is Nova. The opto-electronics, discrete device and industrial and scientific markets are addressed primarily by our material characterization and 4D business unit systems, served by numerous competitors, of which no single competitor or group of competitors has established a majority position.

We believe that our competitive position in each of our markets is based on the ability of our products and services to address customer requirements related to numerous competitive factors. Competitive selections are based on many factors

involving technological innovation, productivity, total cost of ownership of the system, including impact on end of line yield, price, product performance and throughput capability, quality, reliability and customer support.

Backlog

We schedule production of our systems based upon order backlog and informal customer forecasts. We use the term “backlog” to refer to only those orders to which the customer has been assigned a purchase order number and for which delivery is anticipated within 12 months. Because shipment dates may be changed and customers may cancel or delay orders with little or no penalty, our backlog as of any particular date may not be a reliable indicator of actual sales for any succeeding period. At December 31, 2019, we had a backlog of approximately \$71.7 million compared with a backlog of approximately \$62.7 million at December 31, 2018.

Employees

At December 31, 2019, we employed a total of 1,340 persons worldwide with sales, applications and service support in key geographic areas aligned with our customer locations. None of our employees are represented by a union and we have never experienced a work stoppage because of union actions. We consider our employee relations to be good. Many of our employees have specialized skills that are of value to us. Our future success will depend in large part upon our ability to attract, retain and motivate highly skilled scientific, technical and managerial personnel, who are in great demand in our industry.

Environmental Matters

Our operations are subject to various federal, state and local environmental protection regulations governing the use, storage, handling and disposal of hazardous materials, chemicals, and certain waste products. We believe that compliance with federal, state and local environmental protection regulations will not have a material adverse effect on our capital expenditures, earnings and competitive and financial position.

If we fail to comply with such laws and regulations, we could be liable for damages, penalties and fines. We further discuss the impact of environmental regulation under the risk factor, “We are subject to various environmental laws and regulations that could impose substantial costs upon us and may harm our business, operating results and financial condition.” in Item 1A.

Available Information

Our Internet website address is <http://www.ontoinnovation.com>. The information on our website is not incorporated into this Annual Report. Our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K (and any amendments to those reports) are made available free of charge, on or through our Internet website, as soon as reasonably practicable after such material is electronically filed with or furnished to the SEC. All filings we make with the SEC are also available free of charge via EDGAR through the SEC’s website at <http://www.sec.gov>. In addition, the historic reports and materials that were filed by Nanometrics and Rudolph with the SEC are available at our investor relations website at <https://investors.ontoinnovation.com>. These filings may also be obtained through the SEC’s website. Documents that are not available through the SEC’s website may also be obtained by submitting an online request to the SEC at <http://www.sec.gov>.

We also make available, free of charge, through our investor relations website, our corporate governance summary, Code of Business Conduct and Ethics, charters of the committees of our Board of Directors, and other information and materials, including information about how to contact our Board of Directors.

Investors and others should also note that we announce material financial information to our investors using our investor relations website, SEC filings, press releases, public conference calls and webcasts. We use these channels as well as social media to communicate with the public about the Company, our products and services and other matters. It is possible that the information we post on social media could be deemed to be material information. Therefore, we encourage investors, the media, and others interested in the Company to review the information we post on the social media channels listed on our investor relations website.

Item 1A. Risk Factors.

Risks Related to Our Business

Our operating results have varied and will likely continue to vary significantly from quarter to quarter in the future, causing volatility in our stock price.

Our quarterly operating results have varied in the past and will likely continue to vary significantly from quarter to quarter in the future, causing volatility in our stock price. Some of the factors that may influence our operating results and subject our stock to extreme price and volume fluctuations include:

- changes in customer demand for our systems, which is influenced by economic conditions in the semiconductor device industry, demand for products that use semiconductors, market acceptance of our systems and products of our customers and changes in our product offerings;
- seasonal variations in customer demand;
- the timing, cancellation or delay of customer orders, shipments and acceptance;
- the gain or loss of a key customer or significant changes in the financial condition of one or more key customers;
- product development costs, including increased research, development, engineering and marketing expenses associated with our introduction of new products and product enhancements; and
- the levels of our fixed expenses, including research and development costs associated with product development, relative to our revenue levels.

In light of these factors and the cyclical nature of the semiconductor industry, we expect to continue to experience significant fluctuations in quarterly and annual operating results. Moreover, many of our expenses are fixed in the short-term which, together with the need for continued investment in research and development, marketing and customer support, limits our ability to reduce expenses quickly. As a result, declines in net sales could harm our business and the price of our common stock could substantially decline.

Our largest customers account for a substantial portion of our revenue, and our revenue and cash flows could decline considerably if one or more of these customers were to purchase significantly fewer of our systems or delay or cancel a large order.

Sales to end user customers that individually represent at least five percent of our revenue typically account for, in the aggregate, a considerable amount of our revenue. We operate in the highly concentrated, capital-intensive semiconductor device manufacturing industry. Historically, a substantial portion of our revenue in each quarter and year has been derived from sales to relatively few customers, and this trend is expected to continue. If any of our key customers were to purchase significantly fewer of our systems in the future, or if they delay or cancel a large order, our revenue and cash flows could meaningfully decline. We expect that we will continue to depend on a small number of large customers for a sizable portion of our revenue. In addition, as large semiconductor device manufacturers seek to establish closer relationships with their suppliers, we expect that our customer base will become even more concentrated.

Our customers may be unable to pay us for our products and services.

Our customers include some companies that may, from time to time, encounter financial difficulties. If a customer's financial difficulties become severe, the customer may be unwilling or unable to pay our invoices in the ordinary course of business, which could adversely affect collections of both our accounts receivable balance and unbilled services. The bankruptcy of a customer with a substantial account balance owed to us could have a material adverse effect on our financial condition and results of operations. In addition, if a customer declares bankruptcy after paying us certain invoices, a court may determine that we are not properly entitled to that payment and may require repayment of some or all of the amount we received, which could adversely affect our financial condition and results of operations.

Variations in the amount of time it takes for us to sell our systems may cause fluctuations in our operating results, which could cause our stock price to decline.

Variations in the length of our sales cycles could cause our revenue and cash flows, and consequently, our business, financial condition, operating results and cash flows to fluctuate widely from period to period. This variation could cause our stock price to decline. Our customers generally take a long time to evaluate our inspection and/or film metrology systems and many people are involved in the evaluation process. We expend significant resources educating and providing information to

our prospective customers regarding the uses and benefits of our systems in the semiconductor fabrication process. The length of time it takes for us to make a sale depends upon many factors, including, but not limited to:

- the efforts of our sales force;
- the complexity of the customer's fabrication processes;
- the internal technical capabilities and sophistication of the customer;
- the customer's budgetary constraints; and
- the quality and sophistication of the customer's current metrology, inspection or lithography equipment.

Because of the number of factors influencing the sales process, the period between our initial contact with a customer and the time when we recognize revenue from that customer and receive payment, if ever, varies widely in length. Our sales cycles, including the time it takes for us to build a product to customer specifications after receiving an order to the time we recognize revenue, typically range from three to twenty-four months. Sometimes our sales cycles can be much longer, particularly with customers in Asia. During these cycles, we commit substantial resources to our sales efforts in advance of receiving any revenue, and we may never receive any revenue from a customer despite our sales efforts. If we do make a sale, our customers often purchase only one of our systems, the performance of which they then evaluate for a lengthy period before purchasing any more of our systems. The number of additional products a customer purchases, if any, depends on many factors, including the customer's capacity requirements. The period between a customer's initial purchase and any subsequent purchases can vary from three months to a year or longer, and variations in the length of this period could cause further fluctuations in our operating results and, possibly, in our stock price.

We are subject to order and shipment uncertainties. Our profitability will decline if we fail to accurately forecast customer demand when managing inventory.

We typically plan production and inventory levels based on internal forecasts of customer demand, which can be highly unpredictable and can fluctuate substantially, which could lead to excess inventory write-downs and resulting negative impacts on gross margin and net income. We have limited visibility into our customers' inventories, future customer demand and the product mix that our customers will require, which could adversely affect our production forecasts and operating margins. In addition, innovation in our industry could render significant portions of our inventory obsolete. If we overestimate our customers' requirements, we may have excess inventory, which could lead to obsolete inventory and unexpected costs. Conversely, if we underestimate our customers' requirements, we may have inadequate inventory, which could lead to foregone revenue opportunities, loss of potential market share and damage to customer relationships as product deliveries may not be made on a timely basis, disrupting our customers' production schedules. In response to anticipated long lead times to obtain inventory and materials from outside suppliers and foundries, we periodically order materials in advance of customer demand. This advance ordering has in the past and may in the future result in excess inventory levels or unanticipated inventory write-downs if expected orders fail to materialize, or other factors make our products less saleable. In addition, any significant future cancellation or deferral of product orders could adversely affect our revenue and margins, increase inventory write-downs due to obsolete inventory, and adversely affect our operating results and stock price.

Most of our revenue has been derived from customers outside of the United States, subjecting us to operational, financial and political risks, such as unexpected changes in regulatory requirements, tariffs, political and economic instability, outbreaks of hostilities, natural disasters, climate change and difficulties in managing foreign sales representatives and foreign branch operations, as well as risks associated with foreign currency fluctuations.

Due to the significant level of our international sales, we are subject to a number of material risks, including:

Compliance with foreign laws. Our business is subject to risks inherent in doing business internationally, including compliance with, inconsistencies among, and unexpected changes in, a wide variety of foreign laws and regulatory environments with which we are not familiar, including, among other issues, with respect to employees, protection of our intellectual property, and a wide variety of operational regulations and trade and export controls under domestic, foreign, and international law.

Unexpected changes in regulatory requirements including tariffs and other market barriers. The semiconductor device industry is a high-visibility industry in many of the European and Asian countries in which we sell our products. Because the governments of these countries have provided extensive financial support to our semiconductor device manufacturing customers in these countries, we believe that our customers could be disproportionately affected by any trade embargoes, excise taxes, tariffs or other restrictions imposed by their governments on trade with United States companies such as ourselves, particularly with respect to the ongoing trade negotiations between the United States and China. As of January 2020, trade

delegations from the United States and China reached partial agreement over tariffs on certain products, but if the United States and China do not continue negotiations and reach agreement on a trade policy, tariffs imposed by China may result in lower sales to customers in China as the costs of our products become more expensive to such customers. In addition, tariffs imposed by the United States will increase the cost of raw materials that we import from China. Any restrictions of these types could result in a reduction in our sales to customers in these countries. In addition, given the relatively fluid regulatory environment in China, there could be additional tax or other regulatory changes in the future. Such actions in the future, as well as other changes in Chinese laws and regulations, including actions in furtherance of China's stated policy of reducing its dependence on foreign semiconductor manufacturers, could increase the cost of doing business in China, foster the emergence of Chinese-based competitors, decrease the demand for our customers' products in China, or reduce the supply of critical materials for our customers' products, which could have a material adverse effect on our business and results of operations.

Political and economic instability. We are subject to various global risks related to political and economic instabilities in countries in which we derive sales. If terrorist activities, armed conflict, civil or military unrest or political instability occurs outside of the U.S., these events may result in reduced demand for our products. There is considerable political instability in Taiwan related to its disputes with China and in South Korea related to its disputes with North Korea. In addition, several Asian countries, particularly Japan, have experienced significant economic instability. An outbreak of hostilities or other political upheaval in China, Taiwan or South Korea, or an economic downturn in Japan or other countries, would likely harm the operations of our customers in these countries. The effect of these types of events on our revenue and cash flows could be material because we derive substantial revenue from sales to semiconductor device foundries in Taiwan such as Taiwan Semiconductor Manufacturing Company Ltd., from memory chip manufacturers in South Korea such as Samsung Electronics Co., Ltd., and from semiconductor device manufacturers in Japan such as Toshiba Corporation.

Natural disasters and climate change. Natural disasters, changes in climate and geo-political events could materially adversely affect our worldwide operations (or those of our business partners). The occurrence of one or more natural disasters such as hurricanes, tropical storms, fires, cyclones, earthquakes, tsunamis, flooding, typhoons, volcanic eruptions and weather conditions such as major or extended winter storms, droughts and tornadoes, whether as a result of climate change or otherwise, may disrupt manufacturing or other operations. For example, our Milpitas operations are located near major earthquake fault lines in California. There may also be conflict or uncertainty in the countries in which we operate, including public health issues (for example, an outbreak of a contagious disease such as 2019-Novel Coronavirus (2019-nCoV) as described below, avian influenza, measles or Ebola), safety issues, natural disasters, fire, disruptions of service from utilities, nuclear power plant accidents or general economic or political unrest, including war, civil unrest or terrorist attacks.

Our financial and operating performance may be adversely affected by epidemics. Our business and financial and operating performance could be materially and adversely affected by the outbreak of epidemics including but not limited to 2019-Novel Coronavirus (2019-nCoV). As a result of the ongoing Novel Coronavirus, the operations of our customers in China and Taiwan are expected to experience a slowdown or temporary suspension in production. Our business could be materially and adversely affected in the event that the slowdown or suspension continues for a long period of time. During such epidemic outbreak, China and Taiwan may adopt certain hygiene measures, including quarantining visitors from places where any of the contagious diseases were rampant. Those restrictive measures may adversely affect and slow down economic development during that period. Any prolonged restrictive measures in order to control the contagious disease or other adverse public health developments in China and Taiwan may have a material adverse effect on our business, financial condition and results of operations.

Difficulties in staffing and managing foreign branch operations. During periods of tension between the governments of the United States and certain other countries, it is often difficult for United States companies such as us to staff and manage operations in such countries. Language and other cultural differences may also inhibit our sales and marketing efforts and create internal communication problems among our U.S. and foreign research and development teams, increasing the difficulty of managing multiple remote locations performing various development, quality assurance, and yield ramp analysis projects.

Currency fluctuations as compared to the U.S. Dollar. A substantial portion of our international sales are denominated in U.S. dollars. As a result, if the dollar rises in value in relation to foreign currencies, our systems will become more expensive to customers outside the United States and less competitive with systems produced by competitors outside the United States. These conditions could negatively impact our international sales. Foreign sales also expose us to collection risk in the event it becomes more expensive for our foreign customers to convert their local currencies into U.S. dollars. Additionally, in the event a larger portion of our revenue becomes denominated in foreign currencies, we would be subject to a potentially significant exchange rate risk.

FCPA and Other Anti-Corruption Laws. We are subject to the Foreign Corrupt Practices Act of 1977 ("FCPA"), and other laws that prohibit improper payments or offers of payments to foreign governments and their officials and political parties by U.S. persons and issuers as defined by the statute, for the purpose of obtaining or retaining business. Also, similar worldwide

anti-bribery laws, such as the U.K. Bribery Act and Chinese anti-corruption laws, generally prohibit companies and their intermediaries from making improper payments to non-U.S. officials for the purpose of obtaining or retaining business. Some of our distribution partners are located in parts of the world that have experienced governmental corruption to some degree and, in certain circumstances, strict compliance with anti-bribery laws may conflict with local customs and practices. The policies and procedures we have implemented to discourage these practices by our employees, our existing safeguards and any future improvements may prove to be less than effective, and our employees, consultants, sales agents or distributors may engage in conduct for which we might be held responsible. Violations of the FCPA or international anti-corruption laws may result in severe criminal or civil sanctions, and we may be subject to other liabilities, which could negatively affect our business, operating results and financial condition. In addition, the U.S. government may seek to hold us liable for successor liability FCPA violations committed by companies in which we invest or that we acquire. We cannot assure you that our internal control policies and procedures will protect us from reckless or negligent acts committed by our employees, distributors, partners, consultants or agents.

If we deliver systems with defects, our credibility will be harmed and the sales and market acceptance of our systems will decrease.

Our systems are complex and have occasionally contained errors, defects and bugs when introduced. Defects may be created during probing, bumping, dicing or general handling, and can have a major impact on device and process quality. When this occurs, our credibility and the market acceptance and sales of our systems could be harmed. Further, if our systems contain errors, defects or bugs, computer viruses or malicious code as a result of cyber-attacks to our computer networks, we may be required to expend significant capital and resources to alleviate these problems. Defects could also lead to product liability as a result of product liability lawsuits against us or against our customers. We have agreed to indemnify our customers under certain circumstances against liability arising from defects in our systems. Our product liability insurance policy currently provides \$2.0 million of aggregate coverage, with an overall umbrella limit of \$14.0 million. In the event of a successful product liability claim, we could be obligated to pay damages significantly in excess of our product liability insurance limits.

If we are not successful in developing new and enhanced products for the semiconductor device manufacturing industry, we will lose sales and market share to our competitors.

We operate in an industry that is highly competitive and subject to evolving industry standards, rapid technological changes, rapid changes in consumer demands and the rapid introduction of new, higher performance systems with shorter product life cycles. To be competitive in our demanding market, we must continually design, develop and introduce in a timely manner new lithography, inspection and metrology process control systems that meet the performance and price demands of semiconductor device manufacturers. We must also continue to refine our current systems so that they remain competitive. We expect to continue to make significant investments in our research and development activities. We may experience difficulties or delays in our development efforts with respect to new systems, and we may not ultimately be successful in our product enhancement efforts to improve and advance products or in responding effectively to technological change, as not all research and development activities result in viable commercial products. In addition, we cannot provide assurance that we will be able to develop new products for the most opportunistic new markets and applications. Any significant delay in releasing new systems could cause our products to become obsolete, adversely affect our reputation, give a competitor a first-to-market advantage or cause a competitor to achieve greater market share.

Some of our competitors have greater financial, engineering, manufacturing, research and development, marketing and customer support resources than we do. As a result, our competitors may be able to respond more quickly to new or emerging technologies or market developments by devoting greater resources to the development, promotion and sale of products, which could impair sales of our products. Moreover, there has been merger and acquisition activity among our competitors and potential competitors. These transactions by our competitors and potential competitors may provide them with a competitive advantage over us by enabling them to rapidly expand their product offerings and service capabilities to meet a broader range of customer needs. Many of our customers and potential customers in the semiconductor industry are large companies that require global support and service for their metrology systems. Some of our larger or more geographically diverse competitors might be better equipped to provide this global support and service.

In addition, our competitors may provide innovative technology that may have performance advantages over systems we currently offer or may offer in the future. They may be able to develop products comparable or superior to those that we offer or may adapt more quickly to new technologies or evolving customer requirements. In particular, while we currently are developing additional product enhancements that we believe will address future customer requirements, we may fail in a timely manner to complete the development or introduction of these additional product enhancements successfully, or these product enhancements may not achieve market acceptance or be competitive.

Further, customers that may otherwise desire to purchase our products from us and purchase other products from our competitors may nevertheless purchase competing products from our competitors rather than purchase our products due to a variety of reasons, including to gain favor or volume pricing from our competitors.

If new products developed by us do not gain general market acceptance, we will be unable to generate revenue and recover our research and development costs.

Inspection, lithography and metrology product development is inherently risky because it is difficult to foresee developments in semiconductor device manufacturing technology, coordinate technical personnel, and identify and eliminate system design flaws. Further, our products are complex and often the applications to our customers' businesses are unique. Any new systems we introduce may not achieve or sustain a significant degree of market acceptance and sales.

We expect to spend a significant amount of time and resources developing new systems and refining our existing systems. In light of the long product development cycles inherent in our industry, these expenditures will be made well in advance of the prospect of deriving revenue from the sale of those systems. Our ability to commercially introduce and successfully market new systems are subject to a wide variety of challenges during the development cycle, including start-up bugs, design defects, and other matters that could delay introduction of these systems. In addition, since our customers are not obligated by long-term contracts to purchase our systems, our anticipated product orders may not materialize, or orders that are placed may be canceled. As a result, if we do not achieve market acceptance of new products, we may be unable to generate sufficient revenue and cash flow to recover our research and development costs and our market share, revenue, operating results or stock price would be negatively impacted.

Even if we are able to develop new products that gain market acceptance, sales of these new products could impair our ability to sell existing products.

Competition from our new systems could have a negative effect on sales of our existing systems and the prices that we could charge for these systems. We may also divert sales and marketing resources from our current systems in order to successfully launch and promote our new or next generation systems. This diversion of resources could have a further negative effect on sales of our current systems and the value of inventory.

Our integrated metrology systems are integrated with systems sold independently by Wafer Fabrication Equipment Suppliers, and a decrease in sales by these suppliers, or the development of competing systems by these suppliers, could harm our business.

We believe that sales of integrated metrology systems will continue to be an important source of our net revenues. Sales of our integrated metrology systems depend upon the ability of a small number of Wafer Fabrication Equipment Suppliers to sell semiconductor manufacturing equipment products that are compatible with our metrology systems as components. If these suppliers, such as Applied Materials, Inc., Ebara Corporation, Lam Research Corporation and Tokyo Electron, are unable to sell such products, if they choose to focus their attention on products that do not integrate our systems, or if they choose to develop competing systems, our business could suffer.

If our relationships with our large customers deteriorate, our product development activities could be adversely affected.

The success of our product development efforts depends on our ability to anticipate market trends and the price, performance and functionality requirements of semiconductor device manufacturers. In order to anticipate these trends and ensure that critical development projects proceed in a coordinated manner, we must continue to collaborate closely with our largest customers. Our relationships with these and other customers provide us with access to valuable information regarding trends in the semiconductor device industry, which enables us to better plan our product development activities. If our current relationships with our large customers are impaired, or if we are unable to develop similar collaborative relationships with important customers in the future, our product development activities could be adversely affected.

We may fail to adequately protect our intellectual property and, therefore, lose our competitive advantage.

Our future success and competitive position depend in part upon our ability to obtain and maintain proprietary technology for our principal product families, and we rely, in part, on patent and trade secret law and confidentiality agreements to protect that technology. If we fail to adequately protect our intellectual property, it will give our competitors a significant advantage. We own or have licensed a number of patents relating to our transparent and opaque thin film metrology, lithography and

macro-defect inspection systems, and have filed applications for additional patents. Any of our pending patent applications may be rejected, and we may be unable to develop additional proprietary technology that is patentable in the future.

In addition, the patents that we do own or that have been issued or licensed to us may not provide us with competitive advantages and may be challenged by third parties. Further, third parties may also design around these patents. In addition to patent protection, we rely upon trade secret protection for our confidential and proprietary information and technology. We routinely enter into confidentiality agreements with our employees and other third parties. Even though these agreements are in place, there can be no assurances that trade secrets and proprietary information will not be disclosed, that others will not independently develop substantially equivalent proprietary information and techniques or otherwise gain access to our trade secrets, or that we can fully protect our trade secrets and proprietary information. Violations by others of our confidentiality agreements and the loss of employees who have specialized knowledge and expertise could harm our competitive position and cause our sales and operating results to decline as a result of increased competition. Costly and time-consuming litigation might be necessary to enforce and determine the scope of our proprietary rights, and failure to obtain or maintain trade secret protection might adversely affect our ability to continue our research or bring products to market.

Protection of our intellectual property rights, or the efforts of third parties to enforce their own intellectual property rights against us, may result in costly and time-consuming litigation, substantial damages, lost product sales and/or the loss of important intellectual property rights.

We may be required to initiate litigation in order to enforce any patents issued to or licensed by us or to determine the scope or validity of a third party's patent or other proprietary rights. Any litigation, regardless of outcome, could be expensive and time consuming and could subject us to significant liabilities or require us to re-engineer our products or obtain expensive licenses from third parties. There can be no assurance that any patents issued to or licensed by us will not be challenged, invalidated or circumvented, or that the rights granted thereunder will provide us with a competitive advantage.

In addition, our commercial success depends in part on our ability to avoid infringing or misappropriating patents or other proprietary rights owned by third parties. From time to time, we receive communications from third parties asserting that our products or systems infringe, or may infringe, on the proprietary rights of these third parties. These claims of infringement may lead to protracted and costly litigation, which could require us to pay substantial damages or have the sale of our products or systems stopped by an injunction. Infringement claims could also cause product or system delays or require us to redesign our products or systems, and these delays could result in the loss of substantial revenue. We may also be required to obtain a license from the third party or cease activities utilizing the third party's proprietary rights. We may not be able to enter into such a license or such a license may not be available on commercially reasonable terms. Accordingly, the loss of important intellectual property rights could hinder our ability to sell our systems or to make the sale of these systems more expensive.

Our efforts to protect our intellectual property may be less effective in certain foreign countries where intellectual property rights are not as well protected as in the United States.

The laws of some foreign countries, including China, Japan, South Korea and Taiwan, where we do business, do not protect our proprietary rights to as great an extent as do the laws of the United States, and many U.S. companies have encountered substantial problems in protecting their proprietary rights against infringement abroad. For example, Taiwan is not a signatory of the Patent Cooperation Treaty, which is designed to specify rules and methods for defending intellectual property internationally. The publication of a patent in Taiwan prior to the filing of a patent in Taiwan would invalidate the ability of a company to obtain a patent in Taiwan. Similarly, in contrast to the United States where the contents of patents remain confidential during the patent application process, in Taiwan, the contents of a patent are published upon filing, which provides competitors an advance view of the contents of a patent application prior to the establishment of patent rights. Similarly, China's protection of intellectual property rights historically has been less stringent and robust compared to other countries such as the United States, and consequently intellectual property rights and confidentiality protections in China may not be as effective as in the United States or other countries. Monitoring and preventing unauthorized use are also difficult and the measures we take to protect our intellectual property rights may not be adequate. Accordingly, infringement of our intellectual property rights poses a serious risk of doing business in China. Consequently, there is a risk that we may be unable to adequately protect our proprietary rights in certain foreign countries. If this occurs, it would be easier for our competitors to develop and sell competing products in these countries.

Some of our current and potential competitors have significantly greater resources than we do, and increased competition could impair sales of our products or cause us to reduce our prices.

The market for semiconductor capital equipment is highly competitive. We face substantial competition from established companies in each of the markets we serve. We principally compete with KLA Corporation, Nova Measuring Instruments, Camtek and Veeco Instruments. We compete to a lesser extent with Nikon. Each of our products also competes with products that use different metrology, inspection or lithography techniques. Some of our competitors have greater financial, engineering, manufacturing and marketing resources, broader product offerings and service capabilities and larger installed customer bases than we do. As a result, these competitors may be able to respond more quickly to new or emerging technologies or market developments by devoting greater resources to the development, promotion and sale of products, which, in turn, could impair sales of our products. Further, there may be significant merger and acquisition activity among our competitors and potential competitors, which, in turn, may provide them with a competitive advantage over us by enabling them to rapidly expand their product offerings and service capabilities to meet a broader range of customer needs.

Many of our customers and potential customers in the semiconductor device manufacturing industry are large companies that require global support and service for their semiconductor capital equipment. We believe that our global support and service infrastructure is sufficient to meet the needs of our customers and potential customers. However, some of our competitors have more extensive infrastructures than we do, which could place us at a disadvantage when competing for the business of global semiconductor device manufacturers. Many of our competitors are investing heavily in the development of new systems that will compete directly with our systems. We have, from time to time, selectively reduced prices on our systems in order to protect our market share, and competitive pressures may necessitate further price reductions. We expect our competitors in each product area to continue to improve the design and performance of their products and to introduce new products with competitive prices and performance characteristics. These product introductions would likely require us to decrease the prices of our systems and increase the level of discounts that we grant our customers. Price reductions or lost sales as a result of these competitive pressures would reduce our total revenue and could adversely impact our financial results.

Because of the high cost of switching equipment vendors in our markets, it is sometimes difficult for us to win new customers from our competitors even if our systems are superior to theirs.

We believe that once a semiconductor device manufacturer has selected one vendor's capital equipment for a production-line application, the manufacturer generally relies upon that capital equipment and, to the extent possible, subsequent generations of the same vendor's equipment for the life of the application. Once a vendor's equipment has been installed in a production line application, a semiconductor device manufacturer must often make substantial technical modifications and may experience production-line downtime in order to switch to another vendor's equipment. Accordingly, unless our systems offer performance or cost advantages that outweigh a customer's expense of switching to our systems, it will be difficult for us to achieve significant sales to that manufacturer once it has selected another vendor's capital equipment for an application.

We must attract and retain experienced senior executives and other key personnel with knowledge of semiconductor device manufacturing and inspection, metrology or lithography equipment and related software to help support our future growth, and competition for such personnel in our industry is high.

Our success depends, to a significant degree, upon the continued contributions of our key executive management, engineering, sales and marketing, customer support, finance and manufacturing personnel. The loss of any of these key personnel through resignations, retirement or other circumstances, each of whom would be extremely difficult to replace, could harm our business and operating results. Although we have employment and noncompetition agreements with key members of our senior management team, these individuals or other key employees may still leave us, which could have a material adverse effect on our business. We do not have key person life insurance on any of our executives. In addition, to support our future growth, we will need to attract and retain additional qualified employees. Competition for such personnel in our industry is intense, and we may not be successful in attracting and retaining qualified employees.

In order to attract and retain executives and other key employees, the Company must provide a competitive compensation package, including cash and stock-based compensation. If the anticipated value of the Company's stock-based incentive awards does not materialize so that they cease to be viewed as valuable, if the Company's profits decrease, or if the Company's total compensation package is not viewed as competitive, the Company's ability to attract, retain and motivate executives and key employees could be weakened.

We obtain some of the components and subassemblies included in our systems from a limited group of suppliers, and the partial or complete loss of one of these suppliers could cause production delays and a substantial loss of revenue.

We obtain some of the components and subassemblies included in our systems from a limited group of suppliers and do not have long-term contracts with many of our suppliers. Our dependence on limited source suppliers of components and our lack of long-term contracts with many of our suppliers expose us to several risks, including a potential inability to obtain an adequate supply of components, price increases, late deliveries and poor component quality. Disruption or termination of the supply of these components could delay shipments of our systems, damage our customer relationships and reduce our sales. From time to time in the past, we have experienced temporary difficulties in receiving shipments from our suppliers. The lead-time required for shipments of some of our components can be as long as six months. In addition, the lead time required to qualify new suppliers for lasers and certain optics could be as long as a year, and the lead time required to qualify new suppliers of other components could be as long as nine months. If we are unable to accurately predict our component needs, or if our component supply is disrupted, we may miss market opportunities by not being able to meet the demand for our systems. Further, a significant increase in the price of one or more of these components or subassemblies could seriously harm our results of operations and cash flows.

Any prolonged disruption in the operations of our manufacturing facilities could have a material adverse effect on our revenue.

We produce the majority of our systems in our manufacturing facilities located in Milpitas, California and Bloomington, Minnesota. We use contract manufacturers in China, Israel, Japan and the United States. Our manufacturing processes are highly complex and require sophisticated and costly equipment and a specially designed facility. As a result, any prolonged disruption in the operations of our manufacturing facilities, such as those resulting from acts of war, terrorism, political instability, health epidemics, fire, earthquake, flooding or other natural disaster could seriously harm our ability to satisfy our customer order deadlines. If we cannot timely deliver our systems, our results from operations and cash flows could be materially and adversely affected.

We may outsource select manufacturing activities to third-party service providers, which decreases our control over the performance of these functions and may result in lower quality and functionality of our products.

We may outsource product manufacturing to third-party service providers. Outsourcing reduces our control over the performance of the outsourced functions. Dependence on outsourcing may also adversely affect our ability to bring new products to market. If we do not effectively manage our outsourcing strategy or if third party service providers do not perform as anticipated, we may experience operational difficulties, increased costs, manufacturing interruptions or inefficiencies in the operation of our supply chain, any or all of which could delay our delivery of products to our customers, and materially and adversely affect our business, financial condition, and results of operations.

If our network security measures are breached and unauthorized access is obtained to a customer's data, to our data, or to our information technology systems, we may incur significant legal and financial exposure and liabilities.

As part of our business, we store our data and certain data about our customers, vendors and employees in our information technology system. While we have security measures in place that are designed to protect this information and prevent data loss and other security breaches, if these measures are breached as a result of third-party action, employee error, malfeasance, break-ins or otherwise, and someone obtains unauthorized access to our customers', vendors' or employees' data, we could face loss of business, regulatory investigations or court orders, our reputation could be severely damaged, we could be required to expend significant capital and other resources to alleviate the problem, as well as incur significant costs and liabilities, including due to litigation, indemnity obligations, damages for contract breach, penalties for violation of applicable laws or regulations, and costs for remediation and other incentives offered to customers.

Cyber-attacks and other malicious internet-based activities continue to increase. Because the techniques used to obtain unauthorized access or sabotage systems change frequently and generally are not identified until they are launched against a target, we may be unable to anticipate these techniques or to implement adequate preventative measures. In addition, third parties may attempt to fraudulently induce employees or users to disclose information to gain access to our data or our customers' data. If any of these events occur, our or our customers' and vendors' information could be accessed or disclosed improperly. Any or all of these issues could negatively affect our ability to attract new customers, cause existing customers to choose to purchase from our competitors, result in reputational damage or subject us to third-party lawsuits, regulatory fines or other action or liability, which could adversely affect our operating results.

The General Data Protection Regulation (GDPR) is a regulation in European Union (EU) law on data protection and privacy for all individuals within the EU and the European Economic Area (EEA). It also addresses the export of personal data outside the EU and EEA areas. We need to put in appropriate technical and organizational measures to implement these data protection principles. The GDPR requirements have been reviewed and are in the process of being implemented. We may also be subject to other data privacy laws in the United States and the other countries in which we operate.

Failure to adjust our orders for parts and subcomponents in an accurate and timely manner in response to changing market conditions or customer acceptance of our products could adversely affect our financial position and results of operations.

Our earnings could be negatively affected and our inventory levels could materially increase if we are unable to predict our inventory needs in an accurate and timely manner and adjust our orders for parts and subcomponents in the event that our needs increase or decrease materially due to unexpected increases or decreases in demand for our products. Any material increase in our inventories could result in an adverse effect on our financial position, while any material decrease in our ability to procure needed inventories could result in an inability to supply customer demand for our products, thus adversely affecting our revenue.

Our ability to fulfill our backlog may have an effect on our long-term ability to procure contracts and fulfill current contracts.

Our ability to fulfill our backlog may be limited by our ability to devote sufficient financial and human capital resources and may be limited by available material supplies. If we do not fulfill our backlog in a timely manner, we may experience delays in product delivery, which would postpone receipt of revenue from those delayed deliveries. Additionally, if we are consistently unable to fulfill our backlog, this may be a disincentive to customers to award large contracts to us in the future until they are comfortable that we can effectively manage our backlog.

If we do not manage our supply chain effectively, our operating results may be adversely affected.

We need to continually evaluate our global supply chains and assess opportunities to reduce costs. We must also enhance quality, speed and flexibility to meet changing demand for our products and product mix and uncertain market conditions. Our success also depends in part on refining our cost structure and supply chains so that we have flexibility and can maintain and improve profitability. Although the current tariff environment has not had a material adverse effect on our costs to date, further deterioration in the tariff environment, or changes in suppliers, may cause our costs to increase, which if we are not able to offset by charging higher sales prices, will cause a decline in our margins. To improve our margins on a product, we will need to establish high volume supply agreements with our vendors. We cannot be certain that we will be able to timely negotiate vendor supply agreements on improved terms and conditions, or at all. Failure to achieve the desired level of cost reductions could adversely affect our financial results. Despite our efforts to control costs and increase efficiency in our facilities, changes in demand could still cause us to realize lower operating margins and profitability.

We may choose to acquire new and complementary businesses, products or technologies instead of developing them ourselves, and we may be unable to complete these acquisitions or may not be able to successfully integrate an acquired business in a cost-effective and non-disruptive manner.

Our success depends on our ability to continually enhance and broaden our product offerings in response to changing technologies, customer demands and competitive pressures. To this end, we have, from time to time, engaged in the process of identifying, analyzing and negotiating possible acquisition transactions, and, from time to time, acquiring one or more businesses, and we expect to continue to do so in the future. We may choose to acquire new and complementary businesses, products, technologies and/or services instead of developing them ourselves. We may, however, face competition for acquisition targets from larger and more established companies with greater financial resources, making it more difficult for us to complete acquisitions. We cannot provide any assurance that we will be successful in consummating future acquisitions on favorable terms or that we will realize the benefits that we anticipate from one or more acquisitions that we consummate. Integrating any business, product, technology or service into our current operations could be expensive and time-consuming and/or disrupt our ongoing business. Further, there are numerous risks associated with acquisitions and potential acquisitions, including, but not limited to:

- diversion of management's attention from day-to-day operational matters and current products and customers;
- lack of synergy or the inability to successfully integrate the new business or to realize expected synergies;
- failure to commercialize the new technology or business;

- failure to meet the expected performance of the new technology or business;
- failure to retain key employees and customer or supplier relationships;
- lower-than-expected market opportunities or market acceptance of any new products; and
- unexpected reduction of sales of existing products as a result of the introduction of new products.

Our inability to consummate one or more acquisitions on favorable terms, or our failure to realize the intended benefits from one or more acquisitions, could have a material adverse effect on our business, liquidity, financial position and/or results of operations, including as a result of our incurrence of indebtedness and related interest expense and our assumption of unforeseen contingent liabilities. We might need to raise additional funds through public or private equity or debt financings to finance any acquisition. In that event, we could be forced to obtain financing on terms that are not favorable to us and, in the case of equity financing, that result in dilution to our stockholders. In addition, any impairment of goodwill or other intangible assets, amortization of intangible assets, write-down of other assets or charges resulting from the costs of acquisitions and purchase accounting could harm our business and operating results.

If we cannot effectively manage growth, our business may suffer.

Over the long-term, we intend to grow our business by increasing our sales efforts and completing strategic acquisitions. To effectively manage growth, we must, among other things:

- engage, train and manage a larger sales force and additional service personnel;
- expand the geographic coverage of our sales force;
- expand our information systems;
- identify and successfully integrate acquired businesses into our operations; and
- administer appropriate financial and administrative control procedures.

Growth of our business will likely place a significant strain on our management, financial, operational, technical, sales and administrative resources. Any failure to effectively manage our growth may cause our business to suffer and our stock price to decline.

Risks Related to Tax Laws, Financial Markets and the Environment

Changes in tax rates or tax liabilities could affect results.

As a global company, we are subject to taxation in the United States and various other countries. Significant judgment is required to determine and estimate worldwide tax liabilities. Our future annual and quarterly tax rates could be affected by numerous factors, including changes in the (1) applicable tax laws; (2) composition of earnings in countries with differing tax rates; or (3) recoverability of our deferred tax assets and liabilities. In addition, we are subject to regular examination of our income tax returns by the Internal Revenue Service and other tax authorities. We regularly assess the likelihood of favorable or unfavorable outcomes resulting from these examinations to determine the adequacy of our provision for income taxes. Although we believe our tax estimates are reasonable, there can be no assurance that any final determination will not be materially different from the treatment reflected in our historical income tax provisions and accruals, which could materially and adversely affect our results of operations.

The Organization for Economic Co-operation and Development (“OECD”), released guidance covering various topics, including country-by-country reporting, definitional changes to permanent establishment and Base Erosion and Profit Shifting (“BEPS”), an initiative that aims to standardize and modernize global tax policy. Depending on the final form of guidance adopted by OECD members and legislation ultimately enacted, if any, there may be significant consequences for us due to our international business activities, including, but not limited to, an increase in our tax uncertainty and adverse effects on our provision for income taxes.

Turmoil or fluctuations in the credit markets and the financial services industry may negatively impact our business, results of operations, financial condition or liquidity, and our factoring arrangements may expose us to additional risks.

In the past, global credit markets and the financial services industry have experienced a period of unprecedented turmoil and upheaval characterized by the tightening of the credit markets, the weakening of the global economy and an unprecedented

level of intervention from the United States and other governments. Adverse economic conditions, such as sustained periods of economic uncertainty or a crisis in the financial markets may have a material adverse effect on our liquidity and financial condition if our ability to obtain credit from the capital financial markets, or from trade creditors was impaired. In addition, a worsening economy or an economic crisis could also adversely impact our customers' ability to finance the purchase of systems from us or our suppliers' ability to provide us with product, either of which may negatively impact our business and results of operations. In addition, we enter into factoring arrangements with certain financial institutions to sell a certain portion of our trade receivables. If we were to stop entering into these factoring arrangements, our operating results, financial condition and cash flows could be adversely impacted by delays or failure to collect the trade receivables. However, by entering into these arrangements, we are exposed to additional risks. If any of these financial institutions experiences financial difficulties or is otherwise unable to honor the terms of our factoring arrangements, we may experience material financial losses due to the failure of such arrangements, which could have an adverse impact upon our operating results, financial condition and cash flows.

We are subject to various environmental laws and regulations that could impose substantial costs upon us and may harm our business, operating results and financial condition.

Some of our operations use substances regulated under various federal, state, local, and international laws governing the environment, including those relating to the storage, use, discharge, disposal, labeling, and human exposure to hazardous and toxic materials. We could incur costs, fines and civil or criminal sanctions, third-party property damage or personal injury claims, or could be required to incur substantial investigation or remediation costs, if we were to violate or become liable under environmental laws. Liability under environmental laws can be joint and several and without regard to comparative fault. Compliance with current or future environmental laws and regulations could restrict our ability to expand our facilities or require us to acquire additional expensive equipment, modify our manufacturing processes, or incur other significant expenses. We may unintentionally violate environmental laws or regulations in the future as a result of human error, equipment failure or other causes.

Risks Related to Our Recently Completed Merger

Combining the businesses of Rudolph and Nanometrics may be more difficult, costly or time-consuming than expected and we may fail to realize the anticipated benefits of the Merger, which may adversely affect our business results and negatively affect the value of our common stock.

The success of the Merger depends on, among other things, our ability to combine the businesses of Rudolph and Nanometrics in a manner that realizes cost savings and facilitates growth opportunities.

In addition, we must achieve the anticipated growth and cost savings without adversely affecting current revenues and investments in future growth. If we are not able to successfully achieve these objectives, the anticipated benefits of the Merger may not be realized fully, or at all, or may take longer to realize than expected.

An inability to realize the full extent of the anticipated benefits of the Merger, as well as any delays encountered in the integration process, could have an adverse effect upon our revenues, level of expenses and operating results, which may adversely affect the value of our common stock.

In addition, the integration may result in additional and unforeseen expenses, and the anticipated benefits of the integration plan may not be realized. Actual growth and cost savings, if achieved, may be lower than what we expect and may take longer to achieve than anticipated. If we are not able to adequately address integration challenges, we may be unable to realize the anticipated benefits of the integration of Rudolph and Nanometrics.

The failure to successfully integrate the businesses and operations of Rudolph and Nanometrics in the expected time frame may adversely affect our future results.

Prior to completion of the Merger, Rudolph and Nanometrics operated independently. There can be no assurances that their businesses can be integrated successfully. It is possible that the integration process could result in the loss of key Rudolph employees or key Nanometrics employees, the loss of customers, the disruption of our ongoing businesses, inconsistencies in standards, controls, procedures and policies, unexpected integration issues, higher than expected integration costs or an overall post-completion integration process that takes longer than originally anticipated. Specifically, the following issues, among others, must be addressed in integrating the operations of Rudolph and Nanometrics in order to realize the anticipated benefits of the Merger so we perform as expected:

- combining the companies' operations and corporate functions;
- combining the businesses of Rudolph and Nanometrics and meeting our capital requirements, in a manner that permits us to achieve any cost savings or revenue synergies anticipated to result from the Merger, the failure of which would result in the anticipated benefits of the Merger not being realized in the time frame currently anticipated or at all;
- integrating personnel from the two companies;
- integrating and unifying the offerings and services available to customers;
- harmonizing the companies' operating practices, employee development and compensation programs, internal controls and other policies, procedures and processes;
- maintaining existing agreements with customers, distributors, providers and vendors and avoiding delays in entering into new agreements with prospective customers, distributors, providers and vendors;
- addressing possible differences in business backgrounds, corporate cultures and management philosophies;
- consolidating the companies' administrative and information technology infrastructure;
- coordinating distribution and marketing efforts; and
- coordinating geographically dispersed organizations.

In addition, at times the attention of certain members of management and resources may be focused on the integration of the businesses of the two companies and diverted from day-to-day business operations or other opportunities that may have been beneficial, which may disrupt our business.

We may not be able to retain customers or suppliers, or customers or suppliers may seek to modify contractual obligations with us, which could have an adverse effect on our business and operations. Third parties may terminate or alter existing contracts or relationships with Rudolph or Nanometrics.

As a result of the Merger, we may experience impacts on relationships with customers and suppliers that may harm our business and results of operations. Certain customers, licensors, business partners or suppliers may seek to terminate or modify contractual obligations whether or not contractual rights were triggered as a result of the Merger. There can be no guarantee that customers and suppliers of Rudolph or Nanometrics will remain with or continue to have a relationship with us or do so on the same or similar contractual terms to those they had with Rudolph or Nanometrics prior to the Merger. If any customers or suppliers seek to terminate or modify contractual obligations or discontinue the relationship with us, then our business and results of operations may be harmed. Furthermore, we do not have long-term arrangements with many of our significant suppliers. If our suppliers were to seek to terminate or modify an arrangement with us, then we may be unable to procure necessary supplies from other suppliers in a timely and efficient manner and on acceptable terms, or at all. Any of the aforementioned disruptions could limit our ability to achieve the anticipated benefits of the Merger.

We may be exposed to increased litigation due to the Merger, which could have an adverse effect on our business and operations.

We may be exposed to increased litigation from stockholders, customers, suppliers, consumers and other third parties due to the combination of Rudolph's business and Nanometrics' business. Such litigation may have an adverse impact on our business and results of operations or may cause disruptions to our operations.

We may be unable to retain former Rudolph and Nanometrics personnel successfully.

The success of the Merger will depend in part on our ability to retain the talents and dedication of the professionals previously separately employed by Rudolph and Nanometrics. It is possible that these employees may decide not to remain with us. If key employees terminate their employment, or if an insufficient number of employees are retained to maintain effective operations, our business activities may be adversely affected and management's attention may be diverted from successfully integrating Rudolph and Nanometrics to hiring suitable replacements, all of which may cause our business to suffer. In addition, we may not be able to locate suitable replacements for any key employees that leave the Company or offer employment to potential replacements on reasonable terms.

Risks Related to the Global Economy and Semiconductor Industry

Cyclicality in the semiconductor device industry has led to substantial decreases in demand for our systems and may, from time to time, continue to do so.

Our operating results are subject to significant variation due to global economic conditions and the cyclical nature of the semiconductor device industry. Our business depends upon the capital expenditures of semiconductor device manufacturers, which, in turn, depend upon the current and anticipated market demand for semiconductors and products using semiconductors. The timing, length and severity of the up-and-down cycles in the semiconductor equipment industry are difficult to predict. In recent years, the industry has experienced significant downturns, generally in connection with declines in economic conditions. This cyclical nature of the industry in which we operate affects our ability to accurately predict future revenue and, thus, future expense levels. When cyclical fluctuations result in lower than expected revenue levels, operating results may be adversely affected, and cost reduction measures may be necessary in order for us to remain competitive and financially sound. During a down cycle, we must be in a position to adjust our cost and expense structure to prevailing market conditions and to continue to motivate and retain our key employees. In addition, during periods of rapid growth, we must be able to increase manufacturing capacity and personnel to meet customer demand. We can provide no assurance that these objectives can be met in a timely manner in response to industry cycles. If we fail to respond to industry cycles, our business could be seriously harmed.

In addition, demand for our products is highly inelastic which means we have little ability to control product revenues created by customer demand for more capacity. The market for our products is characterized by constant and rapid technological change, price erosion, product obsolescence, evolving standards, short product life cycles and significant volatility in supply and demand. Due to the inelastic nature of demand in the semiconductor industry, we may need to take actions to reduce costs in the future, which could reduce our ability to significantly invest in research and development at levels we believe are necessary. If we are unable to effectively align our cost structure with prevailing market conditions, our business, financial condition and results of operations may be materially and adversely affected.

We may also experience supplier or customer issues as a result of adverse macroeconomic conditions. If our customers have difficulties in obtaining capital or financing, this could result in lower sales. Customers with liquidity issues could also result in an increase in bad debt expense. These conditions could also affect our key suppliers, which could affect their ability to supply parts and result in delays of our customer shipments.

Our future rate of growth is highly dependent on the development and growth of the market for microelectronic device inspection, lithography and metrology equipment.

We target our products to address the needs of microelectronic device manufacturers for defect inspection, metrology and lithography. If for any reason the market for microelectronic device inspection, lithography or metrology equipment fails to grow in the long term, we may be unable to maintain current revenue levels in the short term and maintain our historical growth in the long term. Growth in the inspection market is dependent to a large extent upon microelectronic manufacturers replacing manual inspection with automated inspection technology. Growth in the metrology market is dependent to a large extent upon new chip designs and capacity expansion of microelectronic manufacturers. Growth in the lithography market is dependent on the development of cost-effective packaging with high fine pitch RDLs, ultimately migrating to multi-die, large, form-factor packages. There can be no assurance that manufacturers will undertake these actions at the rate we expect.

Risks Related to our Stock

Provisions of our charter documents and of Delaware law could discourage potential acquisition proposals and/or delay, deter or prevent a change in control of our company.

Provisions of our certificate of incorporation and by-laws may inhibit changes in control of our company not approved by our Board of Directors. These provisions also limit the circumstances in which a premium can be paid for our common stock and in which a proxy contest for control of our board may be initiated. These provisions provide for:

- a prohibition on stockholder actions through written consent;
- a requirement that special meetings of stockholders be called only by our chief executive officer or Board of Directors;
- advance notice requirements for stockholder proposals and director nominations by stockholders;
- limitations on the ability of stockholders to amend, alter or repeal our by-laws; and

- the authority of our board to issue, without stockholder approval, preferred stock with such terms as the board may determine; and
- The authority of our board, without stockholder approval, to adopt a stockholder rights plan.

We are also entitled to avail ourselves of the protections of Section 203 of the Delaware General Corporation Law, which could inhibit changes in control of the Company.

Our stock price is volatile.

The market price of our common stock has fluctuated widely. Consequently, the current market price of our common stock may not be indicative of future market prices, and we may be unable to sustain or increase the value of an investment in our common stock. Factors affecting our stock price may include:

- variations in operating results from quarter to quarter;
- changes in earnings estimates by analysts or our failure to meet analysts' expectations;
- changes in the market price per share of our public company customers;
- market conditions in the semiconductor and other industries into which we sell products;
- general economic conditions;
- political changes, hostilities or natural disasters such as hurricanes and floods;
- low trading volume of our common stock; and
- the number of firms making a market in our common stock.

In addition, the stock market has experienced periods of significant price and volume fluctuations. These fluctuations have particularly affected the market prices of the securities of high technology companies like ours. Any such market fluctuations in the future could adversely affect the market price of our common stock.

There are various risks related to the legal and regulatory environments in which we perform our operations and conduct our business that may expose us to risk.

We are faced with various risks that may be associated with our compliance with existing, new, different, inconsistent or conflicting laws, regulations and rules enacted by governments and/or their regulatory agencies in the countries in which we operate as well as rules and policies implemented at our customer sites. These laws, regulations, rules and policies could relate to any of an array of issues including, but not limited to, environmental, tax, intellectual property, trade secrets, product liability, contracts, antitrust, employment, securities, import/export and unfair competition. In the event that we fail to comply with or violate U.S. or foreign laws or regulations or customer policies, we could be subject to civil or criminal claims or proceedings that may result in monetary fines, penalties or other costs against us or our employees, which may adversely affect our operating results, financial condition, customer relations and ability to conduct our business.

Item 1B. Unresolved Staff Comments.

None.

Item 2. Properties.

Our principal executive office building is located at 16 Jonspin Road in Wilmington, Massachusetts. We own our Milpitas and Richardson facilities and lease facilities for corporate, engineering, manufacturing, sales and service-related purposes in the United States and six other countries - China, Japan, South Korea, Singapore, Taiwan and France. The following table indicates the location, the general purpose and the square footage of our material facilities. Our leases expire at various times through July 1, 2029.

<u>Location</u>	<u>Facility Purpose</u>	<u>Approximate Square Footage</u>
Wilmington, Massachusetts	Corporate Headquarters, Engineering, Manufacturing and Service	50,000
Milpitas, California.....	Corporate, Engineering, Manufacturing and Service	134,000
Budd Lake, New Jersey	Corporate, Engineering and Service.....	49,000
Bend, Oregon.....	Engineering and Service.....	19,000
Bloomington, Minnesota	Engineering, Manufacturing and Service	98,500
Hillsboro, Oregon	Engineering and Service.....	20,000
Richardson, Texas	Engineering	21,000
Snoqualmie, Washington	Engineering and Service.....	20,500
Tucson, Arizona	Engineering, Manufacturing and Service	19,000
Taiwan	Sales and Service.....	43,500
China.....	Sales, Service and Engineering	37,500
South Korea	Sales and Service.....	34,000
Japan	Sales and Service.....	20,500
Singapore	Sales and Service.....	12,000

We also lease office space for other smaller sales and service offices in several locations throughout the world.

We believe that our existing facilities and capital equipment are adequate to meet our current requirements and that suitable additional or substitute space is available on commercially reasonable terms if needed.

Item 3. Legal Proceedings.

The information set forth under Note 10, “Commitments and Contingencies” to the Consolidated Financial Statements is incorporated herein by reference.

Item 4. Mine Safety Disclosures.

None.

PART II

Item 5. Market for Registrant’s Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities.

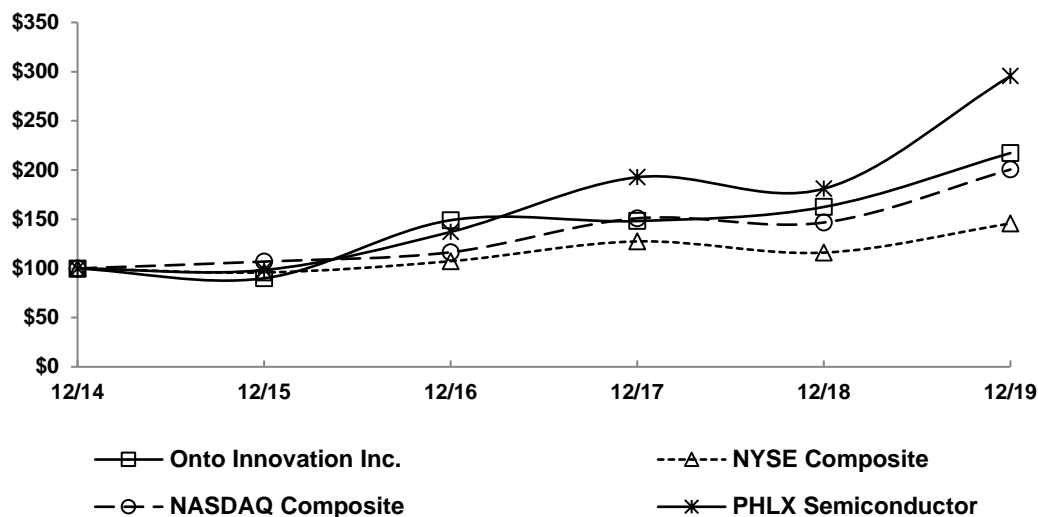
Our common stock is quoted on the New York Stock Exchange (“NYSE”) under the symbol “ONTO.” Prior to the Merger, Nanometrics’ common stock was quoted on the Nasdaq Global Select Market under the symbol “NANO” and Rudolph’s common stock was quoted on the NYSE under the symbol “RTEC.” Set forth below is a line graph comparing the annual percentage change in the cumulative return to the stockholders of the Company’s common stock with the cumulative return of the NYSE Composite Index, the Nasdaq Composite Index and the industry specific index, PHLX Semiconductor Index, for the period commencing on December 31, 2014 and ending on December 31, 2019. Historical data for Onto Innovation in the line graph for the period commencing on December 31, 2014 and ending on October 25, 2019 reflects the cumulative return to the stockholders of Nanometrics.

The information contained in the performance graph shall not be deemed to be “soliciting material” or to be “filed” with the SEC, nor shall such information be incorporated by reference into any future filing under the Securities Act or the Exchange Act, except to the extent that the Company specifically incorporates it by reference into such filing.

The graph assumes that \$100 was invested on December 31, 2014 in the Company’s common stock and in each index. No cash dividends have been declared or paid on the Company’s common stock. Stockholder returns over the indicated period should not be considered indicative of future stockholder returns.

COMPARISON OF 5 YEAR CUMULATIVE TOTAL RETURN*

Among Onto Innovation Inc., the NYSE Composite Index,
the NASDAQ Composite Index, and the PHLX Semiconductor Index



*\$100 invested on 12/31/14 in stock or index, including reinvestment of dividends.
Fiscal year ending December 31.

	12/14	12/15	12/16	12/17	12/18	12/19
Onto Innovation Inc.....	100.00	90.01	148.99	148.16	162.49	217.24
NYSE Composite.....	100.00	95.91	107.36	127.46	116.06	145.66
NASDAQ Composite	100.00	106.96	116.45	150.96	146.67	200.49
PHLX Semiconductor.....	100.00	98.41	137.10	192.69	181.04	295.57

As of February 3, 2020, there were 153 stockholders of record of our common stock and approximately 16,358 beneficial stockholders.

We have never declared or paid a cash dividend on our common stock. The declaration of any future dividends by us is within the discretion of our Board of Directors and will be dependent on our earnings, financial condition and capital requirements as well as any other factors deemed relevant by our Board of Directors.

Following the Merger, we assumed the share repurchase authorization approved on March 14, 2019, by the former Nanometrics Board of Directors. This share repurchase authorization allows us to purchase up to \$80.0 million worth of shares of our common stock. Under the terms of this share repurchase authorization, shares may be repurchased through open market or privately negotiated transactions. No shares have been repurchased under this repurchase authorization as of December 31, 2019.

For further information, see Note 18 in the accompanying Notes to the Consolidated Financial Statements included in this Annual Report on Form 10-K.

In addition to our share repurchase program, we withhold common stock shares associated with net share settlements to cover tax withholding obligations upon the vesting of restricted stock unit awards and stock option exercises under the Company's equity incentive program. During the three and twelve months ended December 31, 2019, we withheld 51 thousand and 78 thousand shares through net share settlements, respectively. For the three and twelve month periods ended December 31, 2019, net share settlements cost \$1.8 million and \$2.5 million, respectively. Please refer to Note 12 of the Notes to the Consolidated Financial Statements included in this Annual Report on Form 10-K for further discussion regarding our equity incentive plan.

The following table provides details of common stock purchased during the three month period ended December 31, 2019 (in thousands, except per share data):

Period	Total Number of Shares Purchased (1)	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Program	Maximum Approximate Dollar Value of Shares that May Yet Be Purchased Under the Program
October 1, 2019 to October 31, 2019.....	42	\$ 35.56	—	\$ 80,000
November 1, 2019 to November 30, 2019.....	7	\$ 33.44	—	\$ 80,000
December 1, 2019 to December 31, 2019.....	2	\$ 33.54	—	\$ 80,000
Three Months Ended December 31, 2019	<u>51</u>		<u>—</u>	

¹ Includes shares withheld through net share settlements.

Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations.

Overview

We are a worldwide leader in the design, development, manufacture and support of process control tools that perform macro-defect inspection and metrology, lithography systems, and process control analytical software used by semiconductor and advanced packaging device manufacturers. We deliver comprehensive solutions throughout the semiconductor fabrication process with our families of proprietary products that provide critical yield-enhancing information, enabling microelectronic device manufacturers to drive down costs and time to market of their devices. We provide process and yield management solutions used in both wafer processing facilities, often referred to as “front-end” and device packaging and test facilities, or “back-end” manufacturing, through a portfolio of standalone systems for macro-defect inspection, lithography, probe card test and analysis, and transparent and opaque thin film measurements. All of our systems feature sophisticated software and production-worthy automation. In addition, our advanced process control software portfolio includes powerful solutions for standalone tools, groups of tools, or factory-wide suites to enhance productivity and achieve significant cost savings. Our systems are backed by worldwide customer service and applications support.

Our business is affected by the annual spending patterns of our customers on semiconductor capital equipment. The amount that our customers devote to capital equipment spending depends on a number of factors, including general worldwide economic conditions as well as other economic drivers such as personal computers, mobile devices, data centers, artificial intelligence and automotive sales. Current forecasts by industry analysts for the semiconductor device manufacturing industry project capital equipment spending to increase approximately 5% to 8% for 2020 as compared to 2019. Our revenue and profitability tend to follow the trends of certain segments within the semiconductor market.

Historically, a significant portion of our revenue in each quarter and year has been derived from sales to relatively few customers, and we expect this trend to continue. For the years ended December 31, 2019, 2018 and 2017, aggregate sales to customers that individually represented at least five percent of our revenue accounted for 42.7%, 18.3%, and 27.2% of our revenue, respectively.

Merger

On June 23, 2019, Rudolph and Nanometrics, a provider of advanced process control metrology and software analytics, entered into the Merger Agreement to combine in an all-stock merger of equals transaction. The Merger was completed on October 25, 2019. As a result of the Merger, Rudolph became a direct wholly-owned subsidiary of Nanometrics, which was renamed “Onto Innovation Inc.” upon the consummation of the Merger. Shares of common stock of Rudolph (NYSE: RTEC) ceased trading on the New York Stock Exchange as of market close on October 25, 2019. Onto Innovation (NYSE: ONTO) shares began trading on the NYSE on October 28, 2019. At the effective time of the Merger, each issued and outstanding share of Rudolph Common Stock was converted into the right to receive 0.8042 shares of Onto Innovation Common Stock (NYSE: ONTO). Immediately following the effective time of the Merger, each of Nanometrics’ and Rudolph’s stockholders owned approximately 50% of the combined company, Onto Innovation. Pursuant to the Merger Agreement, Onto Innovation accounts for the Merger as a reverse acquisition using the acquisition method of accounting in accordance with generally accepted accounting principles, with Rudolph being treated as the acquiring entity for accounting purposes. As such, the results of operations data below comprise the operating results of Rudolph and its consolidated subsidiaries for periods through October 25, 2019 and Onto Innovation and its consolidated subsidiaries for periods on or after October 26, 2019. See Note 3 to the Consolidated Financial Statements set forth elsewhere in this Annual Report on Form 10-K for additional information regarding the Merger.

Results of Operations

The following table sets forth, for the periods indicated, our results of operations as percentages of our revenue. Our results of operations are reported as one business segment.

	Year Ended December 31,		
	2019	2018	2017
Revenue	100.0%	100.0%	100.0%
Cost of revenue	55.9%	45.8%	47.2%
Gross profit.....	44.1%	54.2%	52.8%
Operating expenses:			
Research and development.....	15.8%	14.6%	14.8%
Sales and marketing	9.2%	8.0%	8.1%
General and administrative.....	17.4%	12.3%	10.9%
Amortization.....	3.4%	0.6%	0.8%
Patent litigation income.....	—%	—%	(5.1)%
Total operating expenses.....	45.8%	35.5%	29.5%
Operating income (loss).....	(1.7)%	18.7%	23.3%
Interest income, net.....	1.2%	0.8%	0.4%
Other income (expense), net.....	0.3%	—%	(0.2)%
Income (loss) before provision (benefit) for income taxes.....	(0.2)%	19.5%	23.5%
Provision (benefit) for income taxes.....	(0.8)%	3.0%	10.6%
Net income.....	0.6%	16.5%	12.9%

Results of Operations for 2019, 2018 and 2017

Revenue. Our revenue is derived from the sale of our systems and software, spare parts, and services. Our revenue was \$305.9 million, \$273.8 million and \$255.1 million for the years ended December 31, 2019, 2018 and 2017, respectively. This represents an increase of 11.7% from 2018 to 2019 and an increase of 7.3% from 2017 to 2018. The increase in revenue from 2018 to 2019 was primarily due to the inclusion of revenue from legacy Nanometrics business for the period from October 25, 2019, the effective date of the Merger, through December 31, 2019. This year-over-year increase in revenue was partially offset by overall spending declines in the semiconductor capital equipment industries. The increase in revenue from 2017 to 2018 was primarily due to an increase in capital spending by front-end memory manufacturers.

The following table lists, for the periods indicated, the different sources of our revenue in dollars (thousands) and as percentages of our total revenue:

	Year Ended December 31,					
	2019		2018		2017	
Systems and software	\$255,723	84%	\$234,241	86%	\$216,884	85%
Parts	34,892	11%	28,658	10%	27,143	11%
Services.....	15,281	5%	10,885	4%	11,071	4%
Total revenue.....	<u>\$305,896</u>	<u>100%</u>	<u>\$273,784</u>	<u>100%</u>	<u>\$255,098</u>	<u>100%</u>

Total systems and software revenue increased \$21.5 million for the year ended December 31, 2019 as compared to the year ended December 31, 2018 primarily due to the inclusion of revenue from legacy Nanometrics for the period from the effective date of the Merger. The year-over-year change in systems revenue was driven by an increase of \$29.9 million in process control systems revenue due to inclusion of \$56.0 million of revenue from legacy Nanometrics for the period from the effective date of the Merger. This increase was partially offset by decreased demand for our products in both advanced packaging and front-end systems. Software licensing, support and maintenance revenue decreased \$4.0 million, primarily due to a decrease in revenue from our process control and yield management software. The year-over-year increase in parts and services revenue in absolute dollars from 2018 to 2019 was primarily due to the inclusion of \$10.3 million of parts and service revenue from legacy Nanometrics for the period from the effective date of the Merger. Parts and services revenue is generated from part sales, maintenance service contracts, system upgrades, as well as time and material billable service calls.

Total systems and software revenue increased for the year ended December 31, 2018 as compared to the year ended December 31, 2017 due to increased demand for our products in front-end process control systems. The year-over-year increases in process control systems revenue totaled \$12.9 million, primarily due to higher metrology system sales in the 2018 period. Lithography system revenue increased \$0.7 million, primarily due to the shipment of a JetStep G system offset by lower shipments of our JetStep W systems in 2018. Licensing revenue from software increased \$3.7 million primarily due to

an increase in revenue from our process control and yield management software. The year-over-year increase in parts and services revenue in absolute dollars from 2017 to 2018 was primarily due to increased spending by our customers on repairs of existing systems. Parts and services revenue is generated from part sales, maintenance service contracts, system upgrades, as well as time and material billable service calls.

Gross Profit. Our gross profit has been and will continue to be affected by a variety of factors, including inventory step-up from purchase accounting, manufacturing efficiencies, provision for excess and obsolete inventory, pricing by competitors or suppliers, new product introductions, production volume, customization and reconfiguration of systems, international and domestic sales mix, system and software product mix, and parts and services margins. Our gross profit was \$135.0 million, \$148.3 million and \$134.6 million for the years ended December 31, 2019, 2018 and 2017, respectively. Our gross profit represented 44.1%, 54.2% and 52.8% for the years ended December 31, 2019, 2018 and 2017, respectively. The decrease in gross profit as a percentage of revenue from 2018 to 2019 was primarily due to charges to cost of goods sold including a \$15.4 million charge for the sale of inventory written-up to fair value upon the Merger and \$7.8 million in additional charges related to excess and obsolete inventory. The increase in gross profit as a percentage of revenue from 2017 to 2018 was primarily due to a change in our systems and software product sales mix and the sale of a lithography system that had previously been partially written down.

Operating Expenses

Our operating expenses consist of:

- *Research and Development.* The process control defect inspection and metrology, advanced packaging lithography, and data analysis systems and software market is characterized by continuous technological development and product innovations. We believe that the rapid and ongoing development of new products and enhancements of existing products, including the transition to copper and low-k dielectrics, wafer level packaging, the continuous shrinkage in critical dimensions, and the evolution of ultra-thin gate process control is critical to our success. Accordingly, we devote a significant portion of our technical, management and financial resources to research and development programs. Research and development expenditures consist primarily of salaries and related expenses of employees engaged in research, design and development activities. They also include consulting fees, the cost of related supplies and legal costs to defend our patents. Our research and development expenses were \$48.4 million, \$40.0 million and \$37.7 million in 2019, 2018 and 2017, respectively. The year-over-year dollar increase from 2018 to 2019 was primarily due to increased compensation resulting from the inclusion of \$7.4 million in research and development expense of legacy Nanometrics resulting from the Merger. The year-over-year dollar increase from 2017 to 2018 was primarily due to increased compensation and development initiatives. These costs were partially offset by decreased litigation expenses. We continue to maintain our commitment to investing in new product development and enhancement to existing products.
- *Sales and Marketing.* Sales and marketing expenses are primarily comprised of salaries and related costs for sales and marketing personnel, as well as commissions and other non-personnel related expenses. Our sales and marketing expenses were \$28.3 million, \$22.0 million and \$20.8 million in 2019, 2018 and 2017, respectively. The year-over-year dollar increase from 2018 to 2019 was primarily due to the inclusion of \$6.9 million in sales and marketing expenses of legacy Nanometrics resulting from the Merger. The year-over-year increase from 2017 to 2018 was primarily due to compensation costs resulting from headcount and salary increases and an increase in sales commissions.
- *General and Administrative.* General and administrative expenses are primarily comprised of salaries and related costs for general administrative personnel, as well as other non-personnel related expenses. Our general and administrative expenses were \$53.0 million, \$33.7 million and \$27.9 million in 2019, 2018 and 2017, respectively. The year-over-year dollar increase from 2018 to 2019 was primarily due to the inclusion of \$4.4 million in general and administrative expenses of legacy Nanometrics resulting from the Merger. In addition, we incurred \$14.8 million in merger expenses for bankers fees, legal, accounting, and change in control compensation expenses. The year-over-year dollar increase from 2017 to 2018 was primarily due to compensation costs resulting from headcount and salary increases.
- *Amortization of Identifiable Intangible Assets.* Amortization of identifiable intangible assets was \$10.4 million, \$1.5 million and \$1.9 million in 2019, 2018 and 2017, respectively. The year-over-year increase in amortization expense from 2018 to 2019 was due additional amortization recorded associated with additional purchased intangible assets recorded as a result of the Merger. The year-over-year decreases in amortization expense from 2017 to 2018 were due to certain intangible assets becoming fully amortized during these periods.

- **Patent Litigation Income.** During the twelve months ended December 31, 2019 and 2018, there was no patent litigation income. During the twelve months ended December 31, 2017, we recorded income and received cash of \$13.0 million from a comprehensive settlement regarding a patent infringement litigation with Camtek.

Interest income (expense), net. In 2019, 2018 and 2017, net interest income was \$3.7 million, \$2.2 million and \$1.0 million, respectively. The increase in net interest income from 2018 to 2019 was due to interest earned on our marketable securities and additional interest income on a higher marketable securities balance following the Merger with Nanometrics. The increase in net interest income from 2017 to 2018 was due to higher interest earned on our marketable securities.

Income taxes. The following table provides details of income tax (dollars in millions):

	Year Ended December 31,		
	2019	2018	2017
Income before income taxes	\$ (0.6)	\$ 53.3	\$ 59.8
Provision (benefit) for income taxes	\$ (2.5)	\$ 8.3	\$ 26.9
Effective tax rate	419.9%	15.5%	45.0%

The income tax provision differs from the federal statutory income tax rate of 21% for 2019 primarily due to a benefit related to the Foreign Derived Intangible Income Deduction (“FDII”) of \$2.3 million and tax benefits for research and development credits of \$2.1 million, partially offset by non-deductible transaction costs of \$1.1 million and Section 162(m) limitation on the deductibility of executive compensation of \$0.8 million.

The income tax provision differs from the federal statutory income tax rate of 21% for 2018 primarily due to Foreign Derived Intangible Income Deduction (“FDII”) from Public law No. 115-97, known as the Tax Cuts and Jobs Act (the “Tax Act”) of \$2.2 million, tax benefits for research and development credits of \$2.3 million, offset by a Section 162(m) limitation on the deductibility of executive compensation of \$0.5 million and additional Accounting Standards Codification (“ASC”) 740-10 tax reserves of \$0.6 million.

The income tax provision differs from the federal statutory income tax rate of 21% for 2017 primarily due to new regulations resulting from the Tax Act of \$9.5 million, offset by tax benefits for research and development credits of \$1.6 million, section 199 manufacturing deduction of \$1.6 million and excess tax benefits on vesting of restricted stock of \$1.6 million.

The Tax Act, which was enacted and signed into law on December 22, 2017, reduced the U.S. federal corporate tax rate from 35% to 21%, effective January 1, 2018. Also, on December 22, 2017, the SEC issued Staff Accounting Bulletin No. 118 (“SAB 118”), which provides guidance on accounting for tax effects of the Tax Act. SAB 118 provides a measurement period of up to one year from the enactment date to complete the accounting. Any adjustments during this measurement period will be included in net earnings from continuing operations as an adjustment to income tax expense in the reporting period when such adjustments are determined. Based on the information available and current interpretation of the rules, we estimated the impact of the reduction in the corporate tax rate and remeasurement of certain deferred tax assets and liabilities. The provisional amount recorded in the fourth quarter of 2017 related to the remeasurement of our deferred tax balance resulted in additional income tax expense of \$8.0 million. During the fourth quarter of 2018, we completed the accounting for such revaluation and recorded an additional \$0.8 million in tax expense. The prior year provisional impact and current year finalization of the Tax Act summarized below, which is included as a component of the provision from income taxes is further described in Note 12 in the accompanying Notes to the Consolidated Financial Statements included in this Annual Report on Form 10-K (dollars in millions).

	Year Ended December 31,	
	2019	2018
Re-measurement of U.S. deferred tax assets and liabilities	\$ —	\$ —
Transition tax on non-U.S. subsidiaries’ earnings.....	—	0.1
Foreign tax credits applied against transition tax.....	—	—
Valuation allowance for unused foreign tax credits	1.0	0.7
Total impact of the Tax Act on the provision for income taxes....	<u>\$ 1.0</u>	<u>\$ 0.8</u>

Our future effective income tax rate depends on various factors, such as future impacts of the Tax Act, possible further tax legislation, the geographic composition of our pre-tax income, the amount of our pre-tax income as business activities fluctuate, non-deductible expenses incurred in connection with acquisitions and research and development credits as a percentage of aggregate pre-tax income.

Liquidity and Capital Resources

At December 31, 2019, we had \$320.2 million of cash, cash equivalents and marketable securities and \$555.9 million in working capital. At December 31, 2018, our cash, cash equivalents and marketable securities totaled \$175.1 million, while working capital amounted to \$305.9 million.

Net cash and cash equivalents provided by operating activities for the years ended December 31, 2019, 2018 and 2017 totaled \$18.1 million, \$35.1 million and \$64.2 million, respectively. During the year ended December 31, 2019, cash provided by operating activities was primarily due to net income, adjusted to exclude the effect of non-cash charges, of \$53.5 million, a decrease in income taxes of \$7.6 million, which were partially offset by a decrease in accounts payable of \$12.1 million, a decrease in accrued and other liabilities of \$6.7 million, an increase in inventories of \$9.3 million, an increase in accounts receivable of \$9.7 million and an increase in prepaid expenses and other assets of \$5.1 million.

During the year ended December 31, 2018, cash provided by operating activities was primarily due to net income, adjusted to exclude the effect of non-cash charges, of \$64.3 million, an increase in accounts payable of \$3.5 million, a decrease in income taxes of \$1.1 million, a decrease in account receivable of \$0.7 million and an increase in accrued and other liabilities of \$0.2 million, which were partially offset by an increase in inventories of \$31.5 million, and an increase in prepaid expenses and other assets of \$3.1 million. The increase in inventories of \$31.5 million was primarily due to increased sales projections of our latest products and new product initiatives.

During the year ended December 31, 2017, cash provided by operating activities was primarily due to net income, adjusted to exclude the effect of non-cash charges, of \$65.9 million, an increase in accrued and other liabilities of \$5.2 million, an increase in accounts payable of \$3.2 million and a decrease in account receivable of \$0.4 million, which were partially offset by an increase in income taxes of \$4.7 million, an increase in inventory of \$4.2 million, and an increase in prepaid expenses and other assets of \$1.7 million.

Net cash and cash equivalents provided by investing activities for the years ended December 31, 2019 and 2018 was \$4.1 million and \$33.8 million, respectively. Net cash and cash equivalents used in investing activities for the year ended December 31, 2017 totaled \$32.5 million. During the year ended December 31, 2019, net cash provided by investing activities included proceeds from maturities and sales of marketable securities of \$94.5 million and cash acquired in the Merger of \$43.9 million, which were partially offset by purchases of marketable securities of \$127.5 million and purchases of property, plant and equipment of \$6.8 million. During the year ended December 31, 2018, net cash provided by investing activities included proceeds from sales of marketable securities of \$186.3 million, which was partially offset by purchases of marketable securities of \$140.0 million, purchases of property, plant and equipment of \$7.5 million and cash advanced on a convertible note receivable of \$5.0 million. During the year ended December 31, 2017, net cash used in investing activities included purchases of marketable securities of \$164.7 million, purchases of property, plant and equipment of \$10.2 million, and purchase of intangible assets of \$1.0 million, which were partially offset by proceeds from sales of marketable securities of \$143.3 million.

Net cash used in financing activities was \$4.2 million, \$23.9 million and \$2.6 million in 2019, 2018 and 2017, respectively. During the year ended December 31, 2019, financing activities used cash to pay taxes related to shares withheld for share based compensation plans of \$2.5 million, pay contingent consideration for acquired business of \$1.8 million, and purchase shares of our common stock under share repurchase authorizations of \$0.7 million. These uses of cash were partially offset by proceeds from sales of shares through employee stock plans of \$0.8 million. During the year ended December 31, 2018, financing activities used cash to purchase shares of our common stock under share repurchase authorizations of \$21.1 million, pay taxes related to shares withheld for share based compensation plans of \$1.9 million and pay contingent consideration for acquired business of \$1.5 million. These uses of cash were partially offset by proceeds from sales of shares through employee stock plans of \$0.6 million. During the year ended December 31, 2017, financing activities included the redemption of stock warrants of \$1.0 million, tax payments related to shares withheld for share-based compensation plans of \$1.4 million and payment of contingent consideration for acquired businesses of \$0.8 million, which were partially offset by proceeds from sales of shares through employee stock plans of \$0.6 million.

From time to time, we evaluate whether to acquire new or complementary businesses, products and/or technologies. We may fund all of or a portion of the price of these investments or acquisitions in cash, stock, or a combination of cash and stock.

On May 31, 2018, we entered into a convertible loan agreement with Simax Precision Technologies Limited (“the borrower”), which allowed them to borrow up to \$15.0 million in multiple promissory notes with an interest rate of 4.25% per annum payable on a semi-annual basis. We expected to be a supplier of lithography modules to Simax, which is used in the manufacture, sale and service of lithography systems. At December 31, 2019, we had \$5.0 million in outstanding convertible notes receivable with the borrower.

During the fourth quarter of 2019, we began negotiations with the borrower to end our relationship as it pertains to this agreement. We determined that it is unlikely that a portion of the convertible note receivable will be collectable, and a reserve

in the amount of \$2.0 million was recorded during the period ended December 31, 2019. In addition, we ceased recognizing interest income on these convertible notes receivable as of September 30, 2019. See Note 8 in the accompanying Notes to the Consolidated Financial Statements included in this Annual Report on Form 10-K for further information.

Following the Merger, we assumed the share repurchase authorization approved on March 14, 2019, by the former Nanometrics Board of Directors. This share repurchase authorization allows us to purchase up to \$80.0 million worth of shares of our common stock. Under the terms of this share repurchase authorization, shares may be repurchased through open market or privately negotiated transactions. No shares have been repurchased under this repurchase authorization.

For further information regarding our share repurchases, see Note 18 in the accompanying Notes to the Consolidated Financial Statements included in this Annual Report on Form 10-K.

We have a credit agreement with a bank that provides for a line of credit that is secured by the marketable securities we have with the bank. We are permitted to borrow up to 70% of the value of eligible securities held at the time the line of credit is accessed. As of December 31, 2019, the available line of credit was approximately \$91.3 million with an available interest rate of 3.3%. The credit agreement is available to us until such time that either party terminates the arrangement at its discretion. To date, we have not utilized the line of credit.

Our future capital requirements will depend on many factors, including the timing and amount of our revenue and our investment decisions, which will affect our ability to generate additional cash. We expect that our existing cash, cash equivalents, marketable securities and availability under our line of credit will be sufficient to meet our anticipated cash requirements for working capital, capital expenditures and other cash needs for the next 12 months following the filing of this Form 10-K. Thereafter, if cash generated from operations and financing activities is insufficient to satisfy our working capital requirements, we may seek additional funding through bank borrowings, sales of securities or other means. There can be no assurance that we will be able to raise any such capital on terms acceptable to us or at all.

Contractual Obligations

The following table summarizes our significant contractual obligations at December 31, 2019, and the effect such obligations are expected to have on our liquidity and cash flows in future periods. This table excludes the liability for unrecognized tax benefits that totaled approximately \$10.6 million at December 31, 2019. We are currently unable to provide a reasonably reliable estimate of the amount or periods when cash settlement of this liability may occur (dollars in thousands).

	Payments due by period				
	Total	Less than 1 year	1-3 years	3-5 years	More than 5 years
Operating lease obligations.....	\$ 29,152	\$ 5,901	\$ 12,116	\$ 5,856	\$ 5,279
Open and committed purchase orders.....	97,877	93,705	4,172	—	—
Total.....	<u>\$ 127,029</u>	<u>\$ 99,606</u>	<u>\$ 16,288</u>	<u>\$ 5,856</u>	<u>\$ 5,279</u>

Off-Balance Sheet Arrangements

The Company does not have any off-balance sheet arrangements that have or are reasonably likely to have a material effect on our financial condition, results of operations or liquidity and capital resources.

Critical Accounting Policies

Management's discussion and analysis of our financial condition and results of operations are based upon our Consolidated Financial Statements included in this Annual Report on Form 10-K, which have been prepared in accordance with accounting principles generally accepted in the United States. We review the accounting policies we use in reporting our financial results on a regular basis. The preparation of these financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenue and expenses and related disclosure of contingent assets and liabilities. On an ongoing basis, we evaluate our estimates, including those related to revenue recognition, accounts receivable, inventories, business acquisitions, intangible assets, share-based payments, income taxes and warranty obligations. We base our estimates on historical experience and on various other assumptions that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Results may differ from these estimates due to actual outcomes being different from those on which we based our assumptions. These estimates and judgments are regularly reviewed by management on an ongoing basis at the end of each quarter prior to the public release of our financial results. We believe the following critical accounting policies affect our more significant judgments and estimates used in the preparation of our Consolidated Financial Statements.

Revenue Recognition. Effective January 1, 2018, we adopted the requirements of Accounting Standards Update (“ASU”) No. 2014-09, “Revenue from Contracts with Customers (Topic 606).”

Revenue is recognized when control of the promised goods or services are transferred to our customers in an amount that reflects the consideration we expect to be entitled to receive in exchange for those goods or services. We account for a contract when it has approval and commitment from both parties, the rights of the parties and payment terms are identified, the contract has commercial substance and collectability of consideration is probable.

We account for shipping and handling activities as the fulfillment of a promise to transfer goods to the customer and therefore record these activities under the caption “Cost of revenue.” Sales tax and any other taxes collected concurrent with revenue producing activities are excluded from revenue. Incidental items that are immaterial in the context of the contract are recognized as expense.

Contracts with customers may include multiple performance obligations. For such arrangements, we allocate revenue to each performance obligation based on its relative standalone selling price. We generally determine standalone selling prices based on the prices charged to customers or the expected cost-plus margin.

Revenue from systems is recognized when we transfer control of the product to our customer. To indicate transfer of control, we must have a present right to payment, legal title must have passed to the customer and the customer must have the significant risks and rewards of ownership. We generally transfer control for system sales when the customer or the customer’s agent picks up the system at our facility. Payment for the majority of our systems have 80-90% of the invoice amount due within 30 days and the remaining amount due upon completion of installation, recalibration and qualification by the customer. We provide an assurance warranty on our systems for a period of twelve to fourteen months against defects in material and workmanship. We provide for the estimated cost of product warranties at the time revenue is recognized.

Depending on the terms of the systems arrangement, we may also defer the recognition of a portion of the consideration expected to be received because we have to satisfy a future obligation (e.g., installation, training and extended warranties). We use an observable price to determine the standalone selling price for separate performance obligations or a cost-plus margin approach when one is not available.

Revenue from software licenses is recognized upfront at the point in time when the software is made available to the customer. Software licenses provide the customer with limited rights to use the software. Revenue from licensing support and maintenance is recognized as the support and maintenance are provided, which is over the contract period. Payment for software licensing, support and maintenance is generally due in 30 days.

Revenue from parts is recognized when we transfer control of the product, which typically occurs when we ship the product from our facilities to the customer. Payment for parts is generally due in 30 days.

Revenue from services primarily consists of service contracts, which provide additional maintenance coverage beyond our assurance warranty on our products, service labor, consulting and training. Revenue from service contracts is recognized ratably over the term of the service contract. Revenue from service labor, consulting and training is recognized as services are performed. Payment for services is generally due in 30 days.

We record contract liabilities when the customer has been billed in advance of completing our performance obligations. These amounts are recorded as deferred revenue in the Consolidated Balance Sheets.

Business combinations. We account for business combinations under the acquisition method of accounting, which requires us to recognize separately from goodwill the assets acquired, and the liabilities assumed at their acquisition date fair values. While we use our best estimates and assumptions to accurately value assets acquired and liabilities assumed at the acquisition date as well as contingent consideration, where applicable, our estimates are inherently uncertain and subject to refinement. As a result, during the measurement period, which may be up to one year from the acquisition date, we record adjustments to the assets acquired and liabilities assumed with the corresponding offset to goodwill. Upon the conclusion of the measurement period or final determination of the values of assets acquired or liabilities assumed, whichever comes first, any subsequent adjustments are recognized in our consolidated statements of operations. Accounting for business combinations requires our management to make significant estimates and assumptions, especially at the acquisition date including our estimates for intangible assets, contractual obligations assumed, restructuring liabilities, pre-acquisition contingencies, and contingent consideration, where applicable. Although we believe the assumptions and estimates we have made in the past have been reasonable and appropriate, they are based, in part, on historical experience and information obtained from the management of the acquired companies and are inherently uncertain. Estimates in valuing certain acquired intangible assets under the income approach include growth in future expected cash flows from product sales, acquired technologies, technology obsolescence rates, estimated cash flows from the projects when completed and discount rates. Unanticipated events and circumstances may occur that may affect the accuracy or validity of such assumptions, estimates or actual results.

Excess and Obsolete Inventory. We maintain reserves for our excess and obsolete inventory equal to the difference between the cost of inventory and the estimated market value based upon assumptions about future product lifecycles, product demand and market conditions. If actual product lifecycles, product demand and market conditions are less favorable than those originally projected by management, additional inventory write-downs may be required.

Long-Lived Assets and Acquired Intangible Assets. We periodically review long-lived assets, other than goodwill, for impairment whenever changes in events or circumstances indicate that the carrying amount of an asset may not be recoverable. Assumptions and estimates used in the determination of impairment losses, such as future cash flows and disposition costs, may affect the carrying value of long-lived assets and the impairment of such long-lived assets, if any, could have a material effect on our consolidated financial statements. During the year ended December 31, 2019, we recognized a \$0.5 million impairment loss on long-lived assets. No such indicators were noted in 2018 or 2017.

Accounting for Income Taxes. As part of the process of preparing our consolidated financial statements, we are required to estimate our actual current tax exposure together with our temporary differences resulting from differing treatment of items for tax and accounting purposes. These temporary differences result in deferred tax assets and liabilities, which are included within our consolidated balance sheet. We must then assess the likelihood that our deferred tax assets will be recovered from future taxable income and to the extent we believe that recovery is not likely, we must establish a valuation allowance. Management judgment is required in determining our provision for income taxes and any valuation allowance recorded against our deferred tax assets. The need for a valuation allowance is based on our estimates of taxable income by jurisdiction in which we operate and the period over which our deferred taxes will be recoverable. In the event that actual results differ from these estimates or we adjust these estimates in future periods, we may need to adjust the valuation allowance, which could materially impact our financial position and results of operations. At December 31, 2019 and 2018, we had recorded valuation allowances of \$14.2 million and \$3.2 million on certain of our deferred tax assets to reflect the deferred tax assets at the net amount that is more likely than not to be realized. We evaluated the realizability of the deferred tax assets based on positive earnings as well as the projected earnings in future years and believe it is more likely than not that the substantial majority of our deferred tax asset will be realized in the future years. We will continue to monitor the realizability of the deferred tax assets and evaluate the valuation allowance.

We recognize liabilities for uncertain tax positions based on a two-step process. The first step requires us to determine if the weight of available evidence indicates that the tax position has met the threshold for recognition; therefore, we must evaluate whether it is more likely than not that the position will be sustained on audit, including resolution of any related appeals or litigation processes. The second step requires us to measure the tax benefit of the tax position taken, or expected to be taken, in an income tax return as the largest amount that is more than 50% likely of being realized when effectively settled. This measurement step is inherently difficult and requires subjective estimations of such amounts to determine the probability of various possible outcomes. We reevaluate the uncertain tax positions each quarter based on factors including, but not limited to, changes in facts or circumstances, changes in tax law, effectively settled issues, and new audit activity. Such a change in recognition or measurement could result in the recognition of a tax benefit or an additional charge to the tax provision in the period.

Although we believe the measurement of our liabilities for uncertain tax positions is reasonable, no assurance can be given that the final outcome of these matters will not be different than what is reflected in the historical income tax provisions and accruals. If additional taxes are assessed as a result of an audit or litigation, it could have a material effect on our income tax provision and net income in the period or periods for which that determination is made.

Impact of Recent Accounting Pronouncements

Recently Adopted

Effective January 1, 2019, we adopted ASU No. 2018-07, “Compensation – Stock Compensation (Topic 718): Improvements to Nonemployee Share-Based Payment Accounting.” This ASU expands the scope of Topic 718 to include share-based payment transactions for acquiring goods and services from nonemployees. An entity should apply the requirements of Topic 718 to nonemployee awards except for specific guidance on inputs to an option pricing model and the attribution of cost. The ASU is effective for the fiscal years beginning after December 15, 2018, including interim periods within that fiscal year. The adoption of ASU No. 2018-07 did not have a material impact on our consolidated financial position, results of operations, and cash flows.

Effective January 1, 2019, we adopted ASU No. 2018-02, “Income Statement – Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income.” The new guidance allows companies to reclassify stranded tax effects resulting from the Tax Act from accumulated other comprehensive income to retained earnings. The guidance also requires certain new disclosures regardless of a company’s election. The standard is effective for annual periods beginning after December 15, 2018 and for interim periods within those annual periods, with earlier

adoption permitted. The adoption of ASU No. 2018-02 did not have a material impact on our consolidated financial position, results of operations, and cash flows.

In January 2017, the Financial Accounting Standards Board (“FASB”) issued ASU No. 2017-04, “Intangibles – Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment.” This ASU eliminates Step 2 from the goodwill impairment test. Accordingly, if the carrying amount of a reporting unit exceeds its fair value, an impairment loss will be recognized in an amount equal to the excess, limited to the total amount of goodwill allocated to the reporting unit. The ASU is effective for the fiscal years beginning after December 15, 2019 and for interim periods within those fiscal years, with earlier adoption permitted. The adoption of ASU No. 2017-04 in 2019 did not have a material impact on our consolidated financial position, results of operations, and cash flows.

In February 2016, the FASB issued ASU No. 2016-02, “Leases (Topic 842).” ASU No. 2016-02 requires that lessees recognize virtually all of their leases on the balance sheet, by recording a right-of-use asset and lease liability. On January 1, 2019, we adopted ASU No. 2016-02 using the modified retrospective method which applies the provisions of the standard at the effective date without adjusting the comparative periods presented. We also elected the package of practical expedients.

There was not a cumulative-effect adjustment to our beginning retained earnings as a result of adopting ASU No. 2016-02. We recognized additional operating lease assets and obligations of \$14.4 million as of January 1, 2019. As a result of the Merger, operating lease assets and obligations of \$9.7 million were assumed from the former Nanometrics. We elected to not reassess prior conclusions related to the identification, classification and accounting for initial direct costs for leases that commenced prior to January 1, 2019. For additional disclosure and detail, see Note 7 of the Notes to the Consolidated Financial Statements included in this Annual Report on Form 10-K.

Recently Issued

In December 2019, the FASB issued ASU No. 2019-12, “Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes.” This standard simplifies the accounting for income taxes by eliminating certain exceptions to the guidance in Topic 740 related to the approach for intraperiod tax allocation, the methodology for calculating income taxes in an interim period and the recognition of deferred tax liabilities for outside basis differences. The new guidance also simplifies aspects of the accounting for franchise taxes and enacted changes in tax laws or rates and clarifies the accounting for transactions that result in a step-up in the tax basis of goodwill and allocating consolidated income taxes to separate financial statements of entities not subject to income tax. ASU No. 2019-12 is effective for fiscal years beginning after December 15, 2020, with early adoption permitted. Upon adoption, we must apply certain aspects of this standard retrospectively for all periods presented while other aspects are applied on a modified retrospective basis through a cumulative-effect adjustment to retained earnings as of the beginning of the fiscal year of adoption. We are currently evaluating the impact of this new standard on our consolidated financial position, results of operations, and cash flows.

In August 2018, the FASB issued ASU No. 2018-13, “Fair Value Measurement (Topic 820): Disclosure Framework – Changes to the Disclosure Requirements for Fair Value Measurement.” This ASU is part of the FASB’s larger disclosure framework project intended to improve the effectiveness of financial statement footnote disclosure. ASU No. 2018-13 modifies required fair value disclosures related primarily to level 3 investments. This ASU is effective for annual periods beginning after December 15, 2019 and interim periods within those annual periods. The adoption of ASU No. 2018-13 is not expected to have a material effect on our consolidated financial position, results of operations, and cash flows.

In May 2017, the FASB issued ASU No. 2017-09, “Compensation - Stock Compensation (Topic 718): Scope of Modification Accounting.” This ASU amends the scope of modification accounting for share-based payment arrangements and provides guidance on the types of changes to the terms or conditions of share-based payment awards to which an entity would be required to apply modification accounting under ASC 718. The ASU is effective for the fiscal years beginning after December 15, 2019 and for interim periods within those fiscal years. The adoption of ASU No. 2017-09 is not expected to have a material effect on our consolidated financial position, results of operations, and cash flows, if any.

In June 2016, the FASB issued ASU No. 2016-13, “Financial Instruments – Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments,” which represents a new credit loss standard that will change the impairment model for most financial assets and certain other financial instruments. Specifically, this guidance will require entities to utilize a new “expected loss” model as it relates to trade receivables, notes receivable and other commitments to extend credit held by a reporting entity. In addition, entities will be required to recognize an allowance for estimated credit losses on available-for-sale debt securities, regardless of the length of time that a security has been in an unrealized loss position. This guidance will be effective for annual reporting periods beginning after December 15, 2019, including interim periods within those annual reporting periods, with early adoption permitted. We expect that the adoption of this guidance will not have a material impact on our consolidated financial position, results of operations, and cash flows.

Recently issued accounting guidance not discussed above is not applicable or did not have, or is not expected to have, a material impact to the Company.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk.

Interest Rate and Credit Market Risk

We are exposed to changes in interest rates and market liquidity including our investments in certain available-for-sale securities. Our available-for-sale securities consist of fixed and variable rate income investments, such as municipal notes, municipal bonds and corporate bonds. We continually monitor our exposure to changes in interest rates, market liquidity and credit ratings of issuers for our available-for-sale securities. It is possible that we are at risk if interest rates, market liquidity or credit ratings of issuers change in an unfavorable direction. The magnitude of any gain or loss will be a function of the difference between the fixed or variable rate of the financial instrument and the market rate, and our financial condition and results of operations could be materially affected. Based on a sensitivity analysis performed on our financial investments held as of December 31, 2019, an immediate adverse change of 10% in interest rates (e.g. 3.00% to 3.30%) would result in a decrease of \$0.9 million in the fair value of our available-for-sale debt securities and would not have a material impact on our consolidated financial position, results of operations or cash flows.

Foreign Currency Risk

A substantial portion of our systems and software sales are denominated in U.S. dollars with the exception of Japan. As a result, we have relatively little exposure to foreign currency exchange risk with respect to these sales. Substantially all of our sales in Japan are denominated in Japanese yen. From time to time, we may enter into forward exchange contracts to economically hedge a portion, but not all, of the existing and anticipated foreign currency denominated transactions expected to occur within 12 months. The change in fair value of the forward exchange contracts is recognized under the caption "Other (income) expense" in the Consolidated Statements of Operations for each reporting period. As of December 31, 2019 and 2018, we had seventeen and twenty-seven outstanding forward contracts with a total notional contract value of \$38.9 million and \$6.7 million, respectively. We do not use derivative financial instruments for trading or speculative purposes.

The Company has branch sales and service offices or subsidiaries in Korea, Japan, China, Taiwan, Singapore and in several countries in Europe. Our international subsidiaries and branches operate primarily using local functional currencies. Our exposure to foreign currency exchange rate fluctuations arise from intercompany balances between our U.S. headquarters and that of our foreign owned entities. Our intercompany balances are denominated in U.S. dollars. Since each foreign entity's functional currency is generally denominated in its local currency, there is exposure to foreign exchange risk when the foreign entity's intercompany balance is remeasured at a reporting date, resulting in transaction gains or losses. The intercompany balance, exposed to foreign currency risk, as of December 31, 2019 was approximately \$24.1 million. A hypothetical change of 10% in the relative value of the U.S. dollar versus local functional currencies could result in approximately \$3.2 million in foreign currency exchange losses / (gains) which would be recorded as non-operating expense under the caption "Other income (expense), net" in our Consolidated Statements of Operations. We cannot accurately predict future exchange rates or the overall impact of future exchange rate fluctuations on our business, results of operations and consolidated financial condition.

To manage the level of exposure to the risk of foreign currency exchange rate fluctuations, we enter into foreign currency forward exchange contracts to protect against a portion of our currency exchange risks associated with existing assets and liabilities. A foreign currency forward exchange contract acts as a hedge by increasing in value when underlying assets decrease in value or underlying liabilities increase in value due to changes in foreign exchange rates. Conversely, a foreign currency forward exchange contract decreases in value when underlying assets increase in value or underlying liabilities decrease in value due to changes in foreign exchange rates. These forward contracts are not designated as accounting hedges, so the unrealized gains and losses are recognized in other income, net, in advance of the actual foreign currency cash flows with the fair value of these forward contracts being recorded as accrued liabilities or other current assets.

Item 8. Financial Statements and Supplementary Data.

The consolidated financial statements and related information required by this Item are set forth on the pages indicated in Item 15(a) of this Annual Report on Form 10-K.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure.

None.

Item 9A. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures that are designed to ensure that information we are required to disclose in reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time period specified in SEC rules and forms. These controls and procedures are also designed to ensure that such information is accumulated and communicated to our management, including our principal executive officer and principal financial officer, as appropriate, to allow timely decisions regarding required disclosure. In designing and evaluating disclosure controls and procedures, we have recognized that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives. Management is required to apply judgment in evaluating its controls and procedures.

We performed an evaluation under the supervision and with the participation of our management, including our principal executive officer and principal financial officer, to assess the effectiveness of the design and operation of our disclosure controls and procedures under the Exchange Act as of December 31, 2019. Based on that evaluation, our management, including our principal executive officer and principal financial officer, concluded that our disclosure controls and procedures were effective as of December 31, 2019 at the reasonable assurance level.

In accordance with the SEC's published guidance, because the merger with Nanometrics closed in the fourth quarter of the year ended December 31, 2019, and considering it was a reverse merger with Rudolph as the accounting acquirer, we did not have sufficient time to fully incorporate Nanometrics into our internal control over financial reporting. Therefore, we excluded Nanometrics from the evaluation of disclosure controls and procedures and the effectiveness of our internal control over financial reporting as of December 31, 2019.

Management's Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Exchange Act Rules 13a-15(f) and 15d-15(f). Internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with accounting principles generally accepted in the United States of America. Under the supervision and with the participation of our management, including our principal executive officer and principal financial officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting based on the framework in *Internal Control — Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) ("COSO"). Based on our evaluation, our management concluded that our internal control over financial reporting was effective as of December 31, 2019.

In accordance with the SEC's published guidance, because the merger with Nanometrics closed in the fourth quarter of the year ended December 31, 2019, management excluded Nanometrics from its evaluation of the effectiveness of the Company's internal control over financial reporting as of December 31, 2019. Nanometrics constituted 26% of total assets as of December 31, 2019 and 22% of revenue for the year then ended.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may be circumvented or deteriorate.

Attestation Report of the Registered Public Accounting Firm

Our consolidated financial statements as of and for the year ended December 31, 2019 have been audited by Ernst & Young LLP, our independent registered public accounting firm, in accordance with the standards of the Public Company Accounting Oversight Board (United States). Ernst & Young LLP has also audited our internal control over financial reporting as of December 31, 2019, as stated in its attestation report included elsewhere in this Annual Report on Form 10-K.

As indicated in the accompanying Management's Report on Internal Control Over Financial Reporting, management's assessment of and conclusion on the effectiveness of internal control over financial reporting did not include the internal controls of Nanometrics, which is included in the 2019 consolidated financial statements of the Company and constituted 26% of total assets as of December 31, 2019 and 22% of revenue for the year then ended. Our audit of internal control over financial reporting of the Company also did not include an evaluation of the internal control over financial reporting of Nanometrics.

Changes in Internal Control over Financial Reporting

There have been no changes in the Company's internal control over financial reporting (as defined in Rule 13a-15(f) under the Exchange Act) that occurred during the Company's quarter ended December 31, 2019 that have materially affected, or are reasonably likely to materially affect, its internal control over financial reporting.

Item 9B. Other Information.

None.

PART III

Certain information required by Part III is omitted from this Annual Report on Form 10-K because we expect to file a definitive proxy statement within one hundred twenty (120) days after the end of our fiscal year pursuant to Regulation 14A (the "Proxy Statement") for our Annual Meeting of Stockholders currently scheduled for May 12, 2020, and the information included in the Proxy Statement is incorporated herein by reference.

Item 10. Directors, Executive Officers and Corporate Governance.

The information required by this Item with respect to directors and executive officers is included under the headings "Proposal One: Election of Directors," "Executive Officers" and "Corporate Governance Principles and Practices" in the Proxy Statement, which is incorporated herein by reference. Information regarding compliance with Section 16 of the Exchange Act is incorporated by reference to the information under the heading "Delinquent Section 16(a) Reports" in the Proxy Statement.

Code of Business Conduct and Ethics. We have adopted a code of business conduct and ethics that applies to our principal executive officer, principal financial officer and controller. This code of business conduct and ethics is posted on our internet website address at <http://investors.ontoinnovation.com>. We will post on our website any amendment to or waiver from a provision of our code of business conduct and ethics as may be required, and within the time period specified, by applicable SEC rules.

Item 11. Executive Compensation.

The information required by this Item is included under the headings "Executive Compensation," "Compensation of Directors," "Compensation Committee Report on Executive Compensation," "Stock Ownership/Retention Guidelines for Directors" and "Compensation Committee Interlocks and Insider Participation" in the Proxy Statement, which is incorporated herein by reference.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters.

The information required by this Item is included under the headings "Security Ownership" and "Equity Compensation Plan Information" in the Proxy Statement, which is incorporated herein by reference.

Item 13. Certain Relationships and Related Transactions, and Director Independence.

The information required by this Item is included under the headings "Related Persons Transactions Policy" and "Board Independence" in the Proxy Statement, which is incorporated herein by reference.

Item 14. Principal Accounting Fees and Services.

The information required by this Item is included under the heading "Proposal 5: Ratification of Appointment of Independent Registered Public Accounting Firm" in the Proxy Statement, which is incorporated herein by reference.

PART IV

Item 15. Exhibits and Financial Statement Schedule.

(a) The following documents are filed as part of this Annual Report on Form 10-K:

1. Financial Statements

The consolidated financial statements and consolidated financial statement information required by this Item are included on pages F-1 through F-10 of this report. The Reports of Independent Registered Public Accounting Firm appear on pages F-2 through F-5 of this report.

2. Financial Statement Schedule

See Index to financial statements on page F-1 of this report.

3. Exhibits

Exhibits are as set forth in the “Exhibit Index”, provided below. Where so indicated, exhibits, which were previously filed, are incorporated by reference.

<u>Exhibit No.</u>	<u>Exhibit Description</u>	<u>Form</u>	<u>File Number</u>	<u>Date of First Filing</u>	<u>Exhibit No./Appendix Reference</u>
2.1	Agreement and Plan of Merger, dated as of June 23, 2019, by and among Nanometrics Incorporated, Rudolph Technologies, Inc. and PV Equipment Inc.	8-K	000-13470	June 24, 2019	2.1
3.1	Amended and Restated Certificate of Incorporation of Onto Innovation Inc.	8-K	001-39110	October 28, 2019	3.2
3.2	Amended and Restated Bylaws of Onto Innovation Inc.	8-K	001-39110	January 27, 2020	3.1
4.1+	Form of Common Stock Certificate	—	—	—	—
4.2+	Description of Securities	—	—	—	—
10.1	Nanometrics Incorporated Amended and Restated 2003 Employee Stock Purchase Plan	DEF14A	000-13470	April 4, 2016	Appendix 1
10.1.1	Form of Subscription Agreement Under the Nanometrics Incorporated Amended and Restated 2003 Employee Stock Purchase Plan	S-8	333-40866	June 24, 2019	4.1
10.2*	Nanometrics Incorporated Amended and Restated 2005 Equity Incentive Plan	DEF14A	000-13470	April 4, 2017	Appendix B
10.2.1*	Form of Performance-Based Restricted Stock Unit Agreement	8-K	000-13470	March 24, 2015	99.1
10.2.2*	Nanometrics Incorporated Amended and Restated 2005 Equity Incentive Plan forms of Stock Option and Restricted Stock Unit Agreements	10-K	000-13470	March 13, 2008	10.8
10.3*	Nanometrics Incorporated 2017 Executive Performance Bonus Plan	DEF14A	000-13470	April 4, 2017	Appendix A
10.4*	Rudolph Technologies, Inc. 2009 Stock Plan	DEF14A	000-27965	May 8, 2009	Appendix A
10.4.1*	Amended form of Employee Restricted Stock Unit Purchase Agreement pursuant to the Rudolph Technologies, Inc. 2009 Stock Plan	10-Q	001-36226	August 3, 2017	10.12
10.5*	Rudolph Technologies, Inc. 2018 Stock Plan	8-K	001-36226	May 16, 2018	10.1
10.5.1*	Form of Employee Performance Stock Unit Purchase Agreement pursuant to the Rudolph Technologies, Inc. 2018 Stock Plan	10-Q	001-36226	August 2, 2018	10.1

<u>Exhibit No.</u>	<u>Exhibit Description</u>	<u>Form</u>	<u>File Number</u>	<u>Date of First Filing</u>	<u>Exhibit No./Appendix Reference</u>
10.5.2*	Form of Employee Stock Option Agreement pursuant to the Rudolph Technologies, Inc. 2018 Stock Plan	10-Q	001-36226	August 2, 2018	10.2
10.6*	Compensation Arrangements with Named Executive Officers	8-K	000-13470	March 1, 2018	5.02
10.7*	Form of Indemnification Agreement between the Nanometrics Incorporated and each of its directors and executive officers	8-K	000-13470	February 20, 2013	10.1
10.8*	Form of Indemnity Agreement	8-K	001-36226	June 24, 2019	10.1
10.9*	Form of Indemnification Agreement	8-K	001-39110	November 6, 2019	10.1
10.10*	General Severance Benefits and Change in Control Severance Benefits Agreement between Kevin Heidrich and Nanometrics Incorporated, dated May 19, 2015.	8-K	000-13470	May 22, 2015	10.4
10.11*	General Severance Benefits and Change in Control Severance Benefits Agreement between Janet Taylor and Nanometrics Incorporated, dated August 27, 2015.	10-Q	000-13470	October 30, 2015	10.1
10.12*	General Severance Benefits and Change in Control Severance Benefits Agreement between Rollin Kocher and Nanometrics Incorporated, dated November 10, 2016.	10-K	000-13470	March 3, 2017	10.22
10.13	Independent Contractor Agreement between Nanometrics Incorporated and S. Mark Borowicz, dated January 8, 2018.	10-K	000-13470	February 26, 2018	10.22
10.14*	Employment Agreement between Pierre-Yves Lesaichere and Nanometrics Incorporated, dated November 27, 2017.	10-K	000-13470	February 26, 2018	10.20
10.15*	Retention Bonus Agreement between Nanometrics Incorporated and Greg Swyt, dated December 18, 2017.	10-K	000-13470	February 26, 2018	10.23
10.16*	Retention Bonus Agreement between Nanometrics and Greg Swyt, dated June 25, 2018.	8-K	000-13470	November 6, 2018	10.1
10.17*	General Severance Benefits and Change in Control Severance Benefits Agreement, dated July 25, 2019, between Nanometrics Incorporated and Greg Swyt.	8-K	000-13470	July 26, 2019	10.1
10.18*	Retention Bonus Agreement, dated September 6, 2019, between Nanometrics Incorporated and Greg Swyt.	8-K	000-13470	September 9, 2019	10.1
10.19*	General Severance Benefits and Change in Control Severance Benefits Agreement between Nanometrics Incorporated and James Barnhart, dated March 12, 2018.	10-Q	000-13470	May 1, 2019	10.1
10.20*	Management Agreement, dated as of July 24, 2000 by and between Rudolph Technologies, Inc. and Steven R. Roth as restated and amended on July 29, 2014.	10-Q	001-36226	August 6, 2014	10.2
10.21*	Employment Agreement, dated as of November 9, 2015, by and between Rudolph Technologies, Inc. and Michael Plisinski.	8-K	001-36226	November 9, 2015	10.1

<u>Exhibit No.</u>	<u>Exhibit Description</u>	<u>Form</u>	<u>File Number</u>	<u>Date of First Filing</u>	<u>Exhibit No./Appendix Reference</u>
10.22*	Executive Change of Control Agreement, dated August 20, 2009, by and between Rudolph Technologies, Inc. and Robert A. Koch.	10-Q	000-27965	November 6, 2009	10.3
10.23	Amendment to Confirmation of Issuer Warrant Transaction, dated July 22, 2011, by and between Rudolph Technologies, Inc. and Credit Suisse International.	8-K	000-27965	July 25, 2011	10.5
10.24	License Agreement, dated June 28, 1995, between the Rudolph Technologies Inc. and Brown University Research Foundation.	S-1	333-86821	September 9, 1999	10.1
21.1+	Subsidiaries.	—	—	—	—
23.1+	Consent of Ernst & Young LLP, Independent Registered Public Accounting Firm.	—	—	—	—
31.1+	Rule 13a-14(a) Certification of Chief Executive Officer of the Registrant pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.	—	—	—	—
31.2+	Rule 13a-14(a) Certification of Chief Financial Officer of the Registrant pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.	—	—	—	—
32.1+	Certification of the Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.	—	—	—	—
32.2+	Certification of the Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.	—	—	—	—
101.INS	Inline XBRL Instance Document				
101.SCH	Inline XBRL Taxonomy Extension Schema Document				
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document				
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document				
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document				
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document				
104	Cover Page Interactive Data File (formatted in inline XBRL and contained in Exhibit 101)				
*	Management contract, compensatory plan or arrangement.				
+	Filed herewith.				

ONTO INNOVATION INC.
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Report of Independent Registered Public Accounting Firm

To the Shareholders and the Board of Directors of Onto Innovation Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Onto Innovation Inc., formerly Rudolph Technologies, Inc. (the Company), as of December 31, 2019 and 2018, the related consolidated statements of operations, comprehensive income, shareholders' equity and cash flows for each of the three years in the period ended December 31, 2019, and the related notes and financial statement schedule listed in the Index at Item 15(a) (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2019 and 2018, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2019, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2019, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated February 25, 2020 expressed an unqualified opinion thereon.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Excess Inventory Reserve

Description of the Matter As described in Note 9 to the consolidated financial statements, the Company had net inventories of \$176.1 million as of December 31, 2019, which included materials of \$108.5 million, work-in-progress of \$42.7 million, and finished goods of \$24.9 million. The valuation of certain of the Company's inventory is subject to risks associated with supply and demand. As described in Note 2 to the consolidated financial statements, the Company maintains reserves for excess and obsolete inventory equal to the difference between the cost of inventory and its estimated net realizable value based upon assumptions about historical and future demand for the Company's products and market conditions.

Auditing management's estimate of the excess and obsolete inventory reserve was subjective and required significant judgment as the excess and obsolete inventory reserve is sensitive to changes in the Company's operations and assumptions used to estimate the reserve including management's assumptions with regards to product life-cycles, product demand and market conditions, which includes historical usage, expected future usage, on-hand quantities of individual materials, and anticipated engineering design changes or advancements.

*How We
Addressed the
Matter in Our
Audit*

We obtained an understanding, evaluated the design and tested the operating effectiveness of controls over the Company's excess and obsolete inventory reserve process, including those over the validity and reasonableness of the data and assumptions used in estimating the excess and obsolete inventory reserve.

To test the adequacy of the Company's excess and obsolete inventory reserve, we performed audit procedures that included, among others, assessing methodologies and assumptions used, testing the completeness and accuracy of the underlying data used by management in its analysis including the usage of historical materials, considering potential product obsolescence, observing physical inventory on-hand and inspecting historical gross margins to assess whether any items are being sold at a loss or lower margins that may need to be included in the reserve. We assessed the historical accuracy of management's estimated excess and obsolete inventory reserve and performed sensitivity analyses to evaluate changes in the estimate that result from changes in the Company's significant assumptions.

Accounting for Acquisition of Nanometrics Incorporated

*Description of the
Matter*

In October 2019, Rudolph Technologies, Inc. (Rudolph) completed its acquisition of Nanometrics Incorporated (Nanometrics) for net consideration of \$890.1 million, including identified intangible assets of \$374.9 million, which principally consisted of developed technology, in-process research and development and customer relationships, as disclosed in Note 3 to the consolidated financial statements. The transaction was accounted for as a business combination with Rudolph as the accounting acquirer.

Auditing the fair value of intangible assets was complex due to the sensitivity of the respective fair values to the significant underlying assumptions. The Company engaged a specialist that used an income approach which is based on a discounted cash flow model to measure the intangible assets. The significant assumptions used to estimate the fair value of the intangible assets included discount rates and revenue growth rates. These significant assumptions are forward looking and could be affected by future economic and market conditions. The determination of the accounting acquirer is a subjective determination where management applied judgment in evaluating the relevant criteria to make this determination.

*How We
Addressed the
Matter in Our
Audit*

We tested the Company's controls over its accounting for the Nanometrics acquisition. Our tests included controls over the determination of the accounting acquirer and the estimation process supporting the recognition and measurement of the intangible assets, including the significant assumptions used.

To test the estimated fair value of the intangible assets, we performed audit procedures that included, among others, evaluating the Company's use of the income approach and testing the significant assumptions used in the model, including the completeness and accuracy of the underlying data. We involved our valuation specialists to assist with our evaluation of the methodology used by the Company and significant assumptions included in the fair value estimates. For example, we compared the significant assumptions to current industry, market and economic trends; to the assumptions used to value similar assets in the marketplace; and to the historical results of the acquired business and to other guidelines used by companies within the same industry. To test the determination of the accounting acquirer, we performed audit procedures that included, among others, inspecting the analysis prepared by the Company on this topic and evaluating the accuracy of the information and the judgments made by management considering historical information, the merger agreement and other relevant information relating to the terms of the merger and the prospective plans of the Company after the merger.

/s/ Ernst & Young LLP

We have served as the Company's auditor since 2008.

Iselin, New Jersey
February 25, 2020

Report of Independent Registered Public Accounting Firm

To the Shareholders and the Board of Directors of Onto Innovation Inc.

Opinion on Internal Control Over Financial Reporting

We have audited Onto Innovation Inc.'s (formerly Rudolph Technologies, Inc.) internal control over financial reporting as of December 31, 2019, based on criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (the COSO criteria). In our opinion, Onto Innovation Inc. (the Company) maintained, in all material respects, effective internal control over financial reporting as of December 31, 2019, based on the COSO criteria.

As indicated in the accompanying Management's Report on Internal Control Over Financial Reporting, management's assessment of and conclusion on the effectiveness of internal control over financial reporting did not include the internal controls of Nanometrics Incorporated, which is included in the 2019 consolidated financial statements of the Company and constituted 26% of total assets as of December 31, 2019 and 22% of revenue for the year then ended. Our audit of internal control over financial reporting of the Company also did not include an evaluation of the internal control over financial reporting of Nanometrics Incorporated.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 31, 2019 and 2018, the related consolidated statements of operations, comprehensive income, stockholders' equity and cash flows for each of the three years in the period ended December 31, 2019, and the related notes and financial statement schedule listed in the Index at Item 15(a) and our report dated February 25, 2020 expressed an unqualified opinion thereon.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting included in the accompanying Management's Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects.

Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ Ernst & Young LLP

Iselin, New Jersey
February 25, 2020

ONTO INNOVATION INC.
CONSOLIDATED STATEMENTS OF OPERATIONS
(In thousands, except per share data)

	Year Ended December 31		
	2019	2018	2017
Revenue	\$ 305,896	\$ 273,784	\$ 255,098
Cost of revenue	170,868	125,505	120,503
Gross profit.....	<u>135,028</u>	<u>148,279</u>	<u>134,595</u>
Operating expenses:			
Research and development.....	48,358	39,953	37,694
Sales and marketing	28,251	22,010	20,795
General and administrative.....	53,017	33,698	27,878
Amortization.....	10,445	1,534	1,940
Patent litigation income.....	—	—	(13,000)
Total operating expenses.....	<u>140,071</u>	<u>97,195</u>	<u>75,307</u>
Operating income (loss).....	(5,043)	51,084	59,288
Interest income, net.....	3,666	2,206	971
Other income (expense), net.....	780	56	(457)
Income (loss) before provision (benefit) for income taxes...	(597)	53,346	59,802
Provision (benefit) for income taxes.....	<u>(2,507)</u>	<u>8,250</u>	<u>26,893</u>
Net income.....	<u>\$ 1,910</u>	<u>\$ 45,096</u>	<u>\$ 32,909</u>
Earnings per share:			
Basic.....	\$ 0.06	\$ 1.77	\$ 1.30
Diluted.....	\$ 0.06	\$ 1.74	\$ 1.27
Weighted average number of shares outstanding:			
Basic.....	29,729	25,470	25,325
Diluted.....	30,007	25,895	25,865

The accompanying notes are an integral part of these consolidated financial statements.

ONTO INNOVATION INC.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(In thousands)

	Year Ended December 31,		
	2019	2018	2017
Net income.....	\$ 1,910	\$ 45,096	\$ 32,909
Other comprehensive income (loss), net of tax:			
Change in net unrealized gains (losses) on investments.....	(44)	136	(89)
Change in currency translation adjustments.....	709	(194)	1,663
Total comprehensive income	\$ 2,575	\$ 45,038	\$ 34,483

The accompanying notes are an integral part of these consolidated financial statements.

ONTO INNOVATION INC.
CONSOLIDATED BALANCE SHEETS
(In thousands, except per share data)

	December 31, 2019	December 31, 2018
ASSETS		
Current Assets:		
Cash and cash equivalents	\$ 130,673	\$ 112,388
Marketable securities	189,563	62,684
Accounts receivable, less allowance of \$1,247 in 2019 and \$691 in 2018.....	123,656	64,194
Inventories	176,134	96,820
Prepaid expenses and other current assets	21,638	14,821
Total current assets	641,664	350,907
Property, plant and equipment, net	98,420	18,874
Goodwill	307,148	22,495
Identifiable intangible assets, net.....	371,953	7,448
Deferred income taxes	1,456	12,810
Other assets	27,939	5,506
Total assets	\$ 1,448,580	\$ 418,040
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	\$ 27,738	\$ 16,981
Accrued liabilities	26,204	13,700
Deferred revenue	12,629	6,767
Other current liabilities.....	19,172	7,543
Total current liabilities	85,743	44,991
Deferred and other tax liabilities.....	67,040	—
Other non-current liabilities.....	31,771	11,161
Total liabilities	184,554	56,152
Commitments and contingencies (Note 10).....		
Stockholders' equity:		
Preferred stock, \$0.001 par value, 3,000 and 4,021 shares authorized, no shares issued and outstanding at December 31, 2019 and 2018, respectively.	—	—
Common stock, \$0.001 par value, 97,000 and 80,420 shares authorized, 50,184 and 24,855 issued and outstanding at December 31, 2019 and 2018, respectively.....	50	31
Additional paid-in capital	1,269,437	369,893
Accumulated other comprehensive loss	(598)	(1,263)
Accumulated deficit	(4,863)	(6,773)
Total stockholders' equity	1,264,026	361,888
Total liabilities and stockholders' equity.....	\$ 1,448,580	\$ 418,040

The accompanying notes are an integral part of these consolidated financial statements.

ONTO INNOVATION INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands)

	Year Ended December 31,		
	2019	2018	2017
Cash flows from operating activities:			
Net income	\$ 1,910	\$ 45,096	\$ 32,909
Adjustments to reconcile net income to net cash and cash equivalents provided by operating activities:			
Depreciation	5,965	4,848	3,990
Amortization of intangibles.....	10,445	1,534	1,940
Share-based compensation	10,585	6,062	5,670
Acquired inventory step-up amortization.....	15,370	—	—
Provision for doubtful accounts and inventory valuation.....	11,202	3,335	3,608
Deferred income taxes	(4,116)	2,163	17,207
Other, net.....	2,098	1,265	590
Change in operating assets and liabilities net of assets acquired and liabilities assumed in merger:			
Accounts receivable	(9,721)	706	430
Income taxes.....	7,648	1,056	(4,727)
Inventories.....	(9,338)	(31,545)	(4,218)
Prepaid expenses and other assets	(5,079)	(3,101)	(1,686)
Accounts payable	(12,138)	3,512	3,198
Accrued and other liabilities.....	(6,685)	163	5,260
Net cash and cash equivalents provided by operating activities	<u>18,146</u>	<u>35,094</u>	<u>64,171</u>
Cash flows from investing activities:			
Purchases of marketable securities.....	(127,462)	(140,018)	(164,661)
Proceeds from sales of marketable securities.....	94,486	186,332	143,349
Purchases of property, plant and equipment.....	(6,802)	(7,542)	(10,210)
Cash acquired from merger	43,882	—	—
Cash advance on convertible note receivable.....	—	(5,000)	—
Purchase of intangible assets.....	—	—	(1,000)
Net cash and cash equivalents provided by (used in) investing activities.....	<u>4,104</u>	<u>33,772</u>	<u>(32,522)</u>
Cash flows from financing activities:			
Redemption of stock warrants	—	—	(1,025)
Purchases of common stock	(744)	(21,069)	—
Tax payments related to shares withheld for share-based compensation plans	(2,540)	(1,921)	(1,358)
Payment of contingent consideration for acquired business.....	(1,758)	(1,543)	(792)
Issuance of shares through share-based compensation plans	844	624	623
Net cash and cash equivalents used in financing activities.....	<u>(4,198)</u>	<u>(23,909)</u>	<u>(2,552)</u>
Effect of exchange rate changes on cash and cash equivalents.....	233	(339)	814
Net increase in cash and cash equivalents.....	18,285	44,618	29,911
Cash and cash equivalents at beginning of year.....	112,388	67,770	37,859
Cash and cash equivalents at end of year.....	<u>\$ 130,673</u>	<u>\$ 112,388</u>	<u>\$ 67,770</u>
Supplemental disclosure of cash flow information:			
Income taxes paid (received), net.....	\$ (3,848)	\$ 4,301	\$ 14,605
Litigation settlement received	\$ —	\$ —	\$ 13,000

The accompanying notes are an integral part of these consolidated financial statements.

ONTO INNOVATION INC.
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
For the years ended December 31, 2019, 2018 and 2017
(In thousands)

	<u>Common Stock</u>		<u>Additional Paid-in Capital</u>	<u>Accumulated Other Comprehensive</u>	<u>Accumulated</u>	<u>Total</u>
	<u>Shares</u>	<u>Amount</u>		<u>Loss</u>	<u>Deficit</u>	
Balance at December 31, 2016	25,033	\$ 31	\$ 381,189	\$ (2,779)	\$ (84,706)	\$ 293,735
Issuance of shares through share-based compensation plans, net	348	1	623	—	—	624
Net income	—	—	—	—	32,909	32,909
Share-based compensation	—	—	5,670	—	—	5,670
Cumulative effect of a change in accounting for share-based compensation	—	—	72	—	(72)	—
Share-based compensation plan withholdings	(47)	—	(1,358)	—	—	(1,358)
Redemption of stock warrants	82	—	—	—	—	—
Currency translation	—	—	—	1,663	—	1,663
Unrealized loss on investments	—	—	—	(89)	—	(89)
Balance at December 31, 2017	25,416	32	386,196	(1,205)	(51,869)	333,154
Issuance of shares through share-based compensation plans, net	358	—	624	—	—	624
Repurchase of common stock	(853)	(1)	(21,068)	—	—	(21,069)
Net income	—	—	—	—	45,096	45,096
Share-based compensation	—	—	6,062	—	—	6,062
Share-based compensation plan withholdings	(66)	—	(1,921)	—	—	(1,921)
Currency translation	—	—	—	(194)	—	(194)
Unrealized gain on investments	—	—	—	136	—	136
Balance at December 31, 2018	24,855	31	369,893	(1,263)	(6,773)	361,888
Effect of merger	25,060	19	890,112	—	—	890,131
Issuance of shares through share-based compensation plans, net	377	—	2,131	—	—	2,131
Repurchase of common stock	(30)	—	(744)	—	—	(744)
Net income	—	—	—	—	1,910	1,910
Share-based compensation	—	—	10,585	—	—	10,585
Share-based compensation plan withholdings	(78)	—	(2,540)	—	—	(2,540)
Currency translation	—	—	—	709	—	709
Unrealized loss on investments	—	—	—	(44)	—	(44)
Balance at December 31, 2019	<u>50,184</u>	<u>\$ 50</u>	<u>\$ 1,269,437</u>	<u>\$ (598)</u>	<u>\$ (4,863)</u>	<u>\$ 1,264,026</u>

The accompanying notes are an integral part of these consolidated financial statements

ONTO INNOVATION INC.
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
(In thousands, except per share data)

1. Organization and Nature of Operations:

Onto Innovation Inc. (“Onto Innovation” or the “Company”) is a worldwide leader in the design, development, manufacture and support of process control tools that perform macro-defect inspections and metrology, lithography systems, and process control analytical software used by semiconductor and advanced packaging device manufacturers. The Company’s products are also used in a number of other high technology industries including: silicon wafer substrates; light emitting diode (“LED”); vertical-cavity surface-emitting laser (“VCSEL”); micro-electromechanical system (“MEMS”); CMOS image sensor (“CIS”); power device; RF filter; data storage; and certain industrial and scientific applications. The Company provides process and yield management solutions used in bare silicon wafer production and wafer processing facilities, often referred to as “front-end” manufacturing and device packaging and test facilities, (or “back-end” manufacturing), respectively through a portfolio of standalone systems for macro-defect inspection, packaging lithography, probe card test and analysis, as well as transparent and opaque thin film measurements. Our automated and integrated metrology systems measure critical dimensions, device structures, topography, shape, and various thin film properties, including three-dimensional features and film thickness, as well as optical, electrical and material properties. Our primary area of focus are products that provide critical yield-enhancing information, which is used by microelectronic device manufacturers to drive down costs and to decrease the time to market of their devices. All of Onto Innovation’s systems feature sophisticated software and production-worthy automation. In addition, the Company’s advanced process control software portfolio includes powerful solutions for standalone tools, groups of tools, factory-wide, and enterprise-wide suites to enhance productivity and achieve significant cost savings. Onto Innovation’s systems are backed by worldwide customer service and applications support. The Company has branch sales and service offices or subsidiaries in Korea, Japan, China, Taiwan, Singapore and in several countries in Europe. The Company operates in a single reportable segment and is a provider of process characterization equipment and software for wafer fabs and advanced packaging facilities.

Basis of Presentation. As further discussed in Note 3 of Notes to the Consolidated Financial Statements, Rudolph Technologies, Inc. (“Rudolph”) and Nanometrics Incorporated (“Nanometrics”) completed a merger effective October 25, 2019 (the “Merger”). Upon consummation of the Merger, the combined company was renamed Onto Innovation. The Merger was accounted for as a reverse acquisition where Rudolph was the accounting acquirer and Nanometrics was the legal acquirer in accordance with Accounting Standards Codification (“ASC”) Topic 805, “Business Combinations” (“ASC 805”). Accordingly, Rudolph’s historical results of operations replaced the Nanometrics historical results of operations for all periods prior to the merger. Specifically, the accompanying Consolidated Financial Statements for all periods prior to the Merger are those of Rudolph and for the period after the Merger, also include Nanometrics. The Consolidated Financial Statements reflect the assets and liabilities of Rudolph at historical cost basis and the assets and liabilities of Nanometrics are reflected at fair value under the acquisition method. While Rudolph applied the acquisition method of accounting to Nanometrics, the legal capital in the current and prior periods has been retroactively adjusted to reflect the legal capital of Nanometrics. Accordingly, earnings per share has been retroactively restated for periods prior to the merger date.

Reclassifications. In conjunction with the Merger, the Company assessed the need to realign its financial statement presentation and certain income statement classifications were adjusted with prior periods reclassified to conform with current period presentation. The changes made were as follows:

- Amounts related to sales and marketing are now presented on a separate line on the Consolidated Statements of Operations and were previously reported under the caption “Selling, general and administrative.”
- Amounts related to applications engineering are now presented under the caption, “Sales and marketing” on the Consolidated Statements of Operations and were previously reported under the caption “Research and development.”
- Certain line items on the prior period Consolidated Balance Sheet were combined to conform to current period presentation. For additional information on the Company’s balance sheet details, see Note 9 of Notes to the Consolidated Financial Statements.

ONTO INNOVATION INC.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(In thousands, except per share data)

2. Summary of Significant Accounting Policies:

Consolidation. The consolidated financial statements reflect the accounts of the Company and its wholly-owned subsidiaries. All intercompany accounts and transactions have been eliminated.

Revenue Recognition. Revenue is recognized when control of the promised goods or services are transferred to the Company's customers in an amount that reflects the consideration the Company expects to be entitled to receive in exchange for those goods or services. The Company accounts for a contract when it has approval and commitment from both parties, the rights of the parties and payment terms are identified, the contract has commercial substance and collectability of consideration is probable.

The Company has elected to account for shipping and handling activities as the fulfillment of a promise to transfer goods to the customer and therefore records these activities under the caption "Cost of revenue." Sales tax and any other taxes collected concurrent with revenue producing activities are excluded from revenue. Incidental items that are immaterial in the context of the contract are recognized as expense. These accounting policy elections are consistent with the manner in which the Company has historically recorded these items.

Contracts with customers may include multiple performance obligations. For such arrangements, the Company allocates revenue to each performance obligation based on its relative standalone selling price. The Company generally determines standalone selling prices based on the prices charged to customers or the expected cost-plus margin.

Systems and Software Revenue

Revenue from systems is recognized when the Company transfers control of the product to the customer. To indicate transfer of control, the Company must have a present right to payment, legal title must have passed to the customer and the customer must have the significant risks and rewards of ownership. The Company generally transfers control for system sales when the customer or the customer's agent picks up the system at the Company's facility. Payment for the majority of the Company's systems have 80-90% of the invoice amount due within 30 days and the remaining amount due upon completion of installation, recalibration and qualification by the customer. The Company provides an assurance warranty on its systems for a period of twelve to fourteen months against defects in material and workmanship. The Company provides for the estimated cost of product warranties at the time revenue is recognized.

Depending on the terms of the systems arrangement, the Company may also defer the recognition of a portion of the consideration expected to be received because the Company has to satisfy a future obligation (e.g., installation, training and extended warranties). The Company uses an observable price to determine the standalone selling price for separate performance obligations or a cost-plus margin approach when one is not available.

Revenue from software licenses provides the customer with a right to use the software as it exists when made available to the customer. Revenue from software licenses are recognized upfront at the point in time when the software is made available to the customer. Revenue from licensing support and maintenance is recognized as the support and maintenance are provided, which is over the contract period. Payment for software licensing, support and maintenance is generally due in 30 days.

Parts Revenue

Revenue from parts is recognized when the Company transfers control of the product, which typically occurs when the Company ships the product from its facilities to the customer. Payment for parts is generally due in 30 days.

Services Revenue

Revenue from services primarily consists of service contracts, which provide additional maintenance coverage beyond the Company's assurance warranty on its products, service labor, consulting and training. Revenue from service contracts is recognized ratably over the term of the service contract. Revenue from service labor, consulting and training is recognized as services are performed. Payment for services is generally due in 30 days. Revenue from installation services is recognized at a point in time when installation is complete.

ONTO INNOVATION INC.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued) (In thousands, except per share data)

Practical Expedients

The Company generally expenses sales commissions when incurred because the amortization period is one year or less. These costs are recorded within selling, general and administrative expenses.

The Company does not adjust the amount of consideration for the effects of a significant financing component as the payment terms are generally one year or less.

The Company does not disclose the value of remaining performance obligations for contracts with an original expected length of one year or less and contracts for which the Company recognizes revenue in the amount to which it has the right to invoice.

For additional information on the Company's revenue recognition, see Note 11 of Notes to the Consolidated Financial Statements.

Business Combinations. We account for business combinations under the acquisition method of accounting, which requires us to recognize separately from goodwill the assets acquired, and the liabilities assumed at their acquisition date fair values. While we use our best estimates and assumptions to accurately value assets acquired and liabilities assumed at the acquisition date as well as contingent consideration, where applicable, our estimates are inherently uncertain and subject to refinement. As a result, during the measurement period, which may be up to one year from the acquisition date, we record adjustments to the assets acquired and liabilities assumed with the corresponding offset to goodwill. Upon the conclusion of the measurement period or final determination of the values of assets acquired or liabilities assumed, whichever comes first, any subsequent adjustments are recognized in our consolidated statements of operations. Accounting for business combinations requires our management to make significant estimates and assumptions, especially at the acquisition date including our estimates for intangible assets, contractual obligations assumed, restructuring liabilities, pre-acquisition contingencies, and contingent consideration, where applicable. Although we believe the assumptions and estimates we have made in the past have been reasonable and appropriate, they are based, in part, on historical experience and information obtained from the management of the acquired companies and are inherently uncertain. Estimates in valuing certain acquired intangible assets under the income approach include growth in future expected cash flows from product sales, acquired technologies, technology obsolescence rates, estimated cash flows from the projects when completed and discount rates. Unanticipated events and circumstances may occur that may affect the accuracy or validity of such assumptions, estimates or actual results.

For additional information on the Company's business combinations, see Note 3 of Notes to the Consolidated Financial Statements.

Estimates. The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities as of the date of the financial statements and the reported amounts of revenue and expenses during the reporting period. Significant estimates made by management include the allowances for doubtful accounts and convertible notes receivable, excess and obsolete inventory, fair value of assets acquired and liabilities assumed in a business combination, recoverability and useful lives of property, plant and equipment and identifiable intangible assets, recoverability of goodwill, recoverability of deferred tax assets, liabilities for product warranty, contingencies, including litigation reserves and share-based payments and liabilities for tax uncertainties. Actual results could differ from those estimates.

Cash and Cash Equivalents. Cash and cash equivalents include cash and highly liquid debt instruments with original maturities of three months or less when purchased.

Marketable Securities. The Company determined that all of its investment securities are to be classified as available-for-sale. Available-for-sale debt securities are carried at fair value, with the unrealized gains and losses reported in stockholders' equity under the caption "Accumulated other comprehensive loss." Realized gains and losses and, interest and dividends on available-for-sale securities are included in interest income and other, net. Available-for-sale securities are classified as current assets regardless of their maturity date if they are available for use in current operations. The Company reviews its investment portfolio to identify and evaluate investments that have indications of possible impairment. Factors considered in determining whether

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a loss is other-than-temporary include the length of time and extent to which fair value has been less than the cost basis, credit quality and the Company's ability and intent to hold the investment for a period of time sufficient to allow for any anticipated recovery in market value. When a decline in fair value is determined to be other-than-temporary, unrealized losses on available-for-sale securities are charged against earnings. The specific identification method is used to determine the gains and losses on marketable securities.

For additional information on the Company's marketable securities, see Note 5 of Notes to the Consolidated Financial Statements.

Allowance for Doubtful Accounts. The Company evaluates the collectability of accounts receivable based on a combination of factors. Where the Company is aware of circumstances that may impair a specific customer's ability to meet its financial obligation, the Company records a specific allowance against amounts due, thereby reducing the net recognized receivable to the amount management reasonably believes will be collected. For all other customers, the Company recognizes allowances for doubtful accounts based on the length of time the receivables are outstanding, industry and geographic concentrations, the current business environment and historical experience.

Inventories. Inventories are stated at the lower of cost or net realizable value. Net realizable value is the estimated selling prices in the ordinary course of business, less predictable costs of completion, disposal and transportation. Cost is generally determined on a first-in, first-out basis, and includes material, labor and manufacturing overhead costs. The Company reviews and sets standard costs as needed, but at a minimum, on an annual basis, at current manufacturing costs in order to approximate actual costs.

The Company evaluates inventories for excess quantities and obsolescence. The Company establishes inventory reserves when conditions exist that suggest that inventory may be in excess of anticipated demand or is obsolete based upon assumptions about historical and future demand for the Company's products and market conditions. In addition, inventories are evaluated for potential obsolescence due to the effect of known and anticipated engineering design changes. Once a reserve has been established, it is maintained until the item to which it relates is scrapped or sold. The Company regularly evaluates its ability to realize the value of inventory based on a combination of factors including the following: historical usage rates, forecasted sales of usage, product end-of-life dates, estimated current and future market values and new product introductions. When recorded, reserves are intended to reduce the carrying value of the Company's inventory to its net realizable value. If actual demand for the Company's products deteriorates, or market conditions are less favorable than those that the Company projects, additional reserves may be required. Charges to Cost of revenue for excess and obsolete inventories totaled \$10,841 in 2019. Included in this amount is a charge of \$5,945 recorded in the fourth quarter related to excess inventory from a deemphasized product line and the rationalization of service inventory after the Merger. In 2018 and 2017, the Company recorded charges of \$3,042 and \$3,833, respectively.

Property, Plant and Equipment. Property, plant and equipment are stated at cost. Depreciation of property, plant and equipment is computed using the straight-line method over the estimated useful lives of the assets, which are five to twenty-two years for buildings, three to ten years for machinery and equipment, three to ten years for furniture and fixtures, three years for computer equipment, and three to seven years for software. Leasehold improvements are amortized using the straight-line method over the lesser of the lease term or the estimated useful life of the related asset. Repairs and maintenance costs are expensed as incurred and major renewals and betterments are capitalized.

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Impairment of Long-Lived Assets. Long-lived assets, such as property, plant, and equipment, and identifiable acquired intangible assets with definite useful lives, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to estimated undiscounted future cash flows expected to be generated by the asset. If the carrying amount of an asset exceeds its estimated future cash flows, an impairment charge is recognized in the amount by which the carrying amount of the asset exceeds the fair value of the asset, which is generally based on discounted cash flows. For the year ended December 31, 2019, there was an impairment to an item in property, plant and equipment of \$507, which was recorded in general and administrative expenses in the Consolidated Statements of Operations. There were no impairments of long-lived assets for the years ended December 31, 2018 and 2017.

Goodwill and Intangible Assets. Intangible assets with finite useful lives are amortized using the straight-line method over their estimated useful lives. Goodwill and indefinite lived assets are tested for impairment on an annual basis or when an event or changes in circumstances indicate that its carrying value may not be recoverable. Goodwill impairment is tested at the reporting unit level, which is defined as an operating segment or one level below the operating segment. The Company has one operating segment. No goodwill impairment occurred in 2019, 2018, or 2017. Goodwill is reviewed for impairment using either a qualitative assessment or a quantitative goodwill impairment test. If the Company chooses to perform a qualitative assessment and determine the fair value more likely than not exceeds the carrying value, no further evaluation is necessary. When the Company performs the quantitative goodwill impairment test, it compares fair value to carrying value, which includes goodwill. If fair value exceeds carrying value, the goodwill is not considered impaired. If the carrying value is higher than the fair value, the difference would be recognized as an impairment loss.

For additional information on the Company's goodwill and purchased intangible assets, see Note 6 of Notes to the Consolidated Financial Statements.

Concentration of Credit Risk. Financial instruments, which potentially subject the Company to concentrations of credit risk, consist primarily of accounts receivable, cash and cash equivalents and marketable securities. The Company performs ongoing credit evaluations of its customers and generally does not require collateral for sales on credit. The Company maintains allowances for potential credit losses. The Company maintains cash and cash equivalents and marketable securities with higher credit quality issuers and monitors the amount of credit exposure to any one issuer. The Company's investment policy provides guidelines and limits regarding credit quality, investment concentration, investment type, and maturity that the Company believes will provide liquidity while reducing risk of loss of capital. Investments are of a short-term nature and include investments in commercial paper, corporate debt securities, asset-backed securities, U.S. Treasury, U.S. Government, and U.S. Agency debt.

The Company sells its products primarily to end users in the United States, Asia and Europe and, generally, does not require its customers to provide collateral or other security to support accounts receivable. Management performs ongoing credit evaluations of its customers' financial condition and maintains an allowance for estimated potential bad debt losses. The Company's customer base is highly concentrated and historically, a relatively small number of customers have accounted for a significant portion of its revenues. The Company participates in a dynamic high technology industry and believes that changes in any of the following areas could have a material adverse effect on its future financial position, results of operations or cash flows: advances and trends in new technologies and industry standards; competitive pressures in the form of new products or price reductions on current products; changes in product mix; changes in the overall demand for products offered; changes in third-party manufacturers; changes in key suppliers; changes in certain strategic relationships or customer relationships; litigation or claims against the Company based on intellectual property, patent, product, regulatory or other factors; fluctuations in foreign currency exchange rates; risk associated with changes in domestic and international economic and/or political regulations; availability of necessary components or sub-assemblies; disruption of manufacturing facilities; and its ability to attract and retain employees necessary to support its growth.

Certain components and sub-assemblies used in the Company's products are purchased from a sole supplier or a limited group of suppliers. The Company currently purchases its spectroscopic ellipsometer and robotics used in its advanced measurement systems from a sole supplier or a limited group of suppliers located in the United States. Any shortage or interruption in the supply of any of the components or sub-assemblies used in its products or its inability to procure these

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components or sub-assemblies from alternate sources on acceptable terms could have a material adverse effect on its business, financial condition and results of operations.

Warranties. The Company generally provides a warranty on its products for a period of twelve to fourteen months against defects in material and workmanship. The Company provides for the estimated cost of product warranties at the time revenue is recognized. The estimated future warranty obligations are affected by the warranty periods, sales volumes, product failure rates, material usage and labor and replacement costs incurred in correcting a product failure. If actual product failure rates, material usage, labor or replacement costs differ from the Company's estimates, revisions to the estimated warranty obligations would be required. The warranty accrual represents the best estimate of the amount necessary to settle future and existing claims on products sold as of the balance sheet date. The Company periodically assesses the adequacy of its recorded warranty reserve and adjusts the amounts in accordance with changes in these factors.

Income Taxes. The Company accounts for income taxes using the asset and liability approach for deferred taxes which requires the recognition of deferred tax assets and liabilities for the expected future tax consequences of events that have been recognized in the Company's consolidated financial statements or tax returns. A valuation allowance is recorded to reduce a deferred tax asset to that portion which more likely than not will be realized.

For additional information on the Company's income taxes, see Note 14 of Notes to the Consolidated Financial Statements.

Translation of Foreign Currencies. The Company has branch operations or wholly-owned subsidiaries in the United States, Europe, Japan, China, Taiwan, Singapore and South Korea. Its international subsidiaries and branches operate primarily through the use of local functional currencies. A substantial portion of the Company's international systems sales are denominated in U.S. dollars with the exception of Japan. Consequently, we have relatively little exposure to foreign currency exchange risk with respect to these sales.

Assets and liabilities are translated at exchange rates in effect at the balance sheet date, and income and expense accounts and cash flow items are translated at average monthly exchange rates during the period. Net exchange gains or losses resulting from the translation of foreign financial statements and the effect of exchange rates on intercompany transactions of a long-term investment nature are recorded directly as a separate component of stockholders' equity under the caption, "Accumulated other comprehensive loss." Any foreign currency gains or losses related to transactions are included in operating results. The Company had accumulated exchange losses resulting from the translation of foreign operation financial statements of \$564 and \$1,273 as of December 31, 2019 and 2018, respectively.

Share-based Compensation. The Company measures the cost of employee services received in exchange for the award of equity instruments based on the fair value of the award at the date of grant. Compensation expense is recognized using the straight-line attribution method to recognize share-based compensation over the service period of the award, with adjustments recorded for forfeitures as they occur.

For additional information on the Company's share-based compensation plans, see Note 12 of Notes to the Consolidated Financial Statements.

Research and Development Costs. Expenditures for research and development are expensed as incurred.

Fair Value of Financial Instruments. The carrying amounts of the Company's financial instruments, including cash and cash equivalents, accounts receivable, accounts payable and accrued liabilities, approximate fair value due to their short maturities. The estimated fair value of these obligations is based, primarily, on a market approach, comparing the Company's interest rates to those rates the Company believes it would reasonably receive upon re-entry into the market. Judgment is required to estimate the fair value using available market information and appropriate valuation methods.

For additional information on the Company's fair value of financial instruments, see Note 4 of Notes to the Consolidated Financial Statements.

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Derivative Instruments and Hedging Activities. The Company, when it considers it to be appropriate, enters into forward contracts to hedge the economic exposures arising from foreign currency denominated transactions. At December 31, 2019 and 2018, these contracts included the future sale of Japanese Yen to purchase U.S. dollars. The foreign currency forward contracts were entered into by the Company’s Japanese subsidiary to hedge a portion of certain intercompany obligations. Post-merger with Nanometrics, the Company enters into forward contracts for several other currencies including the Korean Won, Taiwanese dollar and Chinese Yuan Renminbi. The forward contracts are not designated as hedges for accounting purposes and therefore, the change in fair value is recorded in general and administrative expenses in the Consolidated Statements of Operations. The Company records its forward contracts at fair value in either prepaid expenses and other current assets or other current liabilities in the Consolidated Balance Sheets.

The dollar equivalent of the U.S. dollar forward contracts and related fair values as of December 31, 2019 and 2018 were as follows:

	December 31,	
	2019	2018
Notional amount	38,887	6,746
Fair value of asset (liability)	120	(32)

During the years ended December 31, 2019 and 2017, the Company recorded gains of \$ \$343 and \$105 on maturities of forward contracts, respectively. During the year ended December 31, 2018, the Company recognized a loss of \$81 on maturities of forward contracts. The aggregate notional amounts of matured contracts were \$58,522, \$8,465 and \$9,582 for 2019, 2018 and 2017, respectively.

Contingencies and Litigation. The Company is subject to the possibility of losses from various contingencies, including certain legal proceedings, lawsuits and other claims. The Company accrues for a loss contingency when it concludes that the likelihood of a loss is probable and the amount of the loss can be reasonably estimated. If the Company concludes that loss contingencies that could be material to any one of its financial statements are not probable, but are reasonably possible, or are probable, but cannot be estimated, then the Company discloses the nature of the loss contingencies, together with an estimate of the range of possible loss or a statement that such loss is not reasonably estimable. The Company expenses as incurred the costs of defending legal claims against the Company. The Company does not recognize gain contingencies until realized. See Note 10 of the Notes to the Consolidated Financial Statements, “Commitments and Contingencies” for a detailed description.

Recent Accounting Pronouncements.

Recently Adopted

Effective January 1, 2019, the Company adopted Accounting Standards Update (“ASU”) No. 2018-07, “Compensation – Stock Compensation (Topic 718): Improvements to Nonemployee Share-Based Payment Accounting.” This ASU expands the scope of Topic 718 to include share-based payment transactions for acquiring goods and services from nonemployees. An entity should apply the requirements of Topic 718 to nonemployee awards except for specific guidance on inputs to an option pricing model and the attribution of cost. The ASU is effective for the fiscal years beginning after December 15, 2018, including interim periods within that fiscal year. The adoption of ASU No. 2018-07 did not have a material impact on the Company’s consolidated financial position, results of operations, and cash flows.

Effective January 1, 2019, the Company adopted ASU No. 2018-02, “Income Statement – Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income.” The new guidance allows companies to reclassify stranded tax effects resulting from the Tax Cuts and Jobs Act (the “Tax Act”) from accumulated other comprehensive income to retained earnings. The guidance also requires certain new disclosures regardless of a company’s election. The standard is effective for annual periods beginning after December 15, 2018 and for interim periods within those annual periods, with earlier adoption permitted. The adoption of ASU No. 2018-02 did not have a material impact on the Company’s consolidated financial position, results of operations, and cash flows.

In January 2017, the Financial Accounting Standards Board (“FASB”) issued ASU No. 2017-04, “Intangibles – Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment.” This ASU eliminates Step 2 from the goodwill impairment test. Accordingly, if the carrying amount of a reporting unit exceeds its fair value, an impairment loss will be

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recognized in an amount equal to the excess, limited to the total amount of goodwill allocated to the reporting unit. The ASU is effective for the fiscal years beginning after December 15, 2019 and for interim periods within those fiscal years, with earlier adoption permitted. The adoption of ASU No. 2017-04 during 2019 did not have a material impact on the Company's consolidated financial position, results of operations, and cash flows.

In February 2016, the FASB issued ASU No. 2016-02, "Leases (Topic 842)." ASU No. 2016-02 requires that lessees recognize virtually all of their leases on the balance sheet, by recording a right-of-use asset and lease liability. On January 1, 2019, the Company adopted ASU No. 2016-02 using the modified retrospective method which applies the provisions of the standard at the effective date without adjusting the comparative periods presented. The Company also elected the package of practical expedients.

There was not a cumulative-effect adjustment to the Company's beginning retained earnings as a result of adopting ASU No. 2016-02. The Company has recognized additional operating lease assets and obligations of \$14,426 as of January 1, 2019. As a result of the Merger, operating lease assets and obligations of \$9,658 were assumed from the former Nanometrics. The Company elected to not reassess prior conclusions related to the identification, classification and accounting for initial direct costs for leases that commenced prior to January 1, 2019. For additional disclosure and detail, see Note 7 of the Notes to the Consolidated Financial Statements, "Leasing Arrangements."

Recently Issued

In December 2019, the FASB issued ASU No. 2019-12, "Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes." This standard simplifies the accounting for income taxes by eliminating certain exceptions to the guidance in Topic 740 related to the approach for intraperiod tax allocation, the methodology for calculating income taxes in an interim period and the recognition of deferred tax liabilities for outside basis differences. The new guidance also simplifies aspects of the accounting for franchise taxes and enacted changes in tax laws or rates and clarifies the accounting for transactions that result in a step-up in the tax basis of goodwill and allocating consolidated income taxes to separate financial statements of entities not subject to income tax. ASU No. 2019-12 is effective for fiscal years beginning after December 15, 2020, with early adoption permitted. Upon adoption, the Company must apply certain aspects of this standard retrospectively for all periods presented while other aspects are applied on a modified retrospective basis through a cumulative-effect adjustment to retained earnings as of the beginning of the fiscal year of adoption. The Company is currently evaluating the impact of this new standard on its consolidated financial position, results of operations, and cash flows.

In August 2018, the FASB issued ASU No. 2018-13, "Fair Value Measurement (Topic 820): Disclosure Framework – Changes to the Disclosure Requirements for Fair Value Measurement." This ASU is part of the FASB's larger disclosure framework project intended to improve the effectiveness of financial statement footnote disclosure. ASU No. 2018-13 modifies required fair value disclosures related primarily to level 3 investments. This ASU is effective for annual periods beginning after December 15, 2019 and interim periods within those annual periods. The adoption of ASU No. 2018-13 is not expected to have a material effect on the Company's consolidated financial position, results of operations, and cash flows.

In May 2017, the FASB issued ASU No. 2017-09, "Compensation - Stock Compensation (Topic 718): Scope of Modification Accounting." This ASU amends the scope of modification accounting for share-based payment arrangements and provides guidance on the types of changes to the terms or conditions of share-based payment awards to which an entity would be required to apply modification accounting under Accounting Standards Codification ("ASC") 718. The ASU is effective for the fiscal years beginning after December 15, 2019 and for interim periods within those fiscal years. The adoption of ASU No. 2017-09 is not expected to have a material effect on the Company's consolidated financial position, results of operations, and cash flows, if any.

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In June 2016, the FASB issued ASU No. 2016-13, “Financial Instruments – Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments,” which represents a new credit loss standard that will change the impairment model for most financial assets and certain other financial instruments. Specifically, this guidance will require entities to utilize a new “expected loss” model as it relates to trade receivables, notes receivable and other commitments to extend credit held by a reporting entity. In addition, entities will be required to recognize an allowance for estimated credit losses on available-for-sale debt securities, regardless of the length of time that a security has been in an unrealized loss position. This guidance will be effective for annual reporting periods beginning after December 15, 2019, including interim periods within those annual reporting periods, with early adoption permitted. The Company expects that the adoption of this guidance will not have a material impact on its consolidated financial position, results of operations, and cash flows.

Recently issued accounting guidance not discussed above is not applicable or did not have, or is not expected to have, a material impact to the Company.

3. Business Combination:

Pursuant to the Agreement and Plan of Merger dated as of June 23, 2019 (the “Merger Agreement”), among Rudolph Technologies, Inc. (“Rudolph”), Nanometrics Incorporated, (“Nanometrics”) and PV Equipment Inc., a wholly-owned subsidiary of Nanometrics, (“Merger Sub”) Merger Sub merged with and into Rudolph, with Rudolph continuing as a wholly-owned subsidiary of Onto Innovation (formerly Nanometrics) and the surviving corporation of the merger (the “Merger”). The Merger was effective on October 25, 2019 (the “Effective Time”). At the Effective Time, each share of Rudolph common stock, par value \$0.001 per share, issued and outstanding immediately prior to the Effective Time (other than shares owned by Rudolph or Nanometrics) was converted into the right to receive 0.8042 (the “Exchange Ratio”) shares of common stock, par value \$0.001 per share, of Onto Innovation common stock, par value \$0.001 per share, and cash in lieu of any fractional shares of Onto Innovation common stock any former holder of Rudolph common stock would otherwise be entitled to receive. Immediately following the Effective Time of the Merger, Rudolph’s and Nanometrics’ common stockholders each owned approximately 50% of the outstanding common stock of the combined company on a fully diluted basis.

The Merger creates a company that is an end-to-end metrology, inspection, process control software, and lithography equipment provider for the semiconductor industry and other advanced markets with a global support organization whose technology development teams, and product portfolio creates unique end-to-end solutions across the entire semiconductor fabrication process. The company will be able to provide improved device yield at reduced manufacturing cycle time, supporting the accelerated product life cycles in the semiconductor and other advanced markets.

The combined company accounts for the Merger as a reverse acquisition, using the acquisition method of accounting in accordance with generally accepted accounting principles, with Rudolph being treated as the acquiring entity for accounting purposes. In identifying Rudolph as the accounting acquiring entity, Rudolph and Nanometrics reviewed the accounting guidance as provided in ASC 805, which takes into account the type of consideration, the structure of the merger and the other transactions contemplated by the merger agreement, relative outstanding share ownership, the composition of the combined company board of directors, designation of certain senior management positions of the combined company, mainly the Chief Executive Officer and the Chief Financial Officer, relative voting rights, relative size as measured by assets, revenue or earnings as well as other metrics an investor would use for evaluating the respective company’s current and future financial performance, which of the combining entities initiated the combination and where the combined company’s headquarters will be located.

The acquisition method of accounting is based on ASC 805, and uses the fair value concepts defined in ASC Topic 820, “Fair Value Measurement” (“ASC 820”). The purchase price allocation described herein is preliminary and is based on the information that was available to make estimates of the fair value and may change as further information becomes available and additional analysis are completed. While the Company believes that such information provides a reasonable basis for estimating the fair values, more evidence and information may be obtained during the measurement period that results in changes to the estimated fair value amounts. The measurement period ends on the earlier of one year after the Effective Time or the date information about the facts and circumstances that existed at the Effective Time becomes available. Such adjustments, if necessary, will be recognized during the period in which that amounts are determined. These adjustments may include: (1) changes in the fair value of certain intangible assets acquired; and (2) changes in deferred tax assets and liabilities related to the fair value estimates.

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At the Effective Time of the Merger, Nanometrics changed its name to Onto Innovation Inc., and its shares began trading on the New York Stock Exchange (the “NYSE”) on October 28, 2019 (NYSE: ONTO). At the close of trading on October 25, 2019, Rudolph common stock ceased being listed on the NYSE. The accompanying consolidated financial statements for all periods presented are those of Rudolph with those of Nanometrics included only from the Effective Time through year-end.

The acquisition was nontaxable to the Company and certain of the assets acquired, including goodwill, will not be deductible for tax purposes. The acquired assets and liabilities of Nanometrics were recorded at their respective fair values including an amount for goodwill, which represents the purchase price paid in excess of the fair value of the net tangible and intangible assets acquired and liabilities assumed, and is attributable primarily to expected synergies, economies of scale and the assembled workforce of Nanometrics.

ASC 805 requires, among other things, that assets acquired, and liabilities assumed, be recognized at their fair values as of the Effective Time. In addition, ASC 805 requires that the consideration transferred be measured at the Effective Time of the Merger at the then-current market price. The market price of the shares of Rudolph common stock at the Effective Time was \$28.50, which was based on the closing price of shares of Rudolph common stock on the NYSE on Friday, October 25, 2019, the last day of trading prior to the Effective Time.

ASC 820 defines the term “fair value” and sets forth the valuation requirements for any asset or liability measured at fair value, expands related disclosure requirements and specifies a hierarchy of valuation techniques based on the nature of the inputs used to develop the fair value measurements. Fair value is defined in ASC 829 as “the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date.” This is an exit price concept for the valuation of the asset or liability. In addition, market participants are assumed to be buyers and sellers in the principal (or most advantageous) market for the asset or liability. Fair value measurements for an asset assume the highest and best use by these market participants. As a result of these standards, the Company may be required to record the fair value of assets which are not intended to be used or sold and/or to value assets at fair values that do not reflect the Company’s intended use for those assets. Many of these fair value measurements can be highly subjective, and it is possible that other professionals, applying reasonable judgment to the same facts and circumstances, could develop and support a range of alternative estimated amounts.

The aggregate purchase price of \$890,131 consisted of 25,060 shares of common stock valued at \$884,801 and the fair value of assumed Nanometrics equity awards of \$5,330. Under ASC 805, acquisition-related transaction costs (e.g., advisory, legal, investment banking and other professional fees) are not included as a component of consideration transferred but are accounted for as expenses in the periods in which such costs are incurred. Total transaction costs incurred by the Company were \$9,907 during the year ended December 31, 2019 and are included in general and administrative expense in the Consolidated Statements of Operations.

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The following table summarizes the preliminary allocation of the total purchase consideration to the initial estimated fair values of the assets acquired and liabilities assumed as of October 25, 2019:

Cash and cash equivalents	\$43,882
Marketable securities	94,389
Account receivables	49,917
Inventories	98,478
Prepaid expenses and other current assets	7,734
Property, plant and equipment	77,451
Operating lease right-of-use assets	9,658
Identifiable intangible assets	374,900
Deferred income taxes	1,352
Other assets	850
Total assets acquired	758,611
Accounts payable	(23,361)
Payroll and related expenses	(20,290)
Deferred revenue	(5,931)
Other current liabilities	(10,739)
Income taxes payable	(2,699)
Other non-current liabilities	(90,113)
Net assets acquired	605,478
Goodwill	284,653
Total purchase consideration	\$890,131

The fair value of accounts receivable, net, consisted of gross contractual accounts receivable reduced by approximately \$200 for receivables not expected to be collected as of the acquisition date. The inventory acquired consisted primarily of work in process, for which fair value was measured based on determining its net realizable value as such value represents an exit price in an orderly transaction between market participants, and raw materials. Factors that required judgment in determining the net realizable value for the inventory included determining estimated selling prices, cost to complete, costs to dispose, operating profit, and discount rates, among others. The Company recorded a \$26,486 step-up of inventory to its fair value as of the Merger date based on the preliminary valuation.

The preliminary allocation of the intangible assets subject to amortization is as follows:

	Estimated Fair Value	Weighted Average Useful Life (years)
Developed technology	\$260,500	6.6
In-process research and development	46,600	indefinite
Customer relationships	53,000	13.1
Backlog	6,700	1.1
Trademarks and trade names	8,100	7.5
Total intangible assets	\$374,900	

Acquired intangible assets reported above are being amortized using the straight-line method over their estimated useful lives, which approximates the pattern of how the economic life is expected to be used. This includes amounts allocated to customer relationships because of anticipated high customer retention rates that are common in the semiconductor capital equipment industry.

Developed technology relates to Nanometrics' product family and was valued using the multi-period excess earnings method under the income approach. This method reflects the present value of the projected cash flows that are expected to be generated by the developed technology less charges representing the contribution of other assets to those cash flows. The

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average estimated useful life of developed technologies was determined to be 6.6 years and was based on the technology cycle related to each developed technology, as well as the cash flows over the respective forecast period.

The fair value of the in-process research and development (“IPRD”) was determined using the multi-period excess earnings method under the income approach. Such method reflects the present value of the projected cash flows that are expected to be generated by the IPRD, less costs to complete the development and charges representing the contribution of other assets to those cash flows.

Customer relationships represent the fair value of future projected revenue that will be derived from sales of products to new and existing customers and was valued using the distributor method under the income approach. This method reflects the present value of projected distributor margins to be derived from sales to existing customers less charges representing the contribution of other assets to those cash flows. The estimated useful life of the customer relationships was determined to be 13.1 years and was based on historical customer turnover rates.

Order backlog represents the fair value of future projected revenue that will be derived from outstanding orders from customers that have not yet been shipped and was valued using the multi-period excess earnings method under the income approach, which reflects the present value of such outstanding orders less charges representing the contribution of other assets to those cash flows. The estimated useful life of the order backlog was determined to be 1.1 years and was based on historical order fulfilment rates.

Trademarks and trade names relate to the “Nanometrics” trademarks and trade names and were fair valued by applying the relief-from-royalty method under the income approach. This method is based on the application of a royalty rate to forecasted revenue under the trademarks and trade names. The estimated useful life of the trademarks and trade names was determined to be 7.5 years and was based on the expected life of the trademarks and trade names and the cash flows anticipated over the forecast period.

Factors that required a judgment in determining the fair value for the acquired intangible assets included estimating future cash flows, revenue and gross margin assumptions, technology lives, future operating expenses, and discount rates, among others.

The Company has determined that the estimated useful life of the acquired in-process research and development is currently indeterminate; thus, it has been categorized as indefinite and will be reviewed annually for impairment, along with the Company’s other long-lived assets with indefinite lives, unless its estimated useful life is known.

The Company believes the amounts of purchased intangible assets recorded above represent the fair values of and approximate the amounts a market participant would pay for such assets as of the Effective Time.

The results of operations of Nanometrics are reported in the Company’s consolidated financial statements from the Effective Time and include \$66,261 of total net sales and an operating loss of \$7,065 for the year ended December 31, 2019.

Unaudited Pro Forma Financial Information

The following unaudited pro forma financial information summarizes the combined results of operations of Rudolph and Nanometrics, on a pro forma basis, as if the companies had combined at the beginning of fiscal year 2018. The pro forma financial information is presented for informational purposes only and may not necessarily reflect the actual results of operations that would have been achieved if the Merger had taken place on January 1, 2018, nor are they necessarily reflective of future results of operations. The pro forma information for all periods presented also includes adjustments to amortization charges for acquired intangible assets, depreciation charges for stepped-up fair value of acquired fixed assets, related tax effects and other adjustments.

ONTO INNOVATION INC.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

(In thousands, except per share data)

The reported financial information for the year ended December 31, 2019 includes the results of Rudolph for the year then-ended and the results of Nanometrics from the Effective Time through December 31, 2019. The reported financial information for the year ended December 31, 2018 is the historical results of Rudolph:

	Year Ended December 31,			
	2019		2018	
	Reported	Pro Forma	Reported	Pro Forma
Net revenue.....	\$ 305,896	\$ 525,455	\$ 273,784	\$ 598,307
Net income attributable to Onto Innovation	1,910	901	45,096	36,246

The pro forma results have been adjusted to eliminate \$37,900 of merger-related costs incurred by Rudolph and Nanometrics that would have been incurred in 2017 had the Merger occurred on January 1, 2018.

4. Fair Value Measurements:

The Company applies a three-level valuation hierarchy for fair value measurements. This hierarchy prioritizes the inputs into three broad levels. Level 1 inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities. Level 2 inputs are quoted prices for similar assets and liabilities in active markets or inputs that are observable for the asset or liability, either directly or indirectly through market corroboration, for substantially the full term of the asset or liability. Level 3 inputs are unobservable inputs based on management’s assumptions used to measure assets and liabilities at fair value. A financial asset’s or liability’s fair value measurement classification within the hierarchy is determined based on the lowest level input that is significant to the fair value measurement.

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NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(In thousands, except per share data)

The following tables provide the assets and liabilities carried at fair value measured on a recurring basis at December 31, 2019 and December 31, 2018:

	Fair Value Measurements Using			
	Carrying Value	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
December 31, 2019				
Assets:				
Available-for-sale debt securities:				
Municipal notes and bonds	\$ 81,108	\$ —	\$ 81,108	\$ —
Asset-backed securities	10,779	—	10,779	—
Certificates of deposit	30,507	—	30,507	—
Commercial paper	30,708	—	30,708	—
Corporate bonds	36,461	—	36,461	—
Foreign currency forward contracts.....	120	—	120	—
Total assets	<u>\$ 189,683</u>	<u>\$ —</u>	<u>\$ 189,683</u>	<u>\$ —</u>
Liabilities:				
Contingent consideration – acquisitions.....	\$ 569	\$ —	\$ —	\$ 569
Total liabilities	<u>\$ 569</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 569</u>
December 31, 2018				
Assets:				
Available-for-sale debt securities:				
Municipal notes and bonds	\$ 62,684	\$ —	\$ 62,684	\$ —
Total assets	<u>\$ 62,684</u>	<u>\$ —</u>	<u>\$ 62,684</u>	<u>\$ —</u>
Liabilities:				
Contingent consideration – acquisitions.....	\$ 2,060	\$ —	\$ —	\$ 2,060
Foreign currency forward contracts.....	32	—	32	—
Total liabilities	<u>\$ 2,092</u>	<u>\$ —</u>	<u>\$ 32</u>	<u>\$ 2,060</u>

The Company's available-for-sale debt securities classified as Level 2 are valued using observable inputs to quoted market prices, benchmark yields, reported trades, broker/dealer quotes or alternative pricing sources with reasonable levels of price transparency. The foreign currency forward contracts are primarily measured based on the foreign currency spot and forward rates quoted by the banks or foreign currency dealers. Investment prices are obtained from third party pricing providers, which model prices utilizing the above observable inputs, for each asset class.

Level 3 liabilities consisted of contingent consideration related to an acquisition for which the Company uses a discounted cash flow model to value these liabilities. The Level 3 assumptions used in the discounted cash flow model for the contingent consideration included projected revenue, timing of cash flows and estimates of discount rates of 0.0% and 9.2% for the years ended December 31, 2019 and 2018, respectively. A significant decrease in the projected revenue or increase in discount rates could result in a significantly lower fair value measurement for the contingent consideration.

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NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(In thousands, except per share data)

This table presents a reconciliation of all liabilities measured at fair value on a recurring basis using significant unobservable inputs (Level 3) for the year ended December 31, 2019:

	Fair Value Measurements Using Significant Unobservable Inputs (Level 3)
Balance at December 31, 2018	\$ 2,060
Total loss due to remeasurement included in general and administrative expense	267
Additions	—
Payments	(1,758)
Transfer into (out of) Level 3	—
Balance at December 31, 2019	<u>\$ 569</u>

See Note 5 for additional discussion regarding the fair value of the Company’s marketable securities.

Fair Value of Other Financial Instruments

The carrying value of cash and cash equivalents, accounts receivable, accounts payable and accrued liabilities approximates fair value because of the short-term maturity of these instruments. The estimated fair value of these obligations is based, primarily, on a market approach, comparing the Company’s interest rates to those rates the Company believes it would reasonably receive upon re-entry into the market. Judgment is required to estimate the fair value using available market information and appropriate valuation methods.

The carrying amount of the convertible notes receivable approximates fair value based on current interest rates for instruments with similar characteristics. Convertible notes receivable are initially recognized at fair value. The Company does not subsequently adjust the fair value of these convertible notes receivable unless it is determined that the convertible note receivable is impaired. The Company considers the issuer’s financial condition, payment history, and other relevant factors when assessing the collectability of the convertible note and to reserve the portion of such convertible note for which collection does not appear likely.

5. Marketable Securities:

The Company has evaluated its investment policies and determined that all of its marketable securities, which are comprised of debt securities, are to be classified as available-for-sale. The Company’s available-for-sale debt securities are carried at fair value, with the unrealized gains and losses reported in Stockholders’ equity under the caption “Accumulated other comprehensive loss.” Realized gains and losses on available-for-sale securities are included in “Other income (expense)” on the Consolidated Statements of Operations. The Company records other-than-temporary impairment charges for its available-for-sale debt securities when it intends to sell the securities, it is more-likely-than not that it will be required to sell the securities before a recovery, or when it does not expect to recover the entire amortized cost basis of the securities. The cost of securities sold is based on the specific identification method.

The Company has determined that the gross unrealized losses on its marketable securities at December 31, 2019 and 2018 are temporary in nature. The Company reviews its investment portfolio to identify and evaluate marketable securities that have indications of possible impairment. Factors considered in determining whether a loss is other-than-temporary include the length of time and extent to which fair value has been less than the cost basis, credit quality and the Company’s ability and intent to hold the securities for a period of time sufficient to allow for any anticipated recovery in market value.

ONTO INNOVATION INC.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(In thousands, except per share data)

At December 31, 2019 and 2018, marketable securities are categorized as follows:

	<u>Amortized Cost</u>	<u>Gross Unrealized Holding Gains</u>	<u>Gross Unrealized Holding Losses</u>	<u>Fair Value</u>
December 31, 2019				
Municipal notes and bonds	\$ 80,926	\$ 188	\$ 6	\$ 81,108
Asset-backed securities.....	10,767	12	—	10,779
Certificates of deposit.....	30,500	7	—	30,507
Commercial paper.....	30,707	1	—	30,708
Corporate bonds.....	36,409	52	—	36,461
Total marketable securities	<u>\$ 189,309</u>	<u>\$ 260</u>	<u>\$ 6</u>	<u>\$ 189,563</u>
December 31, 2018				
Municipal notes and bonds	\$ 62,681	\$ 43	\$ 40	\$ 62,684
Total marketable securities	<u>\$ 62,681</u>	<u>\$ 43</u>	<u>\$ 40</u>	<u>\$ 62,684</u>

The amortized cost and estimated fair value of marketable securities classified by the maturity date listed on the security, regardless of the Consolidated Balance Sheet classification, is as follows at December 31, 2019 and 2018:

	<u>December 31, 2019</u>		<u>December 31, 2018</u>	
	<u>Amortized Cost</u>	<u>Fair Value</u>	<u>Amortized Cost</u>	<u>Fair Value</u>
Due within one year.....	\$ 152,649	\$ 152,852	\$ 47,767	\$ 47,732
Due after one through five years.....	36,660	36,711	14,914	14,952
Due after five through ten years.....	—	—	—	—
Due after ten years.....	—	—	—	—
Total marketable securities	<u>\$ 189,309</u>	<u>\$ 189,563</u>	<u>\$ 62,681</u>	<u>\$ 62,684</u>

The following table summarizes the estimated fair value and gross unrealized holding losses of marketable securities, aggregated by investment instrument and period of time in an unrealized loss position, at December 31, 2019 and 2018.

	<u>In Unrealized Loss Position For Less Than 12 Months</u>		<u>In Unrealized Loss Position For Greater Than 12 Months</u>	
	<u>Fair Value</u>	<u>Gross Unrealized Losses</u>	<u>Fair Value</u>	<u>Gross Unrealized Losses</u>
December 31, 2019				
Municipal notes and bonds	\$ 14,166	\$ 6	\$ —	\$ —
Total marketable securities	<u>\$ 14,166</u>	<u>\$ 6</u>	<u>\$ —</u>	<u>\$ —</u>
December 31, 2018				
Municipal notes and bonds	\$ 27,952	\$ 30	\$ 4,671	\$ 10
Total marketable securities	<u>\$ 27,952</u>	<u>\$ 30</u>	<u>\$ 4,671</u>	<u>\$ 10</u>

See Note 4 for additional discussion regarding the fair value of the Company's marketable securities.

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NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(In thousands, except per share data)

6. Goodwill and Purchased Intangible Assets:

Goodwill

The changes in the carrying amount of goodwill are as follows:

Balance at December 31, 2017, net of accumulated impairment charge of \$192,872	\$	22,495
Goodwill acquired during the period.....		—
Balance at December 31, 2018		<u>22,495</u>
Goodwill acquired during the period (Note 3)		<u>284,653</u>
Balance at December 31, 2019	\$	<u><u>307,148</u></u>

Purchased Intangible Assets

Purchased intangible assets as of December 31, 2019 and 2018 are as follows:

	<u>Gross Carrying Amount</u>	<u>Accumulated Amortization</u>	<u>Net</u>
December 31, 2019			
Finite-lived intangible assets:			
Developed technology	\$ 326,726	\$ 67,861	\$ 258,865
Customer and distributor relationships.....	69,261	11,078	58,183
Trademarks and trade names	<u>12,461</u>	<u>4,156</u>	<u>8,305</u>
Total finite-lived intangible assets.....	408,448	83,095	325,353
In-process research and development	46,600	—	46,600
Total identifiable intangible assets	<u>\$ 455,048</u>	<u>\$ 83,095</u>	<u>\$ 371,953</u>
December 31, 2018			
Finite-lived intangible assets:			
Developed technology	\$ 66,177	\$ 59,692	\$ 6,485
Customer and distributor relationships.....	9,560	9,082	478
Trademarks and trade names	<u>4,361</u>	<u>3,876</u>	<u>485</u>
Total identifiable intangible assets	<u>\$ 80,098</u>	<u>\$ 72,650</u>	<u>\$ 7,448</u>

Intangible asset amortization expense amounted to \$10,445, \$1,534 and \$1,940 for the years ended December 31, 2019, 2018 and 2017, respectively. Assuming no change in the gross carrying value of identifiable intangible assets and estimated lives, estimated amortization expenses are \$53,741 for 2020, \$48,009 for 2021, \$47,610 for 2022, \$47,135 for 2023, and \$41,450 for 2024.

7. Leasing Arrangements:

The Company leases space for its corporate headquarters, manufacturing, sales and service operations, vehicles and information technology equipment under operating leases. All of the Company's leases are operating leases. The Company elected not to apply Accounting Standard Codification Topic 842 ("ASC 842") to arrangements with lease terms of less than 12 months. Operating lease right-of-use assets and obligations are reflected within the captions "Operating lease right-of-use assets," "Current operating lease obligations," and "Non-current operating lease obligations," respectively, on the Consolidated Balance Sheets.

Operating lease costs were \$4,124 during the twelve months ended December 31, 2019. These costs are primarily related to long-term operating leases, but also include immaterial amounts for short-term leases less than 12 months. Operating lease costs are recognized on a straight-line basis over the terms of the leases.

Additional operating lease right-of-use assets of \$2,946 were recognized as non-cash asset additions that resulted from new operating lease liabilities as of the twelve months ended December 31, 2019. Cash paid for amounts included in the

ONTO INNOVATION INC.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(In thousands, except per share data)

measurement of operating lease liabilities was \$3,872 during the twelve months ended December 31, 2019 and is included in operating cash flows.

The Company often has the option to renew lease terms for buildings and other assets. The exercise of lease renewal options is generally at the Company’s sole discretion. In addition, certain lease arrangements may be terminated prior to their original expiration date at the Company’s discretion. The Company evaluates renewal and termination options at the lease commencement date to determine if it is reasonably certain to exercise the option on the basis of economic factors. The weighted average of the remaining lease term for operating leases as of December 31, 2019 was 6.7 years.

The discount rate implicit within the Company’s leases is generally not determinable and therefore the Company determines the discount rate based on its incremental borrowing rate. The incremental borrowing rate for our leases is determined based on the lease term in which lease payments are made. The weighted average discount rate used to measure operating lease liabilities as of December 31, 2019 was 4.5%.

The following table presents information about the amount and timing of cash flows arising from the Company’s operating leases as of December 31, 2019:

Maturity of Lease Liabilities	Lease Payments	
2020	\$	5,901
2021		4,659
2022		4,059
2023		3,398
2024		2,939
Thereafter.....		8,196
Total undiscounted operating lease payments.....		29,152
Less: Imputed interest.....		4,276
Present value of operating lease liabilities.....	\$	<u>24,876</u>

8. Convertible Notes Receivable:

On May 31, 2018, the Company entered into a convertible loan agreement with Simax Precision Technologies Limited (“the borrower”), which allowed them to borrow up to \$15,000 in multiple promissory notes with an interest rate of 4.25% per annum payable on a semi-annual basis. The Company expected to be a supplier of lithography modules to Simax, which is used in the manufacture, sale and service of lithography systems. At December 31, 2019, the Company had \$5,000 in outstanding convertible notes receivable with the borrower.

During the fourth quarter 2019, the Company and the borrower began negotiations to end their relationship as it pertains to this agreement. The Company determined that it is unlikely that a portion of the convertible note receivable will be collectable, and a reserve in the amount of \$2,000 was recorded during the period ended December 31, 2019. In addition, the Company ceased recognizing interest income on these convertible notes receivable as of September 30, 2019.

9. Balance Sheet Details:

Inventories

Inventories are comprised of the following:

	December 31,	
	2019	2018
Materials	\$ 108,492	\$ 61,025
Work-in-process.....	42,694	21,910
Finished goods.....	24,948	13,885
Total inventories.....	<u>\$ 176,134</u>	<u>\$ 96,820</u>

ONTO INNOVATION INC.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(In thousands, except per share data)

Property, Plant and Equipment

Property, plant and equipment, net, is comprised of the following:

	December 31,	
	2019	2018
Land and building	\$ 47,222	\$ 2,584
Machinery and equipment	56,504	29,097
Furniture and fixtures	3,968	3,226
Computer equipment and software	15,770	7,906
Leasehold improvements	13,069	9,448
	<u>136,533</u>	<u>52,261</u>
Accumulated depreciation	(38,113)	(33,387)
Total property, plant and equipment, net	<u>\$ 98,420</u>	<u>\$ 18,874</u>

Depreciation expense amounted to \$5,965, \$4,848 and \$3,990 for the years ended December 31, 2019, 2018 and 2017, respectively.

Other assets

Other assets is comprised of the following:

	December 31,	
	2019	2018
Convertible notes receivable, net of allowance of \$2,000	\$ 3,000	\$ 5,000
Operating lease right-of-use assets	23,588	—
Other	1,351	506
Total other assets	<u>\$ 27,939</u>	<u>\$ 5,506</u>

Accrued liabilities

Accrued liabilities is comprised of the following:

	December 31,	
	2019	2018
Payroll and related expenses	\$ 19,365	\$ 10,648
Warranty	6,348	2,441
Other	491	611
Total accrued liabilities	<u>\$ 26,204</u>	<u>\$ 13,700</u>

Other current liabilities

Other current liabilities is comprised of the following:

	December 31,	
	2019	2018
Contingent consideration – acquisitions	\$ 569	\$ 1,422
Income tax payable	2,783	—
Current operating lease obligations	4,906	—
Customer deposits.....	1,994	1,135
Accrued inventory	1,614	1,103
Accrued professional fees.....	1,520	532
Other	5,786	3,351
Total other current liabilities	<u>\$ 19,172</u>	<u>\$ 7,543</u>

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NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(In thousands, except per share data)

Other non-current liabilities

Other non-current liabilities is comprised of the following:

	December 31,	
	2019	2018
Unrecognized tax benefits (including interest)	\$ 6,384	\$ 5,409
Non-current operating lease obligations	19,970	—
Contingent consideration – acquisitions	—	638
Deferred revenue	2,464	1,314
Other	2,953	3,800
Total non-current liabilities	\$ 31,771	\$ 11,161

10. Commitments and Contingencies:

Factoring

The Company maintains arrangements under which eligible accounts receivable in Japan are sold without recourse to unrelated third-party financial institutions. These receivables were not included in the consolidated balance sheets as the criteria for sale treatment had been met. The Company sold \$9,018 of receivables during the year ended December 31, 2019. There were no material gains or losses on the sale of such receivables. There were no amounts due from such third-party financial institutions at December 31, 2019.

Intellectual Property Indemnification Obligations

The Company has entered into agreements with customers that include limited intellectual property indemnification obligations that are customary in the industry. These guarantees generally require the Company to compensate the other party for certain damages and costs incurred as a result of third-party intellectual property claims arising from these transactions. The nature of the intellectual property indemnification obligations prevents the Company from making a reasonable estimate of the maximum potential amount it could be required to pay to its customers. Historically, the Company has not made any indemnification payments under such agreements and no amount has been accrued in the accompanying consolidated financial statements with respect to these indemnification guarantees.

Warranty Reserves

The Company generally provides a warranty on its products for a period of 12 to 14 months against defects in material and workmanship. The Company estimates the costs that may be incurred during the warranty period and records a liability in the amount of such costs at the time revenue is recognized. The Company's estimate is based primarily on historical experience. The Company periodically assesses the adequacy of its recorded warranty liabilities and adjusts the amounts as necessary. Settlements of warranty reserves are generally associated with sales that occurred during the 12 to 14 months prior to the year-end and warranty accruals are related to sales during the same year.

Changes in the Company's warranty reserves are as follows:

	Year Ended December 31,	
	2019	2018
Balance, beginning of the period	\$ 2,441	\$ 2,427
Accruals.....	4,265	3,486
Warranty liability assumed in Merger	4,227	—
Usage.....	(4,585)	(3,472)
Balance, end of the period	\$ 6,348	\$ 2,441

ONTO INNOVATION INC.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued) (In thousands, except per share data)

Legal Matters

From time to time, the Company is subject to legal proceedings and claims in the ordinary course of business. The following reflects an overview of the material activities with regard to these matters.

Optical Solutions Inc. v. Nanometrics Incorporated (Case No. 18-cv-00417-BLF): On August 2, 2017, Nanometrics was named as defendant in a complaint filed in New Hampshire Superior Court (“Complaint”). The Complaint, brought by Optical Solutions, Inc. (“OSI”), alleges claims arising from a purported exclusive purchase contract between OSI and Nanometrics pertaining to certain product. On September 18, 2017, Nanometrics removed the action to the United States District Court for the District of New Hampshire. On September 25, 2017, Nanometrics moved to transfer the Complaint to the District Court for the Northern District of California (the “Court”). On December 20, 2017, Nanometrics filed its complaint against OSI in the California Superior Court for the County of Santa Clara alleging claims arising from OSI’s breach of certain purchase orders. Nanometrics’ complaint was later removed by OSI to the Northern District of California. On May 29, 2018, the District Court of New Hampshire issued an order granting Nanometrics’ motion to transfer the Complaint to the Northern District of California and denying Nanometrics’ motion to dismiss the Complaint without prejudice. On June 14, 2018, the Complaint was consolidated with Nanometrics’ complaint against OSI. On August 9, 2018, OSI filed an Amended Complaint. On September 19, 2018, Nanometrics filed a motion to dismiss OSI’s Amended Complaint for failure to state a claim. Nanometrics’ motion to dismiss was heard on February 28, 2019. On March 5, 2019, the Court granted Nanometrics’ Motion to Dismiss with leave to amend. OSI filed a Second Amended Complaint on March 29, 2019. Nanometrics filed a motion to dismiss OSI’s Second Amended Complaint on May 31, 2019. In October of 2019, Nanometrics was renamed Onto Innovation Inc. as a result of the Merger. Thereafter, the Company’s second motion to dismiss was heard on November 14, 2019. On November 26, 2019 the Court granted the Company’s Motion to dismiss with leave to amend. OSI filed a Third Amended Complaint on January 21, 2020. Trial has been set for May 16, 2022. At this time, the Company does not anticipate the outcome of this matter to have a material impact on its financial position, results of operations, or cash flows.

Following the announcement of the proposed merger transaction between Nanometrics Incorporated and Rudolph Technologies, Inc., two purported class action complaints and three complaints were filed on behalf of Rudolph’s stockholders against Rudolph and its directors; of those five complaints, three were filed in the United States District Court for the District of Delaware, one in the United States District Court for the District of New Jersey, and one in the United States District Court for the District of Massachusetts. One of those five complaints also named Nanometrics and the subsidiary formed to effectuate the proposed merger transaction as defendants. A sixth complaint was filed on behalf of a Nanometrics stockholder against Nanometrics and its directors in the United States District Court for the Northern District of California. The complaints are captioned as follows: Stein v. Rudolph Technologies, Inc., et al. (D. Del.); Rosenblatt et al. v. Rudolph Technologies, Inc., et al. (D. Del.); Stein et al. v. Rudolph Technologies, Inc., et al. (D. Del.); Parikh v. Rudolph Technologies, Inc., et al. (D.N.J.); Roy v. Rudolph Technologies, Inc., et al. (D. Mass.); and Bryden-Moore v. Nanometrics Inc., et al. (N.D. Cal.). The Company refers to these actions collectively as the “Shareholder Actions.” The complaints in the Shareholder Actions generally asserted claims under Sections 14(a) and 20(a) of the Exchange Act challenging the adequacy of certain disclosures made in the version of the joint proxy statement/prospectus filed with the SEC on August 15, 2019, or, solely with respect to the complaint captioned Roy v. Rudolph Technologies, Inc., et al. (D. Mass.), the version of the joint proxy statement/prospectus filed with the SEC on September 10, 2019. The complaints generally sought, among other relief, an injunction preventing Rudolph from holding the Rudolph special meeting or consummating the transaction, an injunction preventing the Company from consummating the transaction, damages in the event that the merger is consummated, and attorneys’ fees. On October 11, 2019, plaintiffs in each of the Shareholder Actions agreed in principle to dismiss their claims in connection with the issuance of certain supplemental disclosures regarding the transaction and reserved the right to seek attorneys’ fees. The supplemental disclosures were filed with the Securities and Exchange Commission that same day. Subsequently, each of the plaintiffs filed a Notice of Voluntary Dismissal and a negotiation regarding the collective plaintiffs’ mootness fee claims was finalized. The payment for the plaintiffs’ mootness fee claims, which was immaterial, was thereafter made and the Shareholder Actions have been closed.

Royalty Agreements

Under various licensing agreements, the Company is obligated to pay royalties based on net sales of products sold. There are no minimum annual royalty payments. Royalty expense amounted to \$1,429, \$1,904 and \$1,117 for the years ended December 31, 2019, 2018 and 2017, respectively.

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NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
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Open and Committed Purchase Orders

The Company has open and committed purchase orders of \$97,877 as of December 31, 2019.

Line of Credit

The Company has a credit agreement with a bank that provides for a line of credit which is secured by the marketable securities the Company has with the bank. The Company is permitted to borrow up to 70% of the value of eligible securities held at the time the line of credit is accessed. The available line of credit as of December 31, 2019 was approximately \$91,258 with an available interest rate of 3.3%. The credit agreement is available to the Company until such time that either party terminates the arrangement at their discretion. The Company has not utilized the line of credit to date.

11. Revenue

The following table represents a disaggregation of revenue by timing of revenue:

	Year Ended December 31,	
	2019	2018
Point-in-time	\$ 286,130	\$ 257,124
Over-time	19,766	16,660
Total revenue.....	<u>\$ 305,896</u>	<u>\$ 273,784</u>

See Note 16 of the Notes to the Consolidated Financial Statements for additional discussion of the Company's disaggregated revenue in detail.

Contract Liabilities

The Company records contract liabilities when the customer has been billed in advance of the Company completing its performance obligations. These amounts are recorded as deferred revenue in the Consolidated Balance Sheets.

Changes in deferred revenue were as follows:

	Year Ended December 31,	
	2019	2018
Balance, beginning of the period	\$ 8,080	\$ 7,206
Deferred revenue assumed in Merger.....	5,931	—
Deferral of revenue.....	28,651	19,326
Recognition of deferred revenue	(27,569)	(18,452)
Balance, ending of the period	<u>\$ 15,093</u>	<u>\$ 8,080</u>

12. Share-Based Compensation and Employee Benefit Plans:

Share-Based Compensation Plans

The Company's share-based compensation plans are intended to attract and retain employees and to provide an incentive for them to assist the Company to achieve long-range performance goals and to enable them to participate in long-term growth of the Company. The Company settles restricted stock unit awards and stock option exercises with newly issued common shares.

Rudolph Technologies, Inc. 2018 Stock Plan (the "2018 Plan"). The 2018 Plan provides for the grant of 2,709 stock awards and stock options to employees, directors and consultants at an exercise price equal to or greater than the fair market value of the common stock on the date of grant. Restricted stock units granted under the 2018 Plan typically vest over a three to five-year period for employees and one year for directors; however, other vesting periods are allowable under the 2018 Plan. Restricted stock units granted to employees have time based or performance based vesting. If options were to be granted under the 2018 Plan, they would typically grade vest over a five-year period and expire ten years from the date of grant. As of

ONTO INNOVATION INC.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(In thousands, except per share data)

December 31, 2019 and 2018, there were shares of common stock available for issuance pursuant to future grants under the 2018 Plan totaling 2,478 and 2,680, respectively.

Rudolph Technologies, Inc. 2009 Stock Plan (the “2009 Plan”). The 2009 Plan provided for the grant of 4,711 stock options and other stock awards to employees, directors and consultants at an exercise price equal to or greater than the fair market value of the common stock on the date of grant. Options granted under the 2009 Plan typically grade vested over a five-year period and expired ten years from the date of grant. Restricted stock units granted under the 2009 Plan typically vested over a three to five-year period for employees and one year for directors; however, other vesting periods were allowable under the 2009 Plan. Restricted stock units granted to employees have time based or performance based vesting. In the second quarter of 2018, the 2009 Plan was terminated and therefore as of December 31, 2019 and 2018, there were no shares of common stock available for issuance pursuant to future grants under the 2009 Plan.

Nanometrics Incorporated 2005 Amended and Restated Equity Incentive Plan (the “2005 Plan”). The 2005 Plan provides for the grant of 4,714 stock options and other stock awards to employees, directors and consultants at an exercise price equal to the fair market value of the common stock on the date of grant. Options granted under the 2005 Plan typically grade vest over a three-year period and expire ten years from the date of grant. Restricted stock units granted under the 2005 Plan typically vest over a three-year period for employees and one year for directors; however, other vesting periods are allowable under the 2005 Plan. Restricted stock units granted to employees have time based or performance based vesting. As of December 31, 2019, there were 1,253 shares of common stock available for issuance pursuant to future grants under the 2005 Plan.

The following table reflects share-based compensation expense by type of award:

	Year Ended December 31,		
	2019	2018	2017
Share-based compensation expense:			
Restricted stock units, including all performance and market based awards	\$ 10,421	\$ 6,062	\$ 5,433
Stock options and employee stock purchase options.....	164	—	237
Total share-based compensation	<u>10,585</u>	<u>6,062</u>	<u>5,670</u>
Tax effect on share-based compensation	2,283	1,362	2,052
Net effect on net income	<u>\$ 8,302</u>	<u>\$ 4,700</u>	<u>\$ 3,618</u>
Effect on earnings per share:			
Basic	\$ (0.28)	\$ (0.18)	\$ (0.14)
Diluted.....	\$ (0.28)	\$ (0.18)	\$ (0.14)

ONTO INNOVATION INC.
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(In thousands, except per share data)

Restricted Stock Unit Activity

A summary of the Company's restricted stock unit activity with respect to the years ended December 31, 2019, 2018 and 2017 follows:

	Number of Shares	Weighted Average Grant Date Fair Value
Nonvested at December 31, 2016	914	\$ 15.29
Granted	225	\$ 28.23
Vested	(258)	\$ 14.80
Forfeited	(65)	\$ 17.14
Nonvested at December 31, 2017	816	\$ 18.50
Granted	228	\$ 34.80
Vested	(325)	\$ 17.73
Forfeited	(80)	\$ 22.12
Nonvested at December 31, 2018	639	\$ 24.26
Granted	271	\$ 29.58
Assumed in Merger	598	\$ 31.43
Vested	(366)	\$ 25.69
Forfeited	(35)	\$ 26.44
Nonvested at December 31, 2019	<u>1,107</u>	\$ 28.89

As of December 31, 2019, there was \$22,230 of total unrecognized compensation cost related to restricted stock units granted under the plans. That cost is expected to be recognized over a weighted average period of 1.9 years.

ONTO INNOVATION INC.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(In thousands, except per share data)

Stock Option Activity

A summary of the Company's stock option activity with respect to the years ended December 31, 2019, 2018 and 2017 follows:

	<u>Shares</u>	<u>Weighted Average Exercise Price Per Share</u>	<u>Weighted Average Remaining Contractual Term (years)</u>	<u>Aggregate Intrinsic Value</u>
Outstanding at December 31, 2016.....	173	\$ 12.67		
Granted.....	—	—		
Exercised.....	(114)	11.37		
Expired.....	—	—		
Forfeited.....	—	—		
Outstanding at December 31, 2017.....	59	15.20		
Granted.....	—	—		
Exercised.....	(22)	15.20		
Expired.....	—	—		
Forfeited.....	—	—		
Outstanding at December 31, 2018.....	37	\$ 15.20		
Granted.....	—	—		
Assumed in Merger.....	12	16.27		
Exercised.....	(2)	14.96		
Expired.....	—	—		
Forfeited.....	—	—		
Outstanding at December 31, 2019.....	<u>47</u>	<u>\$ 15.49</u>	2.4	\$ 985
Vested or expected to vest at December 31, 2019.....	47	\$ 15.49	2.4	\$ 985
Exercisable at December 31, 2019.....	47	\$ 15.49	2.4	\$ 985

The total intrinsic value of the stock options exercised during 2019, 2018 and 2017 was \$51, \$384 and \$853, respectively. As of December 31, 2019, there was no unrecognized compensation cost related to stock options granted under the plans.

The options outstanding and exercisable at December 31, 2019 were in the following exercise price ranges:

<u>Range of Exercise Prices</u>	<u>Options Outstanding</u>			<u>Options Exercisable</u>	
	<u>Shares</u>	<u>Weighted Average Remaining Contractual Life (years)</u>	<u>Weighted Average Exercise Price</u>	<u>Shares</u>	<u>Weighted Average Exercise Price</u>
\$14.08 - \$14.08	1	0.7	\$ 14.08	1	\$ 14.08
\$15.20 - \$15.20	35	3.0	\$ 15.20	35	\$ 15.20
\$15.61 - \$18.22	9	0.5	\$ 16.37	9	\$ 16.37
\$18.79 - \$18.79	1	1.2	\$ 18.79	1	\$ 18.79
\$14.08 - \$18.79	<u>47</u>	2.4	\$ 15.49	<u>47</u>	\$ 15.49

Employee Stock Purchase Plan

Rudolph Technologies, Inc. 2018 Employee Stock Purchase Plan (the "2018 ESPP"). The 2018 ESPP was terminated in the third quarter of 2019 as a result of the Merger. Under the terms of the ESPP, eligible employees may have had up to 15% of eligible compensation deducted from their pay and applied to the purchase of shares of Company common stock. The price the employee would pay for each share of stock was 95% of the fair market value of Company common stock at the end of the

ONTO INNOVATION INC.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(In thousands, except per share data)

applicable six-month purchase period. The ESPP was intended to qualify under Section 423 of the Internal Revenue Code and was a non-compensatory plan as defined by FASB ASC 718, “Stock Compensation.” No stock-based compensation expense attributable to the 2018 ESPP was recorded for the years ended December 31, 2019, 2018 and 2017.

Nanometrics Incorporated Amended and Restated 2003 Employee Stock Purchase Plan (the “2003 ESPP”). Under the terms of the 2003 ESPP, eligible employees may have up to 10% of eligible compensation deducted from their pay and applied to the purchase of shares of Company common stock. The price the employee pays for each share of stock is 85% of the lesser of the fair market value of Company common stock at the beginning or the end of the applicable six-month purchase period. The 2003 ESPP is intended to qualify under Section 423 of the Internal Revenue Code and is a compensatory plan as defined by FASB ASC 718, “Stock Compensation.” Stock-based compensation expense attributable to the 2003 ESPP was \$165 for the year ended December 31, 2019.

Through the Company’s employee stock purchase plans, employees purchased 72, 13 and 11 shares during the twelve months ended December 31, 2019, 2018 and 2017, respectively. As of December 31, 2019 and 2018, there were 236 and 1,206, shares available for issuance under the Company’s employee stock purchase plans, respectively.

401(k) Savings Plan

The Company has a 401(k) savings plan that allows employees to contribute up to 100% of their annual compensation to the Plan on a pre-tax or after-tax basis, limited to a maximum annual amount as set periodically by the Internal Revenue Service. The plan provides a 50% match of all employee contributions up to 6 percent of the employee’s salary. Matching contributions to the plan totaled \$1,317, \$1,118 and \$1,047 for the years ended December 31, 2019, 2018 and 2017, respectively.

13. Other Income (Expense), Net:

Other income (expense), net is comprised of the following:

	Year Ended December 31,		
	2019	2018	2017
Foreign currency exchange gains (losses), net.....	\$ 676	\$ (255)	\$ (457)
Gain on casualty insurance claim	—	302	—
Rental income	2	—	—
Other	102	9	—
Total other income (expense), net	\$ 780	\$ 56	\$ (457)

14. Income Taxes:

The components of income tax expense are as follows:

	Year Ended December 31,		
	2019	2018	2017
Current:			
Federal.....	\$ (27)	\$ 4,423	\$ 6,020
State.....	88	1,038	507
Foreign	1,548	626	3,159
	1,609	6,087	9,686
Deferred:			
Federal.....	(4,730)	1,961	17,034
State.....	506	(73)	643
Foreign	108	275	(470)
	(4,116)	2,163	17,207
Total income tax expense (benefit)	\$ (2,507)	\$ 8,250	\$ 26,893

ONTO INNOVATION INC.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(In thousands, except per share data)

The income before tax is comprised of the following:

	Year Ended December 31,		
	2019	2018	2017
Domestic operations	\$ (7,087)	\$ 49,089	\$ 57,079
Foreign operations	\$ 6,490	\$ 4,257	\$ 2,723

The provision for income taxes differs from the amount of income tax determined by applying the applicable U.S. federal income tax rate of 21% for the years ended December 31, 2019 and 2018, and 35% for years ended December 31, 2017 to income before provision for income taxes as follows:

	Year Ended December 31,		
	2019	2018	2017
Federal income tax provision at statutory rate	\$ (125)	\$ 11,203	\$ 20,931
State taxes, net of federal effect	113	747	573
Foreign taxes, net of federal effect.....	(1,277)	17	(238)
Domestic manufacturing benefit.....	—	—	(1,569)
Foreign Derived Intangible Income ("FDII") Deduction.....	(2,278)	(2,217)	—
Global Intangible Low-Taxes Income ("GILTI") inclusion	1,786	113	—
Non-deductible officer's compensation.....	826	526	—
Research & development tax credit	(2,126)	(2,298)	(1,559)
Remeasurement of deferred tax balances, related to the Tax Act.....	—	(33)	8,020
Transition tax on foreign earnings, related to the Tax Act	—	138	(106)
Other	574	54	841
Provision (benefit) for income taxes	<u>\$ (2,507)</u>	<u>\$ 8,250</u>	<u>\$ 26,893</u>
Effective tax rate	420%	15%	45%

Deferred tax assets and liabilities are comprised of the following:

	December 31,	
	2019	2018
Deferred Tax Assets:		
Reserves and accruals	\$ 8,254	\$ 4,880
Deferred revenue.....	1,219	1,201
Share-based compensation	2,955	1,259
Tax credit carryforward.....	11,307	2,484
Net operating losses	6,008	1,692
Depreciation and amortization	7,151	4,298
Operating lease right-of-use assets ⁽¹⁾	4,965	—
Other	1,128	777
Gross deferred tax assets.....	42,987	16,591
Less: valuation allowance	(14,160)	(3,172)
Total deferred tax assets after valuation allowance.....	<u>28,827</u>	<u>13,419</u>
Deferred Tax Liabilities:		
Depreciation and amortization	(89,286)	(609)
Operating lease liabilities ⁽¹⁾	(4,709)	—
Other	(416)	—
Gross deferred tax liabilities	<u>(94,411)</u>	<u>(609)</u>
Net deferred tax assets (liabilities).....	<u>\$ (65,584)</u>	<u>\$ 12,810</u>

⁽¹⁾ As discussed in Note 7 to the Consolidated Financial Statements, in 2019, the Company adopted an updated accounting standard that resulted in the recognition of operating right-of-use assets and lease liabilities. The Company adopted this standard using a transition method that does not require application to periods prior to adoption.

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NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(In thousands, except per share data)

At December 31, 2019 and 2018, the Company had recorded valuation allowances of \$14,160 and \$3,172, respectively, on a certain portion of the Company's deferred tax assets to reflect the deferred tax assets at the net amount that is more likely than not to be realized. The Company maintained a full valuation allowance on its remaining foreign tax credits in the amount of \$2,366, as well as maintaining a full valuation allowances against its China, Switzerland and United Kingdom deferred tax assets of \$478, \$3,434 and \$443, respectively. The Company also maintained a valuation allowance against a portion of its California deferred tax assets of \$7,439.

In assessing the realizability of deferred tax assets, the Company uses a more likely than not standard. If it is determined that it is more-likely-than-not that deferred tax assets will not be realized, a valuation allowance must be established against the deferred tax assets. The ultimate realization of the assets is dependent on the generation of future taxable income during the periods in which the associated temporary differences become deductible. Management considers the scheduled reversal of deferred income tax liabilities, projected future taxable income and tax planning strategies when making this assessment. In making the determination that it is more likely than not that the Company's deferred tax assets will be realized as of December 31, 2019, the Company relied primarily on the reversal of deferred tax liabilities as well as projected future taxable income.

At December 31, 2019, the Company had federal, state and foreign net operating loss carryforwards of \$1,997, \$25,630 and \$20,986, respectively. The federal, state and foreign net operating loss carryforwards expire on various dates beginning in 2020 through 2035.

At December 31, 2019, the Company had federal and state research & development credits and foreign tax credit carryforwards of \$6,859, \$9,948 and \$2,366, respectively. The state research & development credits are set to expire at various dates beginning in 2025. The foreign tax credit is set to expire at various dates through December 31, 2029.

As of December 31, 2019, the Company has provided U.S. income taxes on all its foreign earnings. The Company continues to permanently reinvest the cash held offshore to support its working capital needs. Accordingly, no additional foreign withholding taxes that may be required from certain jurisdictions in the event of a cash distribution have been provided for.

The total amount of unrecognized tax benefits are as follows:

	December 31,		
	2019	2018	2017
Balance, beginning of the period	\$ 5,528	\$ 4,880	\$ 4,827
Gross increases—tax positions in prior period	9,989	496	171
Gross decreases—tax positions in prior period	(932)	(61)	(362)
Gross increases—current-period tax positions	558	213	244
Lapse of statute of limitations	—	—	—
Balance, end of the period	<u>\$ 15,143</u>	<u>\$ 5,528</u>	<u>\$ 4,880</u>

The unrecognized tax benefit at December 31, 2019 and 2018 were \$15,143 and \$5,528, respectively, of which \$10,649 and \$4,995, respectively, would be reflected as an adjustment to income tax expense if recognized. The year over year increase from 2018 to 2019 is primarily due to additional unrecognized tax benefits related to federal tax exposures. It is reasonably possible that certain amounts of unrecognized tax benefits may reverse in the next 12 months; however, the Company does not expect such reversals to have a significant impact on its results of operations or financial position.

The Company recognizes accrued interest and penalties related to unrecognized tax benefits in income tax expense. During the years ended December 31, 2019, 2018 and 2017, the Company recognized approximately \$236, \$199 and \$246, respectively, in interest and penalties expense associated with uncertain tax positions. As of December 31, 2019 and 2018, the Company had accrued interest and penalties expense related to unrecognized tax benefits of \$1,681 and \$1,445, respectively.

The Company is subject to U.S. federal income tax as well as income tax in multiple state and foreign jurisdictions. The Company is subject to ordinary statute of limitation rules of three and four years for federal and state returns, respectively.

ONTO INNOVATION INC.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(In thousands, except per share data)

However, due to tax attribute carryforwards, the Company is subject to examination for tax years 2003 forward for U.S. federal tax purposes. The Company is also subject to examination in various states for tax years 2002 forward. The Company is subject to examination for tax years 2011 forward for various foreign jurisdictions. The Company believes that adequate amounts have been reserved for any adjustments that may ultimately result from any future examinations of these years.

In the normal course of business, the Company is subject to tax audits in various jurisdictions, and such jurisdictions may assess additional income taxes or other taxes against it. Although the Company believes its tax estimates are reasonable, the final determination of tax audits and any related litigation could be materially different from the Company's historical income tax provisions and accruals. The results of an audit or litigation could have a material adverse effect on the Company's results of operations or cash flows in the period or periods for which that determination is made.

15. Accumulated Other Comprehensive Loss:

Comprehensive income includes net income, foreign currency translation adjustments, and net unrealized gains and losses on available-for-sale debt securities. See the Consolidated Statements of Comprehensive Income for the effect of the components of comprehensive income on the Company's net income.

The components of accumulated other comprehensive loss, net of tax, are as follows:

	<u>Foreign currency translation adjustments</u>	<u>Net unrealized (gains) losses on marketable securities</u>	<u>Accumulated other comprehensive loss (income)</u>
Balance at December 31, 2017	\$ 1,079	\$ 126	\$ 1,205
Net current period other comprehensive loss	194	(136)	58
Reclassifications	—	—	—
Balance at December 31, 2018	1,273	(10)	1,263
Net current period other comprehensive income	(709)	44	(665)
Reclassifications	—	—	—
Balance at December 31, 2019	<u>\$ 564</u>	<u>\$ 34</u>	<u>\$ 598</u>

16. Segment Reporting and Geographic Information:

The Company is engaged in the design, development, manufacture and support of high-performance control metrology, defect inspection, advanced packaging lithography and data analysis systems used by microelectronics device manufacturers. The Company and its subsidiaries currently operate in a single operating segment: the design, development, manufacture and support of high-performance process control defect inspection and metrology, advanced packaging lithography and process control software systems used by microelectronics device manufacturers. Therefore, the Company has one reportable segment. The Company's chief operating decision maker is the Chief Executive Officer (the "CEO"). The CEO allocates resources and assesses performance of the business and other activities at the reportable segment level.

The following table lists the different sources of revenue:

	<u>Year Ended December 31,</u>					
	<u>2019</u>		<u>2018</u>		<u>2017</u>	
Systems and software	\$255,723	84%	\$234,241	86%	\$216,884	85%
Parts	34,892	11%	28,658	10%	27,143	11%
Services	15,281	5%	10,885	4%	11,071	4%
Total revenue	<u>\$305,896</u>	<u>100%</u>	<u>\$273,784</u>	<u>100%</u>	<u>\$255,098</u>	<u>100%</u>

ONTO INNOVATION INC.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(In thousands, except per share data)

The Company's significant operations outside the United States include sales, service and application offices in Asia and Europe. For geographical revenue reporting, revenue is attributed to the geographic location to which the product is shipped. Revenue by geographic region is as follows:

	Year Ended December 31,		
	2019	2018	2017
Revenue from third parties:			
United States	\$ 46,717	\$ 43,944	\$ 36,104
Taiwan	66,601	45,312	63,079
South Korea.....	43,997	51,750	44,180
Singapore.....	10,699	14,371	12,775
Japan.....	29,816	22,361	18,943
Germany.....	4,899	14,913	15,580
China	80,017	63,243	35,925
Other Europe	18,124	12,260	23,768
Other Asia.....	5,026	5,630	4,744
Total revenue.....	<u>\$ 305,896</u>	<u>\$ 273,784</u>	<u>\$ 255,098</u>

In 2019, sales to Taiwan Semiconductor Manufacturing Co. Ltd and SK Hynix Inc. accounted for 13.4% and 13.1%, respectively, of the Company's revenue. In 2018, sales to SK Hynix Inc. accounted for 12.2% of the Company's revenue. No individual end user customer accounted for more than 10% of the Company's revenue in 2017. The Company does not have purchase contracts with any of its customers that obligate them to continue to purchase its products.

At December 31, 2019, one customer, Taiwan Semiconductor Manufacturing Co. Ltd., accounted for more than 10% of net accounts receivable. At December 31, 2018, no individual customer accounted for more than 10% of net accounts receivable.

Substantially all of the Company's long-lived assets are located within the United States of America.

17. Earnings Per Share:

Basic earnings per share is calculated using the weighted average number of shares of common stock outstanding during the period. Diluted earnings per share is computed in the same manner and also gives effect to all dilutive common stock equivalent shares outstanding during the period. Potential common shares that would have the effect of increasing diluted earnings per share are considered to be anti-dilutive. In accordance with U.S. GAAP, these shares were not included in calculating diluted earnings per share.

For the year ended December 31, 2019, the weighted average number of restricted stock units and stock options excluded from the computation of diluted earnings per share were 69 and 0, respectively. For the year ended December 31, 2018, the weighted average number of restricted stock units and stock options excluded from the computation of diluted earnings per share were 52 and 0, respectively. For the year ended December 31, 2017, the weighted average number of restricted stock units and stock options excluded from the computation of diluted earnings per share were 8 and 0, respectively.

ONTO INNOVATION INC.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(In thousands, except per share data)

The Company's basic and diluted earnings per share amounts are as follows:

	December 31,		
	2019	2018	2017
Numerator:			
Net income	\$ 1,910	\$ 45,096	\$ 32,909
Denominator:			
Basic earnings per share - weighted average shares outstanding	29,729	25,470	25,325
Effect of potential dilutive securities:			
Restricted stock units and stock options - dilutive shares	278	426	539
Warrants - dilutive shares	—	—	1
Diluted earnings per share - weighted average shares outstanding	30,007	25,895	25,865
Earnings per share:			
Basic	\$ 0.06	\$ 1.77	\$ 1.30
Diluted	\$ 0.06	\$ 1.74	\$ 1.27

ONTO INNOVATION INC.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(In thousands, except per share data)

18. Shares Repurchase Authorization:

In October 2018, the Rudolph Board of Directors approved a share repurchase authorization, which allowed Rudolph to repurchase up to \$40,000 worth of shares of the Rudolph’s common stock. The authorization provided for repurchases to be made in the open market or through negotiated transactions from time to time. The share repurchase authorization was terminated on October 25, 2019 due to the closing of the Merger.

The following table summarizes the Company’s stock repurchases:

	Year Ended December 31,		
	2019	2018	2017
Shares of common stock repurchased.....	37	1,061	—
Cost of stock repurchased.....	\$ 744	\$ 21,069	\$ -
Average price paid per share.....	\$ 19.85	\$ 19.86	\$ -

Following the Merger, the Company assumed the share repurchase authorization approved on March 14, 2019, by the former Nanometrics Board of Directors. This share repurchase authorization allows for the Company to purchase up to \$80,000 worth of shares of its common stock. Under the terms of this share repurchase authorization, shares may be repurchased through open market or privately negotiated transactions. No shares have been repurchased under this repurchase authorization as of December 31, 2019.

ONTO INNOVATION INC.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(In thousands, except per share data)

19. Quarterly Consolidated Financial Data (unaudited):

The following tables present certain unaudited consolidated quarterly financial information for the years ended December 31, 2019 and 2018. In the opinion of the Company's management, this quarterly information has been prepared on the same basis as the consolidated financial statements and includes all adjustments (consisting only of normal recurring adjustments) necessary to present fairly the information for the periods presented. The results of operations for any quarter are not necessarily indicative of results for the full year or for any future period.

Year-over-year quarterly comparisons of the Company's results of operations may not be meaningful, as the sequential quarterly comparisons set forth below tend to reflect the cyclical activity of the semiconductor industry as a whole. Other quarterly fluctuations in expenses are related directly to sales activity and volume and may also reflect the timing of operating expenses incurred throughout the year, and changes in tax rates.

	Quarters Ended				Total
	March 31, 2019	June 30, 2019	September 30, 2019	December 31, 2019	
Revenue	\$ 60,892	\$ 61,511	\$ 62,935	\$ 120,558	\$ 305,896
Gross profit	32,019	31,911	31,511	39,587	\$ 135,028
Income (loss) before income taxes	8,795	6,121	6,908	(22,421)	\$ (597)
Net income (loss)	7,576	5,526	6,560	(17,752)	\$ 1,910
Income (loss) per share:					
Basic	\$ 0.31	\$ 0.22	\$ 0.26	\$ (0.41)	\$ 0.06
Diluted	\$ 0.30	\$ 0.22	\$ 0.26	\$ (0.41)	\$ 0.06
Weighted average number of shares outstanding:					
Basic	24,863	25,032	25,079	43,609	29,729
Diluted	25,144	25,250	25,305	43,609	30,007

	Quarters Ended				Total
	March 31, 2018	June 30, 2018	September 30, 2018	December 31, 2018	
Revenue	\$ 73,096	\$ 77,476	\$ 60,432	\$ 62,780	\$ 273,784
Gross profit	42,421	41,736	31,454	32,668	148,279
Income before income taxes	17,674	17,290	8,368	10,014	53,346
Net income	15,130	14,697	7,187	8,082	45,096
Income per share:					
Basic	\$ 0.59	\$ 0.57	\$ 0.28	\$ 0.32	\$ 1.77
Diluted	\$ 0.58	\$ 0.56	\$ 0.28	\$ 0.32	\$ 1.74
Weighted average number of shares outstanding:					
Basic	25,463	25,621	25,655	25,146	25,470
Diluted	25,989	26,086	26,063	25,449	25,895

ONTO INNOVATION INC. AND SUBSIDIARIES

SCHEDULE OF VALUATION AND QUALIFYING ACCOUNTS
(In thousands)

<u>Column A</u>	<u>Column B</u>	<u>Column C</u>		<u>Column D</u>	<u>Column E</u>
<u>Description</u>	<u>Balance at Beginning of Period</u>	<u>Charged to (Recovery of) Costs and Expense</u>	<u>Charged to Other Accounts (net)</u>	<u>Deductions</u>	<u>Balance at End of Period</u>
Year 2019:					
Allowance for doubtful accounts.....	\$ 691	\$ 363	\$ —	\$ (193)	\$ 1,247
Deferred tax valuation allowance.....	3,172	942	10,046	—	14,160
Allowance for convertible notes receivable.....	—	2,000	—	—	2,000
Year 2018:					
Allowance for doubtful accounts.....	\$ 460	\$ 293	\$ —	\$ 62	\$ 691
Deferred tax valuation allowance.....	2,447	725	—	—	3,172
Year 2017:					
Allowance for doubtful accounts.....	\$ 680	\$ (222)	\$ —	\$ (2)	\$ 460
Deferred tax valuation allowance.....	1,924	626	(103)	—	2,447

SIGNATURES

PURSUANT TO THE REQUIREMENTS OF SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934, THE REGISTRANT HAS DULY CAUSED THIS REPORT TO BE SIGNED ON ITS BEHALF BY THE UNDERSIGNED, THEREUNTO DULY AUTHORIZED.

Onto Innovation Inc.
(Registrant)

By: /s/ Michael P. Plisinski
Michael P. Plisinski
Chief Executive Officer

Date: February 25, 2020

PURSUANT TO THE REQUIREMENTS OF THE SECURITIES EXCHANGE ACT OF 1934, THIS REPORT HAS BEEN SIGNED BELOW BY THE FOLLOWING PERSONS ON BEHALF OF THE REGISTRANT AND IN THE CAPACITIES AND ON THE DATES INDICATED.

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u> /s/ Michael P. Plisinski </u> Michael P. Plisinski	Chief Executive Officer (Principal Executive Officer)	February 25, 2020
<u> /s/ Steven R. Roth </u> Steven R. Roth	Senior Vice President, Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	February 25, 2020
<u> /s/ Jeffrey A. Aukerman </u> Jeffrey A. Aukerman	Director	February 25, 2020
<u> /s/ Leo Berlinghieri </u> Leo Berlinghieri	Director	February 25, 2020
<u> /s/ Edward J. Brown, Jr. </u> Edward J. Brown Jr.	Director	February 25, 2020
<u> /s/ Vita A Cassese </u> Vita A. Cassese	Director	February 25, 2020
<u> /s/ Robert G. Deuster </u> Robert G. Deuster	Director	February 25, 2020
<u> /s/ David B. Miller </u> David B. Miller	Director	February 25, 2020
<u> /s/ Bruce C. Rhine </u> Bruce C. Rhine	Director	February 25, 2020
<u> /s/ Christopher A. Seams </u> Christopher A. Seams	Director	February 25, 2020
<u> /s/ Timothy J. Stultz, Ph.D. </u> Timothy J. Stultz, Ph.D.	Director	February 25, 2020
<u> /s/ Christine A. Tsingos </u> Christine A. Tsingos	Director	February 25, 2020
<u> /s/ John R. Whitten </u> John R. Whitten	Director	February 25, 2020

SUBSIDIARIES

<u>Name</u>	<u>Jurisdiction</u>
Rudolph Technologies, Inc.	U.S.A.
4D Technology Corporation	U.S.A.
Rudolph Technologies Japan K.K.	Japan
Nanometrics Japan K.K.	Japan
Rudolph Technologies (Shanghai) Trading Co., Ltd.	China
Nanometrics China Company Ltd.	China
Rudolph Technologies Germany GmbH	Germany
Accent Optical Technologies (Germany) GmbH	Germany
Rudolph Technologies Hong Kong Limited	Hong Kong
Rudolph Technologies Europe, B.V.	Netherlands
Nanometrics France S.A.S.	France
Nanometrics (Switzerland) GmbH	Switzerland
Nanometrics U.K. Ltd.	United Kingdom
Nanometrics Israel, Ltd.	Israel
Nanometrics Korea Limited	Korea
Nanometrics Southeast Asia Pte. Limited	Singapore
Nanometrics Metrology Ireland Limited	Ireland

**Rule 13a-14(a) Certification of Chief Executive Officer
Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002**

I, Michael P. Plisinski, certify that:

1. I have reviewed this annual report on Form 10-K of Onto Innovation Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d. Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 25, 2020

By: /s/ Michael P. Plisinski

Michael P. Plisinski
Chief Executive Officer

**Rule 13a-14(a) Certification of Chief Financial Officer
Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002**

I, Steven R. Roth, certify that:

1. I have reviewed this annual report on Form 10-K of Onto Innovation Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d. Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 25, 2020

By: /s/ Steven R. Roth

Steven R. Roth

Senior Vice President and Chief Financial Officer

**CERTIFICATION OF CHIEF EXECUTIVE OFFICER
PURSUANT TO 18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

I, Michael P. Plisinski, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that the Annual Report of Onto Innovation Inc. on Form 10-K for the year ended December 31, 2019 fully complies with the requirements of Section 13(a) or 15(d), as applicable, of the Securities Exchange Act of 1934 and that the information contained in the Annual Report on Form 10-K fairly presents in all material respects the financial condition and results of operations of Onto Innovation Inc.

Date: February 25, 2020

By: /s/ Michael P. Plisinski

Michael P. Plisinski
Chief Executive Officer

**CERTIFICATION OF CHIEF FINANCIAL OFFICER
PURSUANT TO 18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

I, Steven R. Roth, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that the Annual Report of Onto Innovation Inc. on Form 10-K for the year ended December 31, 2019 fully complies with the requirements of Section 13(a) or 15(d), as applicable, of the Securities Exchange Act of 1934 and that the information contained in the Annual Report on Form 10-K fairly presents in all material respects the financial condition and results of operations of Onto Innovation Inc.

Date: February 25, 2020

By: /s/ Steven R. Roth

Steven R. Roth

Senior Vice President and Chief Financial Officer

Forward Looking Statements

This proxy statement contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995 (the “Act”) which include those concerning Onto Innovation’s business momentum and future growth; acceptance of Onto Innovation’s products and services; Onto Innovation’s ability to both deliver products and services consistent with its customers’ demands and expectations and strengthen its market position; as well as other matters that are not purely historical data. Onto Innovation wishes to take advantage of the “safe harbor” provided for by the Act and cautions that actual results may differ materially from those projected as a result of various factors, including risks and uncertainties, many of which are beyond Onto Innovation’s control. Such factors include, but are not limited to, the following: variations in the level of orders, which can be affected by general economic conditions; seasonality and growth rates in the semiconductor manufacturing industry and in the markets served by Onto Innovation’s customers; the global economic and political climates; the impact on supply, production, sales and delivery of our products and services due to the global spread of the coronavirus (COVID-19); difficulties or delays in product functionality or performance; the delivery performance of sole source vendors; the timing of future product releases; failure to respond to changes in technology or customer preferences; changes in pricing by Onto Innovation or its competitors; Onto Innovation’s ability to leverage its resources to improve its position in its core markets, to weather difficult economic environments, to open new market opportunities and to target high-margin markets; the strength/weakness of the back-end and/or front-end semiconductor market segments; the imposition of tariffs or trade restrictions and costs, burdens and restrictions associated with other governmental actions; the ability to successfully integrate the businesses of Rudolph and Nanometrics promptly and effectively and to achieve the anticipated synergies and value-creation contemplated by the Merger within the expected time frame; unanticipated difficulties or expenditures relating to the Merger and integration of the Rudolph and Nanometrics businesses; the response of business partners and retention as a result of the Merger; the diversion of management time in connection with the integration; and the effect of litigation related to the Merger. Additional information and considerations regarding the risks faced by Onto Innovation are available in the Company’s Annual Report on Form 10-K for the year ended December 31, 2019 and other filings with the Securities and Exchange Commission. As the forward-looking statements are based on Onto Innovation’s current expectations, the Company cannot guarantee any related future results, levels of activity, performance or achievements. Onto Innovation does not assume any obligation to update the forward-looking information contained in this proxy statement.



NOTICE OF 2020 ANNUAL MEETING OF STOCKHOLDERS

- Date:** Tuesday, May 12, 2020
- Time:** 10:00 a.m., Eastern time*
- Place:** Company principal executive offices located at 16 Jonspin Road, Wilmington, Massachusetts, 01887
- Record Date:** Only stockholders of record at the close of business on March 13, 2020 are entitled to vote at the meeting and any adjournment or postponement thereof for which no new record date is set.
- Items of Business:**
1. To elect the Board's ten nominees for director to serve until the next annual meeting and until their successors are duly elected and qualified;
 2. To approve, on an advisory (non-binding) basis, the compensation of our named executive officers as disclosed in this proxy statement;
 3. To approve the Onto Innovation Inc. 2020 Stock Plan;
 4. To approve the Onto Innovation Inc. 2020 Employee Stock Purchase Plan;
 5. To ratify the appointment of Ernst & Young LLP as our independent registered public accounting firm for the fiscal year ending December 26, 2020; and
 6. To transact such other business as may properly come before the meeting and any adjournment or postponement thereof.

These items of business are described more fully in the accompanying proxy statement. This year we will be providing access to our proxy materials via the internet in accordance with the Securities and Exchange Commission's "Notice and Access" rules. On or about April 3, 2020, we will be mailing our Notice of Internet Availability of Proxy Materials to our stockholders, which contains instructions for our stockholders' use of this process, including how to access our 2020 proxy statement and 2019 annual report to stockholders and how to vote online. In addition, the Notice of Internet Availability of Proxy materials contains instructions on how you may receive a paper copy of the 2020 proxy statement and 2019 annual report to stockholders.

Your vote is important. As always, but especially now given the uncertainties posed by the Coronavirus (COVID-19) pandemic, we encourage you to vote your shares as soon as possible and prior to the Annual Meeting via the internet even if you plan to participate in the Annual Meeting. Voting will ensure your shares are represented at the Annual Meeting, regardless of whether you attend the Annual Meeting. You may cast your vote via the internet, by mail or during the Annual Meeting. If you receive a paper copy of the proxy card by mail, you may also mark, sign, date, and return the proxy card promptly in the accompanying postage-prepaid envelope.

*We intend to hold our annual meeting in person. However, we are sensitive to the public health and travel concerns our stockholders may have and recommendations that public health officials may issue in light of the evolving coronavirus (COVID-19) situation. As a result, we may impose additional procedures or limitations on meeting attendees or may decide to hold the meeting in a different location or solely by means of remote communication (i.e., a virtual-only meeting). In such an event, we would announce any such updates in additional proxy materials filed with the SEC and in a press release that we would make available on our website at <https://investors.ontoinnovation.com>. We encourage you to check this website prior to the meeting if you plan to attend.

IMPORTANT NOTICE REGARDING THE AVAILABILITY OF PROXY MATERIALS FOR THE ANNUAL MEETING OF STOCKHOLDERS TO BE HELD MAY 12, 2020:

This notice, the proxy statement, and the 2019 Annual Report to Stockholders are available at:

<https://www.ontoinnovation.com/ar-proxy>

FOR THE BOARD OF DIRECTORS

Robert A. Koch
Secretary

Wilmington, Massachusetts
April 3, 2020

PROXY SUMMARY

On October 25, 2019 (the “Merger Date”), Rudolph Technologies, Inc. merged with and into Nanometrics Incorporated, which was then renamed Onto Innovation Inc. (the “2019 Merger”). Unless otherwise indicated or context otherwise requires, as used herein “Nanometrics” refers to Nanometrics Incorporated and its subsidiaries prior to the 2019 Merger and “Rudolph” refers to Rudolph Technologies, Inc. and its subsidiaries prior to the 2019 Merger.

This summary highlights information contained elsewhere in the proxy statement. This summary does not contain all of the information that you should consider, and you should read the entire proxy statement carefully before voting.

Stockholder Voting Matters

Voting Matter	Board Vote Recommendation	Page Reference for more information
Proposal 1: Election of Directors	FOR ALL	18
Proposal 2: Advisory Vote on Named Executive Officer Compensation	FOR	30
Proposal 3: Approval of the Onto Innovation Inc. 2020 Stock Plan	FOR	31
Proposal 4: Approval of the Onto Innovation Inc. 2020 Employee Stock Purchase Plan	FOR	41
Proposal 5: Ratification of Appointment of Independent Registered Public Accounting Firm for the Fiscal Year Ending December 26, 2020	FOR	44

Corporate Governance Highlights

Snapshot Of Board Composition

The following table presents a snapshot of the expected composition of the Onto Innovation Board of Directors immediately following the 2020 Annual Meeting, assuming the election of all nominees named in the proxy statement.

Board Characteristic	Onto Innovation
Total Number of Directors	10
Percentage of Independent Directors	90%
Average Age of Directors (years)	61.4
Average Tenure of Directors (years)	6.3
Separate Chairman and CEO roles	Yes
Independent Chairman	Yes
Audit Committee Financial Experts	2

Snapshot Of Board Governance And Compensation Policies

The following table presents a snapshot of the Onto Innovation Board Governance and Compensation Policies currently in effect.

Policy	Onto Innovation
Majority Voting for All Directors	Yes
Regular Executive Sessions of Independent Directors	Yes
Annual Board, Committee and Director Evaluations	Yes
Risk Oversight by Full Board and Committees	Yes
Independent Audit, Compensation and Nominating & Governance Committees	Yes
Code of Business Conduct and Ethics for Employees and Directors	Yes
Financial Information Integrity Policy	Yes
Stock Ownership Requirement for Directors	3x annual retainer
Stock Ownership Requirement for CEO	3x base salary
Stock Ownership Requirement for other NEOs	1x base salary
Stock Ownership Requirements for other executives	Specified number of shares
Anti-Hedging, Anti-Short Sale & Anti-Pledging Policy	Yes
Compensation Clawback Policy	Yes
No Future Tax Gross-Up Provisions	Yes
No Poison Pill	Yes
Stock Buyback Program	Yes
Double Trigger Change-in-Control Provisions for Executives	Yes

Snapshot Of Board Governance And Compensation Policies Newly Implemented Or Adjusted In Past Year

The following presents a snapshot of the Onto Innovation Board Governance and Compensation Policies that were newly implemented or adjusted in the past year.

- As of the Merger Date, the following was established with regard to the Board of Directors:
 - Board size of twelve (12) Directors.
 - Board of Directors Chairman: Christopher A. Seams
 - Audit Committee:
 - Five (5) members
 - Chairperson: Christine A. Tsingos
 - Compensation Committee:
 - Five (5) members
 - Chairperson: Edward J. Brown, Jr.
 - Nominating & Governance Committee:
 - Five (5) members
 - Chairperson: Leo Berlinghieri
- Prior to the Merger Date, the Nanometrics Board of Directors approved the charters for the Audit, Compensation and Nominating & Governance Committees, the Code of Business Conduct and Ethics and the Financial Information Integrity Policy and the Summary of Corporate Governance Policies for the Company in order that they be established as of the Merger Date in accordance with NYSE listing rules. Each charter, policy and summary was thereafter ratified by the Board of Directors of the Company at the first Board of Directors Meeting following the Merger Date.
- At the first Board of Directors meeting following the Merger Date, the Board approved the following policies for Onto Innovation:
 - Foreign Corrupt Practices Act Policy
 - Related Parties Transaction Policy
 - Stock Ownership Policy
 - Director Candidate Policy
 - Insider Trading Compliance Policy
 - Stockholder Communication PolicyThereafter, an Incentive Compensation Clawback Policy was approved for the Company.
- The Company established an incentive compensation plan for executives which combined elements of the legacy Nanometrics and Rudolph Technologies plans and includes a long-term equity component which utilizes both time-based and performance-based awards. The performance-based awards employ a Total Shareholder Return (“TSR”) calculation comparing Company TSR to a peer group consisting of the thirty (30) companies in the Philadelphia Semiconductor Index (SOX).
- The Board of Directors determined that subsequent to the 2020 Annual Meeting of Stockholders the size of the Company Board would be reduced to ten (10) members.
- Consistent with Nanometrics’ prior policy, the Board of Directors approved a 52-53-week fiscal year ending on the last Saturday in December for the Company.



PROXY STATEMENT

The proxy detailed herein is solicited on behalf of the Board of Directors (the “Board” or “Board of Directors”) of Onto Innovation Inc. (“Onto Innovation,” the “Company,” “we,” “us” or “our”) for use at the 2020 Annual Meeting of Stockholders to be held May 12, 2020 at 10:00 a.m. Eastern time (the “Annual Meeting”), or at any adjournment or postponement thereof, for the purposes set forth herein and in the accompanying Notice of Annual Meeting of Stockholders. The Annual Meeting will be held at the Company’s principal executive offices, located at 16 Jonspin Road, Wilmington, Massachusetts 01887. Directions to the annual meeting may be found on our website www.ontoinnovation.com by clicking on “Company,” “Locations,” “Massachusetts” and then accessing the interactive map. The Company’s telephone number is (978) 253-6200.

We intend to hold the Annual Meeting in person. However, we are sensitive to the public health and travel concerns our stockholders may have and recommendations that public health officials may issue in light of the evolving coronavirus (COVID-19) situation. As a result, we may impose additional procedures or limitations on meeting attendees or may decide to hold the meeting in a different location or solely by means of remote communication (i.e., a virtual-only meeting). In such an event, we would announce any such updates in additional proxy materials filed with the SEC and in a press release that would be available on our website at <https://investors.ontoinnovation.com>. We encourage you to check this website prior to the meeting if you plan to attend.

On or about Friday, April 3, 2020, we will furnish a Notice of Internet Availability of Proxy Materials (“Notice”) to our stockholders containing instructions on how to access the proxy materials online at:

<https://www.ontoinnovation.com/ar-proxy>

Instructions on how to vote online and to request a printed copy of the proxy materials may be found in the Notice. If you received a Notice by mail, you will not receive a paper copy of the proxy materials, unless you request such materials by following the instructions contained in the Notice. Your vote is important, regardless of the extent of your holdings.

QUESTIONS AND ANSWERS ABOUT THE ANNUAL MEETING

What Is The Purpose Of The Annual Meeting?

At the Annual Meeting, stockholders will be asked to vote upon the matters set forth in the accompanying Notice of Annual Meeting, including:

- the election of ten (10) directors;
- an advisory resolution on named executive officer compensation;
- approval of the Onto Innovation 2020 Stock Plan;
- approval of the Onto Innovation 2020 Employee Stock Purchase Plan; and
- the ratification of the appointment of our independent registered public accounting firm for fiscal 2020,

all of which are more fully described herein.

Will Other Matters Be Voted On At The Annual Meeting?

We are not currently aware of any other matters to be presented at the Annual Meeting other than those described in this proxy statement. If any other matters not described in the proxy statement are properly presented at the meeting, any proxies received by us will be voted in the discretion of the proxy holders.

Who Is Entitled To Vote?

If you were a stockholder of record as of the close of business on March 13, 2020, which is referred to in this proxy statement as the “record date,” you are entitled to receive notice of the Annual Meeting and to vote the shares of common stock that you held as of the close of business on the record date. Each stockholder is entitled to one (1) vote for each share of common stock held by such stockholder on the record date.

May I Attend The Meeting?

All stockholders of record as of the record date may attend the Annual Meeting.

To gain admission, you will need valid picture identification and proof that you are a stockholder of record of the Company as of the record date, or if you are a beneficial holder, proof from your bank, broker or other record holder of your shares that you are the beneficial owner of such shares. If you are a beneficial holder and wish to vote your shares at the meeting, you will need a legal proxy from your bank, broker or other record holder of your shares. To obtain directions to attend the Annual Meeting and vote in person, please contact Investor Relations at 978-253-6200.

What Constitutes A Quorum?

The required quorum for the transaction of business at the Annual Meeting is a majority of the issues and outstanding shares of Common Stock of the Company, \$0.001 par value per share (“Common Stock”), present in person or by proxy and entitled to vote at the Annual Meeting. On the record date, 50,381,691 shares of the Company’s Common Stock were issued and outstanding, each entitled to one vote on each matter to be acted upon at the Annual Meeting. Your shares will be counted towards the quorum only if you submit a valid proxy (or one is submitted on your behalf by your broker, bank or other nominee) or if you vote in person at the meeting. Abstentions and broker non-votes will be counted to determine whether there is a quorum present. If a quorum is not present, the Annual Meeting may be adjourned or postponed to a later date.

What Are “Broker Non-Votes”?

A broker non-vote occurs when a bank, broker or other registered holder of record holds shares for a beneficial owner, but is not empowered to vote on a particular proposal on behalf of such beneficial owner because the proposal is considered “non-routine” and the beneficial owner has not provided voting instructions on that proposal. The election of directors, the advisory vote on named executive officer compensation, the proposal to approve the Onto Innovation Inc. 2020 Stock Plan, and the proposal to approve the Onto Innovation Inc. 2020 Employee Stock Purchase Plan are treated as “non-routine” proposals. This means that if a brokerage firm holds your shares on your behalf, those shares will not be voted with respect to any of these proposals unless you provide instructions to that firm by voting your proxy. See below under “What Is the Vote Required for Election of Directors?” and “What Is the Vote Required for the Approval of Proposals Other Than Director Elections?” for a discussion of the impact of broker non-votes on each of the proposals that will be presented at the Annual Meeting. **In order to ensure that any shares held on your behalf by a bank, broker or other registered holder of record are voted in accordance with your wishes, we encourage you to provide instructions to that firm or organization in accordance with the voting instruction form provided by the broker, bank or other registered holder or to contact your broker, bank or other registered holder to request a proxy form.**

Who Bears The Cost Of Soliciting Proxies?

The Company will bear the cost of soliciting proxies. In addition, the Company may reimburse brokerage firms and other persons representing beneficial owners of shares for their expenses in forwarding solicitation material to such beneficial owners. Solicitation of proxies by mail may be supplemented by telephone, facsimile, e-mail or other electronic means or personal solicitation by directors, officers or regular employees of the Company. No additional compensation will be paid to such persons for such services. We have engaged The Proxy Advisory Group, LLC to assist in the solicitation of proxies and provide related advice and informational support, for a services fee and the reimbursement of customary disbursements, which are not expected to exceed \$15,000 in total.

Why Did I Receive A “Notice Of Internet Availability Of Proxy Materials” But No Proxy Materials?

We are distributing the Company’s proxy materials to stockholders of record via the internet in accordance with the “Notice and Access” approach permitted by rules of the Securities and Exchange Commission (“SEC”). This approach benefits the

environment, while providing a timely and convenient method of accessing the materials and voting. Accordingly, we have sent you a Notice because the Board of Directors of the Company is soliciting your proxy to vote at the 2020 Annual Meeting of Stockholders, including at any adjournments or postponements of the meeting. On or about April 3, 2020, the Company will begin mailing the Notice to all stockholders of record entitled to vote at the annual meeting. All stockholders will have the ability to access the proxy materials on the website referred to in the Notice or request to receive a printed set of the proxy materials. Instructions on how to access the proxy materials over the Internet or to request a printed copy of the proxy materials and the Company's 2019 Annual Report may be found in the Notice.

What Does It Mean If I Received More Than One Notice?

If you receive more than one Notice, your shares may be registered in more than one name or in different accounts. Please follow the voting instructions on each of the Notices to ensure that all of your shares are voted.

How Do I Go About Voting?

You may either vote "For" all the nominees to the Board of Directors or you may "Withhold" your vote for any nominee you specify. For each of the other matters to be voted on, you may vote "For" or "Against" or "Abstain" from voting.

Voting For Shares Registered Directly In The Name Of The Stockholder

If you have a stock certificate or hold shares in an account with our transfer agent, you are considered the "stockholder of record" with respect to those shares. You can submit your proxy online by following the instructions on the Notice. You may opt to submit your proxy by requesting a full set of proxy materials be mailed to you and completing and returning the proxy in the postage-paid envelope provided. Stockholders of record may also vote in person at the Annual Meeting. Whether or not you plan to attend the meeting, we urge you to vote by proxy to ensure your vote is counted. You may still attend the meeting and vote in person even if you have already submitted a proxy.

If you are a stockholder of record with shares registered in your name, you can vote by one of the following methods:

- **In Person** - To vote in person, come to the annual meeting and you will receive a ballot when you arrive.
- **Via the Internet** - To submit your proxy by internet, go to www.investorvote.com/ONTO and follow the instructions on the secure website. The deadline for proxy submission via the internet is 11:59 p.m. (EDT) on May 11, 2020.
- **Via Telephone** – To submit your proxy by telephone, call toll free 1-800-652-VOTE (8683) within the USA, US territories and Canada.
- **By Mail** – Stockholders who receive a paper proxy card may elect to submit a proxy by mail and should complete, sign and date their proxy card and mail it in the pre-addressed postage-paid envelope that accompanies the delivery of paper proxy cards. Proxy cards submitted by mail must be received by the time of the annual meeting in order for your shares to be voted.

Further instructions on how to submit a proxy online or by mail are contained in the Notice. Even if you plan to attend the meeting, we recommend that you submit your proxy in advance so that your vote will be counted if you later decide not to attend the meeting. Each stockholder of record is entitled to one (1) vote for each share of Common Stock owned by such stockholder on all matters presented at the Annual Meeting. Stockholders do not have the right to cumulate their votes in the election of directors.

If you return a signed and dated proxy but do not indicate how the shares are to be voted, those shares will be voted in accordance with Ontario Innovation's Board of Directors' recommendations. A valid proxy also authorizes the individuals named as proxies to vote your shares in their discretion on any other matters, which, although not described in the proxy statement, are properly presented for action at our Annual Meeting. If you indicate on your proxy that you wish to "abstain" from voting on an item, your shares will not be voted on that item.

While internet proxy voting is being provided to allow you to submit your proxy online, with procedures designed to ensure the authenticity and correctness of your proxy vote instructions, please be aware that you must bear any costs associated with your internet access, such as usage charges from Internet access providers and telephone companies.

Voting By Proxy For Shares Registered In Street Name

If your shares are held in a stock brokerage account or by a bank or other holder of record, you are considered the “beneficial owner” of shares held in “street name.” In that case, you may receive a separate voting instruction form, or you may need to contact your broker, bank, or other stockholder of record to determine whether you will be able to provide voting instructions electronically via the internet. As the beneficial owner, you have the right to direct your broker, bank or other holder of record on how to vote your shares by submitting voting instructions to such person in accordance with the directions outlined in your proxy. In the event you are considered the “beneficial owner” of shares held in “street name” and you wish to vote in person at the annual meeting, you must obtain a valid proxy from your broker, bank or another agent. Follow the instructions from your broker or bank included with these proxy materials or contact your broker or bank to request a proxy form.

May I Revoke My Proxy Instructions?

Any proxy given pursuant to this solicitation may be revoked by the person giving it at any time before it is voted. If you are a stockholder of record, you may change your vote after submitting your proxy by:

- delivering a written notice of revocation or a duly executed proxy bearing a later date to the Secretary of the Company at the Company’s principal executive offices prior to the meeting, if you submitted your proxy by mail;
- submitting a timely and valid later proxy online at www.investorvote.com/ONTO, if you submitted your proxy online;
- submitting a timely and valid later proxy by telephone call to 1-800-652-VOTE (8683) within the USA, US territories and Canada or
- attending the meeting and voting in person.

If you are a beneficial owner of shares, please contact your bank, broker or other holder of record for specific instructions on how to change or revoke your voting instructions.

What Happens If I Do Not Vote?

Stockholder Of Record: Shares Registered In Your Name

If you are a stockholder of record and do not submit a proxy by completing your proxy card, by telephone, through the Internet or vote in person at the annual meeting, your shares will not be voted.

Beneficial Owner: Shares Registered In The Name Of Broker Or Bank

If you are a beneficial owner and do not instruct your broker, bank, or other agent how to vote your shares, the question of whether your broker or nominee will still be able to vote your shares depends on whether the New York Stock Exchange (“NYSE”) deems the particular proposal to be a “routine” matter. Brokers and nominees can use their discretion to vote “uninstructed” shares with respect to matters that are considered to be “routine,” but not with respect to “non-routine” matters. Under the rules and interpretations of the NYSE, “non-routine” matters are matters that may substantially affect the rights or privileges of stockholders, such as mergers, stockholder proposals, elections of directors (even if not contested), executive compensation (including any advisory stockholder votes on executive compensation and on the frequency of stockholder advisory votes on executive compensation), and certain corporate governance proposals, even if management-supported. Accordingly, your broker or nominee may not vote your shares on Proposals 1, 2, 3 or 4 without your instructions but may vote your shares on Proposal 5 even in the absence of your instruction.

What If I Return A Proxy Card Or Otherwise Submit a Proxy But Do Not Make Specific Choices?

If you return a signed and dated proxy card or otherwise submit a proxy without marking voting selections, your shares will be voted, as applicable, “For” the election of all ten (10) nominees for director, “For” the advisory approval of executive compensation, “For” approval of the Onto Innovation Inc. 2020 Stock Plan, “For” approval of the Onto Innovation Inc. 2020 Employee Stock Purchase Plan and “For” the ratification of the appointment by the Audit Committee of the Board of Directors of Ernst & Young, LLP as the independent registered public accounting firm of the Company for its fiscal year ending December 26, 2020. If any other matter is properly presented at the meeting, your proxyholder (one of the individuals named on your proxy card) will vote your shares using his or her best judgment.

What Is The Vote Required For Election Of Directors?

For the election of directors, each director is elected by the vote of the majority of the votes cast (except that if the number of nominees exceeds the number of directors to be elected, directors will be elected by a plurality voting standard). This means that in order for a director nominee to be elected to our Board of Directors, the number of votes cast “for” a director’s election must exceed the number of votes cast “against” that director’s election (with “abstentions” and “broker non-votes” not counted as a vote cast either “for” or “against” that director’s election, although abstentions and broker non-votes count for quorum purposes). Our Amended and Restated Bylaws (“Bylaws”) provide for a for election of directors by a majority of votes cast in uncontested elections, and our Corporate Governance Summary provides that any incumbent director nominee in an uncontested election who does not receive an affirmative majority of votes cast must promptly tender such director’s resignation to our Board of Directors. Further information regarding the process that will be followed if such an event occurs can be located under the heading “Proposal 1 - Election of Directors.”

What Is The Vote Required For The Approval Of Proposals Other Than Director Elections?

The proposal to approve, on an advisory basis, the compensation of our named executive officers, the proposal to approve the Onto Innovation Inc. 2020 Stock Plan, the proposal to approve the Onto Innovation Inc. 2020 Employee Stock Purchase Plan and the proposal to ratify the appointment of Ernst & Young LLP as our independent registered public accounting firm for the fiscal year ending December 26, 2020 require the affirmative vote, in person or by proxy, of a majority of the shares present in person or represented by proxy at the meeting and entitled to vote on the matter to be approved. For such proposals, abstentions in effect count as negative votes, because they are shares represented in person or by proxy that are entitled to vote on the matter and not voted in the affirmative. Broker non-votes are not counted as part of the vote total (because they are not considered “entitled to vote” on the matter) and have no effect on the outcome of those proposals.

What Is Householding?

The Company has adopted a procedure approved by the SEC called “householding.” Under this procedure, when multiple stockholders of record share the same address, we may deliver only one (1) Notice to that address unless we have received contrary instructions from one or more of those stockholders. The same procedure may be followed by brokers and other nominees holding shares of our stock in “street name” for more than one (1) beneficial owner with the same address.

If a stockholder holds shares of stock in multiple accounts (e.g., with our transfer agent and/or banks, brokers or other registered stockholder), we may be unable to use the householding procedures and, therefore, that stockholder may receive multiple copies of the Notice. You should follow the instructions on each Notice that you receive in order to vote the shares you hold in different accounts.

A stockholder that shares an address with another stockholder, who has received only one (1) Notice may write or call us as specified below:

- (i) To request a separate copy of such materials, which will be promptly mailed without charge; and
- (ii) To request that separate copies of these materials be sent to his or her home for future meetings.

Conversely, a stockholder of record who shares the same address with another stockholder of record may write or call us as specified below to request that a single set of the proxy materials be delivered to that address. Such stockholder requests may be made to our Investor Relations Department either via phone at 978-253-6200 or by mail directed to:

Investor Relations Department
Onto Innovation Inc.
16 Jonspin Road
Wilmington, Massachusetts 01887

If you are a beneficial owner of shares held in street name, please contact your bank, broker or other holder of record regarding such requests.

How Can I Find Out the Results Of The Voting At The Annual Meeting?

Preliminary voting results will be announced at the annual meeting. In addition, final voting results will be published in a current report on Form 8-K that we expect to file within four (4) business days after the annual meeting. If final voting results are not available to us in time to file a Form 8-K within four (4) business days after the meeting, we intend to file a Form 8-K

to publish preliminary results and, within four (4) business days after the final results are known to us, file an additional Form 8-K to publish the final results.

What Are The Deadlines For Submission Of Stockholder Proposals For The 2021 Annual Meeting?

Stockholders of the Company are entitled to present proposals for consideration at forthcoming stockholder meetings provided that they comply with the proxy rules promulgated by the SEC, if applicable, and the Bylaws of the Company. Stockholders wishing to present a proposal at the Company's 2021 Annual Stockholder Meeting must submit such proposal in writing to the Company Secretary at Onto Innovation Inc., 16 Jonspin Road, Wilmington, Massachusetts 01887 no later than December 1, 2020 in accordance with Rule 14a-8 under the Securities Exchange Act of 1934, as amended ("Exchange Act"), if they wish for it to be eligible for inclusion in the proxy statement and form of proxy relating to that meeting. In addition, under the Company's Bylaws, a stockholder wishing to nominate a director or make a proposal at the 2021 Annual Stockholder Meeting outside of Exchange Act Rule 14a-8 must submit such nomination or proposal in writing to the Company Secretary at the above address no earlier than January 12, 2021 and no later than February 11, 2021. The Nominating & Governance Committee will also consider qualified director nominees recommended by stockholders. Our process for receiving and evaluating Board member nominations from our stockholders is described below under the caption "Consideration Of Director Nominees."

You are also advised to review Company's Bylaws, which contain additional requirements about advance notice of stockholder proposals and director nominations.

CORPORATE GOVERNANCE PRINCIPLES AND PRACTICES

Onto Innovation is committed to sound and effective corporate governance practices. Having such principles is essential to running our business efficiently and to maintaining our integrity in the marketplace. The major components of our corporate governance practices are described below.

Board Leadership Structure

Our Company management is led by Michael P. Plisinski, who has served as our CEO and a director since the Merger Date and Christopher A. Seams, who is an independent director and has served as the Chairman of the Company's Board of Directors since the Merger Date.

Prior to the 2019 Merger, Bruce C. Rhine served as the Chairman of the Board of Nanometrics and Pierre-Yves Lesaichere, Ph.D. served as the President, Chief Executive Officer and a director of Nanometrics through the Merger Date. With regard to Rudolph, prior to the 2019 Merger, David B. Miller served as the Chairman of the Board of Rudolph and Mr. Plisinski served as the Chief Executive Officer of Rudolph and as a director on the Rudolph Board from November 2015 through the Merger Date.

Our Board of Directors is currently comprised of two (2) non-independent directors, Mr. Plisinski and Timothy J. Stultz, Ph.D., and ten (10) directors each of whom has been affirmatively determined by our Board of Directors to meet the criteria for independence established by the SEC and the NYSE. The independent directors meet periodically in executive session chaired by the Chairman without the CEO or other management present. Furthermore, each director is encouraged to suggest items for the Board agenda and to raise at any Board meeting subjects that are not on the agenda for that meeting.

In accordance with our sound and effective corporate governance practice, the roles of CEO and Chairman of the Board, as cited above, are held by separate individuals, with the independent Chairman of the Board being designated by the Board. The Board of Directors believes that, at the current time, the designation of an independent Chairman of the Board facilitates the functioning of the Board of Directors, while leaving the CEO responsible for setting the strategic direction for the Company and for the day-to-day leadership and performance of the Company. The independent Chairman of the Board:

- Presides at all meetings of the stockholders and the Board of Directors at which he or she is present;
- Establishes the agenda for each Board of Directors meeting;
- Sets the schedule and annual agenda, to the extent foreseeable;
- Calls and prepares the agenda for and presides over separate executive sessions of the independent directors;
- Acts as a liaison between the independent directors and the Company's management;
- Serves as a point of communications with stockholders; and
- Performs such other powers and duties as may from time to time be assigned by the Board of Directors or as may be prescribed by the Company's Bylaws.

Board Meetings

The Board of Directors of the Company held one (1) meeting during 2019, which 100% of the incumbent directors attended. In 2019, the Nanometrics Board of Directors held a total of thirteen (13) meetings as did the Rudolph Board of Directors. All of Nanometrics' incumbent directors attended at least 80% of the total number of meetings held by the Nanometrics Board and its standing committees upon which such directors served during 2019. All of Rudolph's incumbent directors attended at least 95% of the total number of meetings held by the Rudolph Board and its standing committees upon which such directors served during 2019. While the Company does not currently have a formal policy regarding the attendance of directors at the annual meeting of stockholders, directors are encouraged to attend. All members of both the Nanometrics Board of Directors and the Rudolph Board of Directors serving at the time attended the 2019 Annual Meeting of Stockholders for the respective companies.

On one (1) occasion during 2019, the Company's Board met in executive session in which only the independent Board members were present. In 2019, the Nanometrics Board met in executive session on four (4) occasions and the Rudolph Board met in executive session on three (3) occasions.

Board Independence

The Board of Directors makes an annual determination as to the independence of each of our Board members under the current standards for “independence” established by the NYSE and the SEC. The Board has determined that the following nominees for election as directors to our Board are independent under the NYSE Corporate Governance Rules: Jeffrey A. Aukerman, Leo Berlinghieri, Edward J. Brown, Jr., Vita A. Cassese, Robert G. Deuster, David B. Miller, Bruce C. Rhine, Christopher A. Seams and Christine A. Tsingos. Michael P. Plisinski, due to his position as our Chief Executive Officer, is not considered to be independent. As for the two (2) directors not standing for re-election in 2020, John R. Whiten is independent while Timothy J. Stultz, Ph.D., due to his position as Nanometrics President and Chief Executive Officer prior to his retirement from those positions in November 2017, is not considered independent.

From July 2006 to February 2008, Mr. Rhine served as Nanometrics Chief Strategy Officer, and from March 2007 to August 2007, Mr. Rhine served as Nanometrics Chief Executive Officer. The Nanometrics Board of Directors determined that Mr. Rhine became an independent member of the Board effective February 2011 under the Nasdaq Listing Rules due to the passage of time subsequent to his previous management role with Nanometrics and this designation was confirmed under the NYSE Listing Rules by the Company Board.

During 2019, none of the independent members of our Board was a party to any transactions, relationships or arrangements that were considered by the Board to impair his or her independence.

Oversight Of Risk

One of the Board’s primary responsibilities is reviewing the Company’s strategic plans and objectives, including oversight of the principal risk exposures of the Company. In particular, the Board is responsible for monitoring and assessing strategic risk exposure, including a determination of the nature and level of risk appropriate for the Company. The Board does not have a standing risk management committee, but rather administers this oversight function directly through the Board as a whole, as well as through various Board standing committees that address risks inherent in their respective areas of oversight. The Audit Committee assists the Board in oversight and monitoring of the legal and financial risks facing the Company, management’s approach to addressing these risks and strategies for risk mitigation and serves as the contact point for employees to report corporate compliance issues. On at least an annual basis, the Audit Committee reviews and discusses with management policies and systems pursuant to which management addresses risk, including risks associated with our audit, financial reporting, internal control, disclosure control, cybersecurity, legal and regulatory compliance, and investment policies. Our Audit Committee regularly reviews with our Board any issues that arise in connection with such topics and, in accordance with our Summary of Corporate Governance Guidelines, our full Board regularly engages in discussions of risk management to assess major risks facing our Company and review options for the mitigation of such risks. Our Compensation Committee periodically reviews enterprise risks to ensure that our compensation programs do not encourage excessive risk-taking and our Nominating & Governance Committee oversees risks related to governance issues, such as succession planning. As a result of the foregoing, we believe that our CEO, together with the Chairman of our Audit Committee and our full Board of Directors, provides effective oversight of the Company’s risk management function.

Board Committees

The Board has three standing committees with separate chairs - the Audit, Compensation, and Nominating & Governance Committees. Each of the Board committees is comprised solely of independent directors. The Audit Committee, Compensation Committee and Nominating & Governance Committee have each adopted a written charter that sets forth the specific responsibilities and qualifications for membership to the respective committees. The charters of each of these committees are available on our website at <https://investors.ontoinnovation.com/governance/governance-documents/>.

In 2019, the composition of and number of meetings held by the Company’s Board Committees were as follows:

Company	Committee Chairperson	Committee Members	# of Meetings held in 2019
Audit Committee			
Onto Innovation ²	Christine A. Tsingos	Jeffrey A. Aukerman Vita A. Cassese Christopher A. Seams John R. Whitten	2
Nanometrics ¹	Christine A. Tsingos	Bruce C. Rhine Robert G. Deuster Christopher A. Seams	8
Rudolph ¹	Jeffrey A. Aukerman	Vita A. Cassese David B. Miller John R. Whitten	5
Nominating & Governance Committee			
Onto Innovation ²	Leo Berlinghieri	David B. Miller Bruce C. Rhine Christopher A. Seams Christine A. Tsingos	1
Nanometrics ¹	Christopher A. Seams	Bruce C. Rhine Edward J. Brown, Jr.	4
Rudolph ¹	Leo Berlinghieri	Daniel H. Berry John R. Whitten	4
Compensation Committee			
Onto Innovation ²	Edward J. Brown, Jr.	Jeffrey A. Aukerman Leo Berlinghieri Robert G. Deuster David B. Miller	1
Nanometrics ¹	Edward J. Brown, Jr.	J. Thomas Bentley Robert G. Deuster Christine A. Tsingos	3
Rudolph ¹	David B. Miller	Jeffrey A. Aukerman Vita A. Cassese Thomas G. Greig	5

¹ Through the Merger Date.

² After the Merger Date

Audit Committee

The Audit Committee assists the Board in fulfilling its responsibilities for general oversight of the integrity of our financial statements, our accounting policies and procedures and our compliance with legal and regulatory requirements. Among its functions, the Audit Committee is responsible for:

- The appointment, compensation, retention and oversight of the Company’s independent registered public accounting firm;
- The approval of services performed by the Company’s independent registered public accounting firm;
- Reviewing the responsibilities, functions and performance of the Company’s internal audit function;
- Reviewing the scope and results of internal audits and ongoing assessments of the Company’s risk management processes;
- Monitoring possible transactions between the Company and our officers and directors for any potential conflicts of interest; and
- Evaluating the Company’s system of internal control over financial reporting and disclosure controls and procedures.

The report of our Audit Committee is found below under the caption “Audit Committee Report.”

The Board has determined that each of the Audit Committee members meet the Audit Committee membership requirements set forth by the NYSE and the SEC, including that they be “independent.” Furthermore, the Board has determined that each of Ms. Tsingos and Mr. Aukerman qualify as an “Audit Committee Financial Expert” as that term is defined under SEC rules.

Compensation Committee

The Compensation Committee is responsible for the establishment of the policies upon which compensation of and incentives for the Company’s executive officers will be based, the review and recommendation for approval by the independent members of the Board of the compensation of the Company’s executive officers, and the administration of the Company’s equity compensation plans.

In general, the Compensation Committee reviews and recommends for approval by the independent members of the Board of Directors the Company’s compensation policies and practices, including executive salary levels and variable compensation programs, both cash-based and equity-based, benefits, severance and equity-based and other compensation plans, policies and programs. With respect to the compensation of the Company’s CEO, the Compensation Committee reviews and recommends for approval by the independent members of the Board the various elements of the CEO’s compensation. With respect to other executive officers, including each of our NEOs, the Compensation Committee reviews the recommendations for compensation for such individuals presented to the Compensation Committee by the CEO and the reasons therefor and, in its discretion, may modify the compensation packages for any such individuals. The Compensation Committee has delegated to the Company’s CEO the authority, within certain parameters, to approve the grant of restricted stock units (“RSUs”) to employees and consultants who are not executive officers for purposes of Section 16 of the Exchange Act and hold positions below the level of vice president. All such grants are thereafter reviewed and ratified by the Compensation Committee.

In accordance with its charter, the Compensation Committee may form and delegate its authority to subcommittees when appropriate. Further, the Compensation Committee has the authority to retain, and to terminate, any compensation consultant or other advisors to assist in the evaluation of director, CEO or executive compensation or other matters within the scope of the Compensation Committee’s responsibilities and is directly responsible for the appointment, compensation and oversight of such consultants and other advisors, including their fees and other retention terms. From time to time, the Compensation Committee engages the services of such outside compensation consultants to provide advice on compensation plans and issues related to the Company’s executive and non-executive employees. In 2019, the Company’s Compensation Committee engaged Compensia, Inc. (“Compensia”) to provide such assistance to the Compensation Committee. Prior to the 2019 Merger, Compensia provided compensation consultancy services to Nanometrics while Rudolph engaged Pay Governance LLC for such compensation advice. The Compensation Committee also has authority to obtain advice and assistance from internal or external legal, accounting and other advisors.

Each current member of our Compensation Committee is an “outside” director as defined in Section 162(m) of the Internal Revenue Code of 1986, as amended, and a “non-employee” director within the meaning of Rule 16b-3 under the Exchange Act. The Board has determined that each of the Compensation Committee members meet the Compensation Committee membership requirements set forth by the NYSE and the SEC, including that they be “independent.”

For further discussion of the Compensation Committee and its processes and procedures, please refer to the “Compensation Program Objectives, Design and Practices” section in the Compensation Discussion and Analysis below. The Compensation Committee Report is included under the caption “Compensation Committee Report on Executive Compensation” in this Proxy Statement.

Nominating & Governance Committee

The responsibilities of the Nominating & Governance Committee include:

- Identifying prospective director nominees and recommending to the Board director nominees for the next annual meeting of stockholders and replacements of a director in the event of a vacancy on the Board;
- Recommending to the Board the appointment of directors to Board Committees;
- Developing and recommending to the Board, and monitoring compliance with, the corporate governance principles and standards applicable to the Company;
- Managing the CEO selection process; and
- Together with our CEO, overseeing our Company’s management succession planning.

The Nominating & Governance Committee also oversees the annual evaluation of the Board, the Committees of the Board and the individual directors. Typically, this evaluation is performed during the first quarter by each of the directors and reflects an assessment of the Board, the Committees of the Board and each individual director in the prior year. Among other topics, the evaluation in general assesses:

- For both the Board and the Committees:
 - Their structure and composition;
 - The format and content of meetings; and
 - The effectiveness of the Board/Committees.
- For each individual director:
 - Their performance and approach to their directorship;
 - Their understanding of their role as a director;
 - Their understanding of critical aspects of the Company's business, products and strategy; and
 - Their skills, experience and ongoing training.

In addition, the Board reviews the issues faced during the past year, assesses its response and makes determinations whether additional resources or approaches might be applied to further optimize the handling of the issues. The goal of the evaluation is to identify and address any performance issues at the Board, committee or individual level, should they exist, identify potential gaps in the boardroom and to assure the maintenance of an appropriate mix of director skills and qualifications. Upon completion of the evaluation, the Nominating & Governance Committee provides feedback to the Board, the committees and the individual directors regarding the results of the evaluation and raises any issues that have been identified which may need to be addressed.

The Nominating & Governance Committee utilizes a variety of methods for identifying and evaluating nominees. Its general policy is to assess the appropriate size and needs of the Board of Directors and whether any vacancies are expected due to retirement or otherwise. In addition, candidates for director nominees are typically reviewed in the context of the current composition of the Board, the operating requirements of the Company, the current needs of the Board, and the long-term interests of stockholders, with the goal of maintaining a balance of knowledge, experience and capability. In the event those vacancies are anticipated, or otherwise arise, the Nominating & Governance Committee will consider recommending various potential candidates to fill such vacancies. Candidates may come to the attention of the Nominating & Governance Committee through its current members, stockholders or other persons.

The Board has determined that each of the Nominating & Governance Committee members meets the Nominating & Governance Committee membership requirements, including the independence requirements of the NYSE.

Other Committees

Our Board of Directors may from time to time establish other special or standing committees to facilitate the management of the Company or to discharge specific duties delegated to the committee by the full Board of Directors.

Compensation Committee Interlocks And Insider Participation

In 2019, no member serving on the Company's Compensation Committee (Edward J Brown, Jr., Jeffrey A. Aukerman, Leo Berlinghieri, Robert G. Deuster, David B. Miller), the Nanometrics Compensation Committee (Edward J Brown, Jr., J. Thomas Bentley, Robert G. Deuster, Christine A. Tsingos) or the Rudolph Compensation Committee (David B. Miller, Jeffrey A. Aukerman, Vita A Cassese, Thomas G. Greig) at any time during the year had any form of interlocking relationship as described in Item 407(e)(4) of Regulation S-K with the respective company. Further, no member of the Company's Compensation Committee as constituted in 2020 (Edward J Brown, Jr., Jeffrey A. Aukerman, Leo Berlinghieri, Robert G. Deuster, David B. Miller) has any form of interlocking relationship as described in Item 407(e)(4) of Regulation S-K as of the date of this proxy statement.

Board Membership Criteria And Nominee Identification

The Nominating & Governance Committee of the Board determines the required selection criteria and qualifications of director nominees based upon the needs of the Company at the time nominees are considered. While the Nominating & Governance Committee has no specific minimum qualifications for director candidates, persons considered for Board of Directors positions

must demonstrate the following qualifications to be recommended by the Nominating & Governance Committee for a position on the Board:

- The candidate must exhibit proven leadership capabilities, high integrity and experience with a high level of responsibilities within his or her chosen field;
- The candidate must possess the ability to apply good business judgment and be of sound mind and high moral character;
- The candidate must have no personal or financial interest that would conflict or appear to conflict with the interests of the Company;
- The candidate must be in a position to properly exercise his or her duties of loyalty and be willing and able to commit the necessary time for Board of Directors and committee service; and
- The candidate must have the ability to grasp complex principles of business, finance, international transactions and semiconductor inspection, metrology, lithography and related software technologies.

The Nominating & Governance Committee retains the right to modify these qualifications from time to time.

The Nominating & Governance Committee has not adopted a formal diversity policy with regard to the selection of director nominees. Diversity is one of the factors that the Nominating & Governance Committee considers in identifying nominees for director. In selecting director nominees, the Nominating & Governance Committee considers, among other factors:

- The competencies and skills that the candidate possesses and the candidate's areas of qualification and expertise that would enhance the composition of the Board and further its ability to offer advice and guidance to management;
- How the candidate would contribute to the Board's overall balance of expertise, perspectives, backgrounds and experiences in substantive matters pertaining to the Company's business; and
- The candidate's demonstrated excellence in his or her field and commitment to rigorously representing the long-term interests of the Company's stockholders.

In its identification of director nominees, the Nominating & Governance Committee will consider how the candidate would contribute to the Board's overall balance of diversity of expertise, perspectives, backgrounds and experiences in substantive matters pertaining to the Company's business. When current Board members are considered for nomination for reelection, the Nominating & Governance Committee also takes into consideration their prior contributions to and performance on the Board and their record of attendance.

The Nominating & Governance Committee will consider the above criteria for nominees identified by the Nominating & Governance Committee itself, by stockholders, or through some other source. The Nominating & Governance Committee uses the same process for evaluating all nominees, regardless of the original source of nomination. The Nominating & Governance Committee may use the services of a third-party search firm to assist in the identification or evaluation of Board member candidates.

Consideration Of Director Nominees

The Nominating & Governance Committee has a formal policy with regard to consideration of director candidates recommended by the Company's stockholders, the Director Candidate Policy, which may be found on our website at:

<https://investors.ontoinnovation.com/governance/governance-documents/>

In accordance with the policy, the Nominating & Governance Committee will consider recommendations for candidates to the Board of Directors from stockholders of the Company holding no less than 1% of the Company's securities for at least twelve (12) months prior to the date of the submission of the recommendation. Stockholders wishing to recommend persons for consideration by the Nominating & Governance Committee as nominees for election to the Company's Board of Directors can do so by writing to the Office of the General Counsel of the Company at its principal executive offices giving:

- Candidate's name, age, business address and residence address;
- Candidate's detailed biographical data and qualifications including his/her principal occupation and employment history;
- The class and number of shares of the Company which are beneficially owned by the candidate;
- The candidate's written consent to being named as a nominee and to serving as a director, if elected;

- Information regarding any relationship between the candidate and the Company in the last three (3) years;
- Any other information relating to the candidate that is required by law to be disclosed in solicitations of proxies for election of directors;
- The name and address of the recommending or nominating stockholder;
- The class and number of shares of the Company which are beneficially owned by the recommending or nominating stockholder;
- A description of all arrangements or understandings between such stockholder and each nominee and any other person or persons (naming such person or persons) relating to the nomination; and
- Any other information specified under Section 2.5 of the Company’s Bylaws.

Corporate Governance Guidelines

Our Board of Directors adopted Corporate Governance Guidelines, a copy of which is available on our website at <https://investors.ontoinnovation.com/governance/governance-documents/> under “Corporate Governance Summary.”

Codes Of Ethics

We have adopted a Code of Business Conduct and Ethics (applicable to all employees, executive officers and directors) and a Financial Information Integrity Policy (applicable to our financial officers, including our CEO and Chief Financial Officer (“CFO”)) that set forth principles to guide all employees, executive officers and directors and establish procedures for reporting any violations of these principles. Copies of these codes may be found on our website at:

<https://investors.ontoinnovation.com/governance/governance-documents/>

or may be requested by writing to:

Onto Innovation Inc.
Attention: Investor Relations
16 Jonspin Road
Wilmington, Massachusetts 01887

The Company will disclose any amendment to its code of ethics or waiver of a provision of its code of ethics applicable to its officers or directors, including the name of the officer or director to whom the waiver was granted, on our website at www.ontoinnovation.com, on the Investors page.

Related Person Transactions Policy

There have been no “related person transactions” since the beginning of 2019 to present, nor are there any currently proposed “related person transactions,” involving any director, director nominee or executive officer of the Company, any known 5% stockholder of the Company or any immediate family member of any of the foregoing persons (which are referred to together as “related persons”). A “related person transaction” generally means a transaction involving more than \$120,000 in which the Company (including any of its subsidiaries) is a participant and in which a related person has a direct or indirect material interest.

The Board has adopted policies addressing the Company’s procedures with respect to the review, approval and ratification of “related person transactions” that are required to be disclosed pursuant to Item 404(a) of Regulation S-K. Our related person practices and policies ensure that our directors, officers and employees are proactively screened from any conflicts of interests interfering with their obligations to the Company. Our policies are included in our corporate governance documents, including our Code of Business Conduct and Ethics, the Audit Committee Charter and Summary of Corporate Governance Policies, each of which is available on the Investors section of our website located at:

<https://investors.ontoinnovation.com/governance/governance-documents/>

- Pursuant to our Code of Business Conduct and Ethics, our directors, officers and employees are required to avoid any actual or apparent conflicts of interest (other than conflicts of interest that have received appropriate approval as described below), which includes taking actions or having interests that may interfere with the objective or efficient performance of such person’s duties to the Company or that may result in such person receiving improper personal benefits as a result of their position with the Company.

- Pursuant to our Summary of Corporate Governance Policies, if a director becomes involved in any activity or interest that may result in an actual or potential conflict (or the appearance of a conflict) with the interests of the Company, that director is required to disclose such information promptly to the Board, which will determine an appropriate resolution on a case-by-case basis. This policy further reflects that all directors must recuse themselves from any discussion or decision affecting their personal, business or professional interests. Similarly, our Board will determine the appropriate resolution of any actual or potential conflict of interest involving our CEO and our CEO will determine the appropriate resolution of any conflict of interest issue involving any other officer of the Company. When necessary and appropriate, resolution of such issues may require consideration of the matter by the Audit Committee.
- Pursuant to both the Board's Summary of Corporate Governance Policies and the Audit Committee Charter, the Audit Committee, which consists entirely of independent directors, will review any proposed transaction in which the Company or its subsidiaries are to participate if the amount involved in the transaction exceeds \$120,000 and we are aware that any related person may have a direct or indirect material interest in the transaction. The Audit Committee will consider the facts and circumstances and will approve or ratify a proposed transaction if the Audit Committee considers it appropriate and believes that such transaction will serve the long-term interests of our stockholders. The Compensation Committee of the Board reviews and approves compensation decisions for Board members and our executive officers (and such other employees of the Company as directed by the Board) pursuant to the Compensation Committee Charter.

Communications With The Board Of Directors

We have a formal policy regarding communications with the Board of Directors, our Stockholder Communications Policy, which is found on our website at <https://investors.ontoinnovation.com/governance/governance-documents/>.

Stockholders may communicate with the Board of Directors, any of the Company's Board Committees (Audit, Compensation or Nominating & Governance) or any of the Company's directors by writing to:

Onto Innovation Inc.
Office of the General Counsel
550 Clark Drive
P.O. Box 860
Budd Lake, New Jersey 07828

and such communications will be forwarded to the intended recipient(s) to the extent appropriate. Prior to forwarding any communication, the General Counsel will review it and, in his or her discretion, will not forward a communication deemed to be of a commercial nature or otherwise inappropriate.

PROPOSAL 1

ELECTION OF DIRECTORS

Nominees

The Board currently has twelve (12) members. Effective subsequent to the 2020 Annual Meeting of Stockholders, the authorized number of directors for the Board shall be reduced to ten (10) members. All current directors are standing for election at the Annual Meeting with the exception of John R. Whitten and Timothy J. Stultz, Ph.D.

The Company's Amended and Restated Certificate of Incorporation provides that at each annual meeting of stockholders, each director of the Company shall be elected to hold office, and shall serve, until the expiration of the term for which he or she is elected and until his or her successor is duly elected and qualified or until his or her death, resignation, or removal; except that if any such election shall not be so held, such election shall take place at a stockholders' meeting called and held in accordance with the DGCL.

Based on the recommendation of the Nominating & Governance Committee, the ten (10) director nominees approved by the Board for inclusion in this proxy statement are:

Jeffrey A. Aukerman	Leo Berlinghieri	Edward J. Brown, Jr.	Vita A. Cassese
Robert G. Deuster	David B. Miller	Michael P. Plisinski	Bruce C. Rhine
	Christopher A. Seams	Christine A. Tsingos	

Each nominee is currently serving as a director of Onto Innovation. In making its recommendations, the Nominating & Governance Committee considered a number of factors, including its criteria for Board membership, which include the minimum qualifications that must be possessed by a director candidate in order to be nominated for a position on our Board. Each nominee has indicated that he or she will serve if elected. Unless otherwise instructed, the proxy holders will vote the proxies received by them for the Company's ten (10) nominees. In the event that any nominee of the Company becomes unable or unavailable to serve as a director at the time of the Annual Meeting (which we do not anticipate), the proxy holders will vote the proxies for any substitute nominee who is designated by the current Board of Directors to fill the vacancy. Alternatively, the Board of Directors, in its discretion, may elect to reduce the number of directors serving on the Board. We do not have any reason to believe that any of the nominees will be unable or will decline to serve as a director.

Board Composition And Refreshment

A priority of the Nominating & Governance Committee and the Board as a whole is making certain that the composition of the Board reflects the desired professional experience, skills and backgrounds in order to present an array of viewpoints and perspectives and effectively represent the long-term interests of stockholders. Further, the Board recognizes the importance of Board refreshment in order to continue to achieve an appropriate balance of tenure, turnover, diversity and skills on the Board.

Vote Required

Pursuant to the Company's Bylaws, our directors are elected by the affirmative vote of the majority of the votes cast (provided, however, that if the number of nominees exceeds the number of directors to be elected, directors will be elected by a plurality voting standard). In order for a director in an uncontested election to be elected, the number of votes cast "for" his/her election must exceed the number of votes cast "against" his/her election (with "abstentions" and "broker non-votes" not counted as a vote cast either "for" or "against" that director's election). If a nominee for director in an uncontested election receives a greater number of "Withhold" votes for election than "For" votes and is not elected, our Corporate Governance Summary provides that such director must promptly tender a resignation to the Board. Our Nominating & Governance Committee would then make a recommendation to the Board on whether to accept or reject the tendered resignation, or whether other action should be taken. Within ninety (90) days after the date of the certification of the election results, our Board will act on any such tendered resignation and publicly disclose (in a press release, a filing with the SEC or other broadly disseminated means of communication) its decision regarding the tendered resignation and the rationale behind the decision.

Information About The Nominees And Continuing Directors

Our Board and its Nominating & Governance Committee believe that all of the directors and nominees are highly qualified and have demonstrated leadership skills and have experience and judgment in areas that are relevant to our business. We believe that their ability to challenge and stimulate management and their dedication to the affairs of the Company collectively serve the interests of the Company and its stockholders.

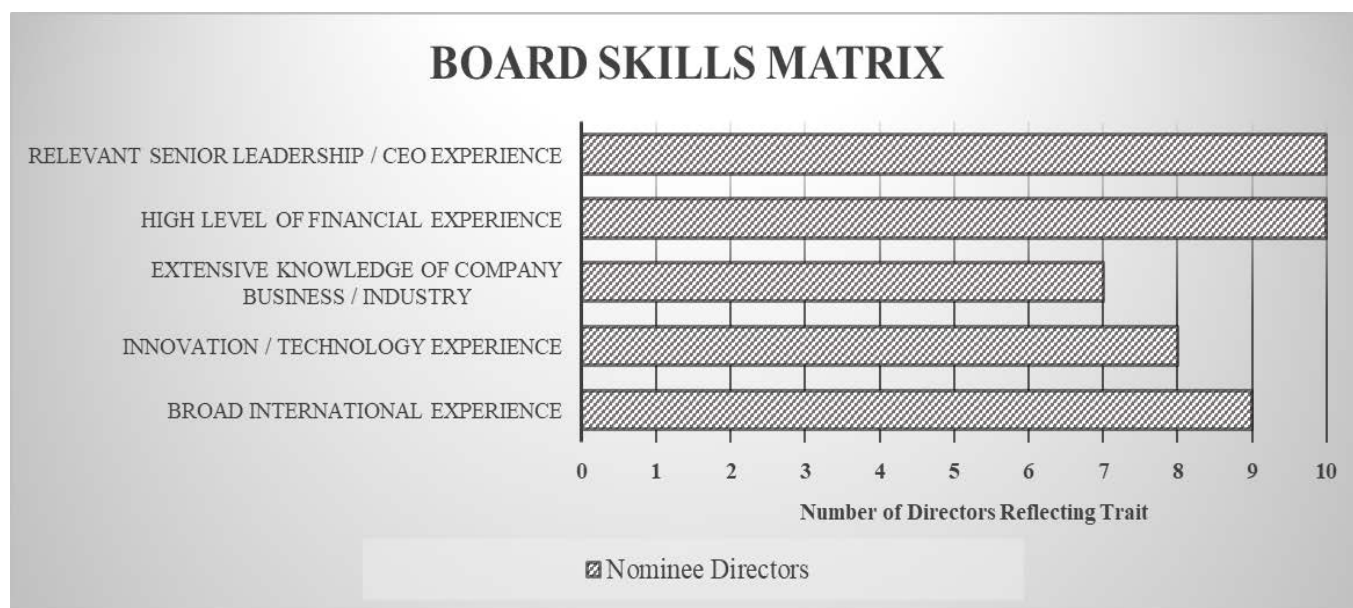
The ten (10) nominees for director are set forth below. All information is as of the record date.

Name	Position	Board Tenure ⁽¹⁾
<i>Nominee Directors:</i>		
Jeffrey A. Aukerman	Former Partner, Deloitte & Touche LLP	5.25 years
Leo Berlinghieri	Former Chief Executive Officer and President, MKS Instruments, Inc.	11.50 years
Edward J. Brown, Jr.	Former CEO, Cymer Light Source	7.08 years
Vita A. Cassese	Chief Executive Officer, Mardon Management Advisors	1.67 years
Robert G. Deuster	Former CEO, Collectors Universe, Inc.	3.00 years
Michael P. Plisinski	Chief Executive Officer, Onto Innovation Inc.	4.33 years
David B. Miller	Former President, DuPont Electronics & Communications	4.67 years
Bruce D. Rhine	Former CEO, Nanometrics Incorporated	13.50 years
Christopher A. Seams	Former CEO, Deca Technologies	4.58 years
Christine A. Tsingos	Former Executive Vice President and CFO, Bio-Rad Laboratories	5.83 years

(1) Board Tenure includes time served on the Rudolph Board of Directors or the Nanometrics Board of Directors prior to the Merger Date.

Except as discussed below, each nominee and each incumbent director has been engaged in the principal occupation set forth above during the past five (5) years. There are no family relationships between any directors or executive officers of the Company. Messrs. Aukerman, Berlinghieri, Miller, Plisinski and Whitten, along with Ms. Cassese, all former members of the Rudolph Board of Directors, were appointed to the Board on October 22, 2019 pursuant to the Agreement and Plan of Merger, dated as of June 23, 2019 (the “Merger Agreement”), among Nanometrics, Rudolph and PV Equipment Inc., after recommendation by the previous Board of Directors of Rudolph. The Nominating & Governance Committee thereafter considered the professional experience, skills and backgrounds of the nominees (including Messrs. Aukerman, Berlinghieri, Miller and Plisinski and Ms. Cassese) and recommended the nominees to the full Board.

The following reflects additional information regarding the background and qualifications of our directors, including the experience and skills that support the Board’s determination that each director should serve on our Board.



NOMINEES FOR DIRECTOR

Jeffrey A. Aukerman



Director Since:	December 2014 (formerly with Rudolph)
Age:	54
Independent Status:	Independent Director
Board Committee(s):	Audit, Compensation
Other Boards Served:	Advisory Council to the Lariccia School of Accounting & Finance at Youngstown State University (since 2012)

Mr. Aukerman is a certified public accountant and has extensive public accounting and consulting experience, serving many public and private equity sponsored public reporting companies in the manufacturing, distribution and services industries. From July 1987 to May 2014, Mr. Aukerman was employed by Deloitte & Touche LLP, which, together with its affiliates, is an audit, consulting, tax and advisory services firm, and served as an audit partner for the most recent fifteen (15) years. He also served in various capacities for the firm, including as an audit function professional practice director for the Cleveland, Ohio office and a regional leader of internal control subject matter specialists. Mr. Aukerman graduated magna cum laude with a B.S.B.A. in Accounting from Youngstown State University.

Specific Qualifications, Attributes, Skills and Experience

Relevant Senior Leadership / CEO Experience

- Served as Partner at Deloitte & Touche LLP.

High Level of Financial Experience

- Twenty-seven (27) years of extensive experience with a wide range of financial reporting, accounting, risk management, and compliance matters at Deloitte & Touche LLP.

Leo Berlinghieri



Director Since:	September 2008 (formerly with Rudolph)
Age:	66
Independent Status:	Independent Director
Board Committee(s):	Nominating & Governance (Chair), Compensation
Other Boards Served:	Unipower, LLC (since 2017) MKS Instruments, Inc. (2005-2013) Massachusetts High Technology Council, Inc. (2006-2013)

From July 2005 to December 2013, Mr. Berlinghieri served as Chief Executive Officer and President of MKS Instruments, Inc., a critical subsystem and instrument provider to the semiconductor industry. From April 2004 to July 2005, Mr. Berlinghieri served as President and Chief Operating Officer and prior to that served as Vice President and Chief Operating Officer from July 2003 to April 2004 for MKS Instruments, Inc.

Specific Qualifications, Attributes, Skills and Experience

Relevant Senior Leadership / CEO Experience

- Served for over eight (8) years as Chief Executive Officer and President of MKS Instruments, Inc. Additional prior experience as Vice President and Chief Operating Officer of the company, among other senior management roles.

High Level of Financial Experience

- Substantial financial experience gained in roles as Chief Executive Officer, President and Vice President and Chief Operating Officer with MKS Instruments, Inc.

Broad International Exposure

- Gained extensive international experience in various roles with MKS Instruments, including Chief Executive Officer, Chief Operating Officer and Vice President of Global Sales and Service.

Extensive Knowledge of Company Business/Industry

- Over thirty-three (33) years of experience in the semiconductor industry, including eight (8) years at the helm of MKS Instruments, Inc. a public corporation. Also served on the SEMI North America Advisory Board (NAAB) including as its chairman in 2009.

Innovation/Technology Experience

- Broad array of technological experience with MKS Instruments, Inc., including roles in manufacturing, customer support, and sales all in addition to his roles as Chief Executive Officer and Chief Operating Officer.

Edward J. Brown, Jr.



Director Since:	February 2013
Age:	62
Independent Status:	Independent Director
Board Committee(s):	Compensation (Chair)
Other Boards Served:	Astrodyne TDI (2015-present)

From May 2013 until September 2015, Mr. Brown was the Chief Executive Officer of Cymer Light Source, following the merger of Cymer, Inc. with ASML Holding Ltd., prior to which Mr. Brown served as President and Chief Operating Officer of Cymer, Inc. from September 2005 until May 2013. From 1984 to 2005, Mr. Brown was employed at Applied Materials, Inc., where he held numerous high-level management positions including group vice president and senior advisor to the president, vice president and general manager of the Intel business unit, as well as managing director heading up their largest product division, Global Operations. Prior to Applied Materials Inc., Mr. Brown held key engineering positions at TRW Corporation and Burroughs Corporation. Mr. Brown received a master's degree in business administration from National University and a bachelor's degree in industrial studies from San Diego State University.

Specific Qualifications, Attributes, Skills and Experience

Relevant Senior Leadership / CEO Experience

- Served as Chief Executive Officer for Cymer Light Source. Further, he served for over seven (7) years as President and Chief Operating Officer of Cymer, Inc. as well as held various senior management positions with Applied Materials, Inc. and key engineering positions at TRW Corporation and Burroughs Corporation.

High Level of Financial Experience

- Substantial financial experience gained as Chief Executive Officer of Cymer Light Source, as President and Chief Operating Officer of Cymer, Inc. as well as high-level management positions with Applied Materials, Inc., among others.

Broad International Exposure

- Gained extensive international experience as Chief Executive Officer of Cymer Light Source, President and Chief Operating Officer of Cymer, Inc. and Global Vice President of Worldwide Business Operations as well as other roles including vice president of Applied Material, Inc.'s largest product division, Global Operations.

Extensive Knowledge of Company Business/Industry

- Over forty (40) years of employment experience within an array of fields in the semiconductor industry. Also served on the SEMI North America Advisory Board (NAAB).

Innovation/Technology Experience

- Expansive scope of technological and innovative experience from over forty (40) years of semiconductor industry employment in key management, operations, development and engineering positions.

Vita A. Cassese



Director Since:	July 2018 (formerly with Rudolph)
Age:	70
Independent Status:	Independent Director
Board Committee(s):	Audit
Other Boards Served:	Loftware, Inc. (since 2014) Interactive Health, Inc. (since 2017) Medical Knowledge Group (2015-2019) Zitter Health Insights (2015-2019) Context Matters, Inc. (2016-2017) Decision Resources Group, Inc. (2010-2012) College of Mount Saint Vincent Board (Trustee) (since 2007)

Ms. Cassese currently serves as the CEO of Mardon Management Advisors, a technology and analytics advisory firm. Ms. Cassese has over 30 years of experience in operating and strategic management roles at Pfizer, Inc., Ms. Cassese's last held position at Pfizer, Inc. was chief information officer of its Worldwide Pharmaceuticals Group. Ms. Cassese serves as a mentor for the Masters in Technology program at Columbia University and has been a guest lecturer at New York University's Stern School of Business, MIT Sloan School of Business, and Boston University. Ms. Cassese earned a B.A. in Mathematics from the College of Mount Saint Vincent and an MBA from New York University's Stern School of Business.

Specific Qualifications, Attributes, Skills and Experience

Relevant Senior Leadership / CEO Experience

- Serves as Chief Executive Officer of Mardon Management Advisors. Additional experience as Vice President, Business Development, Strategy and Innovation for Pfizer, Inc. and CIO for Pfizer Worldwide Pharmaceuticals.

High Level of Financial Experience

- Substantial financial experience gained in serving in executive management roles with Pfizer, Inc. and as chief information officer of Pfizer's Worldwide Pharmaceuticals Group with an annual operating budget exceeding \$1.5B.

Broad International Exposure

- Roles with Pfizer included management of nearly 2,000 employees in 44 countries as well as serving on the company's Worldwide Pharmaceuticals Executive Leadership Team responsible for long-term international business strategy.

Innovation/Technology Experience

- Extensive innovation and technology experience derived from over 30 years of operations experience, service on multiple technical advisory boards and leadership of a technology and analytics advisory firm.

Robert G. Deuster



Director Since:	March 2017
Age:	69
Independent Status:	Independent Director
Board Committee(s):	Compensation
Other Boards Served:	Collectors Universe, Inc. (2012-2018) Ondax Incorporated (2010-2018) Symmetry Medical Incorporated (2014-2017) Pico Holdings (2011-2016)

Mr. Deuster served as Chief Executive Officer of Collectors Universe, Inc., a public company that provides authentication and grading services to the global collectibles market, from 2012 to 2017. Mr. Deuster served as Chairman and Chief Executive Officer of Newport Corporation, a public company that is a global supplier of laser, optical and motion control products, from May 1996 until his retirement in October 2007. Mr. Deuster served in various senior management positions at Applied Power, Inc. (now Actuant Corporation) and General Electric Company's Medical Systems Division. Mr. Deuster received a B.S. in Electrical Engineering from Marquette University in 1973. Mr. Deuster holds a Masters Professional Director Certification from the American College of Corporate Directors ("ACCD"), a public company director education and credentialing organization.

Specific Qualifications, Attributes, Skills and Experience

Relevant Senior Leadership / CEO Experience

- Served as Chief Executive Officer of both Collectors Universe, Inc. and Newport Corporation. Further, he served in various senior management positions at Applied Power, Inc. and General Electric Company's Medical Systems Division.

High Level of Financial Experience

- Substantial financial experience gained as Chief Executive Officer of Collectors Universe, Inc. for over five (5) years, as Chief Executive Officer of Newport Corporation for over eleven (11) years and in other senior management positions with Applied Power, Inc. and General Electric Company's Medical Systems Division.

Broad International Exposure

- Gained extensive international experience as Chief Executive Officer of both Collectors Universe, Inc. and Newport Corporation.

Extensive Knowledge of Company Business/Industry

- Significant employment experience as Chief Executive Officer of Newport Corporation, a global supplier of laser, optical and motion control products to an array of industries including the semiconductor industry.

Innovation/Technology Experience

- Extensive innovation and technology experience derived from over eleven (11) years of service as the Chief Executive Officer of Newport Corporation as well as in various senior management positions at Applied Power, Inc. and General Electric Company's Medical Systems Division.

David B. Miller



Director Since: July 2015 (formerly with Rudolph)
Age: 63
Independent Status: Independent Director
Board Committee(s): Compensation, Nominating & Governance
Other Boards Served: President, University of Virginia School of Engineering & Applied Science Foundation (since 2011)
Merrimac Industries, Inc. (2002-2008)
SEMI International (2011-2015)
North Carolina Chamber of Commerce (2010-2015)

Mr. Miller served as the Rudolph non-executive Chairman from August 2018 through the Merger Date. From June 1981 to November 2015, Mr. Miller served in various positions, most recently as President, with DuPont Electronics & Communications, an electronic materials company. Mr. Miller holds a B.S. in Electrical Engineering from the University of Virginia.

Specific Qualifications, Attributes, Skills and Experience

Relevant Senior Leadership / CEO Experience

- Served as President of DuPont Electronics & Communications.

High Level of Financial Experience

- Substantial financial experience gained in roles with DuPont Electronics & Communications including as President of the company. Oversight of complex financial transactions, profit and loss responsibility and investor relations during prior operations and leadership roles with this company.

Broad International Exposure

- Served as President of DuPont Electronics & Communications, a global electronic materials company. Served on several joint venture boards in the U.S. and Asia while with DuPont Electronics & Communications as well as on the board of SEMI International. Resided in Tokyo, Japan for three (3) years.

Extensive Knowledge of Company Business/Industry

- Forty (40) years of experience within the electronics industry including six (6) years at the helm of DuPont Electronics & Communications, which in addition to other markets, served the semiconductor industry.

Innovation/Technology Experience

- Significant experience and leadership roles with DuPont Electronics & Communications, overseeing the company's technology advancement, breadth of process expertise and ongoing innovation.

Michael P. Plisinski



Director Since:	November 2015 (formerly with Rudolph)
Age:	50
Independent Status:	Non-Independent Director
Board Committee(s):	None
Other Boards Served:	None

Mr. Plisinski has served as the Company's Chief Executive Officer since the Merger Date and was previously Chief Executive Officer of Rudolph beginning in November 2015. Prior to his appointment as Rudolph's CEO, Mr. Plisinski served as Rudolph's Executive Vice President and Chief Operating Officer from October 2014 to November 2015 and as Vice President and General Manager, Data Analysis and Review Business Unit from February 2006 when Rudolph merged with August Technology Corporation ("August Technology") until October 2014. From February 2004 to February 2006, Mr. Plisinski served as August Technology's Vice President of Engineering and, from July 2003 to February 2004, as its Director of Strategic Marketing for review and analysis products. Mr. Plisinski joined August Technology as part of the acquisition of Counterpoint Solutions, a supplier of optical review and automated metrology equipment to the semiconductor industry, where he was both sole founder and President from June 1999 to July 2003. Mr. Plisinski has a B.S. in Computer Science from the University of Massachusetts and has completed the Advanced Management Program from Harvard Business School.

Specific Qualifications, Attributes, Skills and Experience

Relevant Senior Leadership / CEO Experience

- Serving as Chief Executive Officer of Onto Innovation with prior experience as Chief Executive Officer of Rudolph, Chief Operating Officer and Vice President of Rudolph, General Manager of the Rudolph's Data Analysis and Review Business Unit, among other senior management positions.

High Level of Financial Experience

- Substantial financial experience gained in roles as Chief Executive Officer of the Company and Rudolph and Chief Operating Officer and Vice President, General Manager of the Data Analysis and Review Business Unit of Rudolph.

Broad International Exposure

- Extensive experience working with the Asian and European customers of the Company through the various roles held with Rudolph, August Technology and the Company.

Extensive Knowledge of Company Business/Industry

- Over fifteen (15) years of dedicated experience with Rudolph and August Technology and an additional four (4) years as founder of an optical review and automated metrology start-up company, each serving the semiconductor industry.

Innovation/Technology Experience

- Technological and innovative experience includes leadership roles in both engineering and software development while with Rudolph and August Technology. Prior entrepreneurial experience in the founding of optical review and automated metrology equipment company, Counterpoint Solutions.

Bruce C. Rhine



Director Since:	July 2006
Age:	62
Independent Status:	Independent Director
Board Committee(s):	Audit (Chairman through July 2018), Nominating & Governance
Other Boards Served:	Snap2Insights (since 2018) Shaper.io (since 2015) Columbia Nutritional LLC (since 2014) Phoseon Technology, Inc. (since 2012) Jama Software (2008-2018) NEXX Systems (2002-2012) Nor-Cal Products, Inc. (2010-2017) Accent Optical Technologies Inc. (2000-2006)

Mr. Rhine served as the Chairman of the Board of Directors of Nanometrics from August 2009 through the Merger Date. From July 2006 to February 2008, Mr. Rhine served as Nanometrics' Chief Strategy Officer and from March 2007 to August 2007, as Nanometrics Chief Executive Officer. From 2000 to 2006, Mr. Rhine served as Chairman and Chief Executive Officer of Accent Optical Technologies, Inc. (acquired by Nanometrics in July 2006) and as its President from January 2003 to April 2005 and from August 2000 to September 2001. Prior to 2000 Mr. Rhine was an executive at Applied Materials, Lam Research Corporation, Asyst Technologies and Air Products and Chemicals. Mr. Rhine holds a B.S. degree in Chemical Engineering and an M.B.A. in Finance from The Pennsylvania State University. Mr. Rhine is a member of the National Association of Corporate Directors ("NACD") and the ACCD.

Specific Qualifications, Attributes, Skills and Experience

Relevant Senior Leadership / CEO Experience

- Served as Chief Executive Officer of Nanometrics and of Accent Optical Technologies with additional prior senior leadership experience with Applied Materials, Lam Research Corporation, Asyst Technologies and Air Products and Chemicals.

High Level of Financial Experience

- Substantial financial experience gained in roles as Chief Executive Officer of Nanometrics and of Accent Optical Technologies as well as with executive roles held in several semiconductor industry companies.

Broad International Exposure

- Gained extensive international experience as Chief Executive Officer of Nanometrics and of Accent Optical Technology as well as through array of other executive roles within the semiconductor industry.

Extensive Knowledge of Company Business/Industry

- Over thirty-seven (37) years of dedicated experience within the semiconductor industry.

Innovation/Technology Experience

- Broad and comprehensive array of technological experience with multiple companies within the semiconductor space including serving as the Chief Strategy Officer of Nanometrics.

Christopher A. Seams



Director Since:	August 2015
Age:	57
Independent Status:	Independent Director
Board Committee(s):	Audit, Nominating & Governance
Other Boards Served:	Xperi Corporation (since 2016) Tessera Technologies, Inc. (2013-2016)

Mr. Seams served as Chief Executive Officer of Deca Technologies from June 2013 to August 2016. Prior to Deca Technologies, Mr. Seams served as Executive Vice President of sales and marketing at Cypress Semiconductor and held various technical and operational management positions in its manufacturing, development and operations. Prior to joining Cypress in 1990, Mr. Seams worked in process development for Advanced Micro Devices and Philips Research Laboratories. Mr. Seams earned his bachelor's degree in electrical engineering from Texas A&M University and his master's degree in electrical and computer engineering from the University of Texas at Austin. Mr. Seams has a Professional Certificate in Advanced Computer Security from Stanford University and is a senior member of the Institute of Electrical and Electronics Engineers. Mr. Seams is a member of the ACCD as well as a member and Certified Director of the NACD.

Specific Qualifications, Attributes, Skills and Experience

Relevant Senior Leadership / CEO Experience

- Served as Chief Executive Officer of Deca Technologies as well as in additional senior leadership roles within the semiconductor industry including with Cypress Semiconductor.

High Level of Financial Experience

- Substantial financial experience gained in roles as Chief Executive Officer of Deca Technologies as well as with executive roles held in the semiconductor industry.

Broad International Exposure

- Extensive international experience as Chief Executive Officer of Deca Technologies, Executive Vice President of sales and marketing at Cypress Semiconductor as well as through other management roles with both Cypress and other semiconductor companies with which he worked.

Extensive Knowledge of Company Business/Industry

- Over thirty (30) years of dedicated experience within the semiconductor industry.

Innovation/Technology Experience

- Technological and innovative experience gained through an array of technical and operational management positions in manufacturing, development and operations for Cypress Semiconductor as well as in process development for Advanced Micro Devices and Philips Research Laboratories.

Christine A. Tsingos



Director Since:	May 2014
Age:	61
Independent Status:	Independent Director
Board Committee(s):	Audit (Chair), Nominating & Governance
Other Boards Served:	Envista Holdings Corporation (since September 2019) Varex Imaging Corporation (since February 2017)

Ms. Tsingos served as the Executive Vice President and Chief Financial Officer of Bio-Rad Laboratories from December 2002 through May 2019. Prior to Bio-Rad, Ms. Tsingos held executive positions at Autodesk, The Cooper Companies, and Attest Systems. Ms. Tsingos earned her Bachelor of Arts in International Studies from the American University in Washington D.C. and an M.B.A in International Business from the George Washington University. In 2010, Ms. Tsingos was awarded the prestigious Bay Area CFO of the Year.

Specific Qualifications, Attributes, Skills and Experience

Relevant Senior Leadership / CEO Experience

- Served as Executive Vice President and Chief Financial Officer of Bio-Rad Laboratories.

High Level of Financial Experience

- Over thirty (30) years of financial and operational experience with a series of companies including sixteen (16) years of service as Chief Financial Officer of Bio-Rad Laboratories.

Broad International Exposure

- Comprehensive international experience through service as Chief Financial Officer of Bio-Rad Laboratories.

**The Board unanimously recommends voting
“FOR ALL” of the nominees set forth above.**

Compensation Of Directors

Directors who are employees of the Company receive no compensation for their services as members of the Board of Directors. Director compensation for non-employee members of the Board is a mix of cash and equity-based compensation, which is largely comprised of the equity component to align the interests of our directors with the Company's long-term performance and stockholder interests. The components of the compensation for directors who are not employees of the Company are as follows:

Board Compensation Element	Amount/Value
Annual Retainer	\$70,000 ¹
Annual Equity Grant (in RSUs)	\$150,000 ²
Committee Chair Stipend	
Audit	\$20,000 ¹
Compensation	\$15,000 ¹
Nominating & Governance	\$10,000 ¹
Committee Member Stipend	
Audit	\$10,000 ¹
Compensation	\$7,500 ¹
Nominating & Governance	\$5,000 ¹
Board Chair Stipend	\$50,000 ¹
Initial Equity Grant (in RSUs)	\$150,000 ³

¹ Paid subsequent to the director election results at the Annual Stockholders Meeting.

² Awarded at second quarter Board meeting in a number of shares calculated by dividing the listed amount by the closing stock price per share of Company Common Stock on the date of grant, rounded to the nearest 100 shares.

³ Awarded as of the first Board meeting following election or appointment and calculated in the same manner as the annual equity grant above but prorated by the number of quarters between such first meeting and the date on which the next annual equity grant is scheduled to be awarded.

Any initial equity grants and/or annual equity grants typically vest on the first anniversary of the grant date. Equity awards granted to Rudolph directors in 2019 were granted under and subject to the terms of the Rudolph Technologies, Inc. 2018 Stock Plan. Equity awards granted to Nanometrics directors in 2019 were granted under and subject to the terms of the Nanometrics Incorporated 2005 Equity Incentive Plan.

Prior to the 2019 Merger, Nanometrics non-employee directors received an annual retainer fee of \$60,000. In addition, the Chairman of the Board, Audit Committee Chairman, Compensation Committee Chairman and Nominating & Governance Committee Chairman received an incremental \$30,000, \$20,000, \$20,000 and \$10,000 annual retainer, respectively, for serving in such capacities. Committee members, other than the chairpersons, received an incremental \$10,000 annual retainer for service on the Audit or Compensation Committee and an incremental \$7,500 annual retainer for service on the Nominating & Governance Committee. All retainer fees were paid annually, as of the date of Nanometrics annual stockholders meeting, and in advance of the provision of services to which the retainer relates.

Prior to the 2019 Merger, Rudolph non-employee directors received an annual retainer fee of \$70,000. In addition, the Chairman of the Board and the Chairmen of the Audit Committee, Compensation Committee and Nominating & Governance Committee received an incremental \$40,000 and \$15,000 annual retainer, respectively, for serving in such capacities. Rudolph directors were not paid in 2019 to serve on the committees of the Board of Directors with the exception of those directors serving as committee chairs during 2019. The foregoing compensation was paid on a quarterly basis to the Rudolph directors. No fees were paid to Rudolph directors for special subcommittee work in 2019.

For the year ended December 31, 2019, the directors, excluding the directors who are named executive officers, received total compensation indicated in the table below. There were no option awards, non-equity incentive plan compensation, or pension and nonqualified deferred compensation earnings granted to such directors. They did not earn any type of compensation during the year other than what is disclosed in the following table:

Name	Fees Earned or Paid in Cash	Stock Awards ⁽¹⁾	All Other Compensation	Total
Nanometrics Non-Executive Directors				
J. Thomas Bentley ²	\$0	\$0	\$0	\$0
Edward J. Brown, Jr.	\$90,000	\$119,654	\$0	\$209,654
Robert G. Deuster ³	\$80,000	\$119,654	\$6,856	\$199,654
Bruce C. Rhine	\$107,500	\$119,654	\$0	\$234,010
Christopher A. Seams	\$80,000	\$119,654	\$0	\$199,654
Timothy J. Stultz, Ph.D. ^{3,4}	\$60,000	\$119,654	\$259,944	\$699,542
Christine A. Tsingos	\$97,500	\$119,654	\$0	\$217,154
Rudolph Non-Executive Directors				
Jeffery A. Aukerman ⁵	\$21,250	\$0	\$0	\$21,250
Leo Berlinghieri ⁵	\$21,250	\$0	\$0	\$21,250
Vita A. Cassese ⁶	\$17,500	\$0	\$0	\$17,500
David B. Miller ⁷	\$31,250	\$0	\$0	\$31,250
John R. Whitten ^{4,6}	\$17,500	\$0	\$0	\$17,500

- (1) Represents the grant date fair value for each share-based compensation award granted during the year, calculated in accordance with FASB ASC Topic 718. The assumptions used in determining the grant date fair value of these awards are set forth in Note 9 to our consolidated financial statements, which are included in our Annual Report on Form 10-K for the fiscal year ended December 31, 2019 filed with the SEC. As of December 31, 2019, our directors had the following stock awards outstanding: Mr. Aukerman – 3,297 RSUs; Mr. Berlinghieri – 3,297 RSUs; Mr. Brown, Jr. – 4,041 RSUs; Ms. Cassese – 3,297 RSUs; Mr. Deuster – 4,041 RSUs; Mr. Miller – 3,297 RSUs; Mr. Rhine – 4,041 RSUs; Mr. Seams – 4,041 RSUs; Dr. Stultz – 21,707 RSUs; Ms. Tsingos – 4,041 RSUs; and Mr. Whitten – 3,297 RSUs.
- (2) Mr. Bentley did not stand for re-election to the Nanometrics board of directors on May 22, 2019.
- (3) All other compensation for Mr. Deuster and Dr. Stultz includes amounts for health care reimbursements. All other compensation for Dr. Stultz also included payment of \$250,645 for merger consultations.
- (4) Dr. Stultz and Mr. Whitten are not standing for re-election at the Annual Meeting.
- (5) The total compensation earned by each of Messrs. Aukerman and Berlinghieri during 2019 while serving as a Rudolph Director when added to the amounts reported in the Director Compensation Table above results in total compensation for the full calendar year of \$185,327. This adjustment includes increasing fees earned by \$63,750 and including the grant date fair value of a time-based equity award received for Rudolph prior to the 2019 Merger of \$100,327.
- (6) The total compensation earned by each of Ms. Cassese and Mr. Whitten during 2019 while serving as a Rudolph Director when added to the amounts reported in the Director Compensation Table above results in total compensation for the full calendar year of \$170,327. This adjustment includes increasing fees earned by \$52,500 and including the grant date fair value of a time-based equity award received for Rudolph prior to the 2019 Merger of \$100,327.
- (7) The total compensation earned by Mr. Miller during 2019 while serving as a Rudolph Director when added to the amounts reported in the Director Compensation Table above results in total compensation for the full calendar year of \$225,327. This adjustment includes increasing fees earned by \$93,750 and including the grant date fair value of a time-based equity award received for Rudolph prior to the 2019 Merger of \$100,327.

Stock Ownership/Retention Guidelines For Directors

The Company has established guidelines related to stock ownership and retention for its non-employee directors. Currently, the guidelines require that each non-employee director of the Company own shares of Company Common Stock valued at a minimum of three (3) times the amount of the director's total cash compensation which includes the annual cash retainer as well as any additional fee paid to those individuals who are Committee Chairs, Lead Director or Chairman of the Board. For a new director the stock holding requirement is to be attained within five (5) years of his or her initial election or appointment to the Board.

PROPOSAL 2

ADVISORY VOTE ON EXECUTIVE COMPENSATION

The Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, or the Dodd-Frank Act, enables our stockholders to vote to approve, on an advisory (non-binding) basis, the compensation of our named executive officers as disclosed in this proxy statement in accordance with SEC rules. Consistent with the recommendation of the Board of Directors and the preference of our stockholders as reflected in the non-binding advisory vote on the frequency of future advisory votes on named executive officer compensation held at the Nanometrics 2017 Annual Meeting of Stockholders, the Company currently holds an annual “say on pay” vote. In accordance with this policy, this year we are requesting our stockholders to approve an advisory resolution on the Company’s executive compensation as reported in this Proxy Statement, and as required by Section 14A(a)(1) of the Exchange Act.

Our executive compensation arrangements are designed to enhance stockholder value on an annual and long-term basis. These arrangements are consistent with our compensation philosophy and pay-for-performance principles and, as such, have been designed to provide competitive compensation packages that enable the Company to attract and retain talented executives, motivate executive officers to achieve the Company’s short- and long-term business strategies and objectives, align the interests of executives with those of stockholders, and are consistent with current market practices and good corporate governance principles. Please read the Compensation Discussion and Analysis beginning on page 49 of this proxy statement and the tabular and additional narrative disclosures on executive compensation beginning on page 71 of this proxy statement for additional details about our executive compensation arrangements, including information about the fiscal year 2019 compensation of our named executive officers.

We are asking our stockholders to indicate their support for our compensation arrangements as described in this proxy statement.

For the reasons discussed above, the Board recommends that stockholders vote in favor of the following resolution:

“RESOLVED, that the Company’s stockholders APPROVE, on an advisory basis, the compensation paid to the Company’s named executive officers, as disclosed in the proxy statement for this meeting pursuant to Item 402 of Regulation S-K, including the Compensation Discussion and Analysis, compensation tables and narrative discussion and other related tables and disclosures.”

Because your vote is advisory, it will not be binding upon or overrule any decisions of the Board, nor will it create any additional fiduciary duty on the part of the Board. This advisory vote is not intended to address any specific item of compensation, but rather the overall compensation of our named executive officers and our compensation philosophy, policies and practices described in this proxy statement, and does not seek to have the Board or Compensation Committee take any specific action. However, the Board and the Compensation Committee value the view expressed by our stockholders in their vote on this proposal and will take into account the outcome of the vote when considering executive compensation matters in the future.

Vote Required

The affirmative vote, in person or by proxy, of a majority of the shares present or represented at the meeting and entitled to vote will be required to approve, on an advisory (non-binding) basis, the compensation of our named executive officers as disclosed in this proxy statement.

The Board recommends a vote “FOR” the approval of the compensation of the named executive officers as disclosed in this proxy statement pursuant to Item 402 of Regulation S-K as required by Section 14A(a)(1) of the Exchange Act.

PROPOSAL 3

APPROVAL OF ONTO INNOVATION INC. 2020 STOCK PLAN

The Board of Directors is requesting that our stockholders approve a new stock plan, the Onto Innovation Inc. 2020 Stock Plan (the “2020 Stock Plan”). The Board has adopted the 2020 Stock Plan, subject to stockholder approval at the Annual Meeting. If approved by our stockholders, the 2020 Stock Plan will become effective as of May 12, 2020 and will expire ten (10) years from such date, unless terminated earlier.

The 2020 Stock Plan is structured to allow the Board to award equity incentives to eligible directors, officers, employees and consultants in order to assist the Company in attracting, retaining and motivating the best available personnel for the successful conduct of the Company’s business. The Company believes that linking compensation to corporate performance motivates employees and consultants to improve stockholder value. The Company has, therefore, consistently included equity incentives as a significant component of compensation for its officers, employees, directors and consultants. With the high demand for highly skilled employees and consultants, especially in the technology industries, management believes it is critical to the Company’s success to maintain competitive compensation programs. The Board believes that the approval of the 2020 Stock Plan would be in the best interests of the Company and its stockholders.

We currently maintain the Nanometrics Incorporated 2005 Equity Incentive Plan (the “Nanometrics 2005 Stock Plan”) and the Rudolph Technologies, Inc. 2018 Stock Plan (the “Rudolph 2018 Stock Plan”). The Nanometrics 2005 Stock Plan currently expires on May 23, 2023 while the Rudolph 2018 Stock Plan currently expires on May 16, 2028. We are seeking stockholder approval of the 2020 Stock Plan so that we can maintain and administer one equity incentive plan for all eligible participants following the 2019 Merger and continue to provide our officers, employees, directors and consultants with equity-based compensation that aligns their interests with the interests of our stockholders.

To ensure that the Company has an adequate number of shares available for compensation to its directors, executive officers and other employees and consultants, we are asking our stockholders to approve the 2020 Stock Plan with a total share reserve of 3,500,000 shares, as described below under “Share Reserve Under the 2020 Stock Plan”.

Key Governance Highlights Of The 2020 Stock Plan

The following are key governance highlights of the 2020 Stock Plan:

- *Minimum Vesting Requirements.* Minimum one-year vesting period for all awards subject to certain limited carve-outs.
- *No Dividends on Unvested Awards.* Prohibition on payment of dividends and dividend equivalents while an award is unvested.
- *No Liberal Share Recycling.* Shares of common stock not issued as the result of a net settlement of options or stock appreciation rights (“SARs”) as well as shares tendered or withheld to pay the exercise price or withholding taxes relating to awards will not again be made available for issuance as awards under the 2020 Stock Plan.
- *Individual Annual Award Limits for Directors.* Limitations apply to the value of awards an individual non-employee director (“outside director”) may receive in a given calendar year.
- *Individual Annual Award Limits for Other Participants.* Limitations apply to the value of awards an individual officer, employee or consultant may receive in a given calendar year.
- *No Liberal Change-in-Control Definition.* The change-in-control definition under the 2020 Stock Plan is not considered “liberal” and, for example, is not triggered by shareholder approval of a transaction.
- *Clawback.* Awards are subject to potential cancellation or clawback in certain circumstances in accordance with the Company’s clawback policy.
- *No Repricing.* The 2020 Stock Plan prohibits, without stockholder approval, the cancellation of underwater options or SARs for cash or other awards, the reduction of the exercise price of options or SARs, or any other action that would be treated as a repricing, without stockholder approval.

Share Reserve Under The 2020 Stock Plan

Under the 2020 Stock Plan, the number of shares of Company common stock available for issuance to eligible participants will be 3,500,000, subject to stockholder approval, plus any shares subject to awards under the Nanometrics 2005 Stock Plan or the Rudolph 2018 Stock Plan that would again become available for new awards under the terms of either such plan if such plan were still in effect and without regard to any termination thereof.

As of the effective date of the 2020 Stock Plan, no additional grants may thereafter be issued under either the Nanometrics 2005 Stock Plan or the Rudolph 2018 Stock Plan. As of March 13, 2020, 1,280,597 shares remained available for grant under the Nanometrics 2005 Stock Plan and 2,393,656 shares under the Rudolph 2018 Stock Plan.

The following table presents information about the number of shares that were subject to various outstanding equity awards under the Nanometrics 2005 Stock Plan or the Rudolph 2018 Stock Plan and the shares remaining available for issuance under these two (2) plans. On March 13, 2020, the total number of shares outstanding was 50,381,691 and our closing stock price was \$27.98.

	Nanometrics 2005 Stock Plan	Rudolph 2018 Stock Plan
Number of outstanding stock options as of March 13, 2020.	1,230	-
Weighted average exercise price of the outstanding stock options as of March 13, 2020.	\$18.41	n/a
Weighted average remaining contractual term of the outstanding stock options as of March 13, 2020.	0.98 years	n/a
Number of outstanding serviced-based restricted stock units as of March 13, 2020.	482,414	154,969
Number of outstanding performance-based restricted stock units as of March 13, 2020. ⁽¹⁾	32,639	93,574
Shares remaining available as of March 13, 2020.	1,280,597	2,393,656
Number of shares available for issuance under the 2020 Stock Plan⁽²⁾	3,500,000	
⁽¹⁾ Includes earned performance-based restricted stock units that have been earned and remain subject to service-based vesting requirements.		
⁽²⁾ As may be increased after the effective date of the 2020 Stock Plan as a result of any cancelled shares under the Nanometrics 2005 Stock Plan or the Rudolph 2018 Stock Plan as described above.		

In determining whether to approve the 2020 Stock Plan, including the share reserve under the 2020 Stock Plan, the following considerations were taken into account:

- We expect the share reserve under the 2020 Stock Plan to provide us with enough shares for awards for approximately 6 years. However, this expectation assumes that we continue to grant awards consistent with our current practices and historical usage and is dependent on our stock price and hiring activity during the next few years and forfeitures of outstanding awards. We cannot predict our future equity grant practices, the future price of our stock or future hiring activity with any degree of certainty at this time and, as a result, the share reserve under the 2020 Stock Plan could last for a shorter or longer time.
- The potential dilution to our stockholders that may result from the issuance of shares pursuant to outstanding awards: our overhang rate as of March 13, 2020 (calculated by dividing (x) the number of shares subject to equity awards outstanding plus shares remaining available for issuance for future awards by (y) the number of common shares outstanding plus the number of shares subject to equity awards outstanding plus the remaining shares available for issuance) was 8.1%. Our overhang rate on a pro forma basis, assuming that the 3,500,000 share reserve under the 2020 Stock Plan was authorized as of that date, would have been 7.8%.
- The “burn rate” which measures our usage of shares for the Nanometrics and Rudolph stock plans as a percentage of our outstanding shares. For 2019, 2018, and 2017, our burn rate was 0.79%, 0.58%, and 0.63%, respectively, and the three-year average was 0.67%. The rates were calculated by dividing the number of shares subject to awards granted during the year net of forfeitures and cancellations by the weighted average number of shares outstanding during the year.

- Analysis by our compensation consultant, which was based on generally accepted evaluation methodologies used by proxy advisory firms, that the number of shares to be reserved under the 2020 Stock Plan is within generally accepted standards as measured by an analysis of the 2020 Stock Plan cost relative to industry standards.

Summary Of The 2020 Stock Plan

The following is a summary of the principal features of the 2020 Stock Plan and its operation. This summary is qualified in its entirety by reference to the 2020 Stock Plan itself set forth in Appendix A.

General

The 2020 Stock Plan provides for the grant of equity awards to employees, directors and consultants. Options granted under the 2020 Stock Plan may either be “incentive stock options” as defined in Code Section 422 or nonstatutory stock options, as determined by the Board.

Purpose

The general purposes of the 2020 Stock Plan are to attract and retain the best available personnel for positions of substantial responsibility, to provide additional incentive to the employees, directors and consultants of the Company and to promote the success of the Company’s business.

Administration

The 2020 Stock Plan will be administered by the Compensation Committee (“Committee”) or the Board, as applicable (in either case, the “Administrator”).

Eligibility

The 2020 Stock Plan provides that nonstatutory stock options, stock appreciation rights (“SARs”), restricted stock, restricted stock units, performance units and performance shares may be granted to employees, directors and consultants of the Company and any parent or subsidiary. Incentive stock options may be granted only to employees of the Company and any parent or subsidiary. The Administrator will determine which eligible persons will be granted awards. As of March 13, 2020, there were twelve (12) outside directors (which will be reduced to ten (10) on the date of the Annual Meeting), approximately 1,300 employees and consultants eligible to participate in the 2020 Stock Plan.

Shares Available Under The 2020 Stock Plan

The maximum aggregate number of shares that may be awarded and sold under the 2020 Stock Plan is 3,500,000 shares. If, after the effective date of the 2020 Stock Plan, any shares subject to awards granted under the Nanometrics 2005 Stock Plan or the Rudolph 2018 Stock Plan would again become available for new awards under the terms of such plan if it were still in effect and without regard to any termination of such plan, then those shares will be available for the purpose of granting awards under the 2020 Stock Plan. The shares issued pursuant to awards under the 2020 Stock Plan may be authorized but unissued or reacquired Common Stock. No awards have been granted under the 2020 Stock Plan.

If an award terminates, expires or becomes unexercisable without having been exercised in full, or, with respect to restricted stock, restricted stock units, performance units or performance shares, is terminated or forfeited in whole or in part due to failure to vest, the shares (or forfeited shares) which were subject to such terminated, expired, unexercised or forfeited award will become available for future issuance under the 2020 Stock Plan. To the extent that an award under the 2020 Stock Plan is paid out in cash, rather than shares, such cash payment will not result in reduction of the shares available for issuance under the 2020 Stock Plan.

Shares used to pay the exercise price of an award or to satisfy the tax withholding obligations related to an award will not again become available for future grant under the 2020 Stock Plan. Upon exercise of a SAR settled in shares, all shares subject to

the SAR (not the number of net shares actually issued pursuant to the SAR upon any exercise) will cease to be available under the 2020 Stock Plan.

Individual Award Limits

For any calendar year, (i) the value of awards granted to an outside director under the 2020 Stock Plan may not exceed \$600,000 and (ii) the value of awards granted to any individual participant other than an outside director under the 2020 Stock Plan may not exceed \$5,000,000, in each case calculating the value of any such awards based on the grant date fair value of such awards for financial reporting purposes. For purposes of applying this annual limit, any award of performance units, performance shares or any other award subject to performance-based vesting criteria will be taken into account assuming target performance achievement under the terms of such award.

Minimum Vesting Period

All awards granted to all participants under the 2020 Stock Plan will be subject to a minimum vesting period of not less than one (1) year from the date of grant; provided, the Administrator may provide for the grant of awards to participants without regard to the minimum vesting requirement with respect to a maximum of five percent (5%) of the total number of shares authorized for issuance under the 2020 Stock Plan.

Substitute Awards

In connection with an entity's merger or consolidation with the Company or any subsidiary or the direct or indirect acquisition by the Company or any subsidiary of an entity's property or stock, the Committee may grant awards in substitution or exchange for any options or other stock or stock-based awards granted before such merger or consolidation by such entity or its affiliate. Substitute awards may be granted on such terms and conditions as the Committee deems appropriate, notwithstanding any limitations on awards in the 2020 Stock Plan. Substitute awards will generally not count against the aggregate share reserve. Additionally, in the event that a company acquired by the Company or any subsidiary, or with which the Company or any subsidiary otherwise combines, has shares available under a pre-existing plan approved by its stockholders and not adopted in contemplation of such acquisition or combination as determined by the Administrator, the shares available for grant pursuant to the terms of such pre-existing plan may be used under certain circumstances for awards under the 2020 Stock Plan and shall not reduce the shares authorized for grant under the 2020 Stock Plan.

Types Of Awards Under The 2020 Stock Plan

Stock Options

Stock option awards may be granted to employees, directors or consultants of the Company at any time and from time to time as determined by the Administrator in its discretion, except incentive stock options may be granted only to employees of the Company. The exercise price of options granted under the 2020 Stock Plan is determined by the Administrator and must not be less than 100% of the fair market value of the Common Stock at the time of grant. Options granted under the 2020 Stock Plan expire as determined by the Administrator, but in no event later than ten (10) years from date of grant. No option may be exercised by any person after its expiration. Incentive stock options granted to stockholders owning more than 10% of the voting stock of the Company must have an exercise price per share no less than 110% of the fair market value at the time of grant and the term of such option may be no more than five years from the date of grant. The fair market value of the Common Stock is generally determined with reference to the closing sale price for the Common Stock (or the closing bid if no sales were reported) on the day of determination.

Options become exercisable at such times as are determined by the Administrator and as set forth in the individual award agreements. An option is exercised by giving notice to the Company in the form determined by the Administrator, specifying the number of full shares of Common Stock to be purchased and tendering payment of the purchase price. The 2020 Stock Plan permits payment to be made by cash, check, other shares of Common Stock, delivery of a properly executed exercise notice together with any other documentation as the Administrator and the participant's broker (if applicable) may require to effect an exercise of the option and delivery to the Company of the sale or other proceeds (as permitted by applicable law) required to pay the exercise price, withholding shares otherwise issuable in connection with the exercise of the option, such

other consideration and method of payment authorized by the Administrator in its discretion or permitted by the award agreement, or any combination thereof.

Restricted Stock

Restricted stock awards may be granted to employees, directors or consultants of the Company at any time and from time to time as determined by the Administrator in its discretion. Each restricted stock grant will be evidenced by an award agreement that will specify the number of shares granted and such other terms and conditions as the Administrator will determine in accordance with the terms of the 2020 Stock Plan.

Subject to the terms of the 2020 Stock Plan, the Administrator will have complete discretion to determine (i) the number of shares subject to a restricted stock award granted to any participant, and (ii) any vesting conditions that must be satisfied. The Administrator may provide that awards of restricted stock earn dividends paid with respect to such shares. Any such dividends will be accumulated and credited to an account for the participant, with interest in the Administrator's discretion, and will be subject to the same terms and conditions, including vesting restrictions, as the award with respect to which the dividends are credited. To the extent an award of restricted stock is forfeited in whole or in part, any accrued dividends with respect to such award will be forfeited at the same time and to the same extent as such award. No dividends or accrued interest, if any, earned with respect to an award of restricted stock may be paid before the underlying award vests.

Restricted Stock Units

Restricted stock units may be granted to employees, directors or consultants of the Company at any time and from time to time as determined by the Administrator. Each restricted stock unit grant will be evidenced by an award agreement that will specify such terms and conditions as the Administrator will determine in accordance with the terms of the 2020 Stock Plan.

Restricted stock units result in a payment to a participant only if the vesting criteria the Administrator establishes are satisfied. The Administrator may set vesting criteria based on the achievement of Company-wide, business unit, or individual goals (including continued employment), or any other basis determined by the Administrator in its discretion. The restricted stock units will vest at a rate determined by the Administrator. Upon satisfying the applicable vesting criteria, the participant will be entitled to a payout as specified in the award agreement or as otherwise determined by the Administrator. The Administrator, in its sole discretion, may pay earned restricted stock units in shares, cash, or a combination thereof. On the date set forth in, and otherwise subject to the terms and conditions of the award agreement, or as provided by the Administrator, all unearned restricted stock units will be terminated and forfeited to the Company. Additionally, the Administrator is authorized to grant participants dividend equivalents based on the dividends declared on shares that are subject to any outstanding restricted stock unit. Any such dividend equivalents will be accumulated and credited to an account for the participant, with interest in the Administrator's discretion, and will be subject to the same terms and conditions, including vesting restrictions, as the award with respect to which the dividend equivalents are credited. To the extent an award of restricted stock units is forfeited in whole or in part, any accrued dividend equivalents with respect to such award will be forfeited at the same time and to the same extent as such award. No dividend equivalents or accrued interest, if any, earned with respect to restricted stock units may be paid before the underlying award vests.

Stock Appreciation Rights

SARs may be granted to employees, directors or consultants of the Company at any time and from time to time as determined by the Administrator in its discretion. Each SAR grant will be evidenced by an award agreement that will specify the exercise price, the term of the SAR, the conditions of exercise, and such other terms and conditions as the Administrator will determine in accordance with the terms of the 2020 Stock Plan.

The Administrator will have discretion to determine the terms and conditions of SARs granted under the 2020 Stock Plan; provided that no SAR may have a term of more than 10 years from the date of grant and that the exercise price of a SAR may not have an exercise price below 100% of the fair market value of the Common Stock on the grant date. No SAR can be exercised by any person after its expiration.

Upon exercise of a SAR, the holder of the SAR will be entitled to receive payment from us in an amount determined by multiplying (i) the difference between the fair market value of a share on the date of exercise over the exercise price, times (ii) the number of shares with respect to which the SAR is exercised.

At the discretion of the Administrator and as set forth in the applicable award agreement, payment to the holder of a SAR may be in cash, shares of Common Stock or a combination thereof.

Performance Units And/Or Performance Shares

Performance units and performance shares may be granted to employees, directors or consultants of the Company at any time and from time to time, as determined by the Administrator in its sole discretion. The Administrator will have complete discretion in determining the number of performance units/shares granted to each participant. The Administrator may provide that awards of performance shares and performance units earn dividends or dividend equivalents, as applicable, and accrued interest in its discretion. To the extent an award of performance units or performance shares is terminated, cancelled or forfeited in whole or in part, due to failure to meet performance conditions or otherwise, any dividends, dividend equivalents and accrued interest will be terminated, cancelled or forfeited at the same time and to the same extent as such award. No dividends, dividend equivalents or accrued interest, if any, earned with respect to a performance unit award or a performance share award may be paid before the underlying award vests.

The Administrator will set performance objectives or other vesting provisions (including, without limitation, continued status as a service provider to the Company) in its discretion which, depending on the extent to which they are met, will determine the number or value of performance units or performance shares that will be paid out. Each award of performance units and performance shares will be evidenced by an award agreement that will specify the time period during which the performance objectives or other vesting provisions must be met (the “performance period”), vesting period and such other terms and conditions as the Administrator will determine in its discretion in accordance with the terms of the 2020 Stock Plan. The Administrator may set performance objectives based upon the achievement of Company-wide, divisional, or individual goals, or any other basis determined by the Administrator in its discretion.

After the applicable performance period has ended, the holder of performance units or performance shares will be entitled to receive a payout of the number of performance units or performance shares earned by the participant over the performance period, to be determined as a function of the extent to which the corresponding performance objectives or other vesting provisions have been achieved. The Administrator may pay earned performance units and performance shares in the form of cash, in shares, or in a combination thereof. After the grant of performance units or performance shares, the Administrator may reduce or waive any performance objectives or other vesting provisions for such performance unit or performance share.

On the date set forth in, and otherwise subject to the terms and conditions of, the award agreement, or as otherwise provided by the Administrator, all unearned or unvested performance units and performance shares will be forfeited to the Company.

Other Plan Provisions

Termination Of Employment

The 2020 Stock Plan gives the Administrator the authority to vary the terms of the individual award agreements. Under the 2020 Stock Plan, unvested awards granted will generally be forfeited or expire upon a participant’s termination of employment unless the Committee exercises its discretion to modify the time at which stock options and SARs may be exercised or any restrictions will lapse or be removed or waived, notwithstanding any provision of the 2020 Stock Plan to the contrary. Generally, with respect to stock options and SARs, if a participant ceases to provide ongoing service as an employee, director or consultant for any reason other than death or disability or termination for cause, then the participant will generally have the right to exercise his or her outstanding options and SARs for three (3) months after the date of termination, but only to the extent that the participant was entitled to exercise such option or SAR at the date of such termination. If such termination is due to death or disability, the participant (or the participant’s legal representative) will generally have the right to exercise any existing unexercised option or SAR at any time within twelve (12) months following the termination date, but only to the extent that the participant was entitled to exercise such option or SAR at the date of such termination. In no event will an option or SAR be exercisable beyond its term. In the event of a participant’s termination for cause, then the participant’s options and/or SARs, whether vested or unvested, will immediately be forfeited upon termination.

Recoupment

A participant's rights with respect to any award granted under the 2020 Stock Plan shall in all events be subject to (i) any right that the Company may have under any clawback or recoupment policy as may be in effect from time to time or any other clawback or recoupment agreement or arrangement applicable to a participant; or (ii) any right or obligation that the Company may have regarding the recoupment of incentive-based compensation under Exchange Act Section 10D and any applicable rules and regulations issued by the SEC.

Compliance With Code Section 409A

Awards are intended to operate in such a manner that they are either exempt from the application of, or comply with, the requirements of Code Section 409A such that the grant, payment, settlement or deferral will not be subject to the additional tax or interest applicable under Code Section 409A, except as otherwise determined in the sole discretion of the Administrator, provided that no warranty of such exemption or compliance is made. The 2020 Stock Plan and each award Agreement under the 2020 Stock Plan is intended to meet the requirements of Code Section 409A and will be construed and interpreted in accordance with such intent, except as otherwise determined in the sole discretion of the Administrator.

Non-Transferability Of Awards

Unless determined otherwise by the Administrator, an award granted under the 2020 Stock Plan may not be sold, pledged, assigned, hypothecated, transferred, or disposed of in any manner other than by will or by the laws of descent or distribution or as otherwise permitted in the 2020 Stock Plan and may be exercised, during the lifetime of the participant, only by the participant. If the Administrator makes an award granted under the 2020 Stock Plan transferable, such award shall be subject to the terms of the 2020 Stock Plan and the award agreement and will contain such additional terms and conditions as the Administrator deems appropriate. Notwithstanding the foregoing, under no circumstance may unvested or unexercised awards be transferred for value or consideration.

Adjustments

In the event that any dividend (other than ordinary cash dividends) or other distribution (whether in the form of cash, shares, other securities, or other property), recapitalization, stock split, reverse stock split, reorganization, merger, consolidation, split-up, spin-off, combination, repurchase, or exchange of shares or other securities of the Company, or other change in the corporate structure of the Company affecting the shares occurs, the Administrator, in order to prevent diminution or enlargement of the benefits or potential benefits intended to be made available under the 2020 Stock Plan, will adjust, in such equitable manner as the Administrator deems appropriate, the number and class of shares issuable under the 2020 Stock Plan and/or the number, class and, if applicable, exercise price of shares subject to each outstanding award.

Dissolution Or Liquidation

In the event of a liquidation or dissolution, the Administrator will notify each participant as soon as practicable prior to the effective date of such proposed transaction. To the extent that an award has not been previously exercised (with respect to options and SARs) or vested (with respect to other awards), an award will terminate immediately prior to the consummation of such proposed action.

Change-in-Control

In the event of a Change-in-Control, notwithstanding any other provision of the 2020 Stock Plan or an award, each outstanding award shall be treated as the Administrator determines in its discretion without a participant's consent, including, without limitation, that awards may be assumed, or substantially equivalent awards may be substituted, by the acquiring or succeeding entity or an affiliate thereof (a "successor") with appropriate adjustments as to the number and kind of shares and prices; upon written notice to a participant, the participant's awards will terminate immediately prior to the consummation of such Change-in-Control; awards will vest and become exercisable, realizable, or payable, or restrictions applicable to an award will lapse,

in whole or in part, prior to or upon consummation of such Change-in-Control, and, to the extent the Administrator determines, terminate upon the effectiveness of such Change-in-Control; awards will terminate in exchange for an amount of cash and/or property, if any, equal to the amount (if any) that would have been attained upon the exercise of such award or realization of the participant's rights as of the date of the occurrence of the transaction; the replacement of such award with other rights or property selected by the Administrator in its sole discretion; or any combination of the foregoing.

In the event of a Change-in-Control, with respect to awards held by participants other than outside directors, if the successor elects not to assume or substitute an Award, as determined by the Administrator in accordance with the terms of the 2020 Stock Plan, the participant will fully vest in and have the right to exercise all of his or her outstanding stock options and SARs; all restrictions on restricted stock and restricted stock units will lapse; and, with respect to performance units, performance shares and any other awards subject to performance-based vesting conditions, all performance goals or other vesting conditions will be deemed achieved at target.

With respect to awards granted to an outside director that are assumed or substituted by a successor, if, on the date of or following such assumption or substitution, the participant's status as a Director or a director of the successor, as applicable, is terminated other than upon a voluntary resignation by the participant (unless such resignation is at the request of the successor), then the participant will fully vest in and have the right to exercise options and/or SARs as to all of the shares underlying such award for a period of one year following such termination (but in no event later than the expiration of the term of such option as set forth in the award agreement); all restrictions on restricted stock and restricted stock units will lapse; and, with respect to performance units, performance shares and any other awards subject to performance-based vesting conditions, all performance goals or other vesting conditions will be deemed achieved at target.

Plan Term; Amendment Or Termination Of The 2020 Stock Plan

The 2020 Stock Plan will become effective on the date approved by stockholders and will have a ten-year term commencing on that date, subject to any earlier termination by the Board. The Board may amend, alter, suspend or terminate the 2020 Stock Plan or any part thereof from time to time, except that stockholder approval will be required for any amendment to the 2020 Stock Plan to the extent required by any applicable laws, regulations of the securities exchange on which the shares are then listed, or otherwise in the Board's discretion. The Administrator may waive any conditions or restrictions of or amend, modify or terminate outstanding awards under the 2020 Stock Plan notwithstanding any plan provision to the contrary. As a general matter, no amendment, alteration, suspension or termination of the 2020 Stock Plan or an outstanding award may impair the rights of any participant under any then outstanding award without the participant's written consent, with the exception of certain compliance amendments.

New Plan Benefits

Future grants under the 2020 Stock Plan will be made at the discretion of the Administrator and, accordingly, are not yet determinable. In addition, the value of the awards granted under the 2020 Stock Plan will depend on a number of factors, including the fair market value of our common stock on future dates and the exercise decisions made by the participants. Consequently, it is not possible to determine the benefits that might be received by participants receiving discretionary grants under the Plan.

Nanometrics granted awards under the Nanometrics 2005 Stock Plan and Rudolph granted awards under the Rudolph 2018 Stock Plan in 2019 each to the named executive officers, outside directors and to other eligible employees. The 2019 grants to our named executive officers and to our outside directors are reflected in the 2019 Grants of Plan-Based Awards Table and the 2019 Director Compensation Table, respectively, in this proxy statement. The closing market price of a share of Company common stock as reported on the New York Stock Exchange on December 31, 2019 was \$36.54.

Equity Compensation Plan Information

The following table sets forth, as of December 31, 2019, certain information related to our equity compensation plans.

	(a)	(b)	(c)
	Number of Securities to be Issued Upon Exercise of Outstanding Options, Warrants and Rights (1)	Weighted-Average Exercise Price of Outstanding Options, Warrants and Rights	Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans (Excluding Securities Reflected in Column (a)) (2)
Equity compensation plans approved by security holders	1,152,980	\$0.63	3,966,618
Equity compensation plans not approved by security holders	n/a	n/a	n/a
Total	1,152,980	\$0.63	3,966,618

- (1) Includes 1,106,177 shares issuable upon vesting of outstanding restricted stock units under the Nanometrics 2005 Stock Plan and the Rudolph 2018 Stock Plan.
- (2) As of December 31, 2019, 1,252,690 of these shares were available under the Nanometrics 2005 Stock Plan and 2,477,879 of these shares were available under the Rudolph 2018 Stock Plan. As of December 31, 2019 there were 236,049 shares available under the 2003 ESPP. These shares will no longer remain available if the 2020 Stock Plan and the 2020 ESPP are approved by stockholders at the Annual Meeting.

Federal Income Tax Information

Nonstatutory Stock Options

No taxable income is reportable by the recipient when a nonstatutory stock option with an exercise price equal to the fair market value of the underlying stock on the date of grant is granted to a participant. Upon exercise, the participant will recognize ordinary income in an amount equal to the excess of the fair market value (on the exercise date) of the shares purchased over the exercise price of the option. Any taxable income recognized in connection with an option exercise by an employee of the Company is subject to tax withholding by the Company. Any additional gain or loss recognized upon any later disposition of the shares would be capital gain or loss.

Incentive Stock Options

No taxable income is generally reportable by the recipient when an incentive stock option is granted or exercised. If the participant exercises the option and then later sells or otherwise disposes of the shares more than two years after the grant date and more than one year after the exercise date, the difference between the sale price and the exercise price will be taxed as capital gain or loss. If the participant exercises the option and then later sells or otherwise disposes of the shares before the end of the two or one year holding periods described above, he or she generally will have ordinary income at the time of the sale equal to the fair market value of the shares on the exercise date (or the sale price, if less) minus the exercise price of the option.

Stock Appreciation Rights

No taxable income is reportable by the recipient when a stock appreciation right with an exercise price equal to the fair market value of the underlying stock on the date of grant is granted to a participant. Upon exercise, the participant will recognize ordinary income in an amount equal to the amount of cash received and the fair market value of any shares received. Any additional gain or loss recognized upon any later disposition of the shares would be capital gain or loss.

Restricted Stock And Restricted Stock Units

A participant generally will not have taxable income at the time an award of restricted stock or restricted stock units is granted. Instead, with respect to restricted stock, he or she will recognize ordinary income in the first taxable year in which the restricted shares are no longer subject to substantial risk of forfeiture in an amount equal to the excess of the fair market value of the shares on the vesting date over the amount, if any, the participant paid for the shares. However, the recipient of a restricted stock award may elect to recognize income at the time he or she receives the award in an amount equal to the fair market value of the shares underlying the award (less any cash paid for the shares) on the date the award is granted. Upon settlement of a restricted stock unit, a participant will recognize ordinary income an amount equal to the fair market value of the shares received or, if the restricted stock unit is paid in cash, the amount payable.

Performance Units And Performance Shares

A participant generally will not have taxable income at the time an award of performance units or performance shares is granted. Instead, with respect to performance shares, he or she will recognize ordinary income in the first taxable year in which his or her interest in the shares underlying the award are no longer subject to substantial risk of forfeiture. Upon settlement of a performance unit, a participant will recognize ordinary income an amount equal to the fair market value of the shares received or, if the performance units are paid in cash, the amount payable.

Tax Effect For The Company

The Company generally will be entitled to a tax deduction in connection with an award under the 2020 Stock Plan in an amount equal to the ordinary income realized by a participant and at the time the participant recognizes such income (for example, the exercise of a nonstatutory stock option). Code Section 162(m) places a \$1 million limit on the deductibility of compensation paid to certain covered employees. Based on recent legislation effective for tax years commencing after December 31, 2017, this limit on deductibility applies to the Company's chief executive officer, its chief financial officer, its three most highly compensated executive officers included as named executive officers in the proxy statement, and any individual who was a named executive officer for fiscal 2017 or thereafter. In addition, the legislation eliminated the exception to the limit on deductibility for certain performance-based compensation.

THE FOREGOING IS ONLY A SUMMARY OF THE EFFECT OF FEDERAL INCOME TAXATION UPON THE PARTICIPANT AND THE COMPANY AS OF THE DATE HEREOF WITH RESPECT TO AWARDS UNDER THE 2020 STOCK PLAN AND DOES NOT PURPORT TO BE COMPLETE, AND REFERENCE SHOULD BE MADE TO THE APPLICABLE PROVISIONS OF THE INTERNAL REVENUE CODE. IN ADDITION, THIS SUMMARY DOES NOT DISCUSS THE TAX CONSEQUENCES OF A PARTICIPANT'S DEATH OR THE PROVISIONS OF THE INCOME TAX LAWS OF ANY MUNICIPALITY, STATE OR FOREIGN COUNTRY IN WHICH THE PARTICIPANT MAY RESIDE. PARTICIPANTS SHOULD CONSULT THEIR OWN TAX ADVISORS.

Vote Required

The affirmative vote, in person or by proxy, of a majority of the shares present or represented at the meeting and entitled to vote will be required to approve the adoption of the 2020 Stock Plan.

**The Board recommends a vote “FOR” the adoption of
the Onto Innovation Inc. 2020 Stock Plan.**

PROPOSAL 4

APPROVAL OF THE ONTO INNOVATION INC. 2020 EMPLOYEE STOCK PURCHASE PLAN

The Board of Directors is requesting that our stockholders approve a new employee stock purchase plan, the Onto Innovation Inc. 2020 Employee Stock Purchase Plan (the “2020 ESPP”). The Board has adopted the 2020 ESPP, subject to stockholder approval at the Annual Meeting. If approved by our stockholders, the 2020 ESPP will become effective as of July 1, 2020 and will expire ten (10) years from such date, unless terminated earlier. The 2020 ESPP is intended to replace the Nanometrics 2003 Employee Stock Purchase Plan (the “2003 ESPP”). If the stockholders approve this Proposal 4, the 2003 ESPP will expire after the final share purchase is made on or about June 30, 2020. The Board has determined that it remains in the best interests of the Company and its stockholders to have an employee stock purchase plan and is asking the Company’s stockholders to approve the 2020 ESPP.

Changes Being Made To The 2020 ESPP

Our 2020 ESPP provides for a maximum share reserve of 1,500,000 shares, which represents 3.0% of our outstanding shares as of March 13, 2020. The 2003 ESPP upon amendment and restatement in 2016 provided for a share reserve of 2,450,000 shares. As of the effective date of the 2020 ESPP, no additional shares will thereafter be sold under the 2003 ESPP.

Summary Of The 2020 Employee Stock Purchase Plan

The following is a summary of the principal features of the 2020 ESPP and its operation. The summary is qualified in its entirety by reference to the 2020 ESPP as set forth in Appendix B.

General

The 2020 ESPP was adopted by the Board in March 2020, subject to stockholder approval at the Annual Meeting. The purpose of the 2020 ESPP is to provide eligible employees with an opportunity to purchase shares of Common Stock through payroll deductions, to enhance the employees’ sense of participation in the Company and its participating subsidiaries, and to provide an incentive for continued employment.

Shares Available For Issuance

If the Company’s stockholders approve this proposal, the number of shares of the Company’s Common Stock to be reserved for issuance under the 2020 ESPP shall be 1,500,000, as may be adjusted for stock splits, stock dividends or other changes in capitalization, mergers, reorganizations and other transactions in accordance with plan terms.

Administration

The 2020 ESPP will be administered by the Board or a committee of members of the Board (in either case, the “Administrator”). Subject to the provisions of the 2020 ESPP, all questions of interpretation or application of the 2020 ESPP are determined by the Administrator and its decisions are final and binding upon all participants.

Eligibility

Each of the Company’s (or the Company’s participating subsidiaries’) employees who is customarily employed for at least twenty (20) hours per week and more than five (5) months in a calendar year by the Company or a designated subsidiary, (provided that, in certain jurisdictions outside the United States employees employed for less than twenty (20) hours per week or less than five (5) months in a calendar year if so required by local laws, as determined by the Company), on the first trading day of the applicable offering period is eligible to participate in the 2020 ESPP. As of March 13, 2020, there were approximately

1,300 employees eligible to participate under the terms of the 2020 ESPP. Notwithstanding the foregoing, no employee will be granted an option under the 2020 ESPP (i) to the extent that, immediately after the grant, such employee would own 5% or more of the total combined voting power of all classes of the Company's capital stock or the capital stock of any Company parent or subsidiary, or (ii) to the extent that his or her rights to purchase stock under all of the Company's employee stock purchase plans accrues at a rate which exceeds \$25,000 worth of stock (determined at the fair market value of the shares at the time such option is granted) for each calendar year.

Offering Period & Purchase Price

Each offering period under the 2020 ESPP will have a duration of approximately six (6) months, commencing on the first trading day on or after January 1st and July 1st of each year of the 2020 ESPP and terminating on the last trading day of the applicable period ending six (6) months later. On the last trading day of each offering period (the exercise date), shares of Common Stock may be purchased on behalf of the participant in accordance with the terms of the 2020 ESPP.

Eligible employees may participate in the 2020 ESPP by delivering a subscription agreement as provided by the Company prior to the beginning of an offering period authorizing payroll deductions pursuant to the 2020 ESPP. Such payroll deductions may not be less than 1% or exceed 15% of a participant's compensation during the offering.

Under the terms of the 2020 ESPP, the purchase price of shares under the 2020 ESPP is 85% of the fair market value of a share of Common Stock on the exercise date, as may be adjusted in accordance with plan terms.

Merger Or Asset Sale

In the event of a proposed sale of all or substantially all of the assets of the Company, or the merger of the Company with or into another corporation, each outstanding option under the 2020 ESPP may be assumed or an equivalent option will be substituted by the successor corporation or a parent or subsidiary of such successor corporation. In the event the successor corporation refuses to assume or substitute for the options, any offering period then in progress will be shortened by setting a new exercise date on which such offering period will end. The new exercise date will be prior to the proposed sale or merger. The Administrator will notify each participant in writing at least ten (10) business days prior to the new exercise date that the purchase date for the participant's option has been changed to the new exercise date and that the participant's option will be exercised automatically on the new exercise date unless the participant withdraws from the 2020 ESPP prior to such date.

Amendment And Termination Of The 2020 ESPP

The Administrator may amend, terminate or suspend the 2020 ESPP at any time and for any reason. Generally, no such termination can adversely affect options previously granted and stockholder approval will be sought for certain changes as required by applicable law.

Upon its approval by the stockholders, the 2020 ESPP will continue until the earlier to occur of (i) the termination of the 2020 ESPP by the Board, or (ii) July 1, 2030 (the date which is ten (10) years from the effective date of the 2020 ESPP).

Federal Income Tax Consequences Relating To The 2020 ESPP

The federal income tax consequences of an employee's purchases under the 2020 ESPP will vary. The following discussion is only a summary of the general federal income tax rules applicable to the 2020 ESPP. Employees should consult their own tax advisors since a taxpayer's particular situation may be such that some variation of the rules described below will apply.

The 2020 ESPP and the right of participants to make purchases thereunder are intended to qualify under the provisions of Section 421 and 423 of the Code. Under those provisions, no income will be taxable to a participant at the time of grant of the option or purchase of shares. However, a participant may become liable for tax upon the dispositions of shares acquired under the 2020 ESPP (or if he or she dies holding such shares), and the tax consequences will depend on how long a participant has held the shares prior to disposition.

If the shares are disposed of at least one (1) year after the shares were acquired under the 2020 ESPP and at least two (2) years after the first day of the offering period to which the shares relate, or if the employee dies while holding the shares, the following tax consequences will apply. The lesser of (a) the excess of fair market value of the shares at the time of such disposition over

the purchase price of the shares (the “option price”) or (b) the excess of the fair market value of the shares at the time the option was granted over the option price will be treated as ordinary income to the participant. Any further gain upon disposition generally will be taxed at long-term capital gain rates. If the shares are sold and the sales price is less than the option price, there is no ordinary income and the participant has a long-term capital loss equal to the difference. No deduction in respect of the disposition of such shares will be allowed to the Company.

If the shares are sold or disposed of (including by way of gift) before the expiration of either the two-year or the one-year holding period described above, the following tax consequences will apply. The amount by which the fair market value of the shares on the date the option is exercised (which is the last trading day of the offering period and which is hereafter referred to as the “termination date”) exceeds the option price will be treated as ordinary income to the participant. This excess will constitute ordinary income in the year of sale or other disposition even if no gain is realized on the sale or a gratuitous transfer of the shares is made. The balance of any gain will be treated as capital gain and will qualify for long-term capital gain treatment if the shares have been held for more than one (1) year following the exercise of the option. Even if the shares are sold for less than their fair market value on the termination date, the same amount of ordinary income is attributed to a participant and a capital loss is allowed equal to the difference between the sales price and the value of such shares on such termination date. The Company, in the event of an early disposition, will be allowed a deduction for federal income tax purposes equal to the ordinary income realized by the disposing employee.

THE FOREGOING IS ONLY A SUMMARY OF THE EFFECT OF FEDERAL INCOME TAXATION UPON THE PARTICIPANT AND THE COMPANY AS OF THE DATE HEREOF WITH RESPECT TO THE 2020 ESPP AND DOES NOT PURPORT TO BE COMPLETE, AND REFERENCE SHOULD BE MADE TO THE APPLICABLE PROVISIONS OF THE INTERNAL REVENUE CODE. IN ADDITION, THIS SUMMARY DOES NOT DISCUSS THE TAX CONSEQUENCES OF A PARTICIPANT’S DEATH OR THE PROVISIONS OF THE INCOME TAX LAWS OF ANY MUNICIPALITY, STATE OR FOREIGN COUNTRY IN WHICH THE PARTICIPANT MAY RESIDE.

Vote Required

The affirmative vote, in person or by proxy, of a majority of the shares present or represented at the meeting and entitled to vote will be required to approve the 2020 ESPP.

**The Board recommends a vote “FOR” the adoption of the
Onto Innovation Inc. 2020 Employee Stock Purchase Plan.**

PROPOSAL 5

RATIFICATION OF APPOINTMENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Although ratification by stockholders is not required by law, the Board of Directors is submitting the Audit Committee's selection of Ernst & Young LLP ("E&Y") as the Company's independent registered public accounting firm for fiscal year 2020 for ratification as a matter of good corporate governance and recommends that the stockholders vote for ratification of such appointment. In the event of a negative vote on such ratification, the Board of Directors will reconsider its selection. Even if the selection is ratified, the Audit Committee may appoint a new independent registered public accounting firm at any time during the year if the Audit Committee believes that such a change would be in the best interests of the Company and its stockholders. E&Y has indicated that representatives of E&Y, the independent registered public accounting firm presented herein, will be in attendance at the Annual Meeting. Such representatives will have the opportunity to make a statement, if they desire to do so, and to respond to appropriate questions.

Change in Independent Registered Public Accounting Firm

Prior to the 2019 Merger, E&Y was the independent registered public accounting firm of Rudolph, and PricewaterhouseCoopers LLP ("PwC") was the independent registered accounting firm of Nanometrics.

As previously reported on our Current Report on Form 8-K filed with the SEC on November 13, 2019, PwC resigned on November 11, 2019, and E&Y was engaged by the Company as its independent registered public accounting firm for the year ending December 31, 2019. The decision to change the independent registered accounting firm was approved by the Audit Committee.

PwC's reports on Nanometrics' financial statements for the fiscal years ended December 29, 2018 and December 30, 2017 contained no adverse opinion or disclaimer of opinion, and were not qualified or modified as to uncertainty, audit scope or accounting principle.

During the fiscal years ended December 29, 2018 and December 30, 2017 and the subsequent interim period through November 11, 2019, there have been no disagreements (as defined in Item 304(a)(1)(iv) of Regulation S-K and the related instructions) with PwC on any matter of accounting principles or practices, financial statement disclosure, or auditing scope or procedure, which disagreements, if not resolved to the satisfaction of PwC, would have caused PwC to make reference thereto in their reports on the financial statements for such years.

During the fiscal years ended December 29, 2018 and December 30, 2017 and subsequent interim period through November 11, 2019, there have been no reportable events (as defined in S-K 304(a)(1)(v)), except that as disclosed in the Company's Quarterly Report on Form 10-Q for the quarterly periods ended April 1, 2017, July 1, 2017 and September 30, 2017 (the "2017 Form 10-Qs"), management concluded that a material weakness existed related to ineffective controls over the existence of inventories subject to the cycle count programs. The material weakness was remediated and described in Item 9A of the Company's annual report on Form 10-K for the year ended December 30, 2017.

The Company requested that PwC furnish it with a letter addressed to the SEC stating whether or not it agrees with the above statements. A copy of the letter from PwC, dated November 12, 2019, is filed as Exhibit 16.1 to such Form 8-K.

During the fiscal years ended December 29, 2018 and December 30, 2017, and the subsequent interim periods through November 11, 2019, neither Onto Innovation nor anyone on its behalf consulted with E&Y, regarding either: (i) the application of accounting principles to a specific transaction, completed or proposed, or the type of audit opinion that might be rendered on Onto Innovation's financial statements, and neither a written report nor oral advice was provided to Onto Innovation that EY concluded was an important factor considered by Onto Innovation in reaching a decision as to any accounting, auditing or financial reporting issue, or (ii) any matter that was either the subject of a disagreement (as defined in Item 304(a)(1)(iv) of Regulation S-K and the related instructions) or a reportable event (as described in Item 304(a)(1)(v) of Regulation S-K).

Independent Registered Public Accounting Firm Selection Process

E&Y served as Rudolph's independent registered public accounting firm since March 2008 and was selected as the accounting firm for the Company after the Merger Date. During this time, the firm has demonstrated:

- A high degree of independence and professionalism in their audit engagement with Rudolph and the Company;

- A solid record of partner and professional staff continuity;
- A knowledge of current and emerging accounting and auditing issues affecting Rudolph and the Company;
- A deep and ongoing understanding of Rudolph’s and the Company’s business model and industry; and
- A readiness to assist Rudolph and the Company and their respective audit committees in keeping up-to-date with the latest accounting and auditing pronouncements and their application to Rudolph’s and the Company’s business.

In making its selection of an independent registered public accounting firm, the Audit Committee assesses, among other factors:

- The performance of the independent registered public accounting firm in the prior year;
- The anticipated needs of the Company and ability of the accounting firm to address them in the coming year;
- The proposed fees for the coming year; and
- The potential impact of changing auditors for the coming year.

Ultimately, the decision of the independent registered public accounting firm is made with the best interest of the Company and its stockholders in mind.

Factors Used To Assess Independent Registered Public Accounting Firm Quality

Members of the Audit Committee have experience in dealing with audits of other public companies as well as experience with other accounting firms. After the Merger Date, the Audit Committee’s basis for the selection of E&Y as the Company’s independent registered public accounting firm included, among other considerations, familiarity of Rudolph’s accounting practices as the accounting acquirer in the 2019 Merger, E&Y’s breadth of services and international footprint as well as expense considerations. On an ongoing basis, E&Y has been responsive, reliable and professional in their dealings with the Audit Committee and has appropriately assisted the Audit Committee in its oversight of the Company’s financial processes and financial statements. In addition, E&Y makes available to the Company specialists within their firm to assist in the audit when consultation on specific and unique issues arise. These processes appear to be effective in assisting E&Y with their audit engagement.

As a part of the Audit Committee’s review of E&Y’s qualifications, E&Y provides the Company with the firm-wide comments from the Public Company Accounting Oversight Board (PCAOB) regarding PCAOB’s examinations of E&Y for the prior year. E&Y also updates the Company with the quality improvements that the firm has made as a result of the PCAOB comments as well as other changes to their quality and risk assessment processes.

Audit Committee’s Involvement In The Lead Partner Selection

In keeping with their independence policy, E&Y employs a regular schedule of rotation of the both the lead engagement partner (“Lead Partner”) and the support staff. This rotation provides for sufficient overlap of the new Lead Partner with the outgoing Lead Partner. This process allows for the members of the Audit Committee and the Company management to become familiar with the new Lead Partner and new staff and to introduce them to the Company’s business. Prior to the new Lead Partner’s full engagement, the Audit Committee and Company management meet with E&Y to review and offer feedback on the industry experience, financial acumen and anticipated fit of the new Lead Partner with the Company.

Policy On Audit Committee Pre-Approval Of Audit And Permissible Non-Audit Services Of Independent Registered Public Accounting Firm

Pursuant to our Audit Committee charter, our Audit Committee must pre-approve all audit and permissible non-audit services provided by the Company’s independent registered public accounting firm. These services may include audit services, audit-related services, tax and other services. Pre-approval is generally provided for up to one (1) year, and any pre-approval is detailed as to the particular service or category of services and is generally subject to a specific budget. The independent registered public accounting firm and management are required to periodically report to the Audit Committee regarding the extent of services provided by the independent registered public accounting firm in accordance with this pre-approval and the fees for the services performed to date. The Audit Committee may also pre-approve particular services on a case-by-case basis. During 2019, all services provided by Ernst & Young LLP to both Rudolph and the Company were pre-approved by the Audit Committee in accordance with this policy, and the Audit Committee has concluded that the provision of these services is compatible with the accountants’ independence.

Audit and Non-Audit Fees

The following table sets forth the fees billed for the year ended December 31, 2019 and the fiscal year ended December 29, 2018 by the Company's independent registered public accounting firm, Ernst & Young LLP, for 2019, and the independent registered public accounting firm, PricewaterhouseCoopers LLP, prior to the Merger.

Fees	E&Y	PwC	PwC
	2019	2019	2018
Audit	\$1,006,202	\$900,800	\$1,333,197
Audit Related	-	83,755	-
Tax	43,770	114,000	-
All Other	2,000	2,700	2,700
Total	\$1,051,972	\$1,101,255	\$1,335,897

Audit Fees

Audit fees for the fiscal year ended December 31, 2018 were for the audit of Nanometrics' annual financial statements including management's assessment of internal controls over financial reporting, the review of Nanometrics' quarterly financial statements and statutory and regulatory audits, consents and other services. Audit fees for the year ended December 31, 2019 were for the aggregate fees billed for professional services rendered to the Company subsequent to the 2019 Merger and Nanometrics prior to the 2019 Merger for the audit of the annual financial statements and a review of financial statements included in the quarterly reports on Form 10-Q. These fees may include services that are normally provided by the independent registered public accounting firm in connection with regulatory filings or engagements including any comfort letters and consents for financings and filings made with the SEC.

Audit Related Fees

Audit related fees for the fiscal year ended December 31, 2018 were for professional services rendered to Nanometrics prior to the 2019 Merger that were reasonably related to the performance of the audit or review of Nanometrics' financial statements. This category includes fees related to assistance in financial due diligence related to the 2019 Merger and general assistance with implementation of SEC requirements.

Tax Fees

Tax fees may include fees for tax compliance, tax planning and tax advice. Tax fees for the year ended December 31, 2019 were for tax advice.

All Other Fees

All other fees would consist of fees for products and services other than the services described above. For the year ended December 31, 2019, all other fees included payments for an accounting and auditing information tool.

Negotiation of the annual independent registered public accounting firm fees is the responsibility of the Audit Committee with the support of the Company's CFO. All of the Ernst & Young LLP fees listed in the chart above for 2019 were pre-approved by the Audit Committee of Rudolph prior to the 2019 Merger and, after the Merger Date, the Company, each of which concluded that the provisions of such services by Ernst & Young LLP were compatible with the maintenance of that firm's independence in the conduct of its audit functions. All of the PricewaterhouseCoopers LLP fees listed above were pre-approved by the Audit Committee of Nanometrics prior to the 2019 Merger, each of which concluded that the provisions of such services by PricewaterhouseCoopers LLP were compatible with the maintenance of that firm's independence in the conduct of its audit functions.

Vote Required

The affirmative vote, in person or by proxy, of a majority of the shares present or represented at the meeting and entitled to vote will be required to ratify Ernst & Young LLP as the Company's independent registered public accounting firm for the year ending December 26, 2020.

The Company's Board of Directors unanimously recommends voting "FOR" the ratification of the appointment of Ernst & Young LLP as the Company's independent registered public accounting firm for the year ending December 26, 2020.

AUDIT COMMITTEE REPORT

The following is the Audit Committee's report submitted to the Board of Directors for the year ended December 31, 2019.

As noted in the Company's charter, management is responsible for the Company's internal controls and the financial reporting process. The independent registered public accounting firm is responsible for performing an independent audit of the Company's consolidated financial statements in accordance with the standards of the Public Company Accounting Oversight Board (United States) and for issuing a report thereon. Additionally, the independent registered public accounting firm is responsible for performing an independent audit of the Company's internal controls over financial reporting and for issuing a report thereon. The Committee's responsibility is to monitor and oversee these processes.

In this context, the Audit Committee of the Board of Directors has:

- reviewed and discussed with management and with Ernst & Young LLP, the Company's independent registered public accounting firm, together and separately, the Company's audited consolidated financial statements contained in its Annual Report on Form 10-K for the year ended December 31, 2019;
- discussed with Ernst & Young LLP the matters required to be discussed by Statement on Auditing Standards No. 1301, Communications with Audit Committees;
- received the written disclosures and the letter from Ernst & Young LLP required by applicable requirements of the Public Company Accounting Oversight Board regarding the independent registered public accounting firm's communications with the Audit Committee concerning independence, and has discussed with Ernst & Young LLP its independence; and
- discussed and reviewed with the Company's manager - internal audit ("Mgr-IA") and Ernst & Young LLP, with and without management present, the Company's work in complying with the requirements of Section 404 under the Sarbanes-Oxley Act of 2002 regarding internal controls over financial reporting. In connection therewith, the Audit Committee also discussed with the Mgr-IA, with and without other members of management present, management's assessment of the effectiveness of internal controls over financial reporting as of December 31, 2019. The Audit Committee also discussed Ernst & Young LLP's audit report on internal controls over financial reporting as of December 31, 2019 with management and Ernst & Young LLP.

Based on the foregoing review and discussions, the Audit Committee recommended to the Board of Directors that the audited financial statements be included in the Company's Annual Report on Form 10-K for the year ended December 31, 2019.

THE AUDIT COMMITTEE

Christine A. Tsingos (Chairperson)

Jeffrey A. Aukerman

Vita A. Cassese

Christopher A. Seams

John R. Whitten

EXECUTIVE COMPENSATION

COMPENSATION DISCUSSION AND ANALYSIS

Introduction

On the Merger Date, Nanometrics and Rudolph combined to create Onto Innovation Inc. As Nanometrics was the legal acquirer of Rudolph, the compensation of Nanometrics executives for periods prior to and after the 2019 Merger is discussed and analyzed. The compensation of former Rudolph executives who are now executives of Onto Innovation is discussed and analyzed for periods subsequent to the 2019 Merger. Therefore, this CD&A primarily addresses legacy Nanometrics executive compensation programs and the decisions made by the legacy Nanometrics Compensation Committee, and, where necessary, legacy Rudolph executive compensation programs and the decisions made by the legacy Rudolph Compensation Committee. We also provide a discussion and analysis of the combined company executive compensation programs going forward, which reflect the decisions made by the Company's Compensation Committee.

This Compensation Discussion and Analysis describes our compensation philosophy, process, plans and practices for our executive officers and contains a discussion of the material elements of compensation awarded to, earned by, or paid to the Company's "Named Executive Officers" listed in the table below ("NEOs"), including:

- Our principal executive officer
- Our principal financial officer
- The next three (3) most highly compensated executives of the Company in 2019
- Nanometrics' principal executive officer prior to the 2019 Merger
- Nanometrics' principal financial officer prior to the 2019 Merger
- Up to two (2) individuals for whom disclosure would have been provided pursuant to the third bullet above but for the fact they were not serving as an executive officer of Onto Innovation as of December 31, 2019

Based on the foregoing, the Company's NEOs for 2019 are:

Onto Innovation's Named Executive Officers (NEOs)			
NEO Name	Position	Legacy Company Affiliation	Current Company Affiliation
Michael P. Plisinski	CEO	Rudolph	Onto Innovation
Steven R. Roth	Sr. Vice President & CFO	Rudolph	Onto Innovation
Rollin Kocher	Sr. Vice President, Field Operations	Nanometrics	Onto Innovation
Kevin Heidrich	Sr. Vice President, Marketing & Corporate Development	Nanometrics	Onto Innovation
Rodney Smedt	Sr. Vice President & General Manager, Metrology Business Unit	Nanometrics	Onto Innovation
Pierre-Yves Lesaichere, Ph.D.	Former President, Chief Executive Officer	Nanometrics	N/A
Greg Swyt	Vice President, Finance	Nanometrics	Onto Innovation
James Barnhart	Former Sr. Vice President, Operations	Nanometrics	N/A
Janet Taylor	Former General Counsel	Nanometrics	N/A

EXECUTIVE SUMMARY

Our Business

We are a global leader in process control, combining global scale with an expanded portfolio of leading-edge technologies that include: unpatterned wafer quality; 3D metrology spanning the chip from nanometer-scale transistors to micron-level die-

interconnects; macro defect inspection of wafers and packages; metal interconnect composition; factory analytics; and lithography for advanced semiconductor packaging. We also provide services relating to the maintenance and repair of our products, installation services and training. Semiconductor capital equipment is our primary served market.

2019 Financial Highlights

On October 25, 2019, Nanometrics Incorporated and Rudolph Technologies, Inc. merged to form Onto Innovation Inc. Onto Innovation accounts for the 2019 Merger as a reverse acquisition using the acquisition method of accounting in accordance with generally accepted accounting principles, with Rudolph being treated as the acquiring entity for accounting purposes. Because Rudolph is treated as the accounting acquirer in the 2019 Merger, the financial statements filed with the SEC in Onto Innovation's Form 10-K include the financial results of Rudolph for all periods presented and the financial results of the former Nanometrics for the periods on or after October 26, 2019. Based on the foregoing, Onto Innovation reported revenue of \$305.9 million as of year-end 2019.

Results Of The 2019 Stockholder Votes On Executive Compensation

Our Board recognizes the fundamental interest our stockholders have in the compensation of our executive officers. At the Nanometrics 2019 Annual Meeting, 98% of stockholders present at the meeting voted in favor of its advisory vote on executive compensation. Similarly, at the Rudolph 2019 Annual Meeting, 97% of stockholders present at the meeting voted in favor of its advisory vote on executive compensation.

COMPENSATION PROGRAM OBJECTIVES, DESIGN AND PRACTICES

Our Compensation Philosophy And Principles

Rewarding continuous improvement in financial and operating results and the creation of stockholder value are key attributes of our compensation philosophy, which serves as the framework for the Company's executive compensation program. The Compensation Committee of the Board of Directors of the Company (referred to as the "Compensation Committee"), acts on behalf of the Board of Directors and, by extension, on behalf of our stockholders, to establish, implement and continually monitor adherence to our compensation philosophy. Accordingly, the Compensation Committee has developed a set of core objectives and principles that it has used to develop the executive compensation program. The specific objectives of our executive compensation program are to:

- Attract, retain, and motivate executive talent;
- Align compensation with Company and individual performance; and
- Foster an ownership mentality that aligns our executives' interests with stockholder interests.

Consistent with the foregoing, the Compensation Committee believes that the most effective executive compensation program is one that is designed to reward the achievement of specific strategic and operating goals of the Company on both an annual and a long-term basis, and which aligns our executives' interests with those of our stockholders. The Compensation Committee evaluates both performance and compensation to ensure that the Company maintains its ability to attract and retain superior employees in key positions. Based on that evaluation, the Compensation Committee designs the compensation provided to key employees to remain competitive relative to the compensation paid to similarly situated executives at competitor companies. The Compensation Committee believes executive compensation packages provided by the Company to its executives, including the NEOs, should include base salary, annual cash incentive opportunities, select perquisites and stock-based compensation, including equity incentive opportunities which reward performance as measured against pre-established goals.

The following principles support the objectives and design of the compensation program:

- The compensation program is designed to be fair and competitive, from an internal and external perspective, taking into account the role, unique qualifications and distinct responsibilities of each executive;
- A substantial portion of an executive's compensation is designed to be at risk and linked to the achievement of both corporate and individual financial, management or other performance goals and changes in stockholder value;
- A retirement provision which is designed to provide financial stability following employment but will not be the focal point of why executives choose to work for the Company;

- The use of select, limited perquisites and other executive benefits are designed to serve a business purpose; and
- All compensation program elements taken as a whole are designed to help focus executives to achieve the Company's financial and strategic goals while supporting our culture and core values.

To underscore the importance of “pay-for-performance” in our compensation philosophy and our Company's culture, the Compensation Committee has developed incentive arrangements based on performance standards established at levels which the Compensation Committee believes, at target achievement, will incentivize our executives to meet or exceed industry performance. The incentive component of the Company's executive compensation program, also referred to as the Tier I Incentive Compensation Plan, rewards executives for achieving specific corporate, business unit and individual goals as well as strategic and operational measures depending on the executive involved.

Our long-term incentive program includes grants of performance-based stock units (“PSUs”) which are earned based on the achievement of TSR performance relative to the top 30 companies in the Philadelphia Stock Exchange Semiconductor Index over a two and three-year performance period. Our long-term incentive program also includes service-based RSUs, which vest in equal annual increments over time. All grants are currently made under either of two (2) stockholder approved Company stock plans, the Nanometrics 2005 Stock Plan or the Rudolph 2018 Stock Plan, and shares earned and vested are subject to the Company's stock ownership and retention guidelines. If the 2020 Stock Plan is approved by stockholders, equity awards will no longer be granted under either of the Nanometrics 2005 Stock Plan or the Rudolph 2018 Stock Plan but will instead be awarded under the new 2020 Stock Plan.

The Company strives to promote an ownership mentality among its key leadership and the Board of Directors, in part through the guidelines described below under the heading “Stock Ownership/Retention Guidelines.” We believe this “skin in the game” approach mitigates the incentive to take on unnecessary risks. To that end, a stock ownership requirement for independent directors has been established such that the minimum number of shares to be held by each director is equivalent in value of three (3) times their respective total annual retainer compensation. For the CEO, the stock ownership requirement reflects a minimum share ownership equivalent in value to three (3) times the CEO's year-end base salary. As for the NEOs, the stock ownership requirement reflects a minimum share ownership equal to the NEO's current year-end base salary. In further support of this approach, our Board of Directors established an anti-pledging and anti-hedging policy to ensure that personal interests relating to the stock holdings of officers and directors do not conflict with their duties to the Company.

NEO Compensation Elements

Our executive compensation program is generally comprised of four parts, each intended to address different objectives: base salary, annual cash performance incentives, long-term equity incentives, which generally are in the form of both performance-based vesting and service-based vesting RSU grants, and limited perquisites.

The table below highlights the foregoing key elements of our executive compensation structure for 2020.

NEO Compensation Elements		
Element	Form	Description
<i>Base Salary</i>	Fixed Cash Compensation	Competitive cash compensation that takes into consideration the scope and complexity of the role, individual qualifications, experience, and internal value to the Company.
<i>Annual Cash Incentive Plan</i>	Annual Performance-Based Cash Compensation	Annual cash incentive contingent on meeting performance criteria related to corporate, business unit/department, and individual performance objectives.
<i>Long-Term Equity Incentive Program</i>	Performance- and Time-Based Restricted Stock Units	A set percentage of PSUs that are earned based on TSR performance relative to a designated peer group, with remaining percentage of the RSUs vesting incrementally over a fixed period.
<i>Executive Perquisites</i>	Income tax preparation Airline club membership	Limited perquisites, consistent with market practice, that promote efficient use of executives' time and attract and retain executive talent.

The Compensation Committee aligns the Company's Tier I Incentive Compensation Plan, which encompasses our annual cash incentive plan and long-term incentive equity program, with the Company's performance relative to pre-established performance goals based on the Company's stated financial objectives, historical performance, and anticipated market and economic conditions for the performance period.

In adopting this design, the Compensation Committee considered a number of parameters, including the advice of its independent compensation consultant, comparable practices within the industry and the desire to achieve the goals underlying the compensation program. The Compensation Committee believes that as a result of this program the Company has been able to attract, retain and motivate executives and reward the achievement of strategic, operational and financial goals, thereby enhancing stockholder value.

Our Compensation Practices

The Compensation Committee has adopted the following practices and policies with respect to the Company's executive compensation program:

What We Do	
<i>Committee Independence</i>	The Compensation Committee consists of independent directors and reserves time at each meeting to meet in executive session without management present.
<i>Independent Compensation Consultant</i>	The Compensation Committee has engaged its own independent compensation consultant and annually assesses the consultant's performance, independence, and whether any potential conflicts of interest exist.
<i>Independent Legal Advisor</i>	The Compensation Committee may engage its own independent legal advisor specializing in corporate compensation issues, as necessary.
<i>CEO Goal Setting and Performance Evaluation</i>	The Compensation Committee, with the input of the full Board, engages in formal goal setting and performance evaluation processes with the CEO.
<i>Peer Group</i>	The Compensation Committee has established formal criteria for the selection of peer groups used as a competitive reference point with respect to executive and director compensation, program design and practices, and financial and stock performance.
<i>Share Ownership Guidelines</i>	The Company maintains rigorous share ownership guidelines, which apply to executives and directors, and serve as a risk-mitigating feature within our compensation structure.
<i>Double Trigger Change-in-Control</i>	Employment agreements have been entered into with senior executives, including the CEO, that contain change-in-control severance protection. Executives are entitled to severance in the event of both a change-in-control of the Company and a qualifying termination of employment ("double trigger").
<i>Clawback Policy</i>	The Company has adopted a policy that provides for the recovery or adjustment of amounts previously awarded or paid to a NEO in the event that financial results or other performance measures on which the award or payment were determined are restated or adjusted.
What We Don't Do	
<i>Anti-Hedging and Pledging Policies</i>	The Company's insider trading policy prohibits our directors, officers and employees from entering into hedging transactions related to our Common Stock. Additionally, under the Company's anti-pledging policy, non-employee directors and executive officers are prohibited from making any new pledges of Company securities as collateral for a loan, or otherwise making a new transfer of Company securities to a margin account.
<i>Tax Gross-Ups on Perquisites or Severance</i>	The Company does not provide any tax gross-up payments to cover personal income taxes on perquisites or severance benefits related to a change-in-control.

Compensation Consultant

From time to time, the Compensation Committees of the Company and Nanometrics have engaged the services of outside compensation consultants to provide advice on compensation plans and issues related to the executive and non-executive employees. During 2019, the Nanometrics Compensation Committee engaged Compensia, an independent executive compensation consulting firm, as its compensation consultant. Compensia had advised the committee for several years and was very familiar with the industry and geographies in which Nanometrics operated. The Nanometrics Compensation Committee requested that Compensia:

- evaluate the efficacy of Nanometrics' existing compensation strategy and practices in supporting and reinforcing Nanometrics' long-term strategic goals;
- assist in refining Nanometrics' compensation strategy and in developing and implementing an executive compensation program to execute that strategy; and
- provide market information to assist Compensation Committee in establishing 2019 executive compensation.

For 2020, the Compensation Committee also engaged Compensia to provide advice on the Company's executive compensation arrangements. Compensia does not provide any services other than those related to compensation consulting and does not provide any services to Company management or previously to Nanometrics management. The Compensation Committees of both the Company and Nanometrics determined that Compensia is independent within the meaning of the respective Compensation Committee Charters, the NASDAQ listing standards for Nanometrics and the NYSE listing standards for the Company, and the work of Compensia for the respective Compensation Committee does not raise any conflicts of interest.

Independent Legal Counsel

The Compensation Committee may engage, as necessary, the services of independent outside legal counsel for compensation issues. No independent counsel was engaged for compensation issues in 2019 by the Nanometrics or the Company Compensation Committee or in 2020 by the Company Compensation Committee.

Role Of Executives In Establishing Compensation

The Compensation Committee of the Company, like the Compensation Committee of Nanometrics prior to the 2019 Merger, is charged with making all determinations regarding executive compensation subject to approval by the independent members of the Board. On an annual basis, the Compensation Committee evaluates the CEO's performance in light of the goals and objectives established for measuring his or her performance at the beginning of the previous fiscal year. The results of this evaluation guide the Compensation Committee in setting the CEO's salary, cash incentive award opportunity and equity compensation. The CEO does not participate in the Compensation Committee's or Board's deliberations regarding his or her compensation.

With regard to compensation for executives other than the CEO, the Compensation Committee and the Compensation Committee of Nanometrics prior to the 2019 Merger have sought input from the CEO with the support of the human resources department. Each year, the CEO is responsible for establishing proposed personal and corporate objectives for the Company's (or Nanometrics', prior to the 2019 Merger) other executives, including the other NEOs. These objectives, subject to the approval of the Compensation Committee, are reviewed and agreed upon by the CEO with the executive. In addition, as part of the annual performance review of the Company's executives, the CEO assesses the performance of his or her direct reports and recommends any merit increase to be proposed for each individual. These recommendations are compiled by the CEO into executive compensation plans which include any proposed merit increases, each executive's personal and corporate objectives, proposed annual incentive award opportunities (expressed as a percentage of their base salary) and equity grant proposals, and are submitted to the Compensation Committee for review and consideration for approval. At the Compensation Committee meeting during which the executive compensation plans are reviewed, the CEO attends the initial session to present the proposed plans and to answer questions. Thereafter, the Compensation Committee has met without the CEO present to review, discuss and recommend for approval all executive compensation plans, subject to any modifications made by the Compensation Committee. The Compensation Committee then recommends such compensation packages to the independent members of the Board of Directors for approval.

Compensation Committee Activity

During 2019, the Compensation Committee of the Company met one (1) time, while the Compensation Committees of Nanometrics and Rudolph met three (3) and five (5) times respectively.

In early 2019, Nanometrics' CEO met with the Nanometrics Compensation Committee to present the proposed compensation plans for each of the Nanometrics' executives as well as the proposed incentive award opportunities under the Nanometrics 2019 Executive Performance Bonus Program ("Nanometrics 2019 Bonus Program") for certain non-executive employees. In 2019, the Nanometrics Compensation Committee met regularly in executive session, without the presence of the CEO or any other Company executives, to review the relevant compensation matters.

In 2019, the Nanometrics Compensation Committee took a number of actions. These included reviewing and recommending for approval by the independent members of the Board:

- the annual compensation of the Nanometrics CEO for 2019;
- the annual compensation for each of Nanometrics' other executive officers for 2019;
- the incentive compensation plan and Employee Profit Sharing Plan 2019; and
- the service-based and performance-based equity incentive awards and related performance targets for Nanometrics' executives for 2019.

With regard to the Company, in reviewing and setting the annual compensation for each executive, the Compensation Committee considered the amounts payable under each of the elements of their respective compensation plans, including base salary, annual cash incentive awards, equity grants and perquisites. The Compensation Committee took into consideration both the Company's internal pay equity as well as the competitive environment within which the Company operates. In each instance, the Compensation Committee determined that the base salary and annual and long-term incentive award opportunities for the individual executives were at an acceptable level for 2019 and that the perquisites were appropriate for the related positions.

In late 2019, the Company's Compensation Committee reviewed our annual and long-term incentive programs for 2020. At this time, measures were again selected that were determined to be consistent with advancing the interests of the Company's stockholders and aligning and supporting the Company's business strategy.

Based on the foregoing, in early 2020, the Company's Compensation Committee met and took a number of actions. These included the review and recommendation for approval by the independent members of the Board of:

- the annual compensation of the Company's CEO for 2020;
- the annual compensation for each of our other executive officers for 2020;
- the Tier I Incentive Compensation Plan and Employee Profit Sharing Plan for 2020; and
- the service-based and performance-based equity incentive awards and related performance targets for the Company's executives for 2020.

Peer Companies

In order to meet its objective of maintaining competitive executive compensation packages, the Nanometrics and Company Compensation Committees have obtained third-party compensation information from time to time and have reviewed executive compensation programs of comparable, publicly held, high technology companies. These independent compensation consultants have assisted the Nanometrics and Company Compensation Committees at various times in the development and evaluation of their compensation programs. To the extent that independent compensation consultants are not engaged to consult with a Committee with respect to compensation for a position or time period, the Compensation Committee obtains market compensation information using internal resources at the Company. The Compensation Committee reviews data related to compensation levels and programs of other similar companies prior to making its decisions, but only considers such information in a general manner in order to obtain a better understanding of the current compensation practices within our industry. For 2020, the Compensation Committee engaged Compensia to provide peer group data and perform an assessment of compensation levels provided to executives. Compensia had previously been engaged by the Nanometrics Compensation Committee prior to the 2019 Merger.

In Nanometrics' Compensation Committee's review of its executive compensation for the 2019 fiscal year, the Nanometrics Compensation Committee considered publicly available market data for companies that typically include similarly-sized

semiconductor and semiconductor capital equipment or similar firms for each Nanometrics executive officer in a like or similar role. In November 2018, for compensation decisions for Nanometrics' 2019 fiscal year, Compensia recommended and the Nanometrics Compensation Committee approved the peer group previously established for Nanometrics which took into consideration the following factors:

- primary focus on semiconductor and semiconductor equipment companies, and secondary focus on hardware companies; revenue between approximately half and two times Nanometrics four quarter revenue at the time; and
- market capitalization.

In evaluating potential peers, the Nanometrics Compensation Committee also reviewed secondary factors such as revenue growth, whether potential peers include Nanometrics as a peer, and whether potential peers are included in the compensation peer groups for Nanometrics selected by leading proxy advisory firms. Nanometrics peer group companies considered for compensation for the 2019 fiscal year are listed below:

Companies Included In Nanometrics' Compensation Peer Group For 2019		
Advanced Energy Industries Inc.	Cabot Microelectronics Corporation	Photronics, Inc.
Axcelis Technologies Inc.	Cohu, Inc.	Rudolph Technologies, Inc.
AXT Inc.	Electro Scientific Industries, Inc.	Veeco Instruments, Inc.
Brooks Automation, Inc.	FormFactor, Inc.	

With regard to the Company's 2020 compensation peer group of companies, data from company proxy disclosures and industry compensation surveys was used in conducting this assessment. The compensation peer group of companies that was utilized to assess the 2020 compensation was based generally on the following criteria:

- Semi equipment and other electronics and hardware tech companies;
- Revenue between approximately 0.5x and 2x the Company's revenue run-rate; and
- Market cap between approximately 0.5x and 2x the Company's revenue run-rate.

The Company's compensation peer group for the 2020 review (which was used to make decisions regarding the year's compensation) consisted of the following companies.

Companies Included In The Company's Compensation Peer Group For 2020		
Advanced Energy Industries Inc.	Inphi Corporation	Photronics, Inc.
Axcelis Technologies Inc.	Knowles Electronics, LLC.	Power Integrations, Inc.
Brooks Automation, Inc.	Lattice Semiconductor Corporation	Veeco Instruments, Inc.
Cabot Microelectronics Corporation	MACOM Technology Solutions Holdings, Inc.	Vishay Precision Group, Inc.
Cohu, Inc.	MaxLinear, Inc.	Xperi Corporation
FormFactor, Inc.	Novanta Inc.	

The pay practices of the foregoing Company peer group were analyzed for base salary and short-term and long-term incentives. Periodically, peer groups are used to evaluate other programs such as executive retirement, perquisites and severance policies. Our peer group data is supplemented by broader technology industry data from compensation surveys to further facilitate the evaluation of compensation levels and design. Compensation levels are generally developed at the low (25th percentile), middle (50th percentile) and high (75th percentile) end of the market for each pay element (base salary and short-term and long-term incentives) and for total compensation.

While the Compensation Committee considers market data for each pay element and in total, the Compensation Committee does not specifically target any particular market compensation level. Instead, the Compensation Committee uses its discretion in setting the compensation levels as appropriate.

ELEMENTS OF NANOMETRICS' 2019 AND THE COMPANY'S 2020 COMPENSATION PLANS

Compensation Program Design

Nanometrics' executive compensation packages for the 2019 fiscal year included three primary components - base salaries, cash bonus award opportunities and long-term equity incentive awards. Other elements of compensation included limited perquisites, other benefits (including retirement (401(k) plan, including matching contributions), health, and welfare benefits), and severance arrangements. The Nanometrics Compensation Committee considered the three primary components individually and in the aggregate to assess their competitiveness and effectiveness in retaining Nanometrics' executive officers and motivating them to create short-term and long-term enhanced stockholder value. Nanometrics' Compensation Committee chose these components because it believed that each supports achievement of one or more of Nanometrics' compensation objectives, and that together they would be effective in achieving such objectives. The use of each compensation component was based on a determination by the Nanometrics Compensation Committee of the importance of each compensation objective in supporting Nanometrics' business and talent strategies. These components are commonly used for executive officers at companies within the Nanometrics peer group and, therefore, the Nanometrics Compensation Committee found these to be appropriate in its talent retention strategy. The Nanometrics Compensation Committee's determination varied for each executive officer depending on a number of factors, including but not limited to, scope of his or her responsibilities, leadership skills and values, and individual performance. The Nanometrics Compensation Committee did not apply formulas or assign specific mathematical weights to any of these factors, but rather exercised its business judgment and discretion to make a subjective determination after considering all of these measures collectively.

For 2020, the compensation program provided to the Company's executive officers is generally comprised of four parts, each intended to address different objectives: base salary, annual cash performance incentive awards, long-term incentives that generally are in the form of both performance-based stock units and service-vesting RSU grants, and limited perquisites. Executives are also entitled to participate in benefit programs available to all Company employees, such as our ESPP and 401(k) Plan. This design was adopted for executives by the Compensation Committee taking into consideration a number of parameters including the independent compensation consultant's advice, comparable practices within the industry and the desire to achieve the goals underlying the compensation program. The Compensation Committee believes that as a result of this program the Company can attract, retain and motivate employees and reward the achievement of strategic operational and financial goals, thereby enhancing stockholder value.

Annually, the Compensation Committee will review the elements of the compensation package as well as the overall package afforded to the executives. At such time, the Compensation Committee, in its discretion, can recommend adjustments to the elements of the program to the independent members of the Board of Directors for review and approval. This review would typically be performed coincident with the evaluation of the individual executive's performance in relation to their Tier I Incentive Compensation Plan goals, salary adjustment and equity grants, if any, as discussed below.

The Company's Compensation Committee and Board believe that each of the elements as well as the entire compensation package for Company executives is appropriate for the Company given its performance, industry, current challenges and environment.

Based on the objectives discussed in the foregoing section, the Compensation Committee seeks to structure our equity and cash incentive compensation program to motivate executives to achieve the business goals set by the Company and reward the executives for achieving such goals, which we believe aligns the financial incentives of our executives with the interests of our stockholders. The Compensation Committee primarily uses salary, perquisites and other executive benefits as a means for providing base compensation to employees for their knowledge and experience and for fulfilling their basic job responsibilities.

In establishing these components of the executive compensation package, it is the Compensation Committee's intention to set total executive compensation at a sufficient level to attract and retain a strong motivated leadership team, while remaining reasonable and in line with stockholder perception of overall fairness of executive compensation.

Base salaries serve as the foundation of the compensation programs detailed herein. The Compensation Committee derives other executive compensation elements, including annual short-term cash incentives and long-term equity incentives by weighing them against base salary. Base salary levels for executive officers of the Company are generally established at or near the start of each year. The Company's annual executive cash incentive bonuses are administered through its Tier I Incentive Compensation Plan. The plan provides guidelines for the calculation of annual non-equity incentive-based compensation, subject to the Compensation Committee's oversight and the Company's and executive's achievement of corporate and individual goals. Generally, at its first meeting each year, the Compensation Committee determines final bonuses for executive officers earned in the preceding year based on each individual's performance and the performance of the Company through its

audited financial statements, and also reviews the incentive program to be established for the current year and approves the group of executives eligible to participate in the plan for that year.

Each of the Company’s executives, including our NEOs, is eligible to receive equity compensation, which has recently been in the form of PSU and RSU grants under the Company’s stockholder approved Nanometrics Incorporated 2005 Equity Incentive Plan and Rudolph 2018 Stock Plan. All full-time and part-time employees are eligible for equity grants. The Compensation Committee believes that through the Company’s broad-based equity compensation plan, the economic interests of all employees, including the executives, are more closely aligned with those of our stockholders. It is also believed that this approach will allow the Company to use equity as an incentive in a balanced manner that supports the recruitment and retention of top talent.

The Compensation Committee generally recommends for approval by the independent members of the Board the grant of equity awards at the first regularly scheduled meeting of the Board or upon completion of the Compensation Committee’s review and approval process. The Compensation Committee and the Board do not generally grant equity awards at other times during the year, other than in the case of a new hire, promotion or other exceptional circumstances.

Impact Of Performance On Compensation

The performance of the Company and of the executive has a direct impact on the compensation received by such executive from the Company. On an annual basis, the CEO reviews the performance and compensation for the Company’s executives to determine any potential salary adjustment for each individual. This assessment takes into consideration a number of factors, including the Company’s profitability; the performance of applicable business units; the executive’s individual performance and measurable contribution to the Company’s success; and pay levels of similar positions with comparable companies in the industry and within similar technology industries.

In addition, both Company and individual performance are assessed by the CEO when proposing to the Compensation Committee any annual cash incentive payout to the NEOs (other than the CEO) under the annual cash incentive component of their Tier I Incentive Compensation Plan. The plan includes various incentive level opportunities based on the executive’s accountability and impact on Company operations, with target award opportunities that are established as a percentage of base salary. Typically, these targets range from 30% to 100% of base salary for the executives in the plan. For our NEOs, 2019 and 2020 target annual cash bonus opportunities were set as follows:

Name	Target Annual Cash Incentive Percentage	
	2020	2019
Michael P. Plisinski	100.0%	100.0%
Steven R. Roth	65.0%	60.0%
Rollin Kocher	60.0%	60.0%
Kevin Heidrich	50.0%	50.0%
Rodney Smedt	50.0%	50.0%
Pierre-Yves Lesaichere, Ph.D.	N/A	100.0%
Greg Swyt	40.0%	40.0%
James Barnhart	N/A	60.0%
Janet Taylor	N/A	55.0%

Under the annual cash incentive component of our Tier I Incentive Compensation Plan, payout is based upon achievement of corporate and personal objectives with no payout unless the Company meets the threshold level of at least one of the Board approved corporate financial targets established as part of the plan. Personal objectives are awarded only upon clear achievement of the associated goal. Failure to meet the personal objectives thereby has a negative impact on the ultimate bonus payout.

In addition to a review of the prior year’s objectives, the CEO and each executive also confer to propose new individual performance targets for the executives (including the NEOs, other than the CEO) for the current year, which are combined with the corporate targets into an annual cash incentive opportunity proposal. The personal targets that are established are designed to result in additional incremental value to the Company if they are achieved. These personal performance targets in 2019 included goals related to additional corporate and/or business unit financial measures, operational measures and activities, transactional activities, and marketing initiatives, depending on the executive involved. The target level of the corporate component to the bonus goals was set based on the Company’s financial budget established by the Board at the beginning of the year. The determination of these goals is made annually to meet the changing nature of the Company’s business.

Upon completion of the prior year's results and prior to implementation of the current year's proposed Tier I Incentive Compensation Plan, the results for each participating executive employee are submitted to, and reviewed by, the Compensation Committee, which considers the CEO's recommendations for executives other than the CEO and determines the final bonus earned by each executive based on Company and individual performance. The Compensation Committee then establishes the Company and individual metrics applicable to the current year's Tier I Incentive Compensation Plan. Thereafter, the Compensation Committee's recommendations are presented to the independent members of the Board for approval of the achieved incentive payment, if any, and of the new plan for the current year. If, during the year, there are changes to the Tier I Incentive Compensation Plan that are proposed, such changes are presented to the Compensation Committee for its consideration. The Compensation Committee may exercise discretion in relation to its recommendation to the independent members of the Board regarding an individual's award under the Tier I Incentive Compensation Plan based upon its review.

An executive's role, responsibilities, individual performance and contribution to the Company are factors considered in determining the size of any discretionary equity grant that may be recommended by the Compensation Committee to the independent members of the Board of Directors for approval as long-term incentive to the individual.

Based upon the foregoing, the compensation that an executive may realize in the course of a year can be impacted by the positive or negative performance of such individual as well as Company performance. We intend for an individual's compensation under the Tier I Incentive Compensation Plan to be proportionate to the Company's and his or her performance against established goals. Similarly, equity awards that are performance-based are intended to be proportionate to the Company's performance under goals established for the Company. This review and evaluation are more subjective when applied to salary adjustments. In this case, an executive's performance is evaluated by taking into consideration the executive's contribution to the Company, the significance of the individual's achievements in relation to the overall corporate goals and mission, and the executive's effectiveness in his or her role within the Company and then weighed against the performance of other executives. Industry norms and reference to comparative company data are considered to the extent appropriate. Thus, there is no precise, objective formula that is applied in determining salary adjustments.

Compensation Plan Design And Decisions For 2019 And 2020

For 2019, both the Nanometrics and the Rudolph Compensation Committees conducted reviews of their respective compensation programs and each determined that their 2019 NEO compensation plan would retain the same basic elements as the prior year's plan as these aligned its programs with their current business strategy and included the pay for performance aspect of their respective executive compensation programs. Taking into account their respective 2018 performance and outlook for 2019, each NEO's performance and responsibilities, and current market compensation rates for each NEO position, among other criteria, the Compensation Committee of both Nanometrics and Rudolph recommended, and the associated Boards approved, the updated programs and compensation plan structures for the listed NEOs employed by Nanometrics and by Rudolph in 2019 as detailed below.

For 2020, the Company's Compensation Committee determined that the 2020 NEO compensation plan would retain the basic elements shared by both Rudolph and Nanometrics in their 2019 plans. Taking into account the respective company's 2019 performance and the Company's outlook for 2020, each NEO's performance and responsibilities, and current market compensation rates for each NEO position, among other criteria, the Compensation Committee recommended, and the Board approved the program and compensation plan structure for our NEOs also as detailed below.

Base Salary

The Company provides executives and other employees with base salary to compensate them for services rendered during the fiscal year. Base salaries for executive officers are established considering a number of factors, including the executive's:

- Individual performance;
- Unique qualifications;
- Role and responsibilities;
- Measurable contribution to the Company's profitability and success; and
- The base salary levels of similar positions with comparable companies in the industry.

The Compensation Committee supports the compensation philosophy of moderation for elements such as base salary and perquisites and other executive benefits. As noted above, under "Impact of Performance on Compensation," base salary decisions are made as part of the Company's formal annual review process and are influenced by the performance of the Company and the individual.

Salary levels are considered annually as part of the performance review process as well as upon a promotion or other change in job responsibility. The Compensation Committee reviews and determines salaries after reviewing salary data supplied by the compensation consultant, including data regarding the peer comparison group, as well as consideration of the compensation for the executive officers on a company-wide basis, based on their relative duties and responsibilities and the recommendations of the CEO (other than with respect to his or her compensation) as it relates to the executive officers who report to the CEO. The Compensation Committee also considers comparisons of peer group compensation to peer group performance as provided by the independent compensation consultant. The Compensation Committees of Nanometrics, Rudolph and the Company did not apply formulas or assign specific mathematical weights to any of these factors, but rather exercised their business judgment and discretion to make a subjective determination regarding each executive officer's base salary for 2019 and 2020, as applicable, after considering all of these measures collectively.

The CEO's recommendations for salary adjustments (other than his or her own) are reviewed and modified as deemed appropriate by the Compensation Committee and presented to the independent members of the Board for approval.

Base Salary For 2019

For Nanometrics in 2019, its Compensation Committee approved a 3.0% increase to the Nanometrics CEO's base salary and increases ranging from 2.5% to 10.7% for the base salaries of each of the listed NEOs employed by Nanometrics in 2019.

For Rudolph in 2019, its Compensation Committee approved a 3.0% increase to the Rudolph CEO's base salary and increases ranging from 2.0% to 3.0% for the base salaries of each of the other the listed NEOs employed by Rudolph in 2019.

Base Salary For 2020

For 2020, the Company's Compensation Committee approved a 10% increase to the CEO's base salary and increases of 3% to 10% to the base salaries of each of our other NEOs.

Annual Cash Incentive Compensation

Nanometrics' Compensation Committee viewed cash bonuses as part of its performance-based compensation program designed to align the recipient's interests with its annual goals and objectives and its stockholders' interests. The Nanometrics 2019 Bonus Program was intended to motivate senior executive officers to achieve short-term and long-term corporate objectives relating to the performance of Nanometrics or one of its business units as established by the Nanometrics Compensation Committee and to reward them when those objectives were achieved, thereby tying performance to stockholder value. Bonuses were triggered upon Nanometrics' achievement of target metrics determined by the Nanometrics Compensation Committee.

For the Nanometrics NEO participants in the Nanometrics 2019 Bonus Program, 100% of the target bonus opportunity was based upon overall company financial performance objectives recommended by Nanometrics' CEO and approved by Nanometrics Compensation Committee.

With regard to the Company, an executive's annual cash incentive award under the 2020 Tier I Incentive Compensation Plan (the "2020 Plan") generally depends on the financial performance of the Company relative to profit, revenue and other financial targets and the executive's individual performance. The incentive opportunity is generally set at a higher percentage for more senior officers, with the result that such officers have a higher percentage of their potential total cash compensation at risk. Executive employees reporting to the CEO, including all of our NEOs, participate in the 2020 Plan, which is designed to generate additional incentive for maximizing the employee's performance in realizing the corporate strategic and financial goals and mission. The Compensation Committee may, but is not required to, establish a Tier I Incentive Compensation Plan for any given year.

Upon completion of the year, the individual's and the Company's results with respect to the performance targets are then assessed and presented to the Compensation Committee. The Compensation Committee reviews the proposed payouts and suggests changes to the extent it deems such action necessary. Tier I Incentive Compensation Plan awards are paid out following completion of the annual audit by the Company's independent registered public accounting firm. This generally occurs in the first quarter of each year.

Annual Cash Incentive Plan For 2019

For Nanometrics, the maximum award that an executive officer could receive under the Nanometrics 2019 Bonus Program was two times the target bonus opportunity. Achievement of the bonus opportunity tied to the overall company performance for the Nanometrics 2019 Bonus Program was determined based on annual revenues and Non-GAAP operating margin. The Nanometrics 2019 Bonus Program provided that the company performance would be measured by comparing actual company annual revenues against target revenues of \$345.0 million and actual Non-GAAP operating margin against target Non-GAAP operating margin of 22.1%.

Nanometrics' company performance factor would be zero when Non-GAAP operating margin was less than or equal to 0%. For the Nanometrics 2019 Bonus Program, Non-GAAP operating margin was defined as operating income/(loss) as reported in accordance with generally accepted accounting principles in the United States, plus amortization of intangible assets, and any unusual charges, such as restructurings, litigation or acquisition costs, divided by annual revenues.

As a result of the 2019 Merger and the fact that the financial performance measures could not be assessed for the full fiscal year, as of the Merger Date, each NEO listed from Nanometrics was deemed by the Nanometrics Compensation Committee to have earned their respective goals and targets for fiscal 2019 and was paid their cash-based awards for 2019 pursuant to the Nanometrics 2019 Bonus Program established for such NEO.

With regard to the Rudolph NEOs in 2019, Rudolph's annual cash incentive component of its 2019 Key Executive Incentive Compensation Plan ("Rudolph 2019 Plan") included corporate goals, business unit or department goals (if applicable) and personal goals. The Rudolph 2019 Plan was established such that each NEO's potential cash award was subject to the achievement of 2019 corporate financial objectives relating to corporate revenue and non-GAAP operating income. The Rudolph 2019 Plan included a provision that in the event of a change of control of the company, the Rudolph 2019 Plan would be deemed to have been achieved at the applicable goal and target levels set forth therein for all of 2019. A "change in control" was defined in accordance with the Rudolph 2018 Stock Plan. Therefore, as a result of the 2019 Merger, as of the change in control closing, each NEO listed from Rudolph was deemed to have earned their respective goals and targets for 2019 and was paid their cash-based awards for 2019 Plan Year pursuant to the Rudolph 2019 Plan established for such NEO.

Actual amounts paid to the NEOs under their respective annual cash incentive plans are reported below in the Non-Equity Incentive Plan Compensation column of the Summary Compensation Table.

Annual Cash Incentive Plan For 2020

For 2020, the Compensation Committee adopted an annual cash incentive plan as part of the NEO compensation program that is structured such that each NEO's potential cash award is subject to the achievement of 2020 corporate financial objectives consistent with the Board approved annual operating plan for 2020. These corporate financial objectives are established at levels in excess of the overall industry projections in order that Rudolph drive to outperform the industry.

The annual cash incentive portion of the 2020 Plan has up to three (3) components: Corporate Goals, Business Unit Goals (if applicable) and personal performance goals.

- The Corporate Goals of the 2020 Plan relate to corporate revenue and corporate non-GAAP operating income. The performance ranges for each metric include a payout level for threshold performance at 50% of target and an established target level to achieve the maximum payout by exceeding the corporate performance objectives for each of the corporate financial metrics. The cash bonus payout is contingent on meeting at least one of the 2020 corporate revenue or corporate non-GAAP operating income goals. Should the Company not reach the threshold level for either the 2020 corporate revenue or corporate non-GAAP operating income goal, then no payout under the plan will be made to executives.
- For those NEOs who were associated with a particular Company business unit or department, a portion of their cash bonus potential is allocated to business unit/department financial performance goals. In 2020, these goals are the achievement of fiscal 2020 business unit revenue and non-GAAP operating income objectives ("Business Unit Goals"). Earning of the potential cash award apportioned to the Business Unit Goals would begin upon achieving 80% of the business unit revenue target and/or 70% of the business unit non-GAAP operating income target.
- The final component of the 2020 Plan is the inclusion of personal performance goals that are specific to the individual NEO. The NEO personal performance goals in 2020 include targets related to senior management planning, additional corporate financial measures, operational measures and activities, product development measures or marketing initiatives, depending on the executive involved. Cash bonuses arising from the personal performance goals are drafted to be awarded on an "each or nothing" basis.

Provided that either of the Corporate Goal thresholds is met, the cash bonus potential of the 2020 Plan may again be realized. The annual cash incentive component of the 2020 Plan was designed and shall be administered as follows:

- Cash bonuses arising from the Corporate Goals and the Business Unit Goals are to be awarded starting at a 50% level at the respective goal threshold and increasing linearly up to the 2020 Plan target amounts.
- If the 2020 Plan target is exceeded in either or both Corporate Goal categories, then the cash payout would increase as follows:
 - Corporate Revenue: From 100% to 120% of target, additional cash compensation would be earned linearly up to 200% of this target.
 - Non-GAAP Operating Income: From 100% to 130% of target, additional cash compensation would be earned linearly up to 200% of this target.
- Upon achieving either of the Corporate Goals, the Business Unit Goals, if applicable, and personal performance goals could be earned in full.
- Additional cash payout could be realized if either of the Business Unit Goals was exceeded, similar to the Corporate goal parameters above.

The following table reflects the structure of the annual cash incentive components of the 2020 Plan.

Tier I Incentive Compensation Plan - Annual Cash Incentive Provisions	2020
Payout if both financial metric thresholds are not reached	0%
Corporate revenue threshold	80% of corporate revenue target
Corporate non-GAAP operating income threshold	70% of corporate non-GAAP operating income target
Payout upon attaining corporate financial metrics' threshold levels	50%
Payout upon attaining corporate financial metrics' target goals	100%
Payout upon attaining corporate financial metrics' maximum goals	200%
Corporate revenue metric upside performance range	100%-120% of corporate revenue target
Corporate non-GAAP operating income metric upside performance range	100%-130% of corporate non-GAAP operating income target
Business unit/department goal payout	Variable
Personal goal payout	Fixed

Long-Term Equity Incentive Plan

Our equity compensation plans are an essential tool to link the long-term interests of the Company's stockholders and our employees, particularly our executive officers, and serve to motivate executive officers to make decisions that will, in the long run, optimize returns to our stockholders. Equity compensation plans also enable us to provide an opportunity for increased equity ownership by executive officers, thereby increasing the link between the incentives of our executive officers and the interests of our stockholders and maintain competitive levels of total compensation.

The Compensation Committee currently administers the Nanometrics Incorporated 2005 Equity Incentive Plan and the Rudolph 2018 Stock Plan. At this year's Annual Meeting, we are asking our stockholders to vote to approve a new 2020 Stock Plan. If approved, equity awards will no longer be granted under either of the Nanometrics Incorporated 2005 Equity Incentive Plan or the Rudolph 2018 Stock Plan and will instead be awarded under the new 2020 Stock Plan. See Proposal 3 in this proxy statement for additional information regarding the proposed 2020 Stock Plan.

Employees and members of management, including the Company's NEOs, generally receive annual equity grants at or about the time of their performance reviews each year. The Company's long-term incentive compensation program seeks to align the executives' interests with the Company's stockholders by rewarding successes in stockholder returns. Additionally, the Compensation Committee desires to foster an ownership mentality among executives by providing stock-based incentives as a portion of compensation.

For the Company's long-term incentive compensation program, the Compensation Committee grants performance-based and service-based RSUs.

The number of Grants awarded to each executive officer is initially determined on a discretionary rather than formula basis by the Compensation Committee.

Long-Term Equity Incentive Program For 2019

The long-term equity incentive component of the 2019 Plan was divided service-based RSU grants and, for select Nanometrics NEOs, PSU grants. For 2019, the Compensation Committee established the portion of our NEOs' long-term incentive awards granted in the form of PSUs at 50% and the portion of our long-term incentive awards granted in the form of service-vesting RSUs at 50%, reflecting our commitment to pay-for-performance.

Performance-Based Stock Units: At Nanometrics, PSUs were granted with a target amount of shares to vest if the target performance metrics were met, and additional shares may be received, up to a maximum amount that may be received of 150% of the target amount, in the event that the performance metrics were met at the maximum level.

PSUs were granted in 2019 to Dr. Lesaicherre and were to be earned based on Nanometrics' stock price performance relative to the Top 30 companies in the Philadelphia Stock Exchange Semiconductor Index over one, two and three-year performance periods. The stock price measure used was TSR which combines price appreciation and dividends paid to show the total return to a stockholder as an annualized percentage, thus directly linking executive pay to stock price changes. To earn the target number of shares, Nanometrics' stock price performance was required to be at the 50th percentile of the Index; for stock price performance at or above the 75th percentile, the recipient was to earn 150% of the target shares (maximum payout is 150% of target). If Nanometrics' stock price performance for any period was negative, the number of shares earned was capped at target, regardless of performance relative to the Index.

As a result of the 2019 Merger and the fact that the financial performance measures could not be assessed for the full fiscal year, as of the Merger Date, each NEO listed from Nanometrics was deemed by the Nanometrics Compensation Committee to have earned their respective goals and targets for fiscal 2019 and was issued their performance-based equity awards for 2019 that had been established for such NEO.

With regard to the Rudolph NEOs in 2019, the performance shares under the long-term equity component of the Rudolph 2019 Plan were designed to assess the company's TSR performance in relation to nineteen (19) peer group companies. The Rudolph 2019 Plan included a provision that in the event of a change of control of the company, the Rudolph 2019 Plan would be deemed to have been achieved at the applicable goal and target levels set forth therein for all of 2019. A "change in control" was defined in accordance with the Rudolph 2018 Stock Plan. Therefore, as a result of the 2019 Merger, as of the change in control closing, each NEO listed from Rudolph was deemed to have earned their respective goals and targets for 2019 and was issued their performance equity awards for 2019 Plan Year pursuant to the Rudolph 2019 Plan established for such NEO. Such awards were assumed by Onto Innovation in connection with the 2019 Merger and converted into Onto Innovation awards.

Service Vesting Restricted Stock Units: For 2019, each of the NEOs listed for Nanometrics received an equity grant which was comprised of time-based RSUs. Each service-based RSU award is subject solely to service-based vesting in equal annual increments over a three (3) year vesting period.

For the NEOs listed for Rudolph, in 2019, fifty percent (50%) of each NEO's equity grant was comprised of time-based RSUs. Each service-based RSU award is subject solely to service-based vesting in equal annual increments over a three (3) year vesting period. The service-based RSUs were assumed by Onto Innovation in connection with the 2019 Merger and converted into Onto Innovation RSU awards.

Actual number of PSUs and RSUs granted to the NEOs in 2019 and the related value are reported below in the Grants Of Plan-Based Awards In 2019 Table.

Long-Term Equity Incentive Program For 2020

For the Company, the long-term equity incentive component of the 2020 Plan is divided between PSU grants and service-based RSU grants. The Compensation Committee determined the portion of our NEOs' long-term incentive awards granted in the form of PSUs and service-vesting RSUs shall be split at 50% each.

In 2020, the Compensation Committee granted equity awards to our NEOs with the dollar value allocated to each NEO. The structure of the long-term equity incentive component was determined by the CEO (except in connection with his or her own grants) and the Compensation Committee through the consideration of a number of subjective factors, including the executive's position and responsibilities at the Company, the executive's individual performance, the number of grants held (if any) and other factors that they may deem relevant. The 2020 performance-based long-term equity incentive of our NEO compensation

program is based on the metric of TSR. The following parameters are included in the design of the long-term equity incentive program in 2020:

Performance-Based Stock Units: For 2020, fifty percent (50%) of each NEO’s equity grant is comprised of PSUs. The relative TSR plan design includes the following features:

- Fifty percent (50%) of the PSU grant will be assessed at each of two (2) performance periods; at two years and at three years from the grant date (2020 through 2022 and 2023, for awards granted in early 2020).
- Performance will be assessed using TSR, which measures growth in stock price, plus any dividends paid, during the performance period.
- TSR performance will be compared to the Philadelphia Semiconductor Index (SOX).
- The performance and standards to earn the PSU equity awards in 2020 are as follows:

TSR Performance Relative to Peers	PSUs Earned as % of Target
Below 25 th Percentile	0%
25 th Percentile	50%
55 th Percentile	100%
80 th Percentile and above	200%

- The PSU award payout will be calculated on a straight-line basis between the 25th & 55th and the 55th & 80th percentile levels referenced above.
- A negative TSR cap has been instituted which limits any PSUs earned to target level if the Company’s TSR is negative over the performance period and our TSR ranks above the target performance level.
- Earned PSUs are not subject to additional service-based vesting conditions.

Service Vesting Restricted Stock Units: For 2020, fifty percent (50%) of each NEO’s equity grant is comprised of service-based RSUs. The time required for the RSUs to fully vest is three (3) years from the date of grant. As a result, each service-based RSU award is subject solely to service-based vesting in equal annual increments over the three (3) year vesting period.

The following table reflects the long-term equity incentive components of the 2020 Plan.

Tier I Incentive Compensation Plan - Long-Term Equity Incentive Provisions	2020
Performance-based / Service-based grant breakout	50%-50%
Service-based grant vesting period	33.3% annually over 3 years
Performance-based grant evaluation period	50% of grant at 2 and 3 years
Performance-based grant metric(s)	TSR
Performance-based grant vesting period	100% upon earning
Performance threshold for earning grant	25 th TSR percentile
Percent of grant earned at threshold	50%
Measure at which 100% of grant is earned	55 th TSR percentile
Maximum grant upside	200%
Measure at which maximum upside of grant is earned	80 th TSR percentile

Personal Benefits And Perquisites

Benefits

All employees of the Company, including its executives, are eligible to participate in the following benefit plans and programs (“Benefit Package”), which were also available to Nanometrics employees and executives prior to the 2019 Merger:

- Health and dental insurance;

- Elective vision care program;
- Life insurance and accidental death and dismemberment coverage;
- 401(k) savings plan;
- Short- and long-term disability insurance with supplemental income continuation;
- Health care and dependent care flexible spending account programs;
- Employee assistance program (EAP);
- Employee stock purchase plan;
- Employee referral bonus program; and
- Length of service awards.

The Company, in its discretion, may offer to reimburse the expenses that an employee incurs as a result of the Company requiring the individual to relocate their primary residence for employment purposes. The Compensation Committee believes that these benefits are consistent with industry practice and are important in recruiting and retaining qualified employees.

Perquisites

In addition to the above Benefit Package, Nanometrics provided certain executive officers with a limited number of perquisites that its Compensation Committee believed to be reasonable and consistent with its overall compensation program. Although the Nanometrics Compensation Committee sought the advice of the human resources department on general market competitiveness for these benefits, it did not use a formal benchmarking process. In 2019, the perquisites included a car allowance for the Nanometrics CEO and limited participation in an Executive Healthcare Reimbursement plan that provided for reimbursement of usual and customary costs that may not have been covered under the medical, dental and eye care plans available to all other Nanometrics employees.

Further, based on a review of comparable company offerings performed by Rudolph and its Compensation Committee's compensation consultant, Rudolph executive employees, including listed NEOs, received the following in 2019:

- A monthly car allowance;
- Company-paid tax preparation services; and
- Company-paid membership in one (1) airline executive club.

The foregoing perquisites were determined and evaluated annually as part of the compensation review.

The Company's Compensation Committee reviewed the perquisites offered by both Nanometrics and Rudolph and determined that for 2020, executive perquisites would be limited to Company-paid tax preparation services and Company-paid membership in one (1) airline executive club. The Compensation Committee believes that these benefits are reasonable and consistent with the Company's overall compensation program and enable the Company to attract and retain superior employees for key positions.

Executive Perquisites For 2019

In 2019, the Nanometrics CEO received a car allowance and each of the listed Nanometrics NEOs with the exception of Mr. Smedt and Mr. Swyt were eligible to participate in the above described Executive Healthcare Reimbursement plan.

In 2019, executive base perquisites provided to the listed NEOs employed by Rudolph included a monthly car allowance, income tax preparation fee payment and airline club membership. These perquisites remained unchanged from those provided to these NEOs in the prior year.

Executive Perquisites For 2020

In 2020, executive base perquisites limited to tax preparation fee payment and airline club membership are to be provided to the NEOs.

Retirement Provision For Equity Awards

As part of their review of the overall compensation program for all Company employees, including the NEOs, the Compensation Committee determined that the implementation of a retirement provision related to equity awards would continue to incentivize individuals as they near the end of their employment with the Company. The alternative under the active Nanometrics and Rudolph stock plans is that upon retirement of an employee any equity grants that had not vested would be forfeited. Thus, any incentive realized through the service-vesting schedule for Company equity grants was diminished. As a result, the Compensation Committee assessed retirement provision alternatives and recommended to the Board, and the Board approved, the following retirement provision:

- An employee is “retirement eligible” if they achieve a combination of age plus years of service with the Company totaling 70, with a base minimum age of 58 years old and a minimum service requirement of five years.
- Retirement under the provision then would occur when an employee has become retirement eligible and has formally notified the Company of his/her intention to retire from the employ of the Company on a date certain and does so retire or as otherwise approved by the Compensation Committee.
- Upon such retirement by the employee, any equity awards granted by the Company shall vest based on:
 - The vesting schedule established for service-based equity awards; or
 - The actual performance results for performance-based equity awards.

Employee Stock Purchase Plan

The Company (as successor to Nanometrics) has maintained an Employee Stock Purchase Plan since 1986. The Nanometrics 2003 Employee Stock Purchase Plan was approved by stockholders in 2003 and subsequently amended and restated in 2009 and 2016 and is currently administered by the Compensation Committee. The Company currently administers its Employee Stock Purchase Plan under the terms of the Nanometrics 2003 Employee Stock Purchase Plan. At this year’s Annual Meeting, we are asking our stockholders to vote to approve a new 2020 ESPP. See Proposal 4 in this proxy statement for additional information regarding the proposed 2020 ESPP.

Under the terms of our current Employee Stock Purchase Plan, eligible employees may elect to have up to fifteen percent (15%) of eligible compensation deducted from their base salary and applied to the purchase of shares of Company Common Stock. The price the employee pays for each share of stock is eighty-five percent (85%) of the fair market value of the Company Common Stock at the end of the applicable six-month purchase period. The Employee Stock Purchase Plan qualifies as a non-compensatory plan under Code Section 423.

The Company does not offer a non-qualified deferred compensation plan.

CORPORATE AND GOVERNANCE POLICIES

Employment And Change-In-Control Agreements

While the Company utilizes employment agreements on a limited basis, we currently maintain employment agreements or arrangements with each of our NEOs.

In 2000, Rudolph entered into a management agreement with Mr. Roth, effective as of July 24, 2000, which was assumed by Onto Innovation in connection with the 2019 Merger. Mr. Roth previously had employment agreements with Rudolph when it was a private entity, and, at the time of Rudolph’s initial public offering, his agreement was redrafted to reflect terms believed to be appropriate for such officer’s service in his capacity with a publicly held corporation.

Upon the appointment of Mr. Plisinski to the position of CEO of Rudolph, he entered into a new employment agreement with Rudolph, which was assumed by Onto Innovation in connection with the 2019 Merger. This agreement superseded the executive employment agreement that Mr. Plisinski had entered into with August Technology Corporation which was assumed by Rudolph upon its merger with August Technology in 2006.

Mr. Plisinski’s employment agreement provides for a term of two (2) years with automatic renewals for additional two-year terms and Mr. Roth’s agreement provides for a term of one (1) year with automatic renewals for additional one-year terms,

unless the Company or the applicable executive delivers a notice of non-renewal to the other party. Mr. Plisinski's agreement prohibits him from competing with the Company in any way or soliciting its employees during his term of employment and for two (2) years after termination of his employment. Mr. Roth's agreement prohibits him from competing with the Company in any way or soliciting its employees during his term of employment and for one (1) year after termination of his employment.

Certain of our executive officers are also entitled to payments upon a qualifying termination of employment following a Change-in-Control event. The Compensation Committee believes that providing severance in a Change-in-Control situation is beneficial to stockholders so that executives may remain objectively neutral when evaluating a transaction that may be beneficial to stockholders yet could negatively impact the continued employment of the executive.

The Nanometrics Compensation Committee authorized Nanometrics to enter into a Change-in-Control Agreement with Mr. Heidrich in May 2015 and with Mr. Kocher in November 2016. Dr. Lesaicherre, Mr. Barnhart and Ms. Taylor each entered into agreements with Change-in-Control provision with Nanometrics during their employment with Nanometrics. Further, Mr. Plisinski's and Mr. Roth's employment agreements also contain Change-in-Control terms.

See "Potential Payments Upon Termination of Employment or Change-in-Control" below for a description of these arrangements and potential payments that the NEOs would have been entitled to receive upon applicable hypothetical termination scenarios as of December 31, 2019.

Other Elements Of Post-Termination Compensation

The Company does not have a practice of providing retirement benefits, including any supplemental executive retirement plans (SERP), to its executives, other than through its 401(k) plan and the retirement provision for equity grants awarded by the Company. The Company retains the discretion to utilize the offer of severance and/or change-in-control protection as an incentive in its hiring and retention of executives.

Non-Solicitation And Non-Competition Policy

The Company maintains a policy of entering into an agreement with each of its new executives, which contains both non-solicitation and non-competition provisions. The non-solicitation provisions apply for one (1) year after termination of the individual's employment while the non-competition provisions are in effect during the individual's employment and generally for one (1) year thereafter. Each of the Company's executives had previously entered into these covenants on the foregoing terms with either Nanometrics or Rudolph, except Mr. Plisinski, whose non-solicitation and non-competition provisions are in place during, and extend for two (2) years after the end of, his employment with the Company. In all cases, these covenants have been implemented to protect the confidential information, goodwill and other assets of the Company. For those individuals with employment agreements, should a breach of the non-solicitation or non-competition terms of their agreements occur, this could give rise to the Company declaring a breach under the agreement and terminating all severance payments thereunder.

General Termination Benefits

Upon termination of an executive's employment with the Company, the individual is entitled to receive his or her base salary earned through the termination date, along with a payout for all accrued but unused vacation time earned through such date. Thereafter, further cash compensation to the executives is discontinued, except to the extent that severance or change-in-control payments are required to be made in accordance with individual or Company severance protection arrangements. Certain executives with the Company who have entered into employment agreements are entitled to elect to continue group health or other group benefits as allowed by COBRA with continued Company co-payments for agreed post-termination periods. The Company retains the right to offer severance and/or payment of COBRA benefits to any individual who is terminated from the Company at its discretion.

Stock Ownership/Retention Guidelines

The Company has established guidelines related to stock ownership and retention for its executives and its outside directors to further align the interest of the executives and non-employee directors with the interests of stockholders, to have a stake in the long-term financial future of the Company and to further promote the Company's commitment to sound corporate governance while allowing them to prudently manage their personal financial affairs.

After the 2019 Merger, the Board established the Company's initial stock ownership policy such that the stock ownership and retention levels currently in effect are the following:

Company Role	Company Common Stock Holding Requirement	Effective Date
Non-Employee Directors	3x value of the annual Board retainer	Within 5 years of initial election to Board
CEO	3x value of CEO's base annual salary	Within 5 years of hire/promotion
Executives Subject to Section 16 Reporting Requirements	1x value of executive's base annual salary	Within 5 years of hire/promotion

In assessing compliance with the foregoing guidelines, the Company takes into consideration only the ownership of Common Stock in the Company. To that end, unearned PSUs, unvested service based RSUs and vested or unvested stock options do not qualify as shares for purposes of compliance with the Company's stock ownership and retention guidelines.

Participants are expected to achieve their ownership guideline target within five (5) years of becoming subject to the policy. Existing participants were subject to this policy as of the date of the policy and any new participants will be subject to the policy on their hire, promotion, election or appointment date, as applicable.

Compliance with the Company's stock ownership and retention guidelines is reviewed annually by the Compensation Committee. At their last review on January 21, 2020, the Compensation Committee determined that all executives and directors who were with the Company, Nanometrics or Rudolph and acting in their executive/director capacities for periods in excess of one (1) year were in compliance with the ownership requirements. Should any individual in the future not own the minimum number of required shares after notice by the Compensation Committee, additional action, including possible removal from the executive role or a determination to not nominate the director for election, would be considered by the Board.

The Compensation Committee has scheduled its review of the Company's stock ownership and retention guidelines for its January 2021 meeting and at this annual review will evaluate the appropriateness of the foregoing stock ownership levels for 2021 based in part on the average closing price of a share of the Company's stock during the thirty (30) consecutive trading days ending on and including the last day of the most recently completed fiscal year, as well as other considerations such as market conditions and comparable practices within the industry.

Prohibition On Hedging And Pledging Of Company Stock

In order to ensure that our executives, including our NEOs, and our directors bear the full risk of the Company's stock ownership, our insider trading policy prohibits directors and executive officers of the Company from engaging in hedging transactions related to our Common Stock. Additionally, under the Company's anti-pledging policy, non-employee directors and executive officers are prohibited from making any new pledges of Company securities as collateral for a loan, or otherwise making a new transfer of Company securities to a margin account, provided that non-employee directors may pledge their securities when obligated to do so to realize the consummation of potential mergers, acquisitions and similar transactions with which the Company may be involved from time to time.

Adjustments Or Recovery Of Prior Compensation

The Company adopted a policy which provides for the recovery or adjustment of amounts previously awarded or paid to a NEO in the event that financial results or other performance measures on which an award or payment was determined are materially restated or adjusted. In addition, if the Company is required to restate its financial results due to material noncompliance with any financial reporting requirements as a result of misconduct, the Sarbanes-Oxley Act of 2002 requires the CEO and CFO to disgorge:

- Any bonus or other incentive-based or equity-based compensation received from the Company during the 12-month period following the first public issuance of the non-compliant financial reporting document; and
- Any profits realized from the sale of Company stock during that 12-month period.

In addition, Section 954 of the Dodd-Frank Wall Street Reform and Consumer Protection Act requires the SEC to direct the national securities exchanges to prohibit the listing of any security of an issuer that does not develop and implement a clawback

policy. The SEC has not finalized its rules related to these clawback policies. Once the final rules are in place, the Company will adjust its policy, as necessary, to comply with SEC regulations.

Compensation Program Risk Assessment

As part of the engagement with the Compensation Committee's compensation consultant, in association with the development of and advice concerning our executive compensation program and practices, Compensia takes into consideration whether possible compensation design features may have the potential to incentivize the NEOs to take risks that are reasonably likely to have a material adverse effect on the Company. As part of the Compensation Committee's compensation risk assessment, potential risks and risk mitigating features are addressed in the following areas: compensation philosophy and pay mix; performance measures used in incentive plans; goal setting and payout leverage and caps; calculation and verification of performance outcomes for incentive payments; and other features. Based on this framework and the input from Compensia, the Compensation Committee evaluated our current executive compensation policies, practices and programs and believes they do not create risks that are reasonably likely to have a material adverse effect on the Company.

IRS Limits On Deductibility Of Compensation

Prior to the 2018 tax year, Section 162(m) of the IRC limited the tax deductibility of annual compensation paid to any publicly held corporation's CEO and three other highest compensated officers excluding the CFO, to the extent that the officer's compensation (other than qualified performance-based compensation) exceeded \$1 million. Although the Compensation Committee considers deductibility issues when approving executive compensation elements, the Compensation Committee believes that the other compensation objectives, such as attracting, retaining and providing appropriate incentives to executives, are important and can supersede the goal of maintaining deductibility. Consequently, the Compensation Committee generally makes compensation decisions without regard to deductibility, as the Compensation Committee believes it has appropriately structured its compensation programs to provide incentives to our executives to increase Company return and stockholder value. Subsequent changes in the tax laws eliminated the "performance-based" exception, and the limitation on deductibility was expanded to include all named executive officers. As a result, the Company does not deduct compensation paid to our named executive officers in excess of \$1 million.

CONCLUSION

In reviewing its compensation programs, the Company has concluded that each element of compensation as well as the total compensation opportunities for its NEOs and its other executive officers are reasonable, appropriate and in the interests of the Company and its stockholders. The Company believes that this compensation program appropriately satisfies the Company's goals of establishing a compensation package that attracts and retains a strong motivated leadership team, aligns the financial incentives of the executives with the interests of the stockholders, and rewards the achievement of specific annual, long-term and strategic goals of the Company. The Company believes that the compensation program which has been established and is reflected herein has enabled it to recruit and secure a talented and motivated leadership team by which the Company drives toward the ultimate objective of improving stockholder value.

COMPENSATION COMMITTEE REPORT ON EXECUTIVE COMPENSATION

We, the Compensation Committee of the Board of Directors, have reviewed and discussed the Compensation Discussion and Analysis (“CD&A”) within the Executive Compensation section of this proxy statement with the management of the Company. Based on such review and discussions, we have recommended to the Board of Directors that the CD&A be included as part of this proxy statement.

THE COMPENSATION COMMITTEE

Edward J. Brown, Jr. (Chairman)
Jeffrey A. Aukerman
Leo Berlinghieri
Robert G. Deuster
David B. Miller

Summary Compensation Table

The following table summarizes the compensation earned by our NEOs in the fiscal years noted. For Messrs. Plisinski and Roth, this information relates only to compensation paid by Onto Innovation during the period on and after the Merger Date (i.e. from October 25, 2019 until December 31, 2019), and does not include compensation that Rudolph paid prior to the 2019 Merger.

Name and Principal Position	Year	Salary (\$)	Bonus (\$)	Stock Awards (\$)	Non-Equity Incentive Plan Compensation (\$) ⁽¹⁾	All Other Compensation (\$) ⁽²⁾	Total (\$)
Michael P. Plisinski ⁽⁴⁾ Chief Executive Officer	2019	\$83,192	—	— ⁽³⁾	\$540,750	\$1,752,211	\$2,376,153
Steven R. Roth ⁽⁵⁾ Senior Vice President, Finance & Administration and Chief Financial Officer	2019	\$55,953	—	— ⁽³⁾	\$218,216	\$606,995	\$881,164
Rollin Kocher Senior Vice President, Field Operations	2019	\$324,712	—	\$492,022 ⁽³⁾	\$162,500	\$5,000	\$984,234
	2018	\$309,615	—	\$630,085	\$357,120	\$8,641	\$1,305,461
	2017	\$285,124	—	\$410,653	\$247,755	\$6,363	\$949,895
Kevin Heidrich ⁽⁶⁾ Senior Vice President, Marketing & Corporate Development Leadership	2019	\$299,615	—	\$292,872 ⁽³⁾	\$125,000	\$3,800	\$721,287
Rodney Smedt ⁽⁶⁾ Senior Vice President & General Manager, Metrology Business Unit	2019	\$321,083	—	\$388,855 ⁽³⁾	\$135,455	—	\$845,393
Greg Swyt ⁽⁷⁾ Vice President, Business Finance	2019	\$249,885	—	\$146,436 ⁽³⁾	\$83,333	\$5,000	\$484,654
	2018	\$242,094	\$130,000	\$159,202	\$163,973	\$4,767	\$700,036
	2017	\$235,072	—	\$67,128	\$75,400	\$2,821	\$380,421
Former Officers (at December 31, 2019)							
Pierre-Yves Lesaichere, Ph.D. Former President and Chief Executive Officer	2019	\$479,029	—	\$1,423,717 ⁽³⁾	\$566,500	\$4,417,547	\$6,886,793
	2018	\$550,000	—	\$1,311,585	\$1,056,000	\$19,300	\$2,936,885
	2017	\$42,308	\$100,000	\$2,232,200	\$52,885	\$1,200	\$2,428,593
Janet Taylor Former General Counsel	2019	\$262,115	—	\$268,442 ⁽³⁾	\$170,500	\$712,274	\$1,413,331
	2018	\$299,615	—	\$436,608	\$288,000	\$27,046	\$1,051,269
	2017	\$278,923	—	\$318,659	\$122,220	\$7,992	\$727,794
James Barnhart Former Senior Vice President, Operations	2019	\$279,039	—	\$536,912 ⁽³⁾	\$198,000	\$970,159	\$1,984,110
	2018	\$252,308	—	\$955,256	\$368,640	\$6,467	\$1,582,671

- The amounts for a given year represent the amount earned in respect of that year under Nanometrics' or Rudolph's annual cash performance bonus awards, as applicable, notwithstanding the year in which it was paid. See "Compensation Discussion and Analysis – Annual Cash Incentive Compensation" for further information.
- Refer to the All Other Compensation table for more detailed information about compensation reported in this column.
- Amounts reflect the grant date fair value for each share-based compensation award granted to the executive officer during the covered year, calculated in accordance with FASB ASC Topic 718. The assumptions used in determining the grant date fair values of awards are set forth in Note 2 to our consolidated financial statements, which are included in our Annual Report on Form 10-K filed with the SEC on February 25, 2020. For 2019, the amount reported for each NEO includes the grant date fair value attributable to the 2019 awards. Dr. Lesaichere had 2019 PSUs that vested at target at the Merger Date.
- The total compensation earned by Mr. Plisinski during 2019 while serving as Rudolph's CEO, when added to the amount reported in the Summary Compensation Table, results in total compensation for the full calendar year of \$3,391,035. This adjustment included (i) increasing his salary (\$455,741), (ii) including the grant date fair value of a time-based equity award Mr. Plisinski received for Rudolph prior to the 2019 Merger (\$550,021), (iii) including 401(k) matching contributions earned prior to the 2019 Merger (\$8,400) and including insurance coverage paid by Rudolph prior to the 2019 Merger (\$720).
- The total compensation earned by Mr. Roth during 2019 while serving as Rudolph's CFO, when added to the amount reported in the Summary Compensation Table, results in total compensation for the full calendar year of \$1,391,819. This adjustment included (i) increasing his salary (\$306,518), (ii) including the grant date fair value of a time-based equity award Mr. Roth received for Rudolph prior to the 2019 Merger (\$195,017), (iii) including 401(k) matching contributions earned prior to the 2019 Merger (\$8,400) and including insurance coverage paid by Rudolph prior to the 2019 Merger (\$720).
- Although employed by Nanometrics prior to 2019, Mr. Heidrich and Mr. Smedt were not NEOs prior to 2019.
- Mr. Swyt served as the Principal Financial Officer for Nanometrics from June 26, 2018 until the Merger Date.

All Other Compensation

Name	Year	Matching Contribution to 401(k) (\$)	Insurance (\$) ⁽¹⁾	Perquisites and Other Personal Benefits (\$)	Value of Accelerated Equity Awards (\$) ⁽³⁾	Severance Compensation (\$) ⁽⁴⁾	Total (\$)
Michael P. Plisinski	2019	—	\$144	— ⁽²⁾	\$1,752,067	—	\$1,752,211
Steven R. Roth	2019	—	\$144	— ⁽²⁾	\$606,851	—	\$606,995
Rollin Kocher	2019	\$5,000	—	— ⁽²⁾	—	—	\$5,000
Kevin Heidrich	2019	\$3,800	—	— ⁽²⁾	—	—	\$3,800
Rodney Smedt	2019	—	—	— ⁽²⁾	—	—	—
Greg Swyt	2019	\$5,000	—	— ⁽²⁾	—	—	\$5,000
Former Officers (at December 31, 2019)							
Pierre-Yves Lesaichere, Ph.D.	2019	\$5,000	—	\$12,473	\$3,550,330	\$849,744	\$4,417,547
Janet Taylor	2019	\$5,000	—	— ⁽²⁾	\$397,274	\$310,000	\$712,274
James Barnhart	2019	\$3,350	—	— ⁽²⁾	\$636,809	\$330,000	\$970,159

- (1) Insurance is the premium associated with coverage under the group term life insurance and accidental death and dismemberment insurance plans provided to former Rudolph employees. Coverage is equal to the lesser of two (2) times salary or \$450,000. Former Nanometrics employees did not receive such insurance coverage.
- (2) Value of aggregate perquisites and benefits for each NEO except Dr. Lesaichere is less than \$10,000, and therefore, perquisites for these individuals are not required to be disclosed in accordance with SEC rules. Dr. Lesaichere's perquisites included auto allowance of \$12,000 and executive healthcare plan reimbursements.
- (3) Reflects the value of equity awards that vested upon the change in control on the Merger Date. For Dr. Lesaichere, Ms. Taylor and Mr. Barnhart, this column does not include the acceleration of the equity grants awarded in 2019, as the grant date fair value of such awards is included in the "Stock Awards" column of the *Summary Compensation Table*.
- (4) Reflects severance benefits that were paid to or became payable to these NEOs on the Merger Date.

Grants Of Plan-Based Awards In 2019

The following table sets forth information with respect to non-equity and equity incentive plan awards that were granted during 2019 to the NEOs. Except for awards granted under the Rudolph Cash Incentive Compensation Plan, for Messrs. Plisinski and Roth, the following table does not include awards granted by Rudolph prior to the 2019 Merger. No stock option awards were granted to any NEO in 2019.

Name	Grant Date	Estimated Future Payouts Under Non-Equity Incentive Plan Awards (\$) (1)			Estimated Future Payouts Under Equity Incentive Plan Awards (#) (2)			All Other Stock Awards: Number of Shares of Stocks or Units (#) (3)	Grant Date Fair Value of Stock and Option Awards (\$)
		Threshold	Target	Maximum	Threshold	Target	Maximum		
<i>Michael P. Plisinski</i>	2/6/2019	\$94,631	\$540,750	\$1,081,500					
<i>Steven R. Roth</i>	2/6/2019	\$38,188	\$218,216	\$436,432					
<i>Rollin Kocher</i>	3/11/2019	—	\$195,000	\$390,000					
	3/11/2019						16,978	\$492,022	
<i>Kevin Heidrich</i>	3/11/2019	—	\$150,000	\$300,000					
	3/11/2019						10,106	\$292,872	
<i>Rodney Smedt</i>	3/11/2019	—	\$162,546	\$325,092					
	5/31/2019						13,668	\$388,855	
<i>Greg Swyt</i>	3/11/2019	—	\$100,000	\$200,000					
	3/11/2019						5,053	\$146,436	
Former Officers (at December 31, 2019)									
<i>Pierre-Yves Lesaichere, Ph.D.</i>	3/11/2019	—	\$566,500	\$1,133,000					
	3/11/2019				2,471	24,709	37,064		\$471,767
	3/11/2019						24,709	\$716,067	
<i>Janet Taylor</i>	3/11/2019	—	\$170,500	\$341,000					
	3/11/2019						9,263	\$268,442	
<i>James Barnhart</i>	3/11/2019	—	\$198,000	\$396,000					
	3/11/2019						18,527	\$536,912	

- (1) The amounts reported in these columns for each NEO except Mr. Plisinski and Mr. Roth represent the annual cash incentive opportunities under the Nanometrics Incentive Compensation Plan for each of our Named Executive Officers for the 2019 performance period. Mr. Plisinski's and Mr. Roth's annual cash incentive opportunities in 2019 were under the Rudolph 2019 Key Executive Incentive Compensation Plan, which were paid at target by the Company in accordance with the Merger Agreement. The metrics against which performance was measured under these plans, as well as other details regarding the plans, are discussed above in the Compensation Discussion and Analysis under "Annual Cash Incentive Compensation." The amounts actually earned by our NEOs under the applicable plans are reflected in the "Non-Equity Incentive Plan Compensation" column of the Summary Compensation Table above.
- (2) The amounts reported in these columns represent the award opportunities under the Nanometrics 2019 PSU program. The metrics against which performance was measured under this program, as well as other details regarding the plan, are discussed above in the Compensation Discussion and Analysis under the heading "Long-Term Equity Incentive Plan." This award was granted under the Nanometrics 2005 Stock Plan. This award fully vested at target due to change of control at the Merger Date.
- (3) The amounts reported in this column represent the awards of RSUs which are subject to service-based vesting conditions, as discussed above in the Compensation Discussion and Analysis under the heading "Long-Term Equity Incentive Plan." This award was granted under the Nanometrics 2005 Stock Plan. These RSUs vest in 33.3% increments on each of the first three (3) anniversaries of the grant date.

Outstanding Equity Awards At 2019 Year-End

The following table sets forth information with respect to outstanding equity awards held by the NEOs at December 31, 2019. No stock option awards were outstanding at December 31, 2019.

Name	Stock Awards		
	Grant Date ⁽¹⁾	Number of Shares or Units of Stock That Have Not Vested (#) ⁽²⁾	Market Value of Units of Stock That Have Not Vested (\$) ⁽³⁾
<i>Michael P. Plisinski</i>	1/28/2015	7,077	\$258,594
	1/27/2016	17,013	\$621,655
	2/6/2017	6,225	\$227,462
	2/8/2018	12,312	\$449,880
	2/6/2019	19,685	\$719,290
<i>Steven R. Roth</i>	1/28/2015	2,654	\$96,977
	1/27/2016	5,233	\$191,214
	2/6/2017	1,979	\$72,313
	2/8/2018	4,365	\$159,497
	2/6/2019	6,980	\$255,049
<i>Rollin Kocher</i>	2/8/2017	5,233	\$191,214
	2/23/2018	16,158	\$590,413
	3/11/2019	16,978	\$620,376
<i>Kevin Heidrich</i>	2/8/2017	3,270	\$119,486
	2/23/2018	8,402	\$307,009
<i>Rodney Smedt</i>	3/11/2019	10,106	\$369,273
	2/8/2017	3,127	\$114,261
	2/23/2018	13,668	\$499,429
<i>Greg Swyt</i>	3/11/2019	1,425	\$52,070
	6/2/2017	798	\$29,159
	6/1/2018	2,502	\$91,423
	3/11/2019	5,053	\$184,637

- (1) For better understanding of this table, we have included an additional column showing the grant date of each stock award.
- (2) Amount includes (i) service-based RSU awards and (ii) PSU awards that have been earned and remain subject to service-based vesting requirements. PSUs and RSUs vest in accordance with the schedule below:

Grant Date	Grant Type	Vesting
1/28/2015	Service-based RSU	1/5th per year on the anniversary of the grant date
1/28/2015	Earned PSU	1/5 th on February 19, 2016 and 1/5 th per year on the anniversary of the grant date
1/27/2016	Service-based RSU	1/5 th per year on the anniversary of the grant date
1/27/2016	Earned PSU	1/5 th on February 16, 2017 and 1/5 th per year on the anniversary of the grant date
2/6/2017 to 3/11/2019	Service-based RSU	1/3rd per year on the anniversary of the grant date

- (3) Based on the Company's common stock closing price of \$36.54 per share on December 31, 2019.

Stock Vested In 2019

The following table sets forth information with respect to the value realized by the NEOs upon vesting of PSUs and RSUs during 2019, and such values reflect the total pre-tax value realized by each NEO. Share amounts for transactions prior to the Merger Date have been adjusted to give effect to the exchange ratio. For Messrs. Plisinski and Roth, this information relates only to the PSUs that vested on the Merger Date and does not include RSUs that vested prior to the 2019 Merger. There were no stock option exercises by any of the NEOs during 2019.

Name	Stock Awards	
	Number of Shares Acquired on Vesting (#)	Value Realized on Vesting (\$) ⁽¹⁾
Michael P. Plisinski	50,602	\$1,801,457
Steven R. Roth	17,485	\$622,473
Rollin Kocher	17,961	\$528,042
Kevin Heidrich	10,805	\$317,987
Rodney Smedt	5,369	\$154,961
Greg Swyt	4,790	\$147,925
Former Officers (at December 31, 2019)		
Pierre-Yves Lesaichere, Ph.D.	204,152	\$7,089,940
Janet Taylor	37,261	\$1,240,107
James Barnhart	41,046	\$1,398,507

(1) The aggregate dollar amount realized is based on the fair market value of the shares upon vesting.

Pension And Nonqualified Deferred Compensation

The Company does not have a defined benefit pension program, nor does it offer non-qualified deferred compensation.

Potential Payments Upon Termination Of Employment Or Change-In-Control

This section (including the following tables) summarizes each NEO's estimated payments and other benefits that would be received by the NEO or the NEO's estate if his or her employment had terminated on December 31, 2019, under the hypothetical circumstances set forth below.

Each of our NEOs would be entitled to certain termination payments upon his or her death or Disability, his or her involuntary termination without Cause, or his or her voluntary termination with Good Reason as described below. Although the definitions of each of these terms is specific to the NEO's employment agreement or change-in-control agreement with the Company, the terms generally have the following meanings:

- "Disability" generally means that the executive, due to physical or mental impairment, is unable to perform his or her duties to the Company for a specified period of time.
- "Cause" generally means that the executive engaged in a crime, willful gross misconduct or other serious act involving moral turpitude; materially breached an agreement between him or her and the Company; or otherwise materially breached his or her obligations to the Company.
- A voluntary termination for "Good Reason" generally means, depending on the particular executive's agreement, that the executive's duties, responsibilities or status with the Company or its successor are materially reduced; his or her primary place of work is moved to a location outside a predetermined radius; in particular cases, certain reduction in compensation; or the Company materially breaches the terms of his or her agreement with the Company or any successor fails to assume the executive's change-in-control agreement.

Mr. Plisinski

Mr. Plisinski's employment agreement provides for the following:

- In the event of any termination of Mr. Plisinski's employment, he is entitled to payment of all base salary due and owing through the termination date and an amount equal to all earned but unused vacation through the termination date.
- In the event Mr. Plisinski's employment is terminated due to his death, his estate would be entitled to:
 - Payment of his then-current base salary as if his employment had continued for three (3) months following his death;
 - Continued co-payment for a period of six (6) months following his death of amounts due under COBRA for continuation of Company's group health and other group benefits for his covered dependents, if the covered dependents so elect;
 - Payment of his annual incentive cash bonus based on actual performance achievement, prorated for the time employed preceding his death, to be paid out with the Company's annual incentive plan payouts; and
 - Immediate vesting of stock options and SARs, and immediate vesting of RSU awards granted after his appointment as CEO which by their terms would vest within twelve (12) months after death and, if a performance award, based on actual performance achievement for such performance period completed within twelve (12) months after death.
- In the event Mr. Plisinski's employment is terminated due to his Disability, he would be entitled to:
 - Payment of his then-current base salary through the end of the month of such termination;
 - Continued co-payment for a maximum period of six (6) months following his Disability of amounts due under COBRA for continuation of Company's group health and other group benefits, if he or his covered dependents, as appropriate, so elects;
 - Payment of his annual incentive cash bonus based on actual performance achievement, prorated for the time employed preceding his termination, to be paid out with the Company's annual incentive plan payouts; and
 - Immediate vesting of stock options and SARs, and immediate vesting of RSU awards granted after his appointment as CEO which by their terms would vest within twelve (12) months after termination for disability and, if a performance award, based on actual performance achievement for such performance period completed within twelve (12) months after termination.
- In the event Mr. Plisinski's employment is terminated by the Company without Cause or Mr. Plisinski terminates his employment for Good Reason, he would be entitled to:
 - Payment of two (2) times his then-current base salary for a period of twenty-four (24) months;
 - Continued co-payment for a period of up to eighteen (18) months of amounts due under COBRA for continuation of Company's group health and other group benefits, if he so elects; and
 - Vesting of any equity incentive awards outstanding as of the termination date that, by their terms:
 - (1) represent either unvested shares which were earned based on a completed performance period under a performance-based award granted on or after the employment agreement effective date and which as of the termination date are then subject to time-based vesting only, or shares under such an equity incentive award granted on or after the employment agreement effective date which will be earned under a performance-based award based on actual achievement under a performance period which has been completed on or prior to the termination date but as to which performance period the actual number of shares earned against the award performance goals has not yet been determined by the Company; and
 - (2) would have become vested based solely on the passage of time within the twelve (12) month period immediately following the termination date had Mr. Plisinski continued in employment with the Company.

- If, within eighteen (18) months following the occurrence of a Change-in-Control¹, Mr. Plisinski's employment is terminated for any reason other than for Cause or Mr. Plisinski terminates his employment for Good Reason, he would be entitled to:
 - Payment of two (2) times the sum of his then-current base salary and target annual cash bonus for a period of twenty-four (24) months;
 - Continued co-payment by Company for a period of up to eighteen (18) months of amounts due under COBRA for continuation of Company's group health and other group benefits, if he so elects; and
 - Immediate vesting of all unvested stock options, SARs and all unvested and outstanding performance-based (at target) and service-based RSUs and other equity awards.
 - To the extent that change-in-control termination payments made to Mr. Plisinski under his agreement are subject to the excise tax imposed by Section 4999 of the Internal Revenue Code, Mr. Plisinski would either have to pay the excise tax or have his benefits reduced so that no portion of his termination payments were subject to the excise tax.
 - In order to receive these termination or change-in-control termination payments, Mr. Plisinski would be required to sign a general release of all known and unknown claims that he may have against the Company.
 - As part of his employment agreement, Mr. Plisinski is subject to non-solicitation and non-competition restrictions that limit his ability to compete with the Company during the term of the agreement and for a period of two (2) years following his resignation or termination for any reason.

The following table reflects the potential payments to Mr. Plisinski in the event of his termination or his termination following a change-in-control:

Potential Payments To Mr. Plisinski Upon Termination Or Change-In-Control				
Termination Circumstance as of 12/31/2019	Cash Severance		Value of	Benefits Continuation
	Base Salary	Management Incentive Bonus	Accelerated Unvested Equity	
By the Company without Cause	\$1,081,500 (2x salary)	\$ -	\$1,261,617	\$36,265
Executive resignation for Good Reason	\$1,081,500 (2x salary)	\$ -	\$1,261,617	\$36,265
Death	\$135,188 (3 mos. salary)	\$540,750 (1x bonus)	\$1,261,617	\$12,088
Disability	\$ -	\$540,750 (1x bonus)	\$1,261,617	\$12,088
<i>Within 18 months following Change-in-Control:</i>				
By the Company without Cause	\$1,081,500 (2x salary)	\$1,081,500 (2x bonus)	\$2,276,880	\$36,265
By the executive with Good Reason	\$1,081,500 (2x salary)	\$1,081,500 (2x bonus)	\$2,276,880	\$36,265

¹ For Mr. Plisinski, a "Change-in-Control" would generally be considered to have occurred if:

- a merger or consolidation of the Company or an acquisition by the Company involving the issuance of its securities as consideration for the acquired business results in the stockholders of the Company following such transactions having less than fifty percent (50%) of combined voting power of the surviving entity;
- any person or persons becomes the beneficial owner of thirty percent (30%) or more of our outstanding shares;
- all or substantially all assets of the Company are disposed of pursuant to a plan of liquidation of the Company;
- all or substantially all of our assets are sold; or
- during any twelve (12) month consecutive period the individuals who presently make up our Board or who become members of our Board with the approval of at least a majority of our existing Board cease to constitute at least a majority of the Board; provided any transaction or event described above will not constitute a change-in-control under the agreement unless it qualifies as a "change-in-control" under Section 409A of the Internal Revenue Code.

Mr. Roth

Mr. Roth's employment agreement provides for the following:

- In the event Mr. Roth's employment is terminated as a result of his death or Disability, he or his estate would be entitled to:
 - Payment of all base salary due and owing through the termination date and amount equal to all earned but unused vacation through the termination date;
 - Payment of an amount equal to Mr. Roth's bonus as was paid or payable for the most recent completed bonus period; and
 - Accelerated vesting of all outstanding and unvested stock options, performance-based and service-based RSUs or other equity awards.
- In the event Mr. Roth's employment is terminated without Cause or Mr. Roth terminates his employment for Good Reason, he would be entitled to:
 - Payment of all base salary due and owing through the termination date and an amount equal to all earned but unused vacation through the termination date;
 - Payment for over a period of one (1) year of one (1) times Mr. Roth's:
 - * Then-current base salary; and
 - * Bonus as was paid or payable for the most recent completed bonus period;
 - Accelerated vesting of all unvested stock options and all unvested and outstanding performance based and service-based RSUs and other equity awards.
- If, within one (1) year following the occurrence of a change-in-control², Mr. Roth's employment is terminated for any reason other than for Cause or Mr. Roth terminates his employment for Good Reason, he would be entitled to:
 - Payment of all base salary due and owing through the termination date and including an amount equal to all earned but unused vacation through the termination date;
 - Payment over a period of one (1) year of one (1) times Mr. Roth's:
 - * Then-current base salary; and
 - * Bonus as was paid for the most recent completed bonus period;
 - Accelerated vesting of all unvested stock options and all unvested and outstanding performance-based and service-based RSUs and other equity awards; and
 - Maintenance of Mr. Roth's and his dependents' health care benefit coverage to the same extent provided for by and with the same Company/Executive payment contribution percentages under Company's group plans at the

² For Mr. Roth, a "Change-in-Control" would generally be considered to have occurred if:

- any person or persons becomes the beneficial owner of twenty-five percent (25) or more of our outstanding voting shares;
- during any two (2) consecutive year period individuals who presently make up our Board or who become members of our Board with the approval of at least two-thirds of our existing Board (other than a new director who assumes office in connection with an actual or threatened election contest) cease to be at least a majority of the Board;
- a merger or consolidation of the Company is consummated with another entity (unless outstanding voting securities of the Company immediately prior to the termination would continue to represent more than fifty-one percent (51%) of the combined voting power of the surviving entity and had the power to elect as least a majority of the board of the surviving entity);
- our stockholders approve a plan of liquidation of the company or an agreement for the sale of all or substantially all of our assets; or
- any other event occurs of a nature that would be required to be reported as a "change-in-control" under Schedule 14A of the Exchange Act, provided any transaction or event described above will not constitute a change-in-control under the agreement unless it qualifies as a "change-in-control" under Section 409A of the Internal Revenue Code.

time of termination. Such coverage shall extend for a term of one (1) year from the Termination Date unless he becomes covered as an insured under another employer's or spousal health care plan.

- To the extent that termination or change-in-control payments made to Mr. Roth under his agreement are subject to the excise tax imposed by Section 4999 of the Internal Revenue Code, Mr. Roth would either have to pay the excise tax or have his benefits reduced so that no portion of his termination payments were subject to the excise tax.
- In order to receive these termination or change-in-control payments, Mr. Roth would be required to sign a general release of all known and unknown claim the he may have against the Company.
- As part of his employment agreement, Mr. Roth is subject to non-competition and non-solicitation restrictions that limit his ability to compete with the Company during the term of the Agreement and for a period of one (1) year following his resignation or termination for any reason.

The following table reflects the potential payments to Mr. Roth in the event of his termination or his termination following a change-in-control:

Potential Payments To Mr. Roth Upon Termination Or Change-In-Control				
Termination Circumstance as of 12/31/2019	Cash Severance		Value of	Benefits Continuation
	Base Salary	Management Incentive Bonus	Accelerated Unvested Equity	
By the Company without Cause	\$363,693 (1x salary)	\$218,216 (1x bonus)	\$775,050	\$ -
Executive resignation for Good Reason	\$363,693 (1x salary)	\$218,216 (1x bonus)	\$775,050	\$ -
Death	\$ -	\$218,216 (1x bonus)	\$775,050	\$ -
Disability	\$ -	\$218,216 (1x bonus)	\$775,050	\$ -
<i>Within 12 months following Change-in-Control:</i>				
By the Company without cause	\$363,693 (1x salary)	\$218,216 (1x bonus)	\$775,050	\$24,177
By the executive with good reason	\$363,693 (1x salary)	\$218,216 (1x bonus)	\$775,050	\$24,177

Messrs. Kocher, Heidrich, Smedt and Swyt

The executive general severance and change-in-control agreements for Messrs. Kocher, Heidrich, Smedt and Swyt provide for the following:

- In the event Mr. Kocher's, Mr. Heidrich's, Mr. Smedt's or Mr. Swyt's employment is terminated as a result of a "Covered Termination"³, the executive or his estate would be entitled to:
 - Payment of all base salary due and owing through the termination date, any unreimbursed business expenses and an amount equal to all earned but unused vacation through the termination date;
 - Payment of his then-current base salary for a period of six (6) months (paid over a period of six (6) months); and
 - Provided that the executive is eligible and has made the necessary elections for continuation coverage pursuant to COBRA under a health, dental, or vision plan sponsored by the Company, payment of his and his dependent's applicable premiums for such continued benefits. Such coverage shall extend for a term of six (6) months from the termination date.

³ For Messrs. Kocher, Heidrich, Smedt and Swyt, a "Covered Termination" would generally be considered to have occurred in the event of the executive's:

- dismissal or discharge by the Company for reasons other than Cause and other than as a result of death or disability; or
- resignation for Good Reason within ninety (90) days of the occurrence of the Good Reason action, which occurs outside of twelve (12) months of a Change-in-Control event.

- If, within one (1) year following the occurrence of a Change-in-Control⁴, Mr. Kocher’s, Mr. Heidrich’s, Mr. Smedt’s or Mr. Swyt’s employment is terminated for any reason other than for Cause or Mr. Kocher, Mr. Heidrich, Mr. Smedt or Mr. Swyt terminates his employment for Good Reason, the executive would be entitled to:
 - Payment of all base salary due and owing through the termination date, any unreimbursed business expenses and an amount equal to all earned but unused vacation through the termination date;
 - Payment in a single lump sum following the effective date for his Release of his:
 - * Then-current annual base salary; and
 - * 100% of his target annual bonus in effect for the fiscal year in which the termination date occurs;
 - Accelerated vesting of all unvested stock options and all unvested and outstanding performance-based and service-based RSUs and other equity awards; and
 - Provided that executive is eligible and has made the necessary elections for continuation coverage pursuant to COBRA under a health, dental, or vision plan sponsored by the Company, payment of his and his dependent’s applicable premiums for such continued benefits. Such coverage shall extend for a term of twelve (12) months from the termination date.
- To the extent that change-in-control termination payments made to Mr. Kocher, Mr. Heidrich, Mr. Smedt or Mr. Swyt are subject to the excise tax imposed by Section 4999 of the Internal Revenue Code, Mr. Kocher, Mr. Heidrich, Mr. Smedt or Mr. Swyt would either have to pay the excise tax or have his benefits reduced so that no portion of his termination payments were subject to the excise tax.
- In order to receive these change-in-control termination payments, Mr. Kocher, Mr. Heidrich, Mr. Smedt or Mr. Swyt would be required to sign a general release of all known and unknown claims that he may have against the Company.

Each of Mr. Kocher, Mr. Heidrich, Mr. Smedt and Mr. Swyt, have entered into a separate agreement upon employment with the Company that subjects the executive to non-competition and non-solicitation restrictions, which limit his ability to compete with the Company during his employment and for a period of one (1) year following his resignation or termination for any reason.

⁴ For Messrs. Kocher, Heidrich, Smedt and Swyt, a “Change-in-Control” would generally be considered to have occurred upon any of the following:

- any person or persons becomes the beneficial owner of fifty percent (50%) or more of the total voting power represented by the Company’s then outstanding voting securities;
- during any two (2) year, any action or event occurs in which less than a majority of the directors who are either (A) directors of the Company as of the date of the executive’s agreement, or (B) elected, or nominated for election, to the Board with the affirmative votes of a majority of the Incumbent Directors at the time of such election or nomination (but does not include an individual whose election or nomination is in connection with an actual or threatened proxy contest relating to the election of directors to the Company);
- the consummation of a merger or consolidation of the Company with any other corporation, other than a merger or consolidation which would result in the outstanding voting securities of the Company immediately prior thereto continuing to represent at least fifty percent (50%) of the outstanding voting securities of the Company or such surviving or resulting entity immediately after such merger or consolidation; or
- the consummation of the sale, lease or other disposition by the Company of all or substantially all the Company’s assets.

To the extent required for compliance with Code Section 409A, in no event will a change-in-control be deemed to have occurred if such transaction is not also a “change in the ownership or effective control of” the Company or a “change in the ownership of a substantial portion of the assets of” the Company, as determined under Treasury Regulations Section 1.409A-3(i)(5)

The following table reflects the potential payments to Mr. Kocher in the event of his termination or his termination following a change-in-control:

Potential Payments To Mr. Kocher Upon Termination Or Change-In-Control				
Termination Circumstance as of 12/31/2019	Cash Severance		Value of Accelerated Unvested Equity	Benefits Continuation
	Base Salary	Management Incentive Bonus		
By the Company without Cause	\$162,500 (6 months salary)	n/a	n/a	\$17,664
<i>Within 12 months following Change-in-Control:</i>				
By the Company without Cause	\$325,000 (1x salary)	\$195,000 (1x bonus)	\$1,402,003	\$35,328
By the executive with Good Reason	\$325,000 (1x salary)	\$195,500 (1x bonus)	\$1,402,003	\$35,328

The following table reflects the potential payments to Mr. Heidrich in the event of his termination or his termination following a change-in-control:

Potential Payments To Mr. Heidrich Upon Termination Or Change-In-Control				
Termination Circumstance as of 12/31/2019	Cash Severance		Value of Accelerated Unvested Equity	Benefits Continuation
	Base Salary	Management Incentive Bonus		
By the Company without Cause	\$150,000 (6 months salary)	n/a	n/a	\$17,664
<i>Within 12 months following Change-in-Control:</i>				
By the Company without Cause	\$300,000 (1x salary)	\$150,000 (1x bonus)	\$795,768	\$35,328
By the executive with Good Reason	\$300,000 (1x salary)	\$150,000 (1x bonus)	\$795,768	\$35,328

The following table reflects the potential payments to Mr. Smedt in the event of his termination or his termination following a change-in-control:

Potential Payments To Mr. Smedt Upon Termination Or Change-In-Control				
Termination Circumstance as of 12/31/2019	Cash Severance		Value of Accelerated Unvested Equity	Benefits Continuation
	Base Salary	Management Incentive Bonus		
By the Company without Cause	\$162,500 (6 months salary)	n/a	n/a	\$17,664
<i>Within 12 months following Change-in-Control:</i>				
By the Company without Cause	\$325,000 (1x salary)	\$162,500 (1x bonus)	\$665,759	\$35,328
By the executive with Good Reason	\$325,000 (1x salary)	\$162,500 (1x bonus)	\$665,759	\$35,328

The following table reflects the potential payments to Mr. Swyt in the event of his termination or his termination following a change-in-control:

Potential Payments To Mr. Swyt Upon Termination Or Change-In-Control				
Termination Circumstance as of 12/31/2019	Cash Severance		Value of	Benefits Continuation
	Base Salary	Management Incentive Bonus	Accelerated Unvested Equity	
By the Company without Cause	\$125,000 (6 months salary)	n/a	n/a	\$13,374
<i>Within 12 months following Change-in-Control:</i>				
By the Company without Cause	\$250,000 (1x salary)	\$100,000 (1x bonus)	\$305,219	\$26,748
By the executive with Good Reason	\$250,000 (1x salary)	\$100,000 (1x bonus)	\$305,219	\$26,748

Retention Bonus Agreements

In June 2018, upon Mr. Swyt assuming the role as Principal Financial and Accounting Officer, Nanometrics entered into a Retention Bonus Agreement with him pursuant to which Mr. Swyt would receive a retention bonus of \$50,000 provided that he remained employed by the company and performed his duties and responsibilities in a satisfactory manner, through February 28, 2019. Mr. Swyt met the objectives and the retention bonus was paid.

No other NEO entered into a Retention Bonus Agreement with Nanometrics, Rudolph or the Company.

Executive Officers

Set forth below is certain information regarding the executive officers of the Company and their ages as of March 31, 2020. Information relating to Michael P. Plisinski is set forth above under the caption "PROPOSAL 1 - ELECTION OF DIRECTORS". The Company is unaware of any arrangements or understandings between the executive officers of the Company and other person(s) pursuant to which an executive officer was or is to be selected, except that Mr. Plisinski was appointed as CEO of the Company pursuant to the Merger Agreement.

Named Executive Officers (NEOs)

Steven R. Roth Senior Vice President, Finance and Administration and Chief Financial Officer Age: 59

- Mr. Roth has served the Company in his current role since the Merger Date and previously served in the same role at Rudolph since February 2002.
- Prior Experience:
 - September 1996 to February 2002: Vice President, Finance and Administration and Chief Financial Officer, Rudolph Technologies, Inc.
 - August 1991 to August 1996: Director of Corporate Finance, Bell Communications Research.
- Mr. Roth is a C.P.A. and holds a B.S. in Accounting from Villanova University.

Rollin Kocher Senior Vice President, Field Operations Age: 54

- Mr. Kocher has served the Company in his current role since the Merger Date and previously with Nanometrics as Senior Vice President, Sales and Marketing since January 2018.
- Prior Experience:
 - September 2016 to January 2018: Senior Vice President, Commercial Operations, Nanometrics Incorporated
 - March 2013 to September 2016: Vice President, Global Sales, Nanometrics Incorporated
 - Prior to joining Nanometrics in 2013, Mr. Kocher spent thirteen (13) years at KLA Tencor Corporation in a variety of senior management roles including Director of Business Development for Films and Optical Critical Dimension Business Unit, Senior Account Manager for Texas Instruments Business Unit, his last position being General Manager of the Samsung Business Unit.

- Mr. Kocher holds a B.S. degree in Electrical and Electronic Engineering from the University of North Texas and an A.S. degree in Laser Electro Optics Technology from Texas State Technical College, holds a Finance for Senior Executives Certification from Harvard Business School and served in the U.S Army from 1983 to 1986.

Kevin Heidrich Senior Vice President, Marketing & Corporate Development Age: 49

- Mr. Heidrich has served the Company in his current role since the Merger Date and previously with Nanometrics as Senior Vice President, Corporate Development since January 2018.
- Prior Experience:
 - September 2012 to January 2018: Senior Vice President, Strategic Marketing & Business Development, Nanometrics Incorporated
 - May 2009 to September 2012: Vice President, Business Development & Marketing, Nanometrics Incorporated
 - May 2007 to May 2009: Sr. Director, Business Development, Nanometrics Incorporated
 - April 2006 to May 2007: Director, New Product Development, Nanometrics Incorporated
 - Prior to joining Nanometrics in 2006, Mr. Heidrich spent a decade at Intel Corporation in a variety of roles including in process research and development at Intel's Technology Development facility.
- Mr. Heidrich holds a B.S. and M.S. degree from the Colorado School of Mines in Chemical Engineering.

Rodney Smedt Senior Vice President & General Manager, Metrology Business Unit Age: 57

- Mr. Smedt has served the Company in his current role since the Merger Date and previously with Nanometrics as Senior Vice President, R&D since March 2018.
- Prior Experience:
 - November 2014 to March 2018: Vice President, R&D, Nanometrics Incorporated
 - April 2005 to November 2014: Vice President, Engineering, ReVera Incorporated
 - Prior to 2005, Mr. Smedt served as Vice President, Engineering for both Therma-Wave Corporation and Sensys Instrument as well as held several senior management and engineering roles with several companies including KLA Tencor Corporation and Trigon-Adcotech Industries.
- Mr. Smedt attended San Jose State University and studied mechanical engineering.

Greg Swyt Vice President, Finance Age: 59

- Mr. Swyt has served the Company in his current role since the Merger Date and previously with Nanometrics in this role since August 2016 and as its Principal Financial Officer from December 5, 2017 until February 22, 2018 and from June 26, 2018 to the Merger Date.
- Prior Experience:
 - July 2013 to August 2016: Managing Director of Finance, Global Finance Controller, Intevac, Inc.
 - April 2011 to June 2014: Senior Director of Finance, Thin Film Equipment Group, Intevac, Inc.
 - May 2008 to April 2011: Senior Director of Finance, Intevac Photonics, Inc.
 - November 2007 to February 2008: Senior Director, Finance Operations and Planning, 2Wire, Inc.
 - Prior to 2007, Mr. Swyt held several financial director roles with Hewlett Packard / Mercury Interactive and Applied Materials, Inc.
- Mr. Swyt holds a B.S. in Finance and a M.S. in Business Administration, both from San Jose State University and served in the U.S. Navy from 1980 to 1984 and the U.S. Naval Reserves from 1984 to 1992.

Pierre-Yves Lesaichere, Ph.D. Former President, Chief Executive Officer & Director Age: 56

- Dr. Lesaichere served Nanometrics as its President, Chief Executive Officer and Director from November 2017 until the Merger Date.
- Prior Experience:
 - January 2012 to February 2017: Chief Executive Officer; Lumileds Holding B.V.
 - Prior to 2012, Dr. Lesaichere held senior executive positions at NXP Semiconductors N.V. from 2006 to 2012 and before NXP, Dr. Lesaichere was with Philips Semiconductors.
- Dr. Lesaichere holds an MBA with a focus on international business and strategy from INSEAD and has MS and Ph.D. degrees in Material Science from the National Polytechnic Institute of Grenoble.

James Barnhart Former Senior Vice President, Operations Age: 57

- Mr. Barnhart served Nanometrics as its Senior Vice President, Operations from March 2018 until the Merger Date.
- Prior Experience:
 - April 2010 to March 2018: Senior Vice President, Global Operations, Cymer Light Sources
 - Mr. Barnhart left Applied Materials in 2006 to serve in senior operational roles at Johnson & Johnson and AREVA Solar as Senior Vice President, Global Operations.
 - After completing U.S. Naval Nuclear Power postgraduate school, Mr. Barnhart spent 17 years with Applied Materials where he held progressively higher positions including Strategic Worldwide Account Operations General Manager, Chief Operating Officer of the etch products business group, and Managing Director of corporate asset services.
- Mr. Barnhart holds a B.S. in Electrical Engineering from Washington State University and an MBA from the University of California at Berkeley, Walter A. Haas School of Business.

Janet Taylor Former General Counsel Age: 62

- Ms. Taylor served Nanometrics as its General Counsel from July 2015 until the Merger Date.
- Prior Experience:
 - June 2005 to June 2015: Senior Vice President, General Counsel, STATS ChipPAC Ltd.
 - Prior to joining STATS ChipPAC Ltd., Ms. Taylor was engaged in transactional practices at international law firms in New York, Singapore and London.
- Ms. Taylor holds a J.D. from the Harvard Law School and a B.A. in History from the University of Texas at Austin and is admitted to practice in New York and in Singapore.

Other Executive Officers

Elvino da Silveira Vice President & General Manager, Lithography Business Unit Age: 60

- Mr. da Silveira has served the Company in his current role since the Merger Date and previously served in the same role at Rudolph since June 2019.
- Prior Experience:
 - August 2017 to June 2019: Vice President, Business Development, Rudolph Technologies, Inc.
 - November 2015 to July 2017: Vice President, Marketing and Product Management, Rudolph Technologies, Inc.
 - December 2012 to October 2015: Vice President and General Manager of the Display Products Lithography Business Unit and Chief Technical Officer of the Lithography Systems Group, Rudolph Technologies, Inc.
 - March 1999 to December 2012: President and Chief Executive Officer, Azores Corporation.
 - Other prior roles included various senior management roles with the latest being Vice President of Operations and Worldwide Customer Support for MRS Technology, Inc., a former manufacturer of capital equipment for the flat panel display industry.
- Mr. da Silveira holds a B.S. in Mechanical Engineering from Northeastern University.

Robert Fiordalice Vice President & General Manager, Wafer Business Unit Age: 58

- Mr. Fiordalice has served the Company in his current role since the Merger Date and previously with Nanometrics as General Manager, Materials Characterization Group since August 2017.
- Prior Experience:
 - October 2013 to July 2017: General Manager, Advanced Packaging, Nanometrics Incorporated
 - August 2006 to August 2013: Vice President, Account Technology, Intermolecular, Inc.
 - Prior to 2006, Mr. Fiordalice held technology management roles with both KLA Tencor Corporation and Motorola Inc.
- Mr. Fiordalice holds a B.S. in Genetics from University of California at Berkeley and a M.S. in Physics from Syracuse University.

Barry Hartunian Global Vice President Human Resources Age: 57

- Mr. Hartunian has served the Company in his current role since joining the Company in December 2019.
- Prior Experience:

- October 2016 to May 2018: Vice President, People & Culture, Toast, Inc.
- December 2013 to April 2016: Chief People Officer, Veson Nautical Corporation
- February 2010 to January 2014: Chief Talent Officer/Advisor, Communispace Corporation
- Prior roles since 1989 have included various director and vice-presidential roles in Human Resources for an array of companies including GenRad, Inc., Art Technology Group (ATG), Digimarc Corporation, Spotfire, Inc. and Vanue, Inc.
- Mr. Hartunian holds a B.A. in Psychology from Boston College and has received a Graduate Business Certification from Harvard University and an Executive Program Certification from the Tuck School of Business, Dartmouth College.

Dean Iacopetti Vice President, Manufacturing Operations Age: 64

- Mr. Iacopetti has served the Company in his current role since the Merger Date and previously with Nanometrics as Vice President, Supply Chain since September 2018.
- Prior Experience:
 - May 2013 to October 2015: Vice President, EUV Operations, Cymer Inc., a subsidiary of ASML Holding N.V.
 - June 2011 to May 2013: Vice President, Supply Chain, Cymer Inc.
 - May 2009 to May 2011: President, Paragon Prime Consulting
 - Prior roles since 1979 have included various vice-presidential and senior vice-presidential roles in Operations and in Finance with Ingersoll Rand, Honeywell Aerospace and Mattel as well as other positions in Finance with Mattel.
- Mr. Iacopetti holds a B.S. in Business Administration (Finance/Accounting) from California University at Long Branch.

Ju Jin, Ph.D. Vice President & General Manager, Inspection Business Unit Age: 55

- Dr. Jin has served the Company in his current role since the Merger Date and previously with Rudolph since July 2019.
- Prior Experience:
 - August 2016 to July 2019: Sr. Director of Marketing & Business Development, Orbotech Ltd., a subsidiary of KLA Corporation.
 - April 2009 to August 2016: President and CEO, Applied Electro-Optics Inc.
 - March 2004 to April 2009: Director and General Manager, Accretech USA
- Dr. Jin holds a B.S. from Xian Jiatong University in China, a M.S. from Nagaoka University of Technology in Japan and a Ph.D. from the University of Tokyo in Japan, all in Mechanical Engineering.

Robert A. Koch Vice President & General Counsel Age: 58

- Mr. Koch has served the Company in his current role since the Merger Date and previously with Rudolph since May 2003.
- Prior Experience:
 - April 1986 to May 2003: In-house counsel, last serving as Director of Legal Affairs, Howmedica Osteonics Corp., the subsidiary of Stryker Corporation.
- Mr. Koch holds a B.S. in Chemical Engineering and a M.S. in Biomedical Engineering, both from Rutgers University. Mr. Koch earned his J.D. from Rutgers School of Law - Newark in 1991 and is admitted to practice in New Jersey and New York.

Leonard LaBua Vice President and General Manager, Enterprise Business Unit Age: 58

- Mr. LaBua has served the Company in his current role since the Merger Date and previously with Rudolph as Vice President & General Manager for its Integrated Solutions Group since October 2017.
- Prior Experience:
 - March 2013 to September 2017: Director of Customer Solutions, Rudolph Technologies, Inc.
 - Prior roles with Rudolph since 2006 included Sr. Manager Analysis Applications and Applications Manager.
 - Mr. LaBua also previously held positions with several other corporations including IBM, KLA-Tencor, and ADE Corporation.
- Mr. LaBua holds a B.S. in Chemical Engineering from Worcester Polytechnic Institute and a M.S. in Computer Science from Marist College.

CEO Pay Ratio

As required by Section 953(b) of the Dodd-Frank Wall Street Reform and Consumer Protection Act, and Item 402(u) of Regulation S-K, we are providing the following information about the relationship of the annual total compensation of our employees and the annual total compensation of Michael P. Plisinski, our CEO, following the 2019 Merger and former Rudolph CEO.

For 2019, our last completed year:

- The median of the annual total compensation of all employees of our Company (other than our CEO), was \$97,617; and
- The annual total compensation for our CEO was \$2,292,993⁽¹⁾.

(1) We had two individuals in the role of CEO during 2019. We elected to use the compensation of Mr. Plisinski, the active CEO as of December 31, 2019, for purposes of determining the CEO pay ratio. Mr. Plisinski became CEO on the Merger Date. In determining Mr. Plisinski's annual total compensation, we used the amount reported in the "Total" column of the Summary Compensation Table included in this proxy statement as adjusted for amounts earned by Mr. Plisinski during 2019 while serving as Rudolph's CEO and to exclude compensation resulting from accelerated PSUs due to the 2019 Merger. For further discussion refer to the footnotes to the Summary Compensation Table.

Based on this information, the ratio of the annual total compensation of our CEO to the median employee's annual total compensation is 23 to 1.

This pay ratio is a reasonable estimate calculated in good faith, in a manner consistent with Item 402(u) of Regulation S-K, based on our payroll and employment records and the methodology described below. The Securities and Exchange Commission ("SEC") rules for identifying the "median employee" and calculating the pay ratio based on that employee's annual total compensation allow companies to adopt a variety of methodologies, to apply certain exclusions, and to make reasonable estimates and assumptions that reflect their compensation practices. As such, the pay ratios reported by other companies may not be comparable to the pay ratio set forth above, as other companies may have different employment and compensation practices and may utilize different methodologies, exclusions, estimates and assumptions in calculating their own pay ratios.

To identify the employee with the median of the annual total compensation of all our employees that is used for the year ended 2019, we used the following methodology and made the following material assumptions, adjustments and estimates:

- We determined that as of December 31, 2019, our employee population consisted of approximately 1,300 individuals located in the U.S. and in countries in Europe and Asia. This population consisted of our full-time, part-time and temporary employees. We excluded a limited number of temporary agency employees and independent contractors, who are employees of, and whose compensation is determined by third parties unaffiliated with the Company and as such are not considered our employees for the purposes of the pay ratio calculation.
- To identify the "median employee" from our employee population, we used a consistently applied compensation measure which included annual salary as reflected in our payroll records including amounts paid by Rudolph to former Rudolph employees, as well as stock awards and non-equity incentive plan compensation earned in 2019, which was our measurement period. We applied a foreign currency to U.S. dollar exchange rate to the compensation paid in foreign currency and we did not make any cost-of-living adjustments. We selected this compensation measure because it is readily available in our existing payroll records and because it is a reasonable proxy for total compensation for purposes of determining the "median employee."

Once we identified our "median employee," we calculated the elements of such employee's compensation for 2019 in accordance with the requirements of Item 402(c)(2)(x) of Regulation S-K. The median employee's annual total compensation of \$97,617 may include as applicable salary, stock awards and non-equity incentive plan compensation, as well as Company matching contributions to the 401(k) employee savings plan, and the cost of Company paid premiums associated with coverage under the group term life insurance and accidental death and dismemberment insurance plan.

SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS

The following table sets forth certain information with respect to beneficial ownership of the Company's Common Stock as of March 13, 2020 (except as otherwise indicated), by (i) each individual or group known by the Company to own beneficially more than five percent (5%) of the Common Stock; (ii) each of the NEOs; (iii) each of the Company's directors and director nominees; and (iv) all directors, director nominees and executive officers as a group. Except as indicated in the footnotes to this table, the persons named in the table have sole voting and investment power with respect to all shares of Common Stock shown as beneficially owned by them, subject to community property laws where applicable.

Name and Address of Beneficial Owner	Amount and Nature of Beneficial Ownership ⁽¹⁾	Percent of Class ⁽²⁾
BlackRock, Inc. ⁽³⁾ <i>55 East 52nd Street, New York, NY 10055</i>	8,099,875	16.1%
The Wellington Group (4) <i>c/o Wellington Management Company LLP, 280 Congress Street, Boston, MA 02210</i>	3,533,008	7.0%
Dimensional Fund Advisors, LP ⁽⁵⁾ <i>Building One, 6300 Bee Cave Road, Austin, TX 78746</i>	3,325,492	6.6%
The Vanguard Group ⁽⁶⁾ <i>100 Vanguard Boulevard, Malvern, PA 19355</i>	3,018,789	6.0%
Michael P. Plisinski	262,227	*
Steven R. Roth	51,161	*
Rollin Kocher	31,187	*
Kevin Heidrich	26,611	*
Rodney Smedt	14,850	*
Greg Swyt	4,324	*
Pierre-Yves Lesaichere, Ph.D. ⁽⁷⁾	108,564	*
Janet Taylor ⁽⁸⁾	30,110	*
James Barnhart ⁽⁸⁾	27,046	*
Jeffrey A. Aukerman ⁽⁹⁾	20,463	*
Leo Berlinghieri	15,279	*
Edward J. Brown, Jr.	37,439	*
Vita A. Cassese	3,136	*
Robert G. Deuster	12,476	*
David B. Miller	13,912	*
Bruce C. Rhine	665,417	1.3%
Christopher A. Seams	23,229	*
Timothy J. Stultz, Ph.D.	209,143	*
Christine A. Tsingos	30,509	*
John R. Whitten	18,618	*
All directors and executive officers as a group (twenty (24) persons)	1,649,387	3.3%

* Less than 1%

- (1) Includes 27,543 shares subject to restricted stock units vesting within 60 days of March 13, 2020 for all directors and executive officers as a group.
- (2) Applicable percentage ownership is based on 50,381,691 shares of Common Stock outstanding as of March 13, 2020. Beneficial ownership of shares is determined in accordance with the rules of the SEC and generally includes shares as to which a person holds sole or shared voting or investment power. Shares of Common Stock subject to RSUs which will vest within sixty (60) days of March 13, 2020 are deemed to be beneficially owned by the person holding such RSUs for the purpose of computing the percentage ownership of such person but are not treated as outstanding for the purpose of computing the percentage ownership of any other person. Unless otherwise noted, the address for the stockholders named in this table is c/o Onto Innovation Inc., 16 Jonspin Road, Wilmington, Massachusetts 01887.
- (3) Information provided herein is based on the Schedule 13G/A that was filed by BlackRock, Inc. on February 4, 2020.
- (4) Information provided herein is based on the Schedule 13G/A that was filed by Wellington Management Group LLP, Wellington Group Holdings LLP, Wellington Investment Advisors Holdings LLP and Wellington Management Company LLP on January 28, 2020.
- (5) Information provided herein is based on the Schedule 13G/A that was filed by Dimensional Fund Advisors LP on February 12, 2020.
- (6) Information provided herein is based on the Schedule 13G/A that was filed by The Vanguard Group on February 12, 2020.
- (7) Information provided herein is based on the Form 4/A that was filed on November 12, 2019.
- (8) Information provided herein is based on the Form 4 that was filed on October 29, 2019.
- (9) Includes shares held by Aukerman Investments LLC.

DELINQUENT SECTION 16(A) REPORTS

Section 16(a) of the Exchange Act requires the Company's executive officers, directors and persons who own more than ten percent (10%) of a registered class of the Company's equity securities to file an initial report of ownership on Form 3 and changes in ownership on Form 4 or Form 5 with the SEC. Based solely on its review of Section 16 filings made with the SEC, or written representations from certain reporting persons that no Section 16 filings were required, the Company believes that, during the year ended December 31, 2019 and through the record date of March 13, 2020, all officers, directors and greater than ten percent (10%) beneficial owners complied with all Section 16(a) filing requirements, except that Chun Hoy Chan, Ju Jin and Michael Plisinski each filed one Form 4 on October 30, 2019 on an untimely basis to report the conversion of Rudolph common stock and equity awards upon the consummation of the 2019 Merger on October 25, 2019

OTHER MATTERS

The Company knows of no other matters to be submitted to the Annual Meeting. If any other matters properly come before the Annual Meeting, it is the intention of the persons named in the enclosed Proxy to vote the shares they represent as the Board of Directors may recommend.

ADDITIONAL INFORMATION

Stockholders may obtain a copy of the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2019, including financial statements and schedules included in the Annual Report on Form 10-K, without charge, by visiting the Company's website at <https://investors.ontoinnovation.com/> or by writing to:

Michael Sheaffer
Sr. Director, Investor Relations & Market Research
16 Jonspin Road
Wilmington, Massachusetts 01887

Upon written request to the Company, at the above address for Investor Relations, the exhibits set forth on the exhibit index of the Company's Annual Report on Form 10-K will be made available at reasonable charge (which will be limited to our reasonable expenses in furnishing such exhibits).

BY ORDER OF THE BOARD OF DIRECTORS

Robert A. Koch
Secretary

Dated: April 3, 2020

ONTO INNOVATION INC.

2020 STOCK PLAN

1. Purposes of the Plan. The purposes of this 2020 Stock Plan are:

- to attract and retain the best available personnel for positions of substantial responsibility,
- to provide additional incentive to Employees, Directors and Consultants, and
- to promote the success of the Company's business.

The Plan permits the grant of Incentive Stock Options, Nonstatutory Stock Options, Stock Appreciation Rights, Restricted Stock, Restricted Stock Units, Performance Units and Performance Shares.

2. Definitions. As used herein, the following definitions shall apply:

(a) "Administrator" means the Committee or the Board, as applicable.

(b) "Affiliate" means any corporation or any other entity (including, but not limited to, partnerships and joint ventures) controlling, controlled by, or under common control with the Company.

(c) "Applicable Laws" means any applicable law, including without limitation, provisions of the Code, the Securities Act of 1933, as amended, the Exchange Act and any rules or regulations thereunder; corporate, securities, tax or other laws, statutes, rules, requirements or regulations, whether federal, state or local; and rules of any securities exchange or automated quotation system on which the Stock is listed, quoted or traded; and the applicable laws of any foreign country or jurisdiction where Awards are, or will be, granted under the Plan.

(d) "Award" means a grant under the Plan of Options, Stock Appreciation Rights, Restricted Stock, Restricted Stock Units, Shares pursuant to Section 4(e), Performance Units or Performance Shares.

(e) "Award Agreement" means the written or electronic agreement setting forth the terms and provisions applicable to each Award granted under the Plan. The Award Agreement is subject to the terms and conditions of the Plan.

(f) "Board" means the Board of Directors of the Company.

(g) "Cause" means, in the absence of any employment agreement then in effect between a Participant and the Company (or the Affiliate employing the Participant) otherwise defining Cause:

(i) acts of personal dishonesty, gross negligence or willful misconduct on the part of a Participant in the course of his or her employment or services;

(ii) a Participant's engagement in conduct that results, or could reasonably be expected to result, in material injury to the reputation or business of the Company or its Affiliates;

(iii) misappropriation by a Participant of the assets or business opportunities of the Company or its Affiliates;

(iv) embezzlement or fraud committed by a Participant, or at his or her direction, or with his or her personal knowledge;

(v) a Participant's conviction by a court of competent jurisdiction of, or pleading "guilty" or "no contest" to:

(A) a felony (or its state law equivalent); or

(B) any other criminal charge (other than minor traffic violations) that has, or could be reasonably expected to have, an adverse impact on the performance of the Participant's duties to the Company or its Affiliates; or

(vi) failure by a Participant to follow the lawful directions of a superior officer or manager or the Board.

In the event there is then in effect an employment agreement between a Participant and the Company or Affiliate employing Participant defining Cause, "Cause" will have the meaning provided in such agreement.

(h) "Change-in-Control" means the occurrence of any of the following events:

(i) A change in the ownership of the Company which occurs on the date that any one person or more than one person acting as a group ("Person") acquires ownership of the stock of the Company that, together with the stock held by such Person, constitutes more than fifty percent (50%) of the total voting power of the stock of the Company; provided, however, that for purposes of this subsection 2(h)(i), the acquisition of additional stock by any Person, who is considered to own more than fifty percent (50%) of the total voting power of the stock of the Company, will not be considered a Change-in-Control; or

(ii) A change in the effective control of the Company which occurs on the date that a majority of members of the Board is replaced during any twelve (12) month period by Directors whose appointment or election is not approved by a majority of the members of the Board prior to the date of the appointment or election. For purposes of this subsection 2(h)(ii), if any Person is considered to be in effective control of the Company, the acquisition of additional control of the Company by the same Person will not be considered a Change-in-Control; or

(iii) A change in the ownership of a substantial portion of the Company's assets which occurs on the date that any Person acquires (or has acquired during the twelve (12) month period ending on the date of the most recent acquisition by such Person or Persons) assets from the Company that have a total gross fair market value equal to or more than fifty percent (50%) of the total gross fair market value of all of the assets of the Company immediately prior to such acquisition; provided, however, that for purposes of this subsection 2(h)(iii), the following will not constitute a change in the ownership of a substantial portion of the Company's assets:

(A) a transfer to an entity that is controlled by the Company's stockholders immediately after the transfer; or

(B) a transfer of assets by the Company to:

(1) a stockholder of the Company (immediately before the asset transfer) in exchange for or with respect to the Company's stock;

(2) an entity, fifty percent (50%) or more of the total value or voting power of which is owned, directly or indirectly, by the Company;

(3) a Person, that owns, directly or indirectly, fifty percent (50%) or more of the total value or voting power of all the outstanding stock of the Company; or

(4) an entity, at least fifty percent (50%) of the total value or voting power of which is owned, directly or indirectly, by a Person described in subsection 2(h)(iii)(B)(3).

For purposes of this subsection 2(h)(iii), gross fair market value means the value of the assets of the Company, or the value of the assets being disposed of, determined without regard to any liabilities associated with such assets.

For purposes of this definition, “group” shall have the meaning under Section 13 of the Exchange Act.

In the event that this Section 2(h) is inconsistent with the definition of Change-in-Control under Section 409A of the Code and the regulations thereunder, the definition under Section 409A of the Code and regulations shall apply.

(i) “Code” means the Internal Revenue Code of 1986, as amended. Any reference to a section of the Code herein will be a reference to any successor or amended section of the Code.

(j) “Committee” means the Compensation Committee of the Board or other committee appointed by the Board to administer the Plan, in either case, the composition of which shall at all times satisfy the provisions of Rule 16b-3 and applicable stock exchange rules, except that, if for any reason the Committee does not meet the requirements of Rule 16b-3, such noncompliance with the requirements of Rule 16b-3 shall not affect the validity of the Awards, interpretations or other actions of the Committee. If no committee of the Board has been established to administer the Plan, the Board shall exercise all of the powers of the Committee granted herein, and, in any event, the Board may in its discretion exercise any or all of such powers.

(k) “Common Stock” means the common stock of the Company, \$0.001 par value per share.

(l) “Company” means Onto Innovation Inc., a Delaware corporation, and its Subsidiaries, successors and assigns.

(m) “Consultant” means any person, including an advisor, engaged by the Company or its Affiliates to render services to such entity.

(n) “Director” means a member of the Board.

(o) “Disability” means a determination that the Participant or Service Provider is unable to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment that can be expected to result in death or can be expected to last for a continuous period of not less than twelve (12) months, as determined by the Administrator upon the basis of such evidence as the Administrator deems appropriate or necessary. A determination that a Participant or Service Provider is eligible for full long-term disability under any long-term disability plan, as may then be in effect at the Company, will be conclusive evidence of Disability.

(p) “Effective Date” has the meaning set forth in Section 18.

(q) “Employee” means any person, including Officers and Directors, employed by the Company or its Affiliates. Neither service as a Director nor payment of a Director’s fee by the Company shall be sufficient to constitute “employment” by the Company.

(r) “Exchange Act” means the Securities Exchange Act of 1934, as amended.

(s) “Exchange Program” means a program, which may be applicable to a single Award or Participant or multiple Awards or Participants, under which, subject to stockholder approval thereof:

(i) outstanding Options or Stock Appreciation Rights are surrendered or cancelled when the exercise price per Share exceeds the Fair Market Value of one Share in exchange for Awards of the same type, Awards of a different type, and/or cash (other than in connection with a merger, acquisition or similar transaction);

(ii) the exercise price of an outstanding Option or Stock Appreciation Right is reduced; and/or

- (iii) any other action is taken with respect to an Award that would be treated as a repricing under the rules and regulations of the national securities exchange on which the Shares are then listed.
- (t) “Fair Market Value” means, as of any date, the value of Common Stock determined as follows:
- (i) If the Common Stock is listed on any established stock exchange or a national market system, including without limitation the New York Stock Exchange, its Fair Market Value shall be the closing sales price for such stock (or the closing bid, if no sales were reported) on such exchange or system on the day of determination, as reported in *The Wall Street Journal* or such other source as the Administrator deems reliable;
- (ii) If the Common Stock is regularly quoted by a recognized securities dealer but selling prices are not reported, the Fair Market Value of a Share of Common Stock shall be the mean between the high bid and low asked prices for the Common Stock on the day of determination, as reported in *The Wall Street Journal* or such other source as the Administrator deems reliable; or
- (iii) In the absence of an established market for the Common Stock, the Fair Market Value shall be determined in good faith by the Administrator.
- (u) “Family Member” means any child, stepchild, grandchild, parent, stepparent, grandparent, spouse, former spouse, sibling, niece, nephew, mother-in-law, father-in-law, son-in-law, daughter-in-law, brother-in-law, or sister-in-law (including adoptive relationships) of the Employee, any person sharing the Employee’s household (other than a tenant or employee), a trust in which these persons (or the Employee) have more than fifty percent (50%) of the beneficial interest, a foundation in which these persons (or the Employee) control the management of assets, and any other entity in which these persons (or the Employee) own more than fifty percent (50%) of the voting interests.
- (v) “Fiscal Year” means the fiscal year of the Company.
- (w) “Incentive Stock Option” means an Option intended to qualify as an incentive stock option within the meaning of Section 422 of the Code and the regulations promulgated thereunder.
- (x) “Nonstatutory Stock Option” means an Option not intended to qualify as an Incentive Stock Option.
- (y) “Officer” means a person who is an officer of the Company within the meaning of Section 16 of the Exchange Act and the rules and regulations promulgated thereunder.
- (z) “Option” means a stock option granted pursuant to the Plan.
- (aa) “Outside Director” means a Director who is not an Employee.
- (bb) “Parent” means a “parent corporation,” whether now or hereafter existing, as defined in Section 424(e) of the Code.
- (cc) “Participant” means the holder of an outstanding Award.
- (dd) “Performance Share” means an Award denominated in Shares which may be earned in whole or in part upon attainment of performance goals or other vesting criteria as the Administrator may determine pursuant to Section 10 and which may be settled for Shares.
- (ee) “Performance Period” shall have the meaning set forth in Section 10(b) of the Plan.
- (ff) “Performance Unit” means an Award denominated in units, which may be earned in whole or in part upon attainment of performance goals or other vesting criteria as the Administrator may determine and which may be settled for cash, Shares or other securities or a combination of the foregoing pursuant to Section 10.

(gg) “Period of Restriction” means the period during which the transfer of Shares of Restricted Stock is subject to restrictions, and therefore, the Shares are subject to a substantial risk of forfeiture. Such restrictions may be based on the passage of time, the achievement of target levels of performance, or the occurrence of other events as determined by the Administrator, subject to Section 4(d) of the Plan.

(hh) “Plan” means this 2020 Stock Plan.

(ii) “Prior Plans” means the Nanometrics Incorporated 2005 Equity Incentive Plan and the Rudolph Technologies, Inc. 2018 Stock Plan.

(jj) “Restricted Stock” means shares of Common Stock issued pursuant to Section 7 of the Plan subject to certain restrictions and risk of forfeiture.

(kk) “Restricted Stock Unit” means a bookkeeping entry representing one Share, granted pursuant to Section 8. Each Restricted Stock Unit represents an unfunded and unsecured obligation of the Company.

(ll) “Rule 16b-3” means Rule 16b-3 of the Exchange Act or any successor to Rule 16b-3.

(mm) “Section 16(b)” means Section 16(b) of the Exchange Act.

(nn) “Service Provider” means an Employee, Director or Consultant.

(oo) “Share” means a share of the Common Stock, as may be adjusted in accordance with Section 14 of the Plan.

(pp) “Specified Employee” is a Participant or Service Provider who, as of the Participant's or Service Provider's date of termination, is a key employee of the Company within the meaning of Section 416(i)(1)(A)(i), (ii), or (iii) of the Code (applied in accordance with the regulations thereunder and disregarding Section 416(i)(5)) at any time during the twelve (12) month period ending on a Specified Employee Identification Date. If a Participant or Service Provider is a key employee as of a Specified Employee Identification Date, the Participant or Service Provider is treated as a key employee for purposes of the Plan for the entire twelve (12) month period beginning on the Specified Employee Effective Date.

(qq) “Specified Employee Effective Date” is the date as set forth in Treasury Regulation Section 1.409A-1(i)(4).

(rr) “Specified Employee Identification Date” shall mean December 31 of each year.

(ss) “Stock Appreciation Right” means an Award, granted alone or in connection with an Option, that, pursuant to Section 9, is designated as a Stock Appreciation Right.

(tt) “Subsidiary” means a “subsidiary corporation”, whether now or hereafter existing, as defined in Section 424(f) of the Code.

(uu) “Substitute Awards” has the meaning set forth in Section 3(e) of the Plan.

3. Stock Subject to the Plan.

(a) Share Reserve. Subject to the provisions of Section 14 of the Plan, the maximum number of Shares that may be issued under the Plan is 3,500,000 Shares. Upon the Effective Date, no further awards shall be granted under the Prior Plans. If, after the Effective Date, any Shares subject to awards granted under a Prior Plan would again become available for new awards under the terms of such plan if such plan were still in effect and without regard to any termination thereof, then those Shares will be available for the purpose of granting Awards under this

Plan, thereby increasing the limit in the preceding sentence. The Shares issued pursuant to Awards under the Plan may be authorized, but unissued, or reacquired Common Stock.

(b) Certain Adjustments to Share Reserve.

(i) To the extent that an Award terminates, expires or becomes unexercisable without having been exercised in full, is surrendered pursuant to an Exchange Program approved by stockholders, or, with respect to Restricted Stock, Restricted Stock Units, Performance Units or Performance Shares, is terminated or forfeited in whole or in part due to failure to vest, the Shares (or for Awards other than Options or Stock Appreciation Rights, the forfeited Shares) which were subject to such terminated, expired, unexercised, surrendered or forfeited Award shall become available for future grant or issuance under the Plan. To the extent that the full number of Shares subject to an Award of Performance Units, Performance Shares or other Award subject to performance-based vesting criteria is not issued by reason of failure to achieve maximum performance goals, the number of Shares not issued shall be shall become available for future grant or issuance under the Plan.

(ii) All Shares subject to a Stock Appreciation Right (not the number of net Shares actually issued pursuant to a Stock Appreciation Right upon any exercise) will be counted against the number of Shares available for issuance under Section 3(a).

(iii) Shares used to pay the exercise price of an Award or to satisfy the tax withholding obligations related to an Award will not again become available for future grant or sale under the Plan.

(iv) To the extent an Award under the Plan is paid out in cash rather than Shares, such cash payment will not result in reducing the number of Shares available for issuance under the Plan.

(v) Any dividend equivalent denominated in Shares will be counted against the number of Shares available for issuance under Section 3(a) in such amount and at such time as the dividend equivalent first constitutes an unconditional obligation to issue Shares.

(c) Incentive Stock Option Limit. Notwithstanding the foregoing and, subject to adjustment as provided in Section 14, the maximum number of Shares that may be issued upon the exercise of Incentive Stock Options will equal the aggregate Share number stated in the first sentence of subsection 3(a) above, plus, to the extent allowable under Section 422 of the Code and the Treasury Regulations promulgated thereunder, any Shares that become available for issuance under the Plan pursuant to Sections 3(a) and 3(b) above.

(d) Individual Award Limits.

(i) Outside Directors. For any calendar year, the value of Awards granted to an individual Outside Director may not exceed \$600,000, calculating the value of any such Awards based on the grant date fair value of such Awards for financial reporting purposes.

(ii) All Service Providers Other than Outside Directors. For any calendar year, the value of all Awards granted to any individual Service Provider other than an Outside Director may not exceed \$5,000,000, calculating the value of any such Awards based on the grant date fair value of such Awards for financial reporting purposes. Notwithstanding the foregoing, any Award of Performance Units or Performance Shares or any other Award subject to performance-based vesting criteria shall be taken into account assuming target performance achievement under the terms of such Award for purposes of applying this annual limit.

(e) Substitute Awards.

(i) In connection with an entity's merger or consolidation with the Company or any Subsidiary or the direct or indirect acquisition by the Company or any Subsidiary of an entity's property or stock, the Committee may grant Awards in substitution or exchange for any options or other stock or stock-based awards granted before such merger or consolidation by such entity or its affiliate ("Substitute Awards"). Substitute Awards may be granted

on such terms and conditions as the Committee deems appropriate, notwithstanding any limitations on Awards in the Plan, including, but not limited to, the limitation under Section 4(d). Substitute Awards will not count against the aggregate Share reserve in Section 3(a), except that Shares acquired by exercise of substitute Incentive Stock Options will count against the maximum number of Shares that may be issued pursuant to the exercise of Incentive Stock Options under the Plan.

(ii) Additionally, in the event that a company acquired by the Company or any Subsidiary, or with which the Company or any Subsidiary combines by merger, consolidation or otherwise, has shares available under a pre-existing plan approved by its stockholders and not adopted in contemplation of such acquisition or combination as determined by the Administrator, the shares available for grant pursuant to the terms of such pre-existing plan (as appropriately adjusted to reflect the transaction) may be used for Awards under the Plan and shall not reduce the Shares authorized for grant under the Plan under Section 3(a) (and shares subject to such Awards, which, for the avoidance of doubt, excludes Substitute Awards, may again become available for Awards under the Plan as provided under Section 3(b) above); provided that Awards using such available Shares (or any Shares that again become available for issuance under the Plan under Section 3(b) above) shall not be made after the date awards or grants could have been made under the terms of the pre-existing plan absent the acquisition or combination, and shall only be made to individuals who were employees or directors of such acquired or combined company or any of its subsidiaries prior to such acquisition or combination.

4. Administration of the Plan.

(a) Powers of the Administrator. Subject to the provisions of the Plan, the Administrator shall have the authority, in its discretion:

- (i) to determine the Fair Market Value;
- (ii) to select the Service Providers to whom Awards may be granted hereunder;
- (iii) to determine the number of Shares to be covered by each Award granted hereunder;
- (iv) to approve forms of Award Agreements for use under the Plan;
- (v) to determine the terms and conditions, not inconsistent with the terms of the Plan, of any Award granted hereunder. Such terms and conditions may include, but are not limited to, the exercise price; the vesting period of Awards or the time or times when Awards may be exercised (which may be based in whole or in part on performance criteria), which shall be established in accordance with Section 4(d); any vesting acceleration or waiver of forfeiture restrictions (notwithstanding Section 4(d) to the contrary); any restriction or limitation regarding any Award or the Shares relating thereto and any and all other Award terms and conditions;
- (vi) to interpret, construe and administer the Plan and Awards granted pursuant to the Plan, including the adoption of rules, modifications, procedures and sub-plans as may be necessary or desirable for administration of the Plan, including for purposes of granting Awards to Participants in foreign countries and qualifying any such Awards for preferential tax treatment under Applicable Law; the Administrator may correct any defect or supply any omission or reconcile any inconsistency in the Plan or in any Award in the manner and to the extent the Administrator deems necessary or desirable to carry it into effect. Any action or decision of the Administrator in the interpretation or administration of the Plan, as described herein, shall be within its sole and absolute discretion and shall be final, conclusive and binding on all parties concerned;
- (vii) to prescribe, amend and rescind rules and regulations relating to the Plan, including rules and regulations relating to sub-plans established for the purpose of satisfying applicable foreign laws;
- (viii) to modify or amend each Award (subject to Section 19 of the Plan), including, but not limited to, the discretionary authority to extend the post-termination exercisability or vesting period of Awards (but in no event shall such period of exercisability be extended beyond the expiration of the term of the Award);

(ix) to allow Participants to satisfy withholding tax obligations in such a manner as prescribed in Section 15;

(x) to authorize any person to execute on behalf of the Company any instrument required to effect the grant of an Award previously granted by the Administrator;

(xi) delegate to a committee of one or more Outside Directors or, to the extent permitted by Applicable Law, to one or more officers or a committee of officers, the authority to grant Awards to, and to cancel or take any other action in respect of, any Awards to Employees or Consultants of the Company who are not Directors or Officers;

(xii) to allow a Participant to defer the receipt of the payment of cash or the delivery of Shares that would otherwise be due to such Participant under an Award, subject to compliance with Section 409A of the Code; and

(xiii) to make all other determinations deemed necessary or advisable for administering the Plan.

Notwithstanding the foregoing, other than pursuant to Section 14, no Exchange Program may be implemented by the Administrator without the prior approval of the Company's stockholders.

(b) Effect of Administrator's Decision. All decisions, determinations, interpretations or actions of the Administrator made or taken pursuant to grants of authority under the Plan shall be made or taken in the sole discretion of the Administrator and shall be final, conclusive and binding on all persons for all purposes. The Administrator's decisions and determinations under the Plan need not be uniform and may be made selectively among Participants, whether or not such Participants are similarly situated.

(c) No Liability. Under no circumstances shall the Company, its Affiliates, the Administrator, the Board, any Director or any Officer of the Company incur any liability, including for any direct, indirect, incidental, consequential or special damages (including lost profits) of any form, whether or not foreseeable, with respect to the Plan or the Company's, its Affiliates', the Administrator's, the Board's or any Director's or Officer's roles, acts, omissions, determinations or interpretations in connection with the Plan or any Award.

(d) Minimum Vesting. All Awards granted to all Participants under the Plan shall be subject to a minimum vesting period of not less than one year from the date of grant; provided, however, the Administrator may provide for the grant of Awards to Participants without regard to the foregoing minimum vesting requirement with respect to a maximum of five percent (5%) of the total number of Shares authorized for issuance under the Plan pursuant to Section 3(a), as may be adjusted under Section 14(a).

5. Eligibility. Nonstatutory Stock Options, Restricted Stock, Restricted Stock Units, Performance Units, and Performance Shares may be granted to Service Providers. Incentive Stock Options may be granted only to employees of the Company or any Parent or Subsidiary of the Company.

6. Stock Options.

(a) Limitations. Each Option shall be designated in the Award Agreement as either an Incentive Stock Option or a Nonstatutory Stock Option. However, notwithstanding such designation, to the extent that the aggregate Fair Market Value of the Shares with respect to which Incentive Stock Options are exercisable for the first time by the Participant during any calendar year (under all plans of the Company and any Parent or Subsidiary) exceeds one hundred thousand dollars (\$100,000), such Options shall be treated as Nonstatutory Stock Options. For purposes of this subsection 6(a), Incentive Stock Options shall be taken into account in the order in which they were granted. The Fair Market Value of the Shares shall be determined as of the time the Option with respect to such Shares is

granted. No dividends or dividend equivalents may be granted in respect of any Option, and holders of Options carry no voting rights.

(b) Term of Option. The term of each Option shall be stated in the Award Agreement. In the case of an Incentive Stock Option, the term shall be ten (10) years from the date of grant or such shorter term as may be provided in the Award Agreement. Moreover, in the case of an Incentive Stock Option granted to a Participant who, at the time the Incentive Stock Option is granted, owns stock representing more than ten percent (10%) of the total combined voting power of all classes of stock of the Company or any Parent or Subsidiary, the term of the Incentive Stock Option shall be five (5) years from the date of grant or such shorter term as may be provided in the Award Agreement. In the case of a Nonqualified Stock Option, the term shall be ten (10) years from the date of grant or such shorter term as may be provided in the Award Agreement.

(c) Option Exercise Price and Consideration.

(i) Exercise Price. The per share exercise price for the Shares to be issued pursuant to exercise of an Option shall be determined by the Administrator, but will be no less than one hundred percent (100%) of the Fair Market Value per Share on the date of the grant. In addition, in the case of an Incentive Stock Option granted to an employee of the Company or any Parent or Subsidiary of the Company who, at the time the Incentive Stock Option is granted, owns stock representing more than ten percent (10%) of the voting power of all classes of stock of the Company or any Parent or Subsidiary, the per Share exercise price shall be no less than one hundred ten percent (110%) of the Fair Market Value per Share on the date of grant.

(ii) Vesting Period. At the time an Option is granted, the Administrator shall fix the period within which the Option may be exercised and shall determine any conditions that must be satisfied before the Option may be exercised. Any vesting period shall be established in accordance with Section 4(d) of the Plan.

(d) Exercise of Option.

(i) Procedure for Exercise; Rights as a Stockholder. Any Option granted hereunder shall be exercisable according to the terms of the Plan and the Award Agreement and at such times and under such conditions as determined by the Administrator and set forth in the Award Agreement. An Option may not be exercised for a fraction of a Share.

An Option shall be deemed exercised when the Company receives:

(A) notice of exercise (in such form as the Administrator may specify from time to time) from the person entitled to exercise the Option, and

(B) full payment for the Shares with respect to which the Option is exercised (together with applicable withholding taxes). Full payment shall be made:

(1) in cash or by personal check, certified check or bank check or wire transfer of immediately available funds;

(2) other Shares provided that such Shares have a Fair Market Value on the date of surrender equal to the aggregate exercise price of the Shares as to which said Option is exercised, provided that accepting such Shares will not result in any adverse accounting consequences to the Company, as the Administrator determines in its sole discretion;

(3) by delivery of a properly executed exercise notice together with any other documentation as the Administrator and the Participant's broker, if applicable, require to effect an exercise of the Option and delivery to the Company of the sale or other proceeds (as permitted by Applicable Law) required to pay the exercise price;

- (4) by withholding Shares otherwise issuable in connection with the exercise of the Option (“net exercise”);
- (5) such other consideration and method of payment authorized by the Administrator in its discretion or permitted by the Award Agreement, the Plan and Applicable Law; or
- (6) any combination of the foregoing methods of payment.

Shares issued upon exercise of an Option shall be issued in the name of the Participant or, if requested by the Participant, in the name of the Participant and his or her spouse. Until the Shares are issued (as evidenced by the appropriate entry on the books of the Company or of a duly authorized transfer agent of the Company), no right to vote or receive dividends or any other rights as a stockholder shall exist with respect to the Shares subject to an Option, notwithstanding the exercise of the Option. The Company shall issue (or cause to be issued) such Shares promptly after the Option is exercised. No adjustment will be made for a dividend or other right for which the record date is prior to the date the Shares are issued, except as provided in Section 14 of the Plan.

Exercising an Option in any manner shall decrease the number of Shares thereafter available under the Option by the number of Shares as to which the Option is exercised.

(ii) Termination of Relationship as a Service Provider. If a Participant ceases to be a Service Provider, other than for Cause or due to the Participant’s death or Disability, the Participant may exercise his or her Option within such period of time as is specified in the Award Agreement to the extent that the Option is vested on the date of termination (but in no event later than the expiration of the term of such Option as set forth in the Award Agreement). In the absence of a specified time in the Award Agreement, any vested portion of the Option shall remain exercisable for three (3) months following the Participant’s termination (but in no event later than the expiration of the term of such Option as set forth in the Award Agreement). Unless otherwise provided by the Administrator or in the Award Agreement, if on the date of termination, the Participant is not vested as to all or any portion of his or her Option, the unvested portion of the Option shall terminate. If after termination, the Participant does not exercise his or her Option within the time period specified by the Administrator or in the Award Agreement, the Option shall terminate at the end of such period.

(iii) Disability of Participant. If a Participant ceases to be a Service Provider as a result of the Participant’s Disability, the Participant may exercise his or her Option within such period of time as is specified in the Award Agreement to the extent the Option is vested on the date of termination (but in no event later than the expiration of the term of such Option as set forth in the Award Agreement). In the absence of a specified time in the Award Agreement, any vested portion of the Option shall remain exercisable for twelve (12) months following the Participant’s termination (but in no event later than the expiration of the term of such Option as set forth in the Award Agreement). Unless otherwise provided by the Administrator or in the Award Agreement, if on the date of termination the Participant is not vested as to all or any portion of his or her Option, the unvested portion of the Option shall terminate. If after termination the Participant does not exercise his or her Option within the time period specified by the Administrator or in the Award Agreement, the Option shall terminate at the end of such period.

(iv) Death of Participant. If a Participant dies while a Service Provider, the Option may be exercised following the Participant’s death within such period of time as is specified in the Award Agreement to the extent that the Option is vested on the date of death (but in no event later than the expiration of the term of such Option as set forth in the Award Agreement). In the absence of a specified time in the Award Agreement, any vested portion of the Option shall remain exercisable for twelve (12) months following the Participant’s death (but in no event later than the expiration of the term of such Option as set forth in the Award Agreement). The Option may be exercised by the Participant’s designated beneficiary, provided such beneficiary has been designated prior to Participant’s death in a form acceptable by the Administrator. If no such beneficiary has been designated by the Participant, then such Option may be exercised by the personal representative of the Participant’s estate or by the person or persons to whom the Option is transferred pursuant to the Participant’s will or in accordance with the laws of descent and distribution. Unless otherwise provided by the Administrator or in the Award Agreement, if at the time of death the Participant is not vested as to all or any portion of his or her Option, the unvested portion of

the Option shall terminate. If the Option is not so exercised within the time period specified by the Administrator or in the Award Agreement, the Option shall terminate at the end of such period.

(v) Termination for Cause. If a Participant's status as a Service Provider is terminated for Cause, then the Option, whether vested or unvested, will immediately terminate upon such termination.

7. Restricted Stock.

(a) Grant of Restricted Stock. Subject to the terms and provisions of the Plan, the Administrator, at any time and from time to time, may grant Shares of Restricted Stock to Service Providers in such amounts as the Administrator, in its sole discretion, will determine.

(b) Restricted Stock Agreement. Each Award of Restricted Stock will be evidenced by an Award Agreement that will specify the Period of Restriction, which shall be established in accordance with Section 4(d) of the Plan; the number of Shares granted; and such other terms and conditions as the Administrator, in its sole discretion, will determine. Unless the Administrator determines otherwise, the Company (or its designee) as escrow agent will hold Shares of Restricted Stock (or a stop-transfer restriction will be placed on any Shares of Restricted Stock issued in book-entry form) until the restrictions on such Shares have lapsed.

(c) Transferability. Except as provided in this Section 7 and Section 13, Shares of Restricted Stock may not be sold, transferred, pledged, assigned, or otherwise alienated or hypothecated until the end of the applicable Period of Restriction.

(d) Other Restrictions. The Administrator, in its sole discretion, may impose such other restrictions on Shares of Restricted Stock as it may deem advisable or appropriate.

(e) Removal of Restrictions. Except as otherwise provided in this Section 7, Shares of Restricted Stock granted under the Plan will be released from these restrictions as soon as practicable after the last day of the Period of Restriction, as provided in the Award Agreement or at such other time as the Administrator may determine. Notwithstanding the foregoing, the Administrator is authorized, in its sole discretion, to allow participants to cause their otherwise vested Restricted Stock to be deferred pursuant to the terms of any nonqualified deferred compensation program as may be established by the Company from time to time in its discretion for eligible employees or Directors. Notwithstanding any provision of the Plan to the contrary, including but not limited to Section 4(d), in the event of the death, Disability, retirement or other termination of service of a Service Provider or a Change-in-Control, the Administrator, in its discretion, may accelerate or otherwise modify the time at which any restrictions will lapse or be removed.

(f) Voting Rights. During the Period of Restriction, Participants holding Shares of Restricted Stock granted hereunder may exercise full voting rights with respect to those Shares, unless the Administrator determines otherwise.

(g) Dividends. The Administrator may, in its sole discretion, provide that Awards of Restricted Stock earn dividends paid with respect to such Shares. Any such dividends shall be accumulated and credited to an account for the Participant, settled in cash or shares of Stock as determined by the Administrator, and shall be subject to the same terms and conditions, including vesting restrictions, as the Award with respect to which the dividends are credited. The Administrator may determine that any dividends so credited to a Participant's account shall accrue interest at a rate per annum specified by the Administrator. Any credited dividends and accrued interest, if any, shall be paid as soon as administratively practicable following the time the related shares of Restricted Stock vest and are paid to the Participant. For the avoidance of doubt, no dividends or accrued interest, if any, may be paid before the underlying Restricted Stock vests, and to the extent an Award of Restricted Stock is terminated, cancelled or forfeited in whole or in part, due to failure to meet performance conditions or otherwise, any dividends and accrued interest, if any, credited with respect to such Award shall be terminated, cancelled or forfeited at the same time and to the same extent as such Award.

(h) Termination of Restricted Stock Award. On the date set forth in, and otherwise subject to the terms and conditions of, the Award Agreement or as provided by the Administrator, the Restricted Stock for which restrictions have not lapsed will be forfeited to the Company.

8. Restricted Stock Units.

(a) Grant. Restricted Stock Units may be granted at any time and from time to time as determined by the Administrator. After the Administrator determines that it will grant Restricted Stock Units under the Plan, it will advise the Participant in an Award Agreement of the terms, conditions, and restrictions related to the grant, including the number of Restricted Stock Units.

(b) Vesting Criteria and Other Terms. The Administrator will set the vesting period, which shall be established in accordance with Section 4(d) of the Plan, and the vesting criteria in its discretion, which may be service-based and/or performance-based vesting criteria. The Administrator may set vesting criteria based upon the achievement of Company-wide, business unit, or individual goals (including, but not limited to, continued employment), or any other basis determined by the Administrator in its discretion.

(c) Earning Restricted Stock Units. Upon meeting the applicable vesting criteria, the Participant will be entitled to receive a payout as determined by the Administrator. Notwithstanding any provision of the Plan to the contrary, including but not limited to Section 4(d), in the event of the death, Disability, retirement or other termination of service of a Service Provider or a Change-in-Control at any time after the grant of Restricted Stock Units, the Administrator, in its sole discretion, may reduce or waive any vesting criteria that must be met to receive a payout.

(d) Form and Timing of Payment. Payment of earned Restricted Stock Units will be made as soon as practicable, and in no event later than sixty (60) days, after the date(s) set forth in, and otherwise subject to the terms and conditions of, the Award Agreement or as provided by the Administrator. The Administrator, in its sole discretion, may settle earned Restricted Stock Units in cash, Shares, or a combination of both, as provided in the Award Agreement. Notwithstanding the foregoing to the contrary, the Administrator is authorized, in its sole discretion from time to time, to allow participants to further defer receipt of the Shares or cash issued in settlement of Restricted Stock Units pursuant to the terms of any nonqualified deferred compensation program as may be established by the Company from time to time in its discretion for eligible employees or Directors.

(e) Cancellation. On the date set forth in, and otherwise subject to the terms and conditions of, the Award Agreement or as provided by the Administrator, all unearned Restricted Stock Units will be terminated and forfeited to the Company.

(f) Dividend Equivalents. The Administrator is authorized to grant to Participants dividend equivalents based on the dividends declared on Shares that are subject to any outstanding Restricted Stock Unit. Unless otherwise provided by the Administrator or in the Award Agreement, for an Award of Restricted Stock Units that is subject to performance-based vesting conditions, dividend equivalents shall be accrued only with respect to the target number of Restricted Stock Units, and additional dividend equivalents will not be earned for any Restricted Stock Units earned in excess of target. Dividend equivalents shall be credited as of dividend payment dates during the period between the date the Restricted Stock Unit Award is granted and the date the Restricted Stock Unit Award is vested, paid or expired. Such dividend equivalents shall be converted to cash, Shares or additional Restricted Stock Units by such formula and at such time and subject to such limitations as may be determined by the Administrator. Dividend equivalents accruing on unvested Restricted Stock Units shall, as provided in the Award Agreement, either (i) be reinvested in the form of additional Shares, which shall be subject to the same vesting provisions as provided for in the Restricted Stock Unit Award or (ii) be held by the Company under the same vesting provisions in an account allocated to the Participant and accumulated, with or without interest in the Administrator's discretion, until the date upon which the Restricted Stock Unit Award becomes vested. For the avoidance of doubt, no dividend equivalents or accrued interest, if any, may be paid before the underlying Restricted Stock Units vest, and to the extent an Award of Restricted Stock Units is terminated, cancelled or forfeited in whole or in part, due to failure to meet performance conditions or otherwise, any dividend equivalents and accrued interest,

if any, credited with respect to such Award shall be terminated, cancelled or forfeited at the same time and to the same extent as such Award.

9. Stock Appreciation Rights.

(a) Grant of Stock Appreciation Rights. Subject to the terms and conditions of the Plan, a Stock Appreciation Right may be granted to Service Providers at any time and from time to time as determined by the Administrator, in its sole discretion. No dividends or dividend equivalents may be granted in respect of any Stock Appreciation Right, and holders of Stock Appreciation Rights carry no voting rights.

(b) Number of Shares. The Administrator will have complete discretion to determine the number of Stock Appreciation Rights granted to any Service Provider.

(c) Exercise Price and Other Terms. The per share exercise price for the Shares to be issued pursuant to exercise of a Stock Appreciation Right will be determined by the Administrator and will be no less than one hundred percent (100%) of the Fair Market Value per Share on the date of grant. Otherwise, the Administrator, subject to the provisions of the Plan, will have complete discretion to determine the terms and conditions of Stock Appreciation Rights granted under the Plan. Any vesting period for a Stock Appreciation Right shall be established in accordance with Section 4(d) of the Plan.

(d) Stock Appreciation Right Agreement. Each Stock Appreciation Right grant will be evidenced by an Award Agreement that will specify the exercise price, the term of the Stock Appreciation Right, the conditions of exercise, and such other terms and conditions as the Administrator, in its sole discretion, will determine.

(e) Expiration of Stock Appreciation Rights. A Stock Appreciation Right granted under the Plan will expire upon the date determined by the Administrator, in its sole discretion, and set forth in the Award Agreement or as provided by the Administrator. Notwithstanding the foregoing, Stock Appreciation Rights shall be subject to a maximum term of ten (10) years and to the provisions of subsection 6(d) relating to exercise.

(f) Payment of Stock Appreciation Right Amount. Upon exercise of a Stock Appreciation Right, a Participant will be entitled to receive payment from the Company in an amount determined by multiplying:

(i) The difference between the Fair Market Value of a Share on the date of exercise over the exercise price; times

(ii) The number of Shares with respect to which the Stock Appreciation Right is exercised.

As provided in the Award Agreement or except as otherwise determined by the Administrator, the payment to the Participant upon exercise of a Stock Appreciation Right may be in cash, in Shares of equivalent value, or in some combination thereof.

10. Performance Units and Performance Shares.

(a) Grant of Performance Units and/or Performance Shares. Performance Units and Performance Shares may be granted to Service Providers at any time and from time to time, as determined by the Administrator, in its sole discretion. The Administrator will have complete discretion in determining the number of Performance Units and Performance Shares granted to each Participant. The Administrator may, in its sole discretion, provide that Awards of Performance Shares and Performance Units earn dividends or dividend equivalents, as applicable, in accordance with, and subject to the restrictions of, Section 7(g) and Section 8(f), respectively. For the avoidance of doubt, no dividends or dividend equivalents or accrued interest, if any, earned with respect to a Performance Unit Award or a Performance Share Award may be paid before the underlying Award vests, and to the extent an Award of Performance Units or Performance Shares is terminated, cancelled or forfeited in whole or in part, due to failure to meet performance conditions or otherwise, any dividends, dividend equivalents and accrued interest if any, credited with respect to such Award shall be terminated, cancelled or forfeited at the same time and to the same extent as such Award.

(b) Performance Objectives and Other Terms. The Administrator will set performance objectives and/or other vesting provisions (including, without limitation, continued status as a Service Provider) in its discretion which, depending on the extent to which they are met, will determine the number or value of Performance Units or Performance Shares that will be paid out to the Service Providers. The time period during which the performance objectives or other vesting provisions must be met will be called the “Performance Period.” Each Award of Performance Units and Performance Shares will be evidenced by an Award Agreement that will specify the Performance Period, vesting period (which shall be established in accordance with Section 4(d)) and such other terms and conditions as the Administrator, in its sole discretion, will determine. The Administrator may set performance objectives, which may be based on financial, strategic or operational goals or any other performance goals or metrics determined by the Administrator in its discretion. Such performance objectives may be based upon the achievement of Company-wide, divisional, or individual goals, measured on an absolute or relative basis, or any other goals, metrics or bases determined by the Administrator in its discretion.

(c) Earning of Performance Units and Performance Shares. After the applicable Performance Period has ended, the holder of Performance Units or Performance Shares will be entitled to receive a payout of the number of Performance Units or Performance Shares earned by the Participant over the Performance Period, to be determined as a function of the extent to which the corresponding performance objectives or other vesting provisions have been achieved, as determined by the Committee. After the grant of a Performance Units or Performance Shares, notwithstanding any provision of the Plan to the contrary, including but not limited to Section 4(d), the Administrator may, in its sole discretion, reduce or waive any performance objectives or other vesting provisions for such Performance Unit or Performance Share.

(d) Form and Timing of Payment of Performance Units and Performance Shares. Payment of earned Performance Units and Performance Shares will be made as soon as practicable after the expiration of the applicable Performance Period, and in no event later than sixty (60) days after the date(s) set forth in, and otherwise subject to the terms and conditions of, the Award Agreement or as provided by the Administrator. The Administrator, in its sole discretion, may pay earned Performance Units and Performance Shares in the form of cash, in Shares, or a combination thereof.

(e) Cancellation of Performance Units and Performance Shares. On the date set forth in, and otherwise subject to the terms and conditions of, the Award Agreement or as otherwise provided by the Administrator, all unearned or unvested Performance Units and Performance Shares will be forfeited to the Company.

11. Compliance With Code Section 409A.

(a) Awards are intended to operate in a manner that they are either exempt from the application of, or comply with, the requirements of Code Section 409A such that the grant, payment, settlement or deferral will not be subject to the additional tax or interest applicable under Code Section 409A, except as otherwise determined in the sole discretion of the Administrator, provided no warranty of such compliance or exemption is hereby made. The Plan and each Award Agreement under the Plan is intended to meet the requirements of Code Section 409A and will be construed and interpreted in accordance with such intent, except as otherwise determined in the sole discretion of the Administrator. To the extent that an Award or payment, or the settlement or deferral thereof, is subject to Code Section 409A, the Award is intended to be granted, paid, settled or deferred in a manner that will meet the requirements of Code Section 409A, and the Plan and Award Agreements shall be interpreted and administered accordingly, though no guarantee or warranty of such compliance is made to any individual. The parties agree that this Plan may be amended, as determined in the discretion of the Administrator, and as may be necessary or advisable to comply with Section 409A of the Code and all related rules and regulations in order to preserve the payments and benefits provided hereunder.

(b) Notwithstanding anything in the Plan or in any Award Agreement to the contrary, to the extent that any amount or benefit that would constitute non-exempt “deferred compensation” for purposes of Section 409A of the Code would otherwise be payable or distributable under the Plan or any Award Agreement by reason of the occurrence of a Change-in-Control, or the Participant’s Disability or separation from service, such amount or benefit will not be payable or distributable to the Participant by reason of such circumstance unless (i) the circumstances

giving rise to such Change-in-Control, Disability or separation from service meet any description or definition of “change-in-control event”, “disability” or “separation from service,” as the case may be, in Section 409A of the Code and applicable regulations (without giving effect to any elective provisions that may be available under such definition), or (ii) the payment or distribution of such amount or benefit would be exempt from the application of Section 409A of the Code by reason of the short-term deferral exemption or otherwise. This provision does not prohibit the vesting of any Award. If this provision prevents or delays the payment or distribution of any amount or benefit, such payment or distribution shall be made on the next earliest payment or distribution date or event specified in the Award Agreement that is permissible under Section 409A of the Code.

(c) Notwithstanding anything in the Plan or in any Award Agreement to the contrary, if any amount or benefit that would constitute non-exempt “deferred compensation” for purposes of Section 409A of the Code would otherwise be payable or distributable under this Plan or any Award Agreement by reason of a Participant’s separation from service during a period in which the Participant is a Specified Employee, then, subject to any permissible acceleration of payment by the Administrator under Treas. Reg. Section 1.409A-3(j)(4)(ii) (domestic relations order), (j)(4)(iii) (conflicts of interest), or (j)(4)(vi) (payment of employment taxes):

(i) if the payment or distribution is payable in a lump sum, the Participant’s right to receive payment or distribution of such non-exempt deferred compensation will be delayed until the earlier of the Participant’s death or the first day of the seventh month following the Participant’s separation from service; and

(ii) if the payment or distribution is payable over time, the amount of such non-exempt deferred compensation that would otherwise be payable during the six-month period immediately following the Participant’s separation from service will be accumulated and the Participant’s right to receive payment or distribution of such accumulated amount will be delayed until the earlier of the Participant’s death or the first day of the seventh month following the Participant’s separation from service, whereupon the accumulated amount will be paid or distributed to the Participant and the normal payment or distribution schedule for any remaining payments or distributions will resume.

For purposes of this Plan, the term “Specified Employee” has the meaning in Section 2(pp) of the Plan, provided, however, that, as permitted in such final regulations, the Company’s Specified Employees and its application of the six-month delay rule of Section 409A(a)(2)(B)(i) of the Code shall be determined in accordance with any rules adopted by the Board or any committee of the Board, which shall be applied consistently with respect to all nonqualified deferred compensation arrangements of the Company, including this Plan.

(d) If any one or more Awards granted under the Plan to a Participant could qualify for any separation pay exemption described in Treas. Reg. Section 1.409A-1(b)(9), but such Awards in the aggregate exceed the dollar limit permitted for the separation pay exemptions, the Administrator may determine which Awards or portions thereof will be subject to such exemptions.

(e) If, pursuant to an Award, a Participant is entitled to a series of installment payments, such Participant’s right to the series of installment payments shall be treated as a right to a series of separate payments and not to a single payment. For purposes of the preceding sentence, the term “series of installment payments” has the meaning provided in Treas. Reg. Section 1.409A-2(b)(2)(iii) (or any successor thereto).

12. Leaves of Absence/Transfer Between Locations. Unless the Administrator provides otherwise, vesting of Awards granted hereunder will be suspended during any unpaid leave of absence. A Participant will not cease to be an Employee in the case of:

(a) any leave of absence approved by the Company; or

(b) transfers between locations of the Company or between the Company, its Parent, or any Subsidiary.

For purposes of Incentive Stock Options, no such leave may exceed three (3) months, unless reemployment upon expiration of such leave is guaranteed by statute or contract. If reemployment upon expiration of a leave of absence

approved by the Company is not so guaranteed, then six (6) months following the first day of such leave, any Incentive Stock Option held by the Participant will cease to be treated as an Incentive Stock Option and will be treated for tax purposes as a Nonstatutory Stock Option.

13. Transferability of Awards. Unless determined otherwise by the Administrator, an Award may not be sold, pledged, assigned, hypothecated, transferred, or disposed of in any manner other than by will or by the laws of descent or distribution or as otherwise provided in this Section 13 and may be exercised, during the lifetime of the Participant, only by the Participant. If the Administrator makes an Award transferable, including, without limitation, for estate planning purposes by instrument to an inter vivos or testamentary trust in which the Awards are to be passed to beneficiaries upon the death of the trustor (settlor) or by gift to Family Members, or pursuant to a domestic relations order (as defined in the Code) or other court-ordered marital settlement agreement, such Award shall be subject to the terms of the Plan and the Award Agreement and shall contain such additional terms and conditions as the Administrator deems appropriate. Notwithstanding the foregoing, under no circumstance may unvested or unexercised Awards be transferred for value or consideration.

14. Adjustments; Dissolution or Liquidation; Merger or Change-in-Control.

(a) Adjustments. In the event that any dividend (other than ordinary cash dividends) or other distribution (whether in the form of cash, Shares, other securities, or other property), recapitalization, stock split, reverse stock split, reorganization, merger, consolidation, split-up, spin-off, combination, repurchase, or exchange of Shares or other securities of the Company, or other change in the corporate structure of the Company affecting the Shares occurs, the Administrator, in order to prevent diminution or enlargement of the benefits or potential benefits intended to be made available under the Plan, will adjust, in such equitable manner as the Administrator deems appropriate, the number and class of Shares issuable under the Plan and/or the number, class and, if applicable, exercise price, of Shares subject to each outstanding Award.

(b) Dissolution or Liquidation. In the event of the proposed dissolution or liquidation of the Company, the Administrator shall notify each Participant as soon as practicable prior to the effective date of such proposed transaction. To the extent it has not been previously exercised, an Award will terminate immediately prior to the consummation of such proposed action.

(c) Change-in-Control.

(i) In the event of a Change-in-Control, then notwithstanding any other provision of the Plan or an Award to the contrary, including without limitation Section 4(d), each outstanding Award shall be treated as the Administrator determines in its discretion without a Participant's consent, including, without limitation:

(A) Awards may be assumed, or substantially equivalent Awards may be substituted, by the acquiring or succeeding entity or an affiliate thereof (for purposes of this Section 14, the "successor") with appropriate adjustments as to the number and kind of shares and prices;

(B) upon written notice to a Participant, the Participant's Awards will terminate immediately prior to the consummation of such Change-in-Control;

(C) Awards will vest and become exercisable, realizable, or payable, or restrictions applicable to an Award will lapse, in whole or in part, prior to or upon consummation of such Change-in-Control, and, to the extent the Administrator determines, terminate upon the effectiveness of such Change-in-Control;

(D) (1) Awards will terminate in exchange for an amount of cash and/or property, if any, equal to the amount (if any) that would have been attained upon the exercise of such Award or realization of the Participant's rights as of the date of the occurrence of the transaction (and, for the avoidance of doubt, if as of the date of the occurrence of the transaction the Administrator determines in good faith that no amount would have been attained upon the exercise of such Award or realization of the Participant's rights, then such Award may be

terminated by the Company without payment), or (2) the replacement of such Award with other rights or property selected by the Administrator in its sole discretion; or

(E) any combination of the foregoing.

In taking any of the actions permitted under this subsection 14(c), the Administrator will not be obligated to treat all Awards, all Awards held by a Participant, or all Awards of the same type, similarly.

(ii) If, in the event of a Change-in-Control, the successor elects not to assume or substitute an Award, as determined by the Administrator, then upon the effective date of the Change-in-Control, the Participant shall fully vest in and have the right to exercise all of his or her outstanding Options and Stock Appreciation Rights; all restrictions on then outstanding Restricted Stock and Restricted Stock Units will lapse; and, with respect to then outstanding Performance Units, Performance Shares and any other Awards subject to performance-based vesting conditions, all performance goals or other vesting conditions will be deemed achieved at one hundred percent (100%) of target levels and all other terms and conditions met. In addition, if an Option or Stock Appreciation Right is not assumed or substituted by the successor in the event of a Change-in-Control, as determined by the Administrator, the Administrator may notify the Participant in writing or electronically that the Option or Stock Appreciation Right shall be exercisable for a period of time determined by the Administrator in its sole discretion (but in no event later than the expiration of the term of such Option as set forth in the Award Agreement), and the Option or Stock Appreciation Right shall terminate upon the expiration of such period.

(d) Outside Director Awards. With respect to Awards granted to an Outside Director that are assumed or substituted by a successor (in each case as determined by the Administrator), if, on the date of or following such assumption or substitution, the Participant's status as a Director or a director of the successor, as applicable, is terminated other than upon a voluntary resignation by the Participant (unless such resignation is at the request of the successor), then the Participant will fully vest in and have the right to exercise Options and/or Stock Appreciation Rights as to all of the Shares underlying such Award for a period of one year following such termination (but in no event later than the expiration of the term of such Option as set forth in the Award Agreement); all restrictions on Restricted Stock and Restricted Stock Units will lapse; and, with respect to Performance Units, Performance Shares and any other Awards subject to performance-based vesting conditions, all performance goals or other vesting conditions will be deemed achieved at one hundred percent (100%) of target levels and all other terms and conditions met.

(e) Assumption, Conversion or Substitution of Awards. For the purposes of Sections 14(c) and 14(d), a successor will be deemed to have "assumed or substituted" an Award under this Plan if the surviving entity substitutes an Award under this Plan with an award under a plan of the surviving entity having substantially equivalent value to and terms and conditions not materially less favorable than the original Award, or otherwise assumes the obligations under and/or equitably adjusts such original Award. The Administrator or the Board shall have sole and complete authority and discretion (which authority and discretion the Administrator or Board may exercise prior to the Change-in-Control, in which case such exercise of authority and discretion shall be final and binding) to determine whether the proposed assumption or substitution of an Award by a successor meets the requirements provided for in this paragraph. Notwithstanding anything in this Section 14(e) to the contrary, an Award that vests, is earned or paid out upon the satisfaction of one or more performance goals will not be considered assumed or substituted if, as determined by the Administrator or the Board, the Company or its successor modifies any of such performance goals without the Participant's consent; provided, however, a modification to such performance goals only to reflect the successor's post-Change-in-Control corporate structure will not be deemed to invalidate an otherwise valid Award assumption, as determined by the Administrator or the Board.

15. Tax Withholding.

(a) Withholding Requirements. Prior to the delivery of any Shares or cash pursuant to an Award (or exercise thereof), the Company will have the power and the right to deduct or withhold, or require a Participant to remit to the Company, an amount sufficient to satisfy any federal, state, local, foreign or other taxes (including the Participant's FICA obligation) required to be withheld with respect to such Award (or exercise thereof).

(b) Withholding Arrangements. The Administrator, in its sole discretion and pursuant to such procedures as it may specify from time to time, may permit a Participant to satisfy such tax withholding obligation, in whole or in part by (without limitation):

(i) paying cash;

(ii) electing to have the Company withhold otherwise deliverable cash or Shares having a Fair Market Value equal to the minimum statutory amount required to be withheld (or such other amount in the Administrator's discretion that does not cause the Award to be treated as a liability instrument under generally accepted accounting principles); or

(iii) delivering to the Company already-owned Shares having a Fair Market Value equal to the minimum statutory amount required to be withheld (or such other amount in the Administrator's discretion that does not cause the Award to be treated as a liability instrument under generally accepted accounting principles).

The Fair Market Value of the Shares to be withheld or delivered will be determined as of the date that the taxes are required to be withheld.

16. No Effect on Employment or Service. Neither the Plan nor any Award shall confer upon a Participant any right with respect to continuing the Participant's relationship as a Service Provider with the Company, nor shall they interfere in any way with the Participant's right or the Company's right to terminate such relationship at any time, with or without cause, to the extent permitted by Applicable Laws.

17. Date of Grant. The date of grant of an Award shall be, for all purposes, the date on which the Administrator (or its delegee, to the extent permitted by the Plan) makes the determination granting such Award, or such other later date as is determined by the Administrator (or its delegee, to the extent permitted by the Plan). Notice of the determination shall be provided to each Participant within a reasonable time after the date of such grant.

18. Term of Plan. Following the Board's adoption of the Plan, the Plan will become effective upon its approval by the Company's stockholders (the "Effective Date"). It will continue in effect for a term of ten (10) years from the Effective Date, unless terminated earlier under Section 19 of the Plan.

19. Amendment and Termination of the Plan.

(a) Amendment and Termination. The Board may at any time amend, alter, suspend or terminate the Plan.

(i) Stockholder Approval. The Company shall obtain stockholder approval of any Plan amendment to the extent required by Applicable Laws or otherwise in the Board's discretion.

(ii) Effect of Amendment or Termination. Subject to Section 19(c), no amendment, alteration, suspension or termination of the Plan shall impair the rights of any Participant under any then outstanding Award, unless mutually agreed otherwise between the Participant and the Administrator, which agreement must be in writing and signed by the Participant and the Company. Termination of the Plan shall not affect the Administrator's ability to exercise the powers granted to it hereunder with respect to Awards granted under the Plan prior to the date of such termination.

(b) Awards Previously Granted. The Administrator may waive any conditions or restrictions under, amend or modify the terms and conditions of, or cancel or terminate any outstanding Award at any time, in connection with any termination of service of a Service Provider or otherwise and notwithstanding any provision of the Plan to the contrary, including but not limited to Section 4(d); provided, however, subject to Section 19(c) and the provisions of the applicable Award Agreement, no such amendment, modification, cancellation or termination shall impair the rights of a Participant under an Award unless mutually agreed between the Participant and the Administrator, which agreement must be in writing and signed by the Participant and the Company.

(c) Compliance Amendments. Notwithstanding any other provision of this Section 19, the Plan or any Award Agreement to the contrary, the Administrator may, in its sole discretion and without the consent of any Participant, amend the Plan or any Award Agreement, to take effect retroactively or otherwise, as it deems necessary or advisable in order for the Company, the Plan, an Award or an Award Agreement to satisfy or conform to any present or future Applicable Law (including, without limitation, Code Section 409A) or to meet the requirements of any accounting standard.

20. Conditions Upon Issuance of Shares.

(a) Legal Compliance. Shares shall not be issued pursuant to the exercise of an Award unless the exercise of such Award and the issuance and delivery of such Shares shall comply with Applicable Laws and shall be further subject to the approval of counsel for the Company with respect to such compliance.

(b) Investment Representations. As a condition to the exercise of an Award, the Company may require the person exercising such Award to represent and warrant at the time of any such exercise that the Shares are being purchased only for investment and without any present intention to sell or distribute such Shares if, in the opinion of counsel for the Company, such a representation is required.

21. Inability to Obtain Authority. The inability of the Company to obtain authority from any regulatory body having jurisdiction, which authority is deemed by the Company's counsel to be necessary to the lawful issuance and sale of any Shares hereunder, shall relieve the Company of any liability in respect of the failure to issue or sell such Shares as to which such requisite authority shall not have been obtained.

22. Recoupment. A Participant's rights with respect to any Award hereunder shall in all events be subject to (i) any right that the Company may have under any Company clawback or recoupment policy as may be in effect from time to time or any other clawback or recoupment agreement or arrangement applicable to a Participant; or (ii) any right or obligation that the Company may have regarding the recoupment of "incentive-based compensation" under Section 10D of the Exchange Act and any applicable rules and regulations promulgated thereunder from time to time by the U.S. Securities and Exchange Commission.

ONTO INNOVATION INC.

2020 EMPLOYEE STOCK PURCHASE PLAN

1. Purpose of the Plan. The purpose of the Plan is to provide employees of the Company and its Designated Subsidiaries with an opportunity to purchase Common Stock of the Company. It is the intention of the Company to have the Plan qualify as an “Employee Stock Purchase Plan” under Section 423 of the Code. The provisions of the Plan shall, accordingly, be construed in a manner consistent with the requirements of that section of the Code.

2. Definitions. As used herein, the following definitions shall apply:

(a) “Board” shall mean the Board of Directors of the Company.

(b) “Code” shall mean the Internal Revenue Code of 1986, as amended.

(c) “Common Stock” shall mean the common stock of the Company.

(d) “Company” shall mean Onto Innovations Inc., a Delaware corporation.

(e) “Compensation” shall mean the total compensation paid to an Employee, including all salary, wages (including amounts elected to be deferred by the Employee, that would otherwise have been paid, under any cash or deferred arrangement or other deferred compensation program established by the Company or the Employer), overtime pay, commissions, bonuses, and other remuneration paid directly to the Employee, but excluding referral and hiring bonuses, profit sharing, the cost of employee benefits paid for by the Company or the Employer, education, tuition or other similar reimbursements, imputed income arising under any Company group insurance or benefit program, traveling expenses, business and moving expense reimbursements, income received in connection with stock options, restricted stock grants, or other equity based awards, contributions made by the Company or the Employer under any employee benefit plan, and similar items of compensation.

(f) “Continuous Status as an Employee” shall mean the absence of any interruption or termination of service as an Employee. Continuous Status as an Employee shall not be considered interrupted in the case of sick leave or other leave of absence agreed to in writing by the Company or the Employer, provided that such leave is for a period of not more than ninety (90) days or reemployment upon the expiration of such leave is guaranteed by contract, statute or as a matter of local law.

(g) “Contributions” shall mean all amounts credited to the account of a participant pursuant to the Plan.

(h) “Designated Subsidiary” shall mean any Subsidiary that has been designated by the Board, or a committee named by the Board, from time to time in its sole discretion as eligible to participate in the Plan.

(i) “Employee” shall mean any person, including an Officer, who is customarily employed for at least twenty (20) hours per week and more than five (5) months in a calendar year by the Company or a Designated Subsidiary, provided that, in certain jurisdictions outside the United States, the term “Employee” may, if so provided by the Company in writing, also include a person employed for less than twenty (20) hours per week or less than five (5) months in a calendar year if such person must be permitted to participate in the Plan pursuant to local laws (as determined by the Company).

(j) “Employer” shall mean the Designated Subsidiary that employs a participant, if the employer is not the Company.

(k) “Enrollment Date” shall mean the first Trading Day of each Offering Period.

(l) “Exchange Act” shall mean the U.S. Securities Exchange Act of 1934, as amended.

(m) “Exercise Date” shall mean the last Trading Day of each Offering Period.

(n) “Fair Market Value” shall mean, as of any date, the value of Common Stock determined as follows:

(i) If the Common Stock is listed on any established stock exchange or a national market system, including without limitation the New York Stock Exchange, its Fair Market Value shall be the closing sales price for such stock (or the closing bid, if no sales were reported) as quoted on such exchange or system on the date of determination, as reported in *The Wall Street Journal* or such other source as the Board deems reliable;

(ii) If the Common Stock is regularly quoted by a recognized securities dealer but selling prices are not reported, its Fair Market Value shall be the mean of the closing bid and asked prices for the Common Stock on the date of determination, as reported in *The Wall Street Journal* or such other source as the Board deems reliable; or

(iii) In the absence of an established market for the Common Stock, the Fair Market Value thereof shall be determined in good faith by the Board.

(o) “Offering Periods” shall mean the periods of approximately six (6) months during which an option granted pursuant to the Plan may be exercised, commencing on the first Trading Day on or after May 1st and November 1st of each year and terminating on the last Trading Day in the periods ending six (6) months later. The duration and timing of Offering Periods may be changed pursuant to Section 4 of this Plan.

(p) “Officer” shall mean a person who is an officer of the Company within the meaning of Section 16 of the Exchange Act and the rules and regulations promulgated thereunder.

(q) “Parent” shall mean a “parent corporation”, domestic or foreign, whether now or hereafter existing, as defined in Section 424(e) of the Code.

(r) “Plan” shall mean this 2020 Employee Stock Purchase Plan.

(s) “Purchase Price” shall mean an amount equal to 85% of the Fair Market Value of a Share of Common Stock on the Exercise Date; provided however that Purchase Price may be adjusted by the Board pursuant to Section 19.

(t) “Reserves” shall mean the number of Shares covered by each option under the Plan which have not yet been exercised and the number of Shares which have been authorized for issuance under the Plan but not yet placed under option.

(u) “Share” shall mean a share of Common Stock, as may be adjusted in accordance with Section 19 of the Plan.

(v) “Subsidiary” shall mean a “subsidiary corporation”, domestic or foreign, whether now or hereafter existing, as defined in Section 424(f) of the Code.

(w) “Trading Day” shall mean a day on which national stock exchanges are open for trading.

3. Eligibility.

(a) Any person who is an Employee as of the beginning of any given Offering Period shall be eligible to participate in such Offering Period under the Plan, subject to the requirements of Section 5(a) and the limitations imposed by Section 423(b) of the Code.

(b) Any provisions of the Plan to the contrary notwithstanding, no Employee shall be granted an option under the Plan:

(i) if, immediately after the grant, such Employee (or any other person whose stock would be attributed to such Employee pursuant to Section 424(d) of the Code) would own stock and/or hold outstanding options to purchase stock possessing five percent (5%) or more of the total combined voting power or value of all classes of stock of the Company, any Subsidiary or any Parent; or

(ii) if such option would permit his or her rights to purchase stock under all employee stock purchase plans (described in Section 423 of the Code) of the Company, any Subsidiary or any Parent to accrue at a rate which exceeds Twenty-Five Thousand Dollars (\$25,000) of Fair Market Value of such stock (determined at the time such option is granted) for each calendar year in which such option is outstanding at any time.

4. Offering Periods. The Plan shall be implemented by consecutive Offering Periods with a new Offering Period commencing on the first Trading Day on or after May 1st and November 1st each year, or on such other date as the Board shall determine, and continuing thereafter. The Plan shall continue until terminated in accordance with Section 19 hereof. The Board shall have the power to change the duration and/or the frequency of Offering Periods (including the commencement dates thereof) with respect to future offerings without shareholder approval if such change is announced prior to the scheduled beginning of the first Offering Period to be affected.

5. Participation.

(a) An eligible Employee may become a participant in the Plan by completing a subscription agreement on the form provided by the Company and filing it with the Company's payroll office prior to the applicable Enrollment Date, unless an earlier time for filing the subscription agreement is set by the Board for all eligible Employees with respect to a given offering. The subscription agreement shall set forth the percentage of the participant's Compensation (subject to Section 6(a) below) to be credited as Contributions pursuant to the Plan.

(b) An eligible Employee may contribute to the Plan by means of payroll deductions, unless payroll deductions are not permitted under local law, as determined by the Company, in which case eligible Employees may be permitted to contribute to the Plan by an alternative method, as determined by the Company. Payroll deductions, or, if payroll deductions are not permitted under local law, payments made under an alternative method, shall commence as of the first payday following the Enrollment Date and shall end on the last payday paid on or prior to the Exercise Date of the Offering Period to which the subscription agreement is applicable, unless the Employee's participation is sooner terminated as provided in Section 10.

6. Method of Payment of Contributions.

(a) Where permitted under local law, the participant shall elect to have payroll deductions made on each payday during the Offering Period in an amount not less than one percent (1%) and not more than fifteen percent (15%) of such participant's Compensation on each such payday (or such other maximum percentage as the Board may establish from time to time before an Enrollment Date). Where payroll deductions are not permitted under local law, the participant may be permitted to contribute to the Plan by an alternative method, as determined by the Company. All payroll deductions or other payments made by a participant shall be credited to his or her account under the Plan. A participant may not make any additional payments into such account.

(b) A participant may discontinue his or her participation in the Plan as provided in Section 10, or, during an Offering Period, may decrease the rate of his or her Contributions during the applicable Period by completing and filing with the Company a new subscription agreement. The Board may, in its discretion, limit the number of participation rate changes during any Offering Period. The change in rate shall be effective as soon as administratively practicable following the date of filing of the new subscription agreement; provided that any change elected on a new subscription agreement filed within twenty-one (21) days of the end of any Offering Period shall not take effect earlier than the beginning of the first new Offering Period to commence after the date of that

filing. A participant may change the rate of his or her Contributions effective as of the beginning of any Offering Period by filing a new subscription agreement prior to the beginning of such Offering Period; provided that any change elected within twenty-one (21) days prior to the beginning of that Offering Period shall be given effect as soon as administratively practicable on or after the first day of that Offering Period. A participant's subscription agreement shall remain in effect for successive Offering Periods unless terminated as provided in Section 10 hereof.

(c) Notwithstanding the foregoing, to the extent necessary to comply with Section 423(b)(8) of the Code and Section 3(b) herein, a participant's payroll deductions or other payments may be decreased to zero percent (0%) at any time during an Offering Period, as applicable. Payroll deductions or other payments shall re-commence at the rate provided in such participant's subscription agreement at the beginning of the first Offering Period, as applicable, which is scheduled to end in the following calendar year, unless the participant's participation is terminated as provided in Section 10. In addition, a participant's payroll deductions or other payments may be decreased by the Company to zero percent (0%) at any time during an Offering Period in order to avoid contributions in excess of the maximum Share limit set forth in Section 7(a), in which case payroll deductions or payments shall re-commence at the rate provided in such participant's subscription agreement at the beginning of the next Offering Period, unless terminated by the participant as provided in Section 10.

(d) As may be further specified in the subscription agreement, at the time the option is exercised, in whole or in part, or at the time some or all of the Company's Common Stock issued under the Plan is disposed of, the participant must make adequate provision for the Company's and/or the Employer's federal, state, or other tax and social insurance withholding obligations, if any, which arise upon the exercise of the option or the disposition of the Common Stock. At any time, the Company and the Employer may, but shall not be obligated to, withhold from the participant's compensation the amount necessary for the Company and/or the Employer to meet applicable withholding obligations, including any withholding required to make available to the Company or the Employer any tax deductions or benefits attributable to sale or early disposition of Common Stock by the participant.

7. Grant of Option. On the Enrollment Date of each Offering Period, each eligible Employee participating in such Offering Period shall be granted an option to purchase on each Exercise Date occurring within the Offering Period a number of Shares determined by dividing such Employee's Contributions accumulated prior to such Exercise Date and retained in the participant's account as of the Exercise Date by the applicable Purchase Price; provided however, that the maximum number of Shares an Employee may purchase during any one Offering Period shall be 3,000 Shares, subject to adjustment as provided in Section 18, and provided further that such purchase shall be subject to the limitations set forth in Sections 3(b) and 12. The Board may, for future Offering Periods, increase or decrease, in its absolute discretion, the maximum number of shares of the Company's Common Stock an Employee may purchase during such Offering Period. The option shall expire on the last day of the Offering Period.

8. Exercise of Option.

(a) Unless a participant's participation is terminated as provided in Section 10, his or her option for the purchase of Shares will be exercised automatically on the Exercise Date of an Offering Period, and the maximum number of full Shares subject to the option will be purchased at the applicable Purchase Price with the accumulated Contributions in his or her account (subject to such limitations as are specified in the Plan). The Shares purchased upon exercise of an option hereunder shall be deemed to be transferred to the participant on the Exercise Date. During his or her lifetime, a participant's option to purchase Shares hereunder is exercisable only by him or her.

(b) No fractional Shares shall be purchased. Any payroll deductions or other payments accumulated in a participant's account which are not sufficient to purchase a full Share shall be retained in the participant's account for the subsequent Offering Period, subject to earlier withdrawal by the participant or termination of such participant's participation as provided in Section 10 below. Any other amounts left over in a participant's account after an Exercise Date shall be returned to the participant.

9. Delivery. As promptly as practicable after each Exercise Date of each Offering Period, the Company shall arrange the delivery to each participant (by electronic or other means), as appropriate, of a certificate representing the Shares purchased upon exercise of his or her option. Notwithstanding the foregoing, the Board may require that

all Shares purchased under the Plan be held in an account (the participant's "ESPP Stock Account") established in the name of the participant (or in the name of the participant and his or her spouse, as designated by the participant on his or her subscription agreement), subject to such rules as determined by the Board and uniformly applied to all participants, including designation of a brokerage or other financial services firm (an "ESPP Broker") to hold such Shares for the participant's ESPP Stock Account with registration of such Shares in the name of such ESPP Broker for the benefit of the participant (or for the benefit of the participant and his or her spouse, as designated by the participant on his or her subscription agreement).

10. Voluntary Withdrawal: Termination of Employment.

(a) A participant may withdraw all, but not less than all the Contributions credited to his or her account under the Plan, by giving notice of withdrawal from the Plan in accordance with the withdrawal procedures then in effect, not less than twenty-one (21) days prior to the last day of the Offering Period for which such election is to be given effect. All of the participant's Contributions credited to his or her account will be paid to him or her promptly after receipt of his or her notice of withdrawal and his or her option for that Offering Period will be automatically terminated, and no further Contributions for the purchase of Shares may be made by the participant for that Offering Period.

(b) Upon termination of the participant's Continuous Status as an Employee prior to the last day of an Offering Period for any reason, including retirement or death, the Contributions credited to his or her account will be promptly returned to him or her or, in the case of his or her death, to the person or persons entitled thereto under Section 14, if any; his or her option for that Offering Period will be automatically terminated; and no further Contributions for the purchase of Shares may be made by the participant for that Offering Period. If a Subsidiary ceases to be a Subsidiary, each person employed by that Subsidiary will be deemed to have terminated employment for purposes of the Plan, unless the person continues as an employee of the Company or another Designated Subsidiary.

(c) In the event an Employee fails to remain in Continuous Status as an Employee for at least twenty (20) hours per week during an Offering Period in which the Employee is a participant, unless such Employee is on an approved leave of absence or a temporary reduction of hours, or unless otherwise required by local law, he or she will be deemed to have elected to withdraw from the Plan; the Contributions credited to his or her account will be returned to him or her; his or her option for that Offering Period will be automatically terminated; and no further Contributions for the purchase of Shares may be made by the participant for that Offering Period.

(d) A participant's withdrawal from an Offering Period will not have any effect upon his or her eligibility to participate in a succeeding Offering Period or in any similar plan which may hereafter be adopted by the Company.

11. Interest. No interest shall accrue on the Contributions of a participant in the Plan, unless required by local law.

12. Stock.

(a) Subject to adjustment as provided in Section 18, the maximum number of Shares of the Company's Common Stock which shall be made available for sale under the Plan shall be 1,500,000 Shares.

(b) If the Board determines that, on a given Exercise Date, the number of Shares with respect to which options are to be exercised may exceed:

(i) the number of Shares that were available for sale under the Plan on the Enrollment Date of the applicable Offering Period; or

(ii) the number of Shares available for sale under the Plan on such Exercise Date, the Board may in its sole discretion provide:

(x) that the Company shall make a pro rata allocation of the Shares of Common Stock available for purchase on such Enrollment Date or Exercise Date, as applicable, in as uniform a manner as shall be practicable and as it shall determine in its sole discretion to be equitable among all participants exercising options to purchase Common Stock on such Exercise Date, and continue the Offering Period then in effect, or

(y) that the Company shall make a pro rata allocation of the Shares available for purchase on such Enrollment Date or Exercise Date, as applicable, in as uniform a manner as shall be practicable and as it shall determine in its sole discretion to be equitable among all participants exercising options to purchase Common Stock on such Exercise Date, and terminate the Offering Period then in effect pursuant to Section 19 below.

The Company may make pro rata allocation of the Shares available on the Enrollment Date of any applicable Offering Period pursuant to the preceding sentence, notwithstanding any authorization of additional Shares for issuance under the Plan by the Company's stockholders subsequent to such Enrollment Date.

(c) The participant will have no interest or voting right in Shares covered by his or her option until such option has been exercised and such Shares have actually been delivered to and held of record by the participant. No adjustment will be made for dividends or other rights as a stockholder for which a record date is prior to such date of delivery.

(d) Shares to be delivered (by electronic or other means) to a participant under the Plan will be registered in the name of the participant or in the name of the participant and his or her spouse, as designated by the participant in his or her subscription agreement; provided that if the Board has determined that Shares shall be held in an ESPP Stock Account held by an ESPP Broker in accordance with Section 9, Shares shall be registered in the name of such ESPP Broker for the benefit of the participant or the participant and his or her spouse, as designated by the participant in his or her subscription agreement.

13. Administration.

(a) The Board, or a committee named by the Board, shall supervise and administer the Plan and shall have full power to adopt, amend and rescind any rules deemed desirable and appropriate for the administration of the Plan and not inconsistent with the Plan, to construe and interpret the Plan, and to make all other determinations necessary or advisable for the administration of the Plan. Any action taken by, or inaction of, the Company, any Subsidiary, the Board or a Board committee relating or pursuant to the Plan and within its authority hereunder or under applicable law shall be within the absolute discretion of that entity or body and shall be conclusive and binding upon all persons.

(b) The Board or Board committee has discretion to adopt any rules regarding administration of the Plan to conform to local laws. Without limiting the generality of the foregoing, the Board or a Board committee is specifically authorized to adopt rules and procedures regarding handling of payroll deductions, payment of interest and handling of stock certificates which vary according to local requirements. The Board or a Board committee has the authority to suspend or limit participation in the Plan by employees of any particular Subsidiary for any reason, including administrative or economic reasons. The Board or a Board committee may also adopt rules, procedures or sub-plans applicable to particular Subsidiaries or locations, which sub-plans may be designed to be outside the scope of Section 423 of the Code.

(c) In making any determination or in taking or not taking any action under the Plan, the Board or a Board committee may obtain and may rely upon the advice of experts, including professional advisors to the Company. No director, officer or agent of the Company or any Subsidiary shall be liable for any such action or determination taken or made or omitted in good faith. The Board or a Board committee may delegate ministerial, non-discretionary functions relating to the Plan to individuals who are officers or employees of the Company or a Subsidiary.

(d) Neither the Board nor any Board committee, nor any member thereof or person acting at the direction thereof, shall be liable for any act, omission, interpretation, construction or determination made in good

faith in connection with the Plan, and all such persons shall be entitled to indemnification and reimbursement by the Company in respect of any claim, loss, damage or expense (including, without limitation, attorneys' fees) arising or resulting therefrom to the fullest extent permitted by law and/or under any directors and officers liability insurance coverage that may be in effect from time to time.

14. Designation of Beneficiary.

(a) Unless otherwise determined by the Company, a participant may file a written designation of a beneficiary who is to receive any Shares and cash, if any, from the participant's account under the Plan in the event of such participant's death subsequent to the end of an Offering Period, as applicable, but prior to delivery to him or her of such Shares and/or cash. In addition, unless otherwise determined by the Company, a participant may file a written designation of a beneficiary who is to receive any cash from the participant's account under the Plan in the event of such participant's death prior to the Exercise Date of an Offering Period. If a participant is married and the designated beneficiary is not the spouse, spousal consent shall be required for such designation to be effective.

(b) Unless otherwise determined by the Company, such designation of beneficiary may be changed by the participant (and his or her spouse, if any) at any time by written notice to the Company in a manner acceptable to the Company. In the event of the death of a participant and in the absence of a beneficiary validly designated under the Plan who is living at the time of such participant's death, the Company shall deliver such Shares and/or cash to the executor or administrator of the estate of the participant, or if no such executor or administrator has been appointed (to the knowledge of the Company), the Company, in its discretion, may deliver such Shares and/or cash to the spouse or to any one or more dependents or relatives of the participant, or if no spouse, dependent or relative is known to the Company, then to such other person as the Company may designate or determine to be the appropriate recipient of the Shares and/or cash under applicable local law.

15. Transferability. Neither Contributions credited to a participant's account nor any rights with regard to the exercise of an option or to receive Shares under the Plan may be assigned, transferred, pledged or otherwise disposed of in any way (other than by will, the laws of descent and distribution, or as provided in Section 14) by the participant. Any such attempt at assignment, transfer, pledge or other disposition shall be without effect, except that the Company may treat such act as an election to withdraw funds in accordance with Section 10.

16. Use of Funds. All Contributions received or held by the Company under the Plan may be used by the Company for any corporate purpose, and the Company shall not be obligated to segregate such Contributions, unless required by local law.

17. Reports. Individual accounts will be maintained for each participant in the Plan. Statements of account will be given or made available to participating Employees as promptly as practically feasible following the Exercise Date, which statements will set forth the amounts of Contributions, the per Share Purchase Price, the number of Shares purchased and the remaining cash balance, if any.

18. Adjustments Upon Changes in Capitalization: Corporate Transactions.

(a) Adjustment. Subject to any required action by the stockholders of the Company, the Reserves, the maximum number of Shares an Employee may purchase during each Offering Period as well as the price per Share and the number of Shares covered by each option under the Plan which has not yet been exercised shall be proportionately adjusted for any increase or decrease in the number of issued Shares resulting from a stock split, reverse stock split, stock dividend, combination or reclassification of the Common Stock, or any other increase or decrease in the number of Shares effected without receipt of consideration by the Company; provided, however, that conversion of any convertible securities of the Company shall not be deemed to have been "effected without receipt of consideration." Such adjustment shall be made by the Board, whose determination in that respect shall be final, binding and conclusive. Except as expressly provided herein, no issue by the Company of shares of stock of any class, or securities convertible into shares of stock of any class, shall affect, and no adjustment by reason thereof shall be made with respect to, the number or price of Shares subject to an option.

(b) Corporate Transactions. In the event of the proposed dissolution or liquidation of the Company, the Plan, any Offering Period then in progress, and any outstanding option granted with respect to such Offering Period will terminate immediately prior to the consummation of such proposed action, unless otherwise provided by the Board. If a participant's option is terminated pursuant to the preceding sentence, the Contributions then credited to such participant's account will be paid to him or her in cash without interest. In the event of a proposed sale of all or substantially all of the assets of the Company, or the merger of the Company with or into another corporation, unless otherwise determined by the Board, each option under the Plan shall be assumed or an equivalent option shall be substituted by such successor corporation or a parent or subsidiary of such successor corporation, or, if not so assumed or substituted, the Offering Period then in progress shall be shortened and the Board shall set a new Exercise Date (the "New Exercise Date"). The New Exercise Date shall be on or before the date of consummation of the transaction and the Board shall notify each participant in writing, at least ten (10) days prior to the New Exercise Date, that the Exercise Date for his or her option (including for purposes of determining the Purchase Price of such option) has been changed to the New Exercise Date and that his or her option will be exercised automatically on the New Exercise Date, unless prior to such date he or she has withdrawn from the Offering Period as provided in Section 10. For purposes of this paragraph, an option granted under the Plan shall be deemed to be assumed if, following the sale of assets or merger, the option confers the right to purchase, for each Share subject to the option immediately prior to the sale of assets or merger, the consideration (whether stock, cash or other securities or property) received in the sale of assets or merger by holders of Common Stock for each Share held on the effective date of the transaction (and if such holders were offered a choice of consideration, the type of consideration chosen by the holders of a majority of the outstanding Shares of Common Stock); provided, however, that if such consideration received in the sale of assets or merger was not solely common stock of the successor corporation or its parent (as defined in Section 424(e) of the Code), the Board may, with the consent of the successor corporation and the participant, provide for the consideration to be received upon exercise of the option to be solely common stock of the successor corporation or its parent equal in Fair Market Value to the per Share consideration received by holders of Common Stock and the sale of assets or merger.

(c) The Board may, if it so determines in the exercise of its sole discretion, also make provision for adjusting the Reserves, as well as the price per Share covered by each outstanding option, in the event that the Company effects one or more reorganizations, recapitalizations, rights offerings or other increases or reductions of shares of its outstanding Common Stock, and in the event of the Company being consolidated with or merged into any other corporation.

19. Amendment or Termination.

(a) The Board may at any time and for any reason terminate, suspend or amend the Plan. Except as provided in Section 13(b) and 18, no such termination of the Plan may affect options previously granted, provided that the Plan or an Offering Period may be terminated by the Board on any Exercise Date or by the Board's setting a new Exercise Date with respect to an Offering Period then in progress if the Board determines that termination of the Plan and/or the Offering Period is in the best interests of the Company and the stockholders or if continuation of the Plan and/or the Offering Period would cause the Company to incur adverse accounting charges as a result of a change after the effective date of the Plan in the generally accepted accounting rules applicable to the Plan. If any Offering Period is terminated prior to its scheduled expiration (without setting a new Exercise Date), all amounts that have not been used to purchase Shares will be returned to participants, without interest, as soon as administratively practicable. Except as provided in Section 18 and in this Section 19, no amendment to the Plan shall make any change in any option previously granted which adversely affects the rights of any participant without such participant's written consent. In addition, to the extent necessary to comply with the requirements of Rule 16b-3 under the Exchange Act, Section 423 of the Code (or any successor rule or provision or any applicable law or regulation) or any stock exchange on which the Shares are then listed, the Company shall obtain stockholder approval in such a manner and to such a degree as so required.

(b) Without stockholder consent and without regard to whether any participant rights may be considered to have been adversely affected, the Board shall be entitled to change the Offering Periods, limit the frequency and/or number of changes in the amount withheld during an Offering Period, establish the exchange ratio applicable to amounts withheld in a currency other than U.S. dollars, permit payroll withholding in excess of the

amount designated by a participant in order to adjust for delays or mistakes in the Company's processing of properly completed withholding elections, establish reasonable waiting and adjustment periods and/or accounting and crediting procedures to ensure that amounts applied toward the purchase of Shares for each participant properly correspond with amounts withheld from the participant's Compensation, and establish such other limitations or procedures as the Board determines in its sole discretion advisable which are consistent with the Plan.

20. Notices. All notices or other communications by a participant to the Company under or in connection with the Plan shall be deemed to have been duly given when received in the form specified by the Company at the location, or by the person, designated by the Company for the receipt thereof.

21. Conditions Upon Issuance of Shares. The Company shall have no obligation to issue Shares with respect to an option unless the exercise of such option and the issuance and delivery of such Shares pursuant thereto shall comply with all applicable provisions of law, domestic or foreign, including, without limitation, the U.S. Securities Act of 1933, as amended, the Exchange Act, the rules and regulations promulgated thereunder, and the requirements of any stock exchange upon which the Shares may then be listed, and shall be further subject to the approval of counsel for the Company with respect to such compliance.

As a condition to the exercise of an option, the Company may require the person exercising such option to represent and warrant at the time of any such exercise that the Shares are being purchased only for investment and without any present intention to sell or distribute such Shares if, in the opinion of counsel for the Company, such a representation is required by any of the aforementioned applicable provisions of law.

22. Term of Plan; Effective Date. The Plan shall become effective upon the earlier to occur of its adoption by the Board or its approval by the stockholders of the Company. The Plan shall continue in effect for a term of ten (10) years unless sooner terminated under Section 19.

23. Additional Restrictions of Rule 16b-3. The terms and conditions of options granted hereunder to, and the purchase of Shares by, persons subject to Section 16 of the Exchange Act shall comply with the applicable provisions of Rule 16b-3. This Plan shall be deemed to contain, and such options shall contain, and the Shares issued upon exercise thereof shall be subject to, such additional conditions and restrictions as may be required by Rule 16b-3 to qualify for the maximum exemption from Section 16 of the Exchange Act with respect to Plan transactions.

24. No Employment Rights. Nothing in the Plan (or in any subscription agreement or other document related to this Plan) will confer upon any Employee or participant any right to continue in the employ or other service of the Company or any Subsidiary, constitute any contract or agreement of employment or other service or effect an employee's status as an employee at will, nor shall interfere in any way with the right of the Company or any Subsidiary to change such person's compensation or other benefits or to terminate his or her employment or other service, with or without cause. Nothing contained in this Section 24, however, is intended to adversely affect any express independent right of any such person under a separate employment or service contract other than a subscription agreement.

25. No Right to Assets of the Company. No participant or other person will have any right, title or interest in any fund or in any specific asset (including Shares) of the Company or any Subsidiary by reason of any option hereunder. Neither the provisions of the Plan (or of any subscription agreement or other document related to the Plan), nor the creation or adoption of the Plan, nor any action taken pursuant to the provisions of the Plan will create, or be construed to create, a trust of any kind or a fiduciary relationship between the Company or any Subsidiary and any participant, beneficiary or other person. To the extent that a participant, beneficiary or other person acquires a right to receive payment pursuant to the Plan, such right will be no greater than the right of any unsecured general creditor of the Company.

26. Miscellaneous.

(a) The Plan, the options, subscription agreements and other documents related to the Plan shall be governed by, and construed in accordance with, the laws of the State of Delaware. If any provision of the Plan shall be held by a court of competent jurisdiction to be invalid and unenforceable, the remaining provisions of the Plan shall continue in effect.

(b) Captions and headings are given to the sections of the Plan solely as a convenience to facilitate reference. Such captions and headings shall not be deemed in any way material or relevant to the construction of interpretation of the Plan or any provision hereof.

(c) The adoption of the Plan shall not affect any other Company or Subsidiary compensation or incentive plans in effect. Nothing in the Plan will limit or be deemed to limit the authority of the Board or a Board committee:

(i) to establish any other forms of incentives or compensation for employees of the Company or any Subsidiary (with or without reference to the Common Stock), or

(ii) to grant or assume options (outside the scope of and in addition to those contemplated by the Plan) in connection with any proper corporate purpose, to the extent consistent with any other plan or authority.

Benefits received by a participant under an option granted pursuant to the Plan shall not be deemed a part of the participant's compensation for purposes of the determination of benefits under any other employee welfare or benefit plans or arrangements, if any, provided by the Company or any Subsidiary, except where the Board or Board committee (or the Board of Directors of the Subsidiary that sponsors such plan or arrangement, as applicable) expressly otherwise provides or authorizes in writing.

LOCATIONS

HEADQUARTERS

Onto Innovation

16 Jonspin Road
 Wilmington, Massachusetts 01887
 Phone 978.253.6200
 ontoinnovation.com

OTHER LOCATIONS

View all locations on our website:
<https://ontoinnovation.com/company/locations>

INVESTOR INFORMATION

General Shareholder and Investor Questions may be directed to:

Mike Sheaffer
 Investor Relations,
 Corporate Communications
 Onto Innovation
 16 Jonspin Road
 Wilmington, Massachusetts
 01887
 investors@ontoinnovation.com

Independent Registered Public Accounting Firm

Ernst & Young, LLP
 Iselin, New Jersey

Registrar and Transfer Agent

Computershare Trust
 Company, N.A.
 P.O. Box 505000
 Louisville, Kentucky 40233
 Phone 800.368.5948
 www.computershare.com

Stock Symbol

Common stock is traded on the New York Stock Exchange under the symbol, ONTO

Annual Meeting

Stockholders are invited to attend the Annual Meeting at 10:00 am on Tuesday, May 12, 2020 at our corporate headquarters, located at 16 Jonspin Road Wilmington, Massachusetts 01887

Form 10-K

The Annual Report on Form 10-K filed with the Securities and Exchange Commission is available without charge upon written request to Investor Relations at our corporate headquarters address.

BOARD OF DIRECTORS

Christopher A. Seams

Chairman of the Board
 Former Chief Executive Officer
 Deca Technologies

Jeffery A. Aukerman

Former Partner
 Deloitte & Touche, LLP

Leo Berlinghieri

Former Chief Executive Officer and President
 MKS Instruments, Inc.

Edward J. Brown, Jr.

Former Chief Executive Officer
 Cymer Light Source

Vita A. Cassese

Chief Executive Officer
 Mardon Management
 Advisors

Robert G. Deuster

Former Chief Executive Officer
 Collectors Universe, Inc.

David B. Miller

Former President
 DuPont Electronics & Communications

Michael P. Plisinski

Chief Executive Officer

Bruce C. Rhine

Former Chief Strategy Officer
 Nanometrics Incorporated

Timothy J. Stultz, Ph.D.

Former Chief Executive Officer
 Nanometrics Incorporated

Christine A. Tsingos

Former Executive Vice President and Chief Financial Officer
 Bio-Rad Laboratories

John R. Whitten

Former Chief Financial Officer, Vice President and Treasurer
 Applied Industrial Technologies, Inc.

EXECUTIVE OFFICERS

Michael P. Plisinski

Chief Executive Officer

Steven R. Roth

Senior Vice President,
 Finance and Administration
 and Chief Financial Officer

Robert A. Koch

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