UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

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

For the Fiscal Year Ended December 31, 2020

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 number: 001-34666

MaxLinear, Inc.

(Exact name of Registrant as specified in its charter)

Delaware	**14-1896129**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
5966 La Place Court, Suite 100, Carlsbad, California	**92008**
(Address of principal executive offices)	**(Zip Code)**

(760) 692-0711
(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of the exchange on which registered
Common Stock	MXL	New York Stock Exchange

Securities registered pursuant to Section 12(g) of the Act: None

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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 (§232.405 of this chapter) 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 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	☑	Accelerated Filer	☐
Non-accelerated Filer	☐	Smaller Reporting Company	☐
		Emerging Growth Company	☐

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 has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. Yes ☑ No ☐

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

The aggregate market value of the registrant's common stock, $0.0001 par value per share, held by non-affiliates of the registrant on June 30, 2020, the last business day of the registrant's most recently completed second fiscal quarter, was $ 1.4 billion (based on the closing sales price of the registrant's common stock on that date). Shares of the registrant's common stock held by each officer and director and each person known to the registrant to own 10% or more of the outstanding voting power of the registrant have been excluded in that such persons may be deemed to be affiliates. This determination of affiliate status with respect to the foregoing calculation is not a determination for other purposes.

As of February 4, 2021, the registrant has 74,543,700 shares of common stock, par value $0.0001, outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Information required by Part III of this Form 10-K is incorporated by reference to the registrant's proxy statement or the Proxy Statement, for the 2021 annual meeting of stockholders, which proxy statement will be filed with the Securities and Exchange Commission within 120 days after the end of the fiscal year covered by this Form 10-K.

MAXLINEAR, INC.

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MAXLINEAR, INC.

PART I

Forward-Looking Statements

The information in this Annual Report on Form 10-K for the fiscal year ended December 31, 2020, or this Form 10-K, contains forward-looking statements and information within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934, which are subject to the "safe harbor" created by those sections. These forward-looking statements include, but are not limited to, statements concerning our strategy, future operations, future financial position, future revenues, projected costs, prospects and plans and objectives of management. The words "anticipates," "believes," "estimates," "expects," "intends," "may," "plans," "projects," "will," "would" and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. We may not actually achieve the plans, intentions or expectations disclosed in our forward-looking statements and you should not place undue reliance on our forward-looking statements. Actual results or events could differ materially from the plans, intentions and expectations disclosed in the forward-looking statements that we make. These forward-looking statements involve risks and uncertainties that could cause our actual results to differ materially from those in the forward-looking statements, including, without limitation, the risks set forth in Part I, Item 1A, "Risk Factors" in this Form 10-K. We do not assume any obligation to update any forward-looking statements except as required by law.

ITEM 1. BUSINESS

Corporate Information

We incorporated in the State of Delaware in September 2003. Our executive offices are located at 5966 La Place Court, Suite 100, Carlsbad, California 92008, and our telephone number is (760) 692-0711. In this Form 10-K, unless the context otherwise requires, the "Company," "we," "us" and "our" refer to MaxLinear, Inc. and its wholly owned subsidiaries. Our website address is www.maxlinear.com. The contents of our website are not incorporated by reference into this Form 10-K. We provide free of charge through a link on our website access to our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K, as well as amendments to those reports, as soon as reasonably practical after the reports are electronically filed with, or furnished to, the Securities and Exchange Commission, or SEC. Refer to *Intellectual Property Rights* section below for a list of our trademarks and trade names. All other trademarks and trade names appearing in this Form 10-K are the property of their respective owners.

Overview

We are a provider of communications systems-on-chip (SoC) solutions used in broadband, mobile and wireline infrastructure, data center, and industrial and multi-market applications. We are a fabless integrated circuit design company whose products integrate all or substantial portions of a high-speed communication system, including radio frequency (RF), high-performance analog, mixed-signal, digital signal processing, security engines, data compression and networking layers, and power management. In most cases, these products are designed on a single silicon-die using standard digital complimentary metal oxide semiconductor (CMOS) processes and conventional packaging technologies. We believe this approach enables our solutions to achieve superior power, performance and cost relative to our industry competition. Our customers include electronics distributors, module makers, original equipment manufacturers (OEMs) and original design manufacturers (ODMs), which incorporate our products in a wide range of electronic devices. Examples of such devices include cable Data Over Cable Service Interface Specifications (DOCSIS), fiber and DSL broadband modems and gateways; Wi-Fi and wireline routers for home networking; radio transceivers and modems for 4G/5G base-station and backhaul infrastructure; fiber-optic modules for data center, metro, and long-haul transport networks; as well as power management and interface products used in these and many other markets.

Our highly integrated semiconductor devices and platform-level solutions are primarily manufactured using low-cost CMOS process technology. CMOS processes are ideally suited for large digital logic implementations targeting high-volume and low-cost consumer applications. Importantly, our ability to design analog and mixed-signal circuits in CMOS allows us to efficiently combine analog functionality and complex digital signal processing logic in the same integrated circuit. As a result, our solutions have exceptional levels of functional integration and performance, low manufacturing cost, and reduced power consumption. In addition, our proprietary CMOS-based radio and digital system architectures also enable shorter design cycles, significant design flexibility and low system-level cost across a wide range of broadband communications, wired and wireless infrastructure, and industrial and multi-market customer applications.

Industry Background

Over the last two decades, ubiquitous internet connectivity has driven exponential growth in data content, delivery, distribution, and consumption. We expect this trend to continue owing to:

- The rapid rise of social media and crowd-sourced real-time content;

- The proliferation of on-demand Over-The-Top (OTT) video services such as Netflix and Amazon Prime;

- Rapid growth in data center and cloud-based services such as Amazon Web Services, Google Search and Apps, and AI/machine learning;

- The "remote economy" accelerated by the COVID-19 pandemic, the shift to work-from-home, and increasing dependence on video conferencing services such as Zoom;

- The proliferation of "Internet of Things" (IoT), including internet-connected appliances within the home, manufacturing industries, and enterprises; and

- The advent and growth of broadband 4G/5G wireless mobile internet connectivity.

We expect a strong trend of continuous upgrade of network bandwidth and latency (i.e. the delay between sender and receiver) in order to keep pace with the exponential growth of network data traffic generated by the above activities. For example, cloud-based services increasingly require stringent low latency and extremely high-speed network connections between servers and storage within a data center. Also, IoT devices are generating an increasing amount of internet traffic and require low network latency. These IoT devices include smart speakers, smart lighting and other smart appliances in the connected home; commercial air-conditioning; video surveillance equipment; manufacturing machinery; and point-of-sale asset tracking systems. The reduction of speed and latency bottlenecks throughout networks is heavily reliant on wide spectrum or broadband, high-frequency circuits, and digital signal processing algorithms that can improve spectrum utilization efficiency. These trends are key drivers across many of our target end-markets:

- *Connected Home:* Competing cable, fiber and other broadband video and data service providers are offering consumers bundled video, voice, and broadband data access and whole-home internet connectivity. These home data gateway modems or access devices are required to simultaneously receive, demodulate, and decode multiple signals, which are spread across several channels of frequency bandwidth over a wide frequency range and propagate on coaxial cable, copper, optical fiber or airwaves. Further, each gateway distributes content throughout the home using a broadband communication transceiver and network processor SoC based on Wi-Fi, Ethernet, Multimedia over Coax (MoCA) and other wireline home data connectivity standards. As a result, the number of transceivers required in each home, whether for wireless or broadband wireline access and distribution, is greatly increased. For example, cable multiple-system operators (MSOs) have ramped up deployments of multi-gigabit DOCSIS 3.1 home equipment and services, which "bond" multiple channels of frequency bands on a coaxial cable, to provide a higher aggregate "sum-of-the-channels" bandwidth to home subscribers. For example, within the home, Wi-Fi 6 uses wider bandwidth channels and channel-bonding, as well as more sophisticated means of wireless spectrum sharing by users, to provide seamless whole-home coverage.

- *Data Center Infrastructure:* Inside hyperscale data centers operated by Amazon, Google and others, high-speed optical transceivers connect racks of servers and storage through a hierarchical network of switches and routers. Cloud services and machine learning are dependent upon the ability to interconnect vast numbers of servers and storage inside a data center with extremely low latency and highest bandwidth to enable the entire data center to act as a single computing or data processing unit. Consequently, the data traffic growth *inside* the data center has significantly outstripped the data traffic flowing *to and from* the data center. Currently, while server connections are transitioning from 10Gbps to 25Gbps or 100Gbps links, router and switch connections are moving from 100Gbps to 400Gbps speed interconnections. The physical limits and challenges of removing the heat dissipated by these optical transceivers and switches are the primary barriers to even higher interconnect speeds. For all these reasons, improving the bandwidth and power efficiency of data center networking technology within and between data centers remains a critical challenge for the evolution of next-generation data centers.

- *5G Wireless Infrastructure:* Expensive, finite, fractured and non-contiguous 5G wireless spectrum is being utilized more efficiently by aggregating or bonding multiple non-contiguous channels of spectrum with highly complex radio transceivers in a wireless base-station radio unit. These complex radio transceivers can also be configured in large antenna arrays to direct wireless signals more efficiently to specific users, also known as Massive Multiple-Input Multiple Output beamforming (MMIMO). Beamforming vastly improves coverage (range), maximizes data rates (bandwidth), and creates spectral efficiency (data rate per unit spectrum). Densification, or increasing the number of wireless base-stations per unit area, also improves network capacity and coverage. In turn, the wireless and optical backhaul transport networks required to connect the higher number of base-station cells must have greater data capacity. As a result, microwave wireless backhaul and fronthaul transport links are migrating to millimeter wave operating frequencies where the availability of spectrum improves data capacity by more than tenfold. Implementing 5G access and transport functionality within base-stations requires radio transceivers that can process larger radio spectrum bandwidths; have expanded radio frequency range; compensate for signal distortion from high-power amplifiers; support beamforming in large antenna arrays; and have the ability to transport high speed data to and from the network, all in a low-cost, power-efficient design.

• *Industrial & Multi-Market:* Increasingly, in the industrial world, manufacturing equipment and appliances are connected to each other and to the cloud to better optimize utilization, improve power consumption, and plant management. Legacy equipment and new installations need to communicate with each other via newer and older connectivity protocol standards. This, in turn creates growth opportunities for interface products, and interface bridge products supporting multiple protocols. We believe our interface product portfolio, which consists of serial interface, universal serial bus (USB), universal asynchronous receiver transmitter (UARTS), peripheral interconnect express (PCIe) devices, data converters and power management integrated chips (PMICs), addresses a broad and growing servable market across communications, industrial and multiple other end markets.

The development of broadband, low power, integrated communication systems-on-chip solutions is at the heart of competitiveness across a range of different businesses spanning broadband wireline access, mobile data services, hyperscale cloud data centers, and cloud computation and storage markets. Additionally, the proliferation of increasingly complex high frequency, high bandwidth and low-power applications has led to a rapid increase in the demand for systems that require multiple radio frequency, mixed-signal, and high-performance analog and digital signal processing transceiver SoCs.

Challenges Faced by Providers of Systems and RF Transceivers and Optical Interconnects

Designing and implementing high-frequency, high-bandwidth RF transceiver systems is extremely challenging owing to the high operating frequency ranges and wide frequency bands across which the communication signal is transmitted. As a result, system designers must contend with significantly more sources of interference and signal impairments than in the case of traditional narrow band, low-frequency communication systems. These narrow band single-channel RF transceivers often use conventional radio system architectures that require expensive discrete components, and are fabricated in costly special-purpose semiconductor technologies, such as silicon germanium, gallium arsenide, and RF enhanced CMOS process technologies.

The key challenges of capturing and processing high quality broadband communications signals include:

• *Receiving single or multiple RF/digital communications signals spanning multiple frequency bands over a wide spectrum:* Many of the advanced high-data-rate applications require the simultaneous RF reception of multiple channels or frequency bands in order to first aggregate, and then subsequently demodulate, the data signal, which is spread over discrete disparate frequency bands. Likewise, data transmission is achieved by disaggregating the user's data signal and transmitting it over multiple available frequency bands spanning a wide frequency spectrum. For example, in the cable modem and broadband gateway markets, it is necessary to support the simultaneous reception of multiple channels of high-definition video, voice, and data applications in many system designs. OEMs meet these stringent requirements via multiple narrow- or wide-band RF receivers, each of which is dedicated to the reception of a single frequency band. An alternate, but highly challenging, approach involves Full Spectrum Capture (FSC™) receiver SoCs, which can receive and digitize the entire available RF frequency spectrum in the transmission medium. They can then select and aggregate the relevant frequency bands over which the data is spread using analog and mixed-signal digital co-processing techniques. In contrast, use of multiple discrete conventional narrowband RF receivers is impractical due to increased design complexity, overall cost, circuit board space, power consumption and heat dissipation limitations. In addition, such narrowband receiver implementations suffer from signal integrity issues, reliability, and thermal challenges owing to the proximity of sensitive multiple RF receivers and discrete components in a limited PCB footprint.

• *Signal Clarity Performance Requirements:* In communications systems, performance is limited by the quality of the received/transmitted signal that can be supported throughout the channel bandwidth. Signal-to-noise (SNR) ratio measures the strength of the desired signal relative to the sum of the noise and undesired signal energy in the same channel. High capacity 5G wireless cellular data networks operate across non-contiguous wireless spectrum bands, while wired coaxial cable and power-line networks require broadband RF transceivers supporting high SNR. Optical transceivers operate across the widest bandwidths available and must preserve the necessary SNR throughout their bandwidth. These transceiver systems must isolate the desired signals from the undesired signals that are invariably present in their wide operating frequency range. The undesired signals not only include the noise generated by the natural environment, but also interference produced by home appliances, enterprise communications equipment, and other wireless networking systems. For example, in 5G mobile infrastructure applications, a radio transceiver receiving a channel at 1710MHz must cope with reflections in the environment as well as interference from a neighboring channel at 1660MHz picked up by the receiving antenna. The transceiver must also compensate for distortion introduced by the strong signals out of the transmitting antenna. Analog and digital signal processing is employed to improve SNR in the received and transmitted signals. Beamforming and MIMO of radio signals also significantly improves signal-to-noise ratio, but requires sophisticated RF, analog and digital signal co-processing, and software expertise. Broadband reception and beamforming of RF signals in mobile environments are extremely difficult to implement due to the stringent size, cost, and power consumption constraints. Also, higher order modulation of communication signals requires extremely high SNR to maximize data capacity in a finite spectrum, which greatly increases the difficulty of implementing broadband systems.

- *Power Consumption:* Power consumption has become a major concern inside communication systems, including home access gateways, wireless base-stations and data center infrastructure applications. For example, inside the home, Wi-Fi capacity and bandwidth improvement require increasing the number of transceivers per access point with greater channel bandwidths. As a result, the home Wi-Fi gateway has significant heat dissipation challenges within the system due to the increase in power consumption. Likewise, within the data center, physical limitations in the ability to remove heat efficiently from network switches, and the optical transceivers plugged into them, are the main obstacles to increasing data center network bandwidth at and beyond 400Gbps speed per optical transceiver. These switches and transceivers now consume an increasingly significant fraction of total data center power. In 5G wireless access infrastructure applications, the cost of provisioning power to base-station antenna towers and the operating cost attributable to energy consumption is high. In many multiple-transceiver system designs, a majority of the system's overall power consumption can be ascribed to radio transceivers.

- *Size:* The size of electronic components, such as RF transceivers and digital signal processing SoCs, is a key consideration for system designers and the service providers that deploy them. In wired optical infrastructure applications inside data centers, rapidly increasing network server and switch face-plate density trends are aggressively driving reduction of the size of optical transceiver interconnects. In 5G wireless infrastructure, space on the base-station radio towers where the radios and modems are mounted, is highly constrained and is a significant portion of operating costs. The deployment of massive MIMO and antenna arrays, and cell densification for 5G wireless coverage and capacity, greatly increase the number of radio transceivers required in each base station radio tower and the number of base stations in a cell. As a result, there is a growing trend and an increasing need for highly complex integrated SoCs with greater numbers of transceivers per SoC.

There are also challenges that are specific to the processing of high-speed optical interconnect signals in our target data center markets.

◦ *Optical Fiber Channel Impairments:* The inherent optical properties of the fiber material result in impairments to the optical signal as it propagates along the fiber. These impairments degrade signal integrity due to the loss of light intensity and other adverse modal, chromatic and polarization dispersion effects on the propagating light. Further, electrical signal impairments are introduced in the process of conversion of optical signals to electrical signals, which together reduce the maximum data throughput and limit the distance over which data can propagate over fiber. Therefore, communications SoCs present inside optical modules (often referred to as digital signal processors or DSPs) are required to correct both electrical and optical signal impairments at both ends of the fiber termination.

◦ *Photonics Device Technology:* Today's state-of-the art in photonic device technology lags the rapidly increasing speed requirements of data traffic within cloud data centers and optical transport links between telecom data centers. This imposes severe limits to the high-speed conversion of electrical signals to optical signals, and vice versa, owing to the bandwidth limitations, nonlinearities, and noise properties in lasers, modulators, and photo detectors used in optical modules.

◦ *Form Factor:* Optical transceivers are required to conform to multi-source agreement (MSA) standardized form factors, which in turn determine the number of transceiver ports that can fit in the face plates of standard server, storage, and switch rack units. Standardization of transceiver form factors and rack unit face plates allows data center operators to upgrade network speeds of existing installations by simply replacing older optical transceivers and switches with newer faster ones, rather than having to overhaul installed fiber infrastructure and floorplan. The dimensions of the standard face plate impose a severe constraint on the amount of heat that can be practically removed from a rack unit. A major challenge facing optical transceiver SoCs is to support exponentially growing data rates within the standardized form factor and thermal constraints.

Our RF, Mixed-Signal and Digital SoC Platform Solutions

We are a provider of communications systems-on-chip solutions for the connected home, mobile and wireline infrastructure, data centers, and industrial and multi-market applications. Our products exemplify our core integrated circuit design and communications systems engineering capabilities:

• *Proprietary broadband/RF, analog and mixed-signal transceiver front ends:* Our analog and mixed-signal IC designers implement complex broadband radio transceiver front-ends and data converters in standard silicon CMOS processes, which enables single-die integration of a complete digital signal processing communication system. This results in state-of-the-art performance, highest energy efficiency or lowest power, smallest form factor, and the lowest manufacturing cost of a target function. For example, in cable DOCSIS3.1 data gateways, our single-chip Full Spectrum Capture (FSC) receivers digitize the entire cable spectrum and aggregate multiple frequency bands or channels using analog and digital signal co-processing to enable multi-gigabit data services. There is a 100-fold reduction in power per unit bandwidth while increasing the total data throughput by an even greater factor. Our high-performance mixed-signal design capability, which involves the high-speed conversion of signals precisely and efficiently between analog and digital domains, is core to all our products and market applications, including high-speed optical interconnect applications inside data centers, 5G Access infrastructure MMIMO radios, and millimeter wave and microwave wireless backhaul transport.

• *Advanced digital signal processing ASIC design and algorithms:* Our signal processing algorithm and digital ASIC design expertise is at the core of our ability to employ digital signal processing to enable breakthroughs in CMOS analog RF front-end design and vice-versa. For example, impairments introduced by analog systems such as power amplifiers and photonics devices are canceled using sophisticated digital signal processing algorithms to achieve superior signal quality, reduce power consumption, and improve the speed of operation. Communication systems across a range of our current and future target markets share common signal processing functions, such as efficient error control coding, compensation for transmission medium or channel induced impairments, and digital processing of wideband signals. As such, algorithmic breakthroughs in one application are directly applicable to other product areas.

• *Embedded systems and software architecture:* Our products contain complex integrated CPU subsystems. These subsystems typically include multiple low-power microprocessor cores, packet processor, bus and peripherals, memory controllers, and interrupt processing. In addition to signal processing and supervisory activity functions, we also implement multiple layers of real-time embedded firmware and protocol stacks on a single chip. We believe our expertise and track record of successfully developing widely deployed, reliable embedded protocols for networking applications are essential to the evolution of connected home products of the future. Our firmware design capability is critical to the ease of use of our products in end customer platforms.

• *Architecture and system design for highly integrated end-to-end communication platform solutions:* Our novel design techniques tradeoff individual signal path circuit level performance to optimize the overall system performance. Our holistic platform and system level design approach eliminates costly, and power-hungry overdesign of individual circuit elements. It allows us to address more complex customer problems that require a deeper understanding of the customer’s end product. Our products not only integrate the entire physical layer (PHY), but also implement complete protocol stacks along with ready-for-use product level interface functionality and associated platform software. We also provide the most efficient and cost-effective platform level power management IC solutions that regulate and monitor the power consumption for our chips and other circuits on the platform. The integration of the entire system on a single-chip or utilizing minimal number of silicon dies reduces the number of external board-level components, decreases board space, improves performance, simplifies customers’ product design, and significantly reduces power consumption.

• *Low-power design methodology:* The superior energy efficiency of our products reflects our years of cumulative experience and R&D investment in system architecture, semiconductor device modeling, and integrated circuit design expertise. At extremely high data rates, when electrical signals transit on and off the chip, there is a severe penalty in speed and power consumption. Therefore, significant reduction in power consumption of a device requires minimization of signal transitions between multiple chips. Our ability to achieve the highest levels of integration of all analog/RF and digital signal processing functionality on the same chip minimizes power consumption by eliminating such signal transitions. Our solutions disproportionately impact our end-customer’s product power dissipation, such as in cable modems, cable FDX fiber nodes, 400Gbps optical transceiver modules, and large 5G antenna radio transceiver arrays. Low power dissipation not only simplifies costly thermal design, but also eliminates the need for bulky fans and other cooling aids. This in turn improves end customer product reliability, increases the density of product features that can be supported in a compact footprint, and reduces overall system cost.

• *Scalable Platform:* Our products share common, modular components such as data converters, radio architectures, signal processing algorithms, and digital signal processing circuit architectures, which enables us to offer fully integrated broadband RF transceiver based digital communication SoC solutions across a wide variety of markets while meeting the stringent performance requirements of these end market applications and standards. This contrasts to legacy solutions that require significant customization to conform to the various regional standards, technical performance and product feature requirements. As a result, our customers can minimize their design resources required to develop applications for multiple target markets using our platform solutions. In addition, we are able to deploy our engineering resources more efficiently to both diversify and address larger communications end markets.

Our Strategy

Our objective is to be the leading provider of communications SoCs for the connected home, wired and wireless infrastructure, and industrial and multi-market applications. We aim to continue to leverage our core analog and digital signal co-processing competencies to expand into other communications markets with similar performance requirements. The key elements of our strategy are:

• *Extend Technology Leadership in RF Transceivers and RF Transceiver + Digital Signal Processing + Embedded Processor SoCs:* We believe that our success thus far is largely attributable to a combination of our RF and mixed-signal design capability together with advanced digital design expertise. We have leveraged this core competency to develop high-performance, low-cost semiconductor solutions for broadband communications applications spanning the connected home, wireless access and backhaul network infrastructure, and high-speed fiber-optic modules for data center, metro, and long-haul infrastructure markets. We will continue to invest in this capability and strive to be an innovation leader in this market.

• *Leverage and Expand our Existing Customer Base:* We target customers who are leaders in their respective markets. We intend to continue to focus on sales to customers who are leaders in our current target markets, and to build on our relationships with these leading customers to define and enhance our product roadmap. By solving the specific problems faced by our customers, we can minimize the risks associated with our customers’ adoption of our new integrated circuit products and reduce the length of time from the start of product design to customer revenue. Further, engaging with market leaders will enable us to participate in emerging technology trends and new industry standards.

• *Target Additional High-Growth Markets:* Our core competency is in RF analog and mixed-signal integrated circuit design in CMOS process technology. Several of the technological challenges involved in developing RF solutions for video broadcasting and broadband reception are common to a majority of broader communications markets. We intend to leverage our core competency in developing highly integrated RF transceiver and RF transceiver SoCs in standard CMOS process technology to address additional markets within broadband communications, communications infrastructure, and connectivity markets that we believe offer high growth potential.

• *Expand Global Presence:* Due to the global nature of our supply chain and customer locations, we intend to continue to expand our sales, design and technical support organization both in the United States and overseas. In particular, we expect to align our regional support to our customer base. We believe that our customers will increasingly expect this kind of local capability and support.

• *Attract and Retain Top Talent:* We are committed to recruiting and retaining highly talented personnel with proven expertise in the design, development, marketing and sales of communications integrated circuits. We believe that we have assembled a high-quality team in all the areas of expertise required at an integrated circuit design and communications systems company. We provide an attractive work environment for all of our employees. We believe that our ability to attract the best engineers is a critical component of our future growth and success in our chosen markets.

Customers

We sell our products, directly and indirectly, to original equipment manufacturers, or OEMs, module makers and original design manufacturers, or ODMs, and we refer to these as our end customers. By providing a highly integrated reference design solution that our customers can incorporate in their products with minimal modifications, we enable our customers to design cost-effective high-performance SoC-based solutions rapidly. A significant portion of our sales are through distributors based in Asia, who then resell our product.

A significant portion of our net revenue has historically been generated by a limited number of customers. In the years ended December 31, 2020, 2019 and 2018, ten customers accounted for approximately 68%, 63% and 61% of our net revenue, respectively. In the year ended December 31, 2020, two of our direct customers represented 28% of our net revenue. In the years ended December 31, 2019 and 2018, one of our direct customers, CommScope Holding Company, Inc., or Commscope, represented 14% and 18%, respectively, of our net revenue.

Products shipped to Asia accounted for 82%, 84% and 81% of our net revenue in the years ended December 31, 2020, 2019 and 2018, respectively. Products shipped to Hong Kong accounted for 42%, 46%, and 43% of our net revenue in the years ended December 31, 2020, 2019 and 2018, respectively. Products shipped to China accounted for 17%, 14% and 19% of our net revenue in the years ended December 31, 2020, 2019 and 2018, respectively. Although a large percentage of our products are shipped to Asia, we believe that a significant number of the systems designed by these customers and incorporating our semiconductor products are then sold outside Asia. For example, revenue generated from sales of our cable modem products during the years ended December 31, 2020, 2019 and 2018 related principally to sales to Asian ODM's and contract manufacturers delivering products into European and North American markets. To date, all of our sales have been denominated in United States dollars. See Note 14 to our consolidated financial statements, included in Part IV, Item 15 of this Report for a discussion of total revenue by geographical region for the years ended December 31, 2020, 2019 and 2018.

Sales and Marketing

We sell our products worldwide through multiple channels, using our direct sales force, third party sales representatives, and a network of domestic and international distributors. We have direct sales personnel covering the United States, Europe and Asia. We also employ a staff of field applications engineers to provide direct engineering support locally to some of our customers.

Our distributors are independent entities that assist us in identifying and servicing customers in a particular territory, usually on a non-exclusive basis. Sales to distributors accounted for approximately 49%, 52%, and 42% of our net revenue in the years ended December 31, 2020, 2019, and 2018, respectively.

Our sales cycles typically require a significant amount of time and a substantial expenditure of resources before we can realize revenue from the sale of products, if any. Our typical sales cycle consists of a multi-month sales and development process involving our customers' system designers and management.

We generally receive purchase orders from our customers approximately six to twenty-six weeks prior to the scheduled product delivery date. Because of the scheduling requirements of our foundries and assembly and test contractors, we generally provide our contractors production forecasts six to twelve months in advance and place firm orders for products with our suppliers up to twenty-six weeks prior to the anticipated delivery date, in some cases without a purchase order from our own customers. Our standard warranty provides that products containing defects in materials, workmanship or product performance may be returned for a refund of the purchase price or for replacement, at our discretion.

Raw Materials

As a fabless designer of integrated circuits, we do not directly procure raw materials and instead, rely on third parties to manufacture, assemble and test, or supply, our products, as described in further detail under the below heading "Manufacturing." To a lesser extent, we also purchase certain turnkey, or finished goods product, for resale. Raw materials used by third party foundries, assembly and test contractors and turnkey product vendors include silicon wafers, as well as lead frames or substrate materials, gold or copper wires, and molding compounds used in assembly/packaging and test of our products. We work closely with our vendors in providing a supplier forecast 6-12 months in advance to ensure they have an adequate supply of raw materials to cover our forecast.

Manufacturing

We use third-party foundries and assembly and test contractors to manufacture, assemble and test our products. We also rely on certain vendors to supply turnkey products, including, in particular, Intel Corporation for certain products we sell following our acquisition of Intel's Home Gateway Platform Division in July 2020. This outsourced manufacturing approach allows us to focus our resources on the design, sale and marketing of our products. Our engineers work closely with our foundries and other contractors to increase yield, lower manufacturing costs and improve product quality while maintaining a socially responsible supply chain.

Wafer Fabrication. We utilize an increasing range of process technologies to manufacture our products, from standard CMOS to more exotic processes including SiGe and GaAs. Within this range of processes, we use a variety of process technology nodes ranging from 0.18µ down to 14 nanometer. We depend on independent silicon foundry manufacturers to support our wafer fabrication requirements. Our key foundry partners include Global Foundries Inc. in Singapore, Semiconductor Manufacturing International Corporation or SMIC in China, Taiwan Semiconductor Manufacturing Corporation or TSMC in Taiwan, and United Microelectronics Corporation or UMC in Taiwan and Singapore. We generally do not depend on a single source for the supply of our materials. Additionally, certain of the acquired products of the Wi-Fi and Broadband assets business are supplied to us under the terms of a supply agreement with Intel.

Assembly/packaging and Test. Upon completion of the silicon processing at the foundry, we forward the finished silicon wafers to independent assembly/packaging and test service subcontractors. The majority of our assembly/packaging and test requirements are supported by the following independent subcontractors: Advanced Semiconductor Engineering, or ASE, Amkor Technology, Giga Solution Technology Co. Ltd., SIGURD Microelectronics Corp., Unisem (M) Berhad and United Test and Assembly Center, or UTAC Holdings Ltd.

Quality Assurance. We have implemented significant quality assurance procedures to assure high levels of product quality for our customers. Our operations are certified under ISO 9001:2015 standards. We closely monitor the work-in-progress information and production records maintained by our suppliers, and communicate with our third-party contractors to assure high levels of product quality and an efficient manufacturing time cycle. Upon successful completion of the quality assurance procedures, all of our products are stored and shipped to our customers or distributors directly from our third-party contractors in accordance with our shipping instructions.

Corporate Social Responsibility

As we continue to expand our presence around the world, we are mindful of our responsibility to maintain a socially responsible supply chain, reduce our carbon footprint, and give back to our local communities.

Socially responsible supply chain. We are committed to the use of a socially responsible supply chain to reduce the risk of human rights violations and the use of conflict minerals (tin, tungsten, tantalum and gold, or 3TG) from the Democratic Republic of Congo and certain adjoining countries. Our efforts include maintaining a supplier policy which bars the use of forced or child labor and slavery and a conflict minerals policy governing the use and distribution of 3TG minerals, as well as conducting due diligence before allowing a potential supplier to become a preferred supplier. We request the return of reporting forms related to conflict minerals from our suppliers under the Responsible Minerals Initiative, or RMI, Conflict Minerals Survey. Further, we seek to remove any suppliers that continue to fail to meet our supplier and conflict minerals policies after being provided the opportunity to remedy non-compliance via implementation of a corrective action plan. We also conduct recurring internal trainings for all employees and certain select contractors on export compliance, anti-corruption and anti-slavery, and insider trading.

Reduce our carbon footprint. We aim to reduce the environmental impact of our products. We provide products to our customers that use approved environmentally-friendly materials, prevent pollution by minimizing waste and promoting recycling of reusable materials, and provide customer satisfaction through compliance with global environmental regulations as they relate to our products and operations.

Contributing to community. We encourage our employees to contribute to local communities. In 2020, the Company's U.S. employees organized a fund-raising campaign to feed the hungry in local communities, which has increased as a result of closures and job losses during the COVID-19 pandemic. Together with a matching corporate contribution from the Company, the campaign raised in excess of $60 thousand, benefiting Feeding America, a U.S. hunger- relief organization.

Research and Development

We believe that our future success depends on our ability to both improve our existing products and to develop new products for both existing and new markets. We direct our research and development efforts largely to the development of new high-performance, mixed-signal RF transceivers and SOCs for the connected home, wired and wireless infrastructure, and industrial and multi-market applications. We target applications that require stringent overall system performance and low power consumption. As new and challenging communication applications proliferate, we believe that many of these applications may benefit from our SoC solutions combining analog and mixed-signal processing with digital signal processing functions. We have assembled a team of highly skilled semiconductor and embedded software design engineers with expertise in broadband RF, mixed-signal and high-performance analog integrated circuit design, digital signal processing, communications systems and SoC design. As of December 31, 2020, we had approximately 1,069 employees in our research and development group. Our engineering design teams are located in Carlsbad, Irvine, and San Jose in California; Boston,
Massachusetts; Singapore; Shanghai, Shenzhen, and Hong Kong in China; Taipei and Hsinchu in Taiwan; Bangalore, India;
and Austria, Germany, Israel, Spain, and Canada.

Competition

We compete with both established and development-stage semiconductor companies that design, manufacture and market analog and mixed-signal broadband RF receivers, optical interconnects, high-performance interface, data and video compression and encryption, and power management products. Our competitors include companies with much longer operating histories, greater name recognition, access to larger customer bases and substantially greater financial, technical and operational resources, as well as smaller companies specializing in narrow markets, to internal or vertically integrated engineering groups within certain of our customers. In addition, our industry is experiencing substantial consolidation. As a result, our competitors are increasingly large multi-national semi-conductor companies with substantial market influence. Our competitors may develop products that are similar or superior to ours. We consider our primary competitors to be companies with a proven track record of supporting market leaders and the technical capability to develop and bring to market competing broadband RF receiver and RF receiver SoC, modem, and optical interconnect products. Our primary merchant semiconductor competitors include Silicon Laboratories, Inc., NXP Semiconductors N.V., MediaTek, Inc., Broadcom Ltd, Rafael Microelectronics, Inc., Inphi Corporation, M/A-COM Technology Solutions Holdings, Inc., Semtech Corporation, Qorvo Inc., Texas Instruments Incorporated, HiSilicon Technologies Co., Ltd., Analog Devices, Inc., Renesas Electronics Corporation, Maxim Integrated Products, Inc. (which recently entered into a definitive agreement to be acquired by Analog Devices), Monolithic Power Systems, Inc., Microchip Technology, Inc., Ambarella, Inc., and Infineon Technologies AG. Because our products often are building block semiconductors which provide functions that in some cases can be integrated into more complex integrated circuits, we also face competition from manufacturers of integrated circuits, some of which may be existing customers or platform partners that develop their own integrated circuit products. If we cannot offer an attractive solution for applications where our competitors offer more fully integrated products, we may lose significant market share to our competitors. Some of our targeted customers for our optical interconnect solutions are module makers who are vertically integrated, where we compete with internally supplied components, and we compete with much larger analog and mixed-signal catalog competitors in the multi-market high-performance analog markets.

The market for RF, mixed-signal and high-performance analog semiconductor products is highly competitive, and we believe that it will grow more competitive as a result of continued technological advances. We believe that the principal competitive factors in our markets include the following:

- product performance;
- features and functionality;
- energy efficiency;
- size;
- ease of system design;
- customer support;
- product roadmap;
- reputation;
- reliability; and
- price.

We believe that we compete favorably as measured against each of these criteria. However, our ability to compete in the future will depend upon the successful design, development and marketing of compelling RF, analog, digital, and mixed-signal semiconductor integrated solutions for high growth communications markets. In addition, our competitive position will depend on our ability to continue to attract and retain talent while protecting our intellectual property.

Intellectual Property Rights

Our success and ability to compete depend, in part, upon our ability to establish and adequately protect our proprietary technology and confidential information. To protect our technology and confidential information, we rely on a combination of intellectual property rights, including patents, trade secrets, copyrights and trademarks. We also protect our proprietary technology and confidential information through the use of internal and external controls, including contractual protections with employees, contractors, business partners, consultants and advisors. Protecting mask works, or the "topography" or semiconductor material designs, of our integrated circuit products is of particular importance to our business and we seek to prevent or limit the ability of others to copy, reproduce or distribute our mask works.

We have 1,716 issued patents and 83 patent applications pending in the United States. We also have 349 issued foreign patents and 76 other pending foreign patent applications, based on our issued patents and pending patent applications in the United States.

We are the owner of approximately 10 trademarks that have been registered and/or allowed for registration in the United States. We own foreign counterparts (including approximately 36 foreign registrations) of certain of these registered trademarks in Canada, Chile, China, the EU, India, Israel, Japan, Korea, Singapore, and Taiwan. We also claim common law rights in certain other trademarks that are not registered.

We may not gain any competitive advantages from our patents and other intellectual property rights. Our existing and future patents may be circumvented, designed around, blocked or challenged as to inventorship, ownership, scope, validity or enforceability. It is possible that we may be provided with information in the future that could negatively affect the scope or enforceability of either our present or future patents. Furthermore, our pending and future patent applications may or may not be granted under the scope of the claims originally submitted in our patent applications. The scope of the claims submitted or granted may or may not be sufficiently broad to protect our proprietary technologies. Moreover, we have adopted a strategy of seeking limited patent protection with respect to the technologies used in or relating to our products.

We are a party to a number of license agreements for various technologies, such as a license agreement with Intel Corporation relating to demodulator technologies that are licensed specifically for use in our products for cable gateways. The license agreement with Intel Corporation has a perpetual term, but Intel Corporation may terminate the agreement for any uncured material breach or in the event of bankruptcy. If the agreement is terminated, we would not be able to manufacture or sell products that contain the demodulator technology licensed from Intel Corporation, and there would be a delay in the shipment of our products containing the technology until we found a replacement for the demodulator technology in the marketplace on commercially reasonable terms or we developed the demodulator technology itself. We believe we could find a substitute for the currently licensed demodulator technology in the marketplace on commercially reasonable terms or develop the demodulator technology ourselves. In either case, obtaining new licenses or replacing existing technology could have a material adverse effect on our business, as described in “Risk Factors — Risks Related to Intellectual Property — *We utilize a significant amount of intellectual property in our business. If we are unable to protect our intellectual property, our business could be adversely affected*.”

The semiconductor industry is characterized by frequent litigation and other vigorous offensive and protective enforcement actions over rights to intellectual property. Moreover, there are numerous patents in the semiconductor industry, and new patents are being granted rapidly worldwide. Our competitors may obtain patents that block or limit our ability to develop new technology and/or improve our existing products. If our products were found to infringe any patents or other intellectual property rights held by third parties, we could be prevented from selling our products or be subject to litigation fees, statutory fines and/or other significant expenses. We may be required to initiate litigation in order to enforce any patents issued to us, or to determine the scope or validity of a third-party’s patent or other proprietary rights. We may in the future be contacted by third parties suggesting that we seek a license to intellectual property rights that they may believe we are infringing. In addition, in the future, we may be subject to lawsuits by third parties seeking to enforce their own intellectual property rights, as described in “Risk Factors — Risks Related to Intellectual Property — *We have settled in the past intellectual property litigation and may face additional claims of intellectual property infringement. Current litigation and any future litigation could be time-consuming, costly to defend or settle and result in the loss of significant rights*” and in “Item 3 — Legal Proceedings.”

Governmental Regulation

Our business and operations around the world are subject to government regulation at the national, state, provincial, or local level addressing, among other matters, applicable environmental laws; health and safety laws and regulations adopted by government agencies such as the Occupational Safety and Health Administration; laws relating to export controls and economic sanctions; and the rules of industrial standards bodies such as the International Standards Organization and governmental agencies such as the Federal Trade Commission.

We believe that our properties and operations comply in all material respects with applicable laws protecting the environment and worker health and safety. We do not manufacture our own products but do maintain laboratory space at certain of our facilities to facilitate the development, evaluation, and testing of our products. These laboratories may maintain quantities of hazardous materials. While we believe we are in material compliance with applicable law concerning the safeguarding of these materials and with respect to other matters relating to health, safety, and the environment, the risk of liability relating to hazardous conditions or materials cannot be eliminated completely. To date, we have not incurred significant expenditures relating to environmental compliance at our facilities nor have we experienced any material issues relating to employee health and safety. We cannot provide assurances, however, that issues will not arise in the future or that applicable law will not require us to incur significant compliance expenditures.

In addition to environmental laws, our business is subject to various rules and regulations and executive orders relating to export controls and trade sanctions. Certain of our products are subject to the Export Administration Regulations (EAR), which are administered by the United States Department of Commerce's Bureau of Industry and Security (BIS), and we are periodically required to obtain an export license before we can export certain controlled products or technology to specified countries or customers. In addition, the EAR imposes broad controls on entities listed on sanctioned persons lists, including the BIS "Denied Persons" list and BIS Entity list. If one of our customers is listed on the BIS Entity List, BIS List of Denied Persons, or other U.S. government sanctioned persons list, then subject to certain limited exceptions, we will, as a general rule, be precluded from doing business with that customer. We cannot guarantee that export control restrictions or imposition of sanctions imposed in the future will not prevent, or materially limit, our ability to conduct business certain customers or in certain countries. Any failure to comply with these laws could result in governmental enforcement actions, including substantial monetary penalties and denial of export privileges.

Employees and Human Capital

Our future success depends on our ability to retain, attract and motivate qualified personnel, especially our design and technical personnel, but also our senior management and support personnel. As the source of our technological and product innovations, our design and technical personnel represent a significant asset. We emphasize our core values of Excellence, People, Integrity, and Compassion (EPIC) in our hiring and human resources practices as well as our customer service. We have a diverse workforce that represents many cultures and we celebrate our diversity by fostering inclusion across our multi-national organization. We acknowledge that we, along with the semiconductor and technology industry as a whole, can do more to advance gender and racial equality by increasing representation of underrepresented minorities as well as females in leadership and technical positions including engineering and other roles.

As of December 31, 2020, we had approximately 1420 employees, including 1,069 in research and development, 200 in sales and marketing, 46 in operations and semiconductor technology and 105 in administration. We have employees across 18 countries: 38% are in Asia, 29% in the Americas, 19% in Europe and 14% in the Middle East. Our workforce is represented by the following race/ethnicities: 53% Asian, 40% White or Middle Eastern, 7% Latinx or Hispanic origin, with 36% Asian and 64% White or Middle Eastern in senior management. Females represented 14% of our outside directors, 9% of senior management, 10% of our technical roles, and 18% of our total workforce. Of our total employee workforce, 13% is represented by Work Councils in Austria and Germany. The Work Council groups, common to these countries, are comprised of employees elected by the general employee base. We consider our global employee relations to be good. In 2020, our employee voluntary turnover rate was 8%.

Our human capital resources objectives include, as applicable, attracting and retaining talented and experienced employees, advisors, and consultants. We utilize multiple online search tools, specialized recruiting firms, employee referral programs and university hires to ensure a varied outreach approach for candidates. We aim to reduce the gender pay gap that is pervasive in our industry. We offer this via a combination of competitive base salary, time-based equity incentives and bonus plans linked to financial performance that are designed to motivate and reward personnel with annual grants of stock-based and cash-based incentive compensation awards to our employees, some of which vest over a period of four years, plus other benefits, in order to increase stockholder value and the success of our company by motivating such individuals to perform to the best of their abilities and achieve both our short and long-term objectives. We offer competitive benefits tailored to local markets and laws and designed to support employee health, welfare and retirement; examples of such benefits may include paid time off; 401(k), pension or other retirement plans; employee stock purchase plan; basic and voluntary life, disability and supplemental insurance; medical, dental and vision insurance; health savings and flexible spending accounts; relocation assistance; and employee assistance programs. Our global training and development program focuses on harassment-free workplace and diversity topics, as well as ethics and export compliance.

Our executive compensation structure aligns executive incentives with the long-term growth objectives of MaxLinear, including long-term share price appreciation. In that regard, our executive compensation programs have tended to place a relatively heavier weighting on equity compensation than our peers and include a performance-based metric to executives' equity incentives in addition to other forms of compensation offered to all employees. For more details regarding our executive compensation, refer to information incorporated by reference from the information set forth under the captions "Executive Compensation" and "Compensation Discussion and Analysis" in either an amendment to this Annual Report on Form 10-K or our 2021 Proxy Statement.

In 2020, our ongoing focus on workplace safety and compliance to applicable regulations has enabled us to preserve business continuity while ensuring a safe work environment during the COVID-19 pandemic, including work-from-home arrangements for a substantial portion of our workforce and reduced capacity for those that have returned to the office, adhering to local health authority guidelines. We also comply with applicable laws and regulations regarding workplace safety and are subject to audits by entities such as the Occupational Safety and Health Administration (OSHA) in the United States. We rely on third parties to manufacture our products and require our suppliers to maintain a safe work environment, as described in further detail under the below heading “Manufacturing.”

Seasonality

The semiconductor industry is highly cyclical and is characterized by constant and rapid technological change, rapid product obsolescence and price erosion, evolving technical standards, short product life cycles and wide fluctuations in product supply and demand. From time to time, these and other factors, together with changes in general economic conditions, cause significant upturns and downturns in the industry, and in our business in particular.

In addition, our operating results are subject to substantial quarterly and annual fluctuations due to a number of factors, such as the overall demand volatility for semiconductor solutions across a diverse range of communications, industrial and multimarket applications, the timing of receipt, reduction or cancellation of significant orders, the gain or loss of significant customers, market acceptance of our products and our customers’ products, our ability to timely develop, introduce and market new products and technologies, the availability and cost of products from our suppliers, new product and technology introductions by competitors, intellectual property disputes and the timing and extent of product development costs.

ITEM 1A. RISK FACTORS

This Annual Report on Form 10-K, or Form 10-K, including any information incorporated by reference herein, contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, referred to as the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, referred to as the Exchange Act. In some cases, you can identify forward-looking statements by terms such as “may,” “will,” “should,” “expect,” “plan,” “intend,” “forecast,” “anticipate,” “believe,” “estimate,” “predict,” “potential,” “continue” or the negative of these terms or other comparable terminology. The forward-looking statements contained in this Form 10-K involve known and unknown risks, uncertainties and situations that may cause our or our industry’s actual results, level of activity, performance or achievements to be materially different from any future results, levels of activity, performance or achievements expressed or implied by these statements. These factors include those listed below in this Item 1A and those discussed elsewhere in this Form 10-K. We encourage investors to review these factors carefully. We may from time to time make additional written and oral forward-looking statements, including statements contained in our filings with the SEC. However, we do not undertake to update any forward-looking statement that may be made from time to time by or on behalf of us, whether as a result of new information, future events or otherwise, except as required by law.

Before you invest in our securities, you should be aware that our business faces numerous financial and market risks, including those described below, as well as general economic and business risks. The following discussion provides information concerning the material risks and uncertainties that we have identified and believe may adversely affect our business, our financial condition and our results of operations. Before you decide whether to invest in our securities, you should carefully consider these risks and uncertainties, together with all of the other information included in this Form 10-K and in our other public filings, which could materially affect our business, financial condition or future results.

Risk Factor Summary

Risks Relating to our Acquisitions

- Our actual financial and operating results could differ materially from any expectations or guidance provided by us concerning future results, including with respect to any cost savings and other potential synergies.
- Failure to integrate the acquired businesses successfully in the expected time-frame may adversely affect our results and financial condition.
- Our business relationships, including customer relationships, may be subject to disruption due to uncertainty associated with the acquisitions.
- We may have difficulty motivating and retaining key personnel in light of the acquisitions.

- We have incurred material secured term loan indebtedness which adversely affects our operating results and cash-flows and contains covenants that could adversely affect our operational freedom and ability to pursue strategic transactions.

Risks Related to Our Business

- Impacts of the COVID-19 pandemic could adversely affect our business, financial condition, and results of operations.
- We face intense competition expected to increase in the future, which could have an adverse effect on our revenue, revenue growth rate, if any, and market share.
- We depend on a limited number of customers, who themselves are dependent on a consolidating set of service provider customers, for a substantial portion of our revenue, and the loss of, or a significant reduction in orders from our major customers could have a material adverse effect on our revenue and operating results.
- A significant, but declining portion of our revenue is attributable to demand for our products in markets for broadband (previously connected home) solutions, and development delays and consolidation trends among cable and satellite Pay-TV and broadband operators could adversely affect our future revenues and operating results.
- If we fail to penetrate new applications and markets, our revenue, revenue growth rate, if any, and financial condition could be materially and adversely affected.
- We may be unable to make the substantial and productive research and development investments that are required to remain competitive in our business.
- A significant variance in our operating results or rates of growth, if any, could lead to substantial volatility in our stock price. We may not sustain our current growth rate, and we may not be able to manage future growth effectively.
- The complexity of our products could result in unforeseen delays or expenses caused by undetected defects or bugs, which could reduce the market acceptance of our new products, damage our reputation and adversely affect our operating costs.
- Average selling prices of our products could decrease rapidly, which would have a material adverse effect on our revenue and gross margins.
- If we fail to develop and introduce new or enhanced products on a timely basis, our ability to attract and retain customers could be impaired and our competitive position could be harmed.
- We are subject to order and shipment uncertainties, and differences between our estimates of customer demand and product mix and our actual results could negatively affect our inventory levels, sales and operating results.
- We may have difficulty accurately predicting our future revenue and appropriately budgeting our expenses particularly as we seek to enter new markets where we may not have prior experience.
- If we are unable to attract, train and retain qualified design and technical personnel, we may not be able to execute our business strategy effectively.
- Our business would be adversely affected by the departure of existing members of our senior management team.
- Our customers require our products and our third-party contractors to undergo a lengthy and expensive qualification process which does not assure product sales.
- Winning business is subject to lengthy competitive selection processes that require us to incur significant expenditures and customers may decide to cancel or change their product plans, which could cause us to generate no revenue from a product and adversely affect our results of operations.
- Our operating results are subject to substantial quarterly and annual fluctuations due to a number of factors that could adversely affect our business and our stock price.
- We are subject to the cyclical nature of the semiconductor industry.
- Our business, financial condition and results of operations could be adversely affected by political and economic conditions and other factors related to our international operations.
- Our business is subject to various governmental regulations, and if we fail to maintain compliance, we may be forced to recall products and cease their manufacture and distribution, and we could be subject to civil or criminal penalties.

Risks Relating to Intellectual Property

- We may face future claims of intellectual property infringement, which could be time-consuming, costly to defend or settle and result in the loss of significant rights.
- If we are unable to protect our significant amount of intellectual property, our business could be adversely affected.
- We have been and may be subject to future information technology failures, including data protection breaches and cyber-attacks, that could disrupt our operations, damage our reputation and adversely affect our business, operations, and financial results.

Risks Relating to Reliance on Third Parties

- We rely on a limited number of third parties to manufacture, assemble, and test our products, and the failure to manage our relationships with our third-party contractors successfully, or impacts from natural disasters, public health crises, or other labor stoppages in the regions where such contractors operate, could adversely affect our ability to market and sell our products.
- Should any of our distributors cease or be forced to stop distributing our products, our business would suffer.
- We do not have any long-term supply contracts with our contract manufacturers or suppliers, and any disruption in our supply of products or materials could have a material adverse effect on our business, revenue and operating results.
- We rely on third parties to provide services and technology necessary for the operation of our business. Any failure of one or more of our partners, vendors, suppliers or licensors to provide these services or technology could have a material adverse effect on our business.

Risks Relating to Our Common Stock

- Our management team may use our available cash and cash equivalents in ways with which you may not agree or in ways which may not yield a return.
- Anti-takeover provisions in our charter documents and under Delaware law could make an acquisition of us more difficult, limit attempts by our stockholders to replace or remove our current management and limit the market price of our common stock.
- Our share price may be volatile as a result of various factors.

Risks Relating to our Acquisitions

Our actual financial and operating results could differ materially from any expectations or guidance provided by us concerning future results, including (without limitation) expectations or guidance with respect to the financial impact of any cost savings and other potential synergies.

We currently expect to realize material synergies as a result of our acquisitions of the Home Gateway Platform Division of Intel Corporation, or Intel, which we refer to as the Wi-Fi and Broadband assets business, and NanoSemi, Inc., or NanoSemi, and as a result, we currently believe that the acquisitions will, in aggregate, be accretive to our free cash-flow and non-GAAP earnings per share, excluding upfront non-recurring charges, transaction related expenses, the amortization of purchased intangible assets, and inventory fair value adjustments. The expectations and guidance we have provided with respect to the potential financial impact of the acquisitions are subject to numerous assumptions, however, including assumptions derived from our diligence efforts concerning the status of and prospects for the acquired businesses and assumptions relating to the near-term prospects for the semiconductor industry generally and the markets for the products of the acquired businesses in particular. The integration of the acquired businesses may present substantial incremental challenges that could materially and adversely affect our ability to realize the currently anticipated financial, operational, and strategic benefits of the acquisitions. Additional assumptions that could affect currently anticipated results relate to numerous matters, including (without limitation) the following:

- projections of the acquired businesses' future revenues;
- the anticipated financial performance of products of the acquired businesses and products currently in development;

- anticipated cost savings and other synergies associated with the acquisitions, including potential revenue synergies;
- our capital structure after the acquisitions;
- the amount of goodwill and intangibles that resulted from the acquisitions;
- certain other purchase accounting adjustments that we recorded in our financial statements in connection with the acquisitions;
- acquisition costs, including restructuring charges and transactions costs to our financial, legal, and accounting advisors;
- our ability to maintain, develop, and deepen relationships with customers of the acquired businesses; and
- other financial and strategic risks of the acquisitions, including the possible impact of reduced liquidity of MaxLinear resulting from deal-related cash outlays, the credit risk associated from the potential debt facility described below, and continued uncertainty arising from the COVID-19 pandemic.

We cannot provide any assurances with respect to the accuracy of our assumptions, including our assumptions with respect to future revenues or revenue growth rates, if any, of the acquired businesses, and we cannot provide assurances with respect to our ability to realize the cost savings that we currently anticipate. Risks and uncertainties that could cause our actual results to differ materially from currently anticipated results include, but are not limited to, risks relating to our ability to successfully complete the integration of the acquired businesses; currently unanticipated incremental costs that we may incur in connection with completing the integration of the acquired businesses into MaxLinear's; risks relating to our ability to realize incremental revenues from the acquisitions in the amounts that we currently anticipate; risks relating to the willingness of the customers and other partners of the acquired businesses to continue to conduct business with MaxLinear; and numerous risks and uncertainties that affect the semiconductor industry generally and the markets for our products and those of the acquired businesses specifically. We believe the continuing pandemic enhances certain of these risks and presents additional uncertainty in our ability to achieve the financial and strategic objectives of the acquisitions. Any failure to integrate the acquired businesses successfully and to realize the financial benefits we currently anticipate from the acquisitions would have a material adverse impact on our future operating results and financial condition and could materially and adversely affect the trading price or trading volume of our common stock.

Failure to integrate the acquired businesses with our business and operations successfully in the expected time-frame or otherwise may adversely affect MaxLinear's operating results and financial condition.

The success of the acquisitions of the Wi-Fi and Broadband assets business and NanoSemi will depend, in substantial part, on our ability to integrate the acquired businesses with MaxLinear and to realize fully the anticipated benefits and potential synergies from the integration, including, among others, currently expected cost savings from duplicative functions; potential operational efficiencies in our respective supply chains and in research and development investments; and potential revenue growth resulting from the addition of the product portfolio of the acquired businesses. Certain of the acquired products of the Wi-Fi and Broadband assets business are supplied to us on a turnkey basis under the terms of a supply agreement with Intel. While we believe this supply agreement mitigates certain near-term integration risks, we also rely on Intel as a source of supply for these products. Accordingly, this relationship presents similar supply risks as exist with respect to our other products as a fabless semiconductor company dependent on specific foundry relationships. See the Risk Factor entitled "*We rely on a limited number of third parties to manufacture, assemble, and test our products, and the failure to manage our relationships with our third-party contractors successfully, or impacts from natural disasters, public health crises, or other labor stoppages in the regions where such contractors operate, could adversely affect our ability to market and sell our products.*" We expect that the completion of the integration of two acquired businesses will be complex and time consuming and will require substantial management time and attention, which may divert attention and resources from other important areas, including our existing businesses. We may face significant challenges in consolidating our operations with the acquired businesses and addressing the different corporate cultures of MaxLinear and the acquired businesses. Furthermore, the acquired businesses also operate in jurisdictions materially affected by the COVID-19 pandemic, which enhances integration risks, in particular risks relating to our ability to retain key employees at a time when engagement is difficult, as described in more detail under the Risk Factor entitled "*We may have difficulty motivating and retaining key personnel in light of the acquisitions.*" Additional unanticipated costs may be incurred in the course of integrating our respective businesses. If the businesses are not successfully integrated, the anticipated benefits of the acquisitions may not be realized fully or at all or may take longer to realize than expected. In such a case, we would expect our operating results and financial condition to be materially and adversely affected, which could also have a material and adverse effect on the trading price or trading volume of our common stock.

Our business relationships, including customer relationships, and those of the acquired businesses may be subject to disruption due to uncertainty associated with the acquisitions.

In response to the announcement of the acquisitions, customers, vendors, licensors, and other third parties with whom we or the acquired businesses do business or otherwise have relationships may experience uncertainty associated with the acquisitions, and this uncertainty could materially affect their decisions with respect to existing or future business relationships with MaxLinear. As a result, we are in many instances unable to evaluate the impact of the acquisitions on certain assumed contract rights and obligations, including intellectual property rights.

These business relationships may be subject to disruption as customers and others may elect to delay or defer purchase or design-win decisions or switch to other suppliers due to the uncertainty about the direction of our offerings, any perceived unwillingness on our part to support existing products of the acquired businesses, or any general perceptions by customers or other third parties that impute operational or business challenges to us arising from the acquisitions. In addition, customers or other third parties may attempt to negotiate changes in existing business relationships, which may result in additional obligations imposed on us. These disruptions could have a material adverse effect on our business, operating results, and financial condition. Any loss of customers, customer products, design win opportunities, or other important strategic relationships could have a material adverse effect on our business, operating results, and financial condition and could have a material and adverse effect on the trading price or trading volume of our common stock.

We may have difficulty motivating and retaining key personnel in light of the acquisitions.

Uncertainty about the effect of the acquisitions on key employees may have an adverse effect on MaxLinear or the acquired businesses. Employee retention may be particularly challenging as our employees may experience frustrations during the integration process and uncertainty about their future roles with us following completion of integration of the acquired businesses, which also operate in jurisdictions materially affected by the COVID-19 pandemic. Attempting to complete the integration of these acquired businesses and new personnel around the world has been and will continue to be substantially complicated by continuing restrictions on travel and social distancing. We are taking various steps to mitigate these risks, but we cannot predict whether or to what extent the pandemic may adversely affect our ability to retain employees and successfully integrate the acquired businesses. If key employees depart, we may incur significant costs in identifying, hiring, and retaining replacements, which could substantially reduce or delay our ability to realize the anticipated benefits of the acquisitions, which could have a material adverse effect on our business, operating results, and financial condition.

We have incurred approximately $175.0 million of incremental secured term loan indebtedness, primarily to fund our $150.0 million acquisition of the Wi-Fi and Broadband assets business. As of December 31, 2020, our aggregate indebtedness was $369.8 million. Such indebtedness adversely affects our operating results and cash-flows as we satisfy our underlying interest and principal payment obligations and contains financial and operational covenants that could adversely affect our operational freedom or ability to pursue strategic transactions that we would otherwise consider to be in the best interests of stockholders, including obtaining additional indebtedness to finance such transactions.

MaxLinear financed the $150.0 million acquisition of the Wi-Fi and Broadband assets business in part with an incremental secured term loan facility in an aggregate principal amount of approximately $175.0 million, of which $157.8 million was outstanding as of December 31, 2020. The incremental term loan has a three-year term expiring in July 2023 and bears interest, at our option, at either an Adjusted LIBOR plus a fixed applicable margin of 4.25% per annum or an Adjusted Base Rate plus a fixed applicable margin of 3.25% per annum. The incremental term loan of $175.0 million amortizes in quarterly installments of principal equal to (i) 1.25% of the original aggregate principal amount of the incremental term loan on the last day of each of the first through fourth full fiscal quarters of the Company after July 31, 2020, (ii) 2.50% of the original aggregate principal amount of the Incremental Term Loan on the last day of each of the fifth through eighth full fiscal quarters of the Company after July 31, 2020, and (iii) 3.75% of the original aggregate principal amount of the incremental term loan on the last day of each of the ninth through the eleventh full fiscal quarters of the Company after July 31, 2020. The incremental term loan facility is secured by a first priority security interest in MaxLinear’s assets, subject to certain customary exceptions, as well as pledges of our equity interests in certain subsidiaries.

We had previously only carried long term debt on our balance sheet from one acquisition. We have prepaid a substantial portion of the total principal of debt from the prior acquisition and have financed the remainder of our operations principally through working capital generated from operations as well as sales and issuances of our equity securities. MaxLinear previously financed the acquisition of Exar in part with a secured initial term loan facility in an aggregate principal amount of approximately $425.0 million, of which $212.0 million remained outstanding as of December 31, 2020. The outstanding principal on the initial term loan is due at maturity on May 12, 2024. Our outstanding initial term loan debt is subject to a Adjusted LIBOR plus a 2.5% fixed applicable margin during the remainder of the term of the loan. The existing term loan facility is secured by a first priority security interest in MaxLinear's assets, subject to certain customary exceptions, as well as pledges of our equity interests in certain subsidiaries. As of December 31, 2020, our aggregate indebtedness under the initial and incremental term loan facilities was $369.8 million.

Our material incremental indebtedness adversely affects our operating expenses through increased interest payment obligations and adversely affects our ability to use cash generated from operations as we repay interest and principal under the term loans. In addition, the incremental term loan provisions include financial covenants such as an initial maximum total net leverage ratio of 3.5 to 1 which decreases to 3.0 to 1 beginning with the sixth full fiscal quarter after July 31, 2020, a requirement to maintain certain public corporate debt ratings, and operational covenants that may adversely affect our ability to engage in certain activities, including certain financing and acquisition transactions, stock repurchases, guarantees, and similar transactions, without obtaining the consent of the lenders, which may or may not be forthcoming. The initial secured term loan is only subject to operational covenants. Lastly, our borrowing costs can be affected by periodic credit ratings from independent rating agencies. Such ratings are largely based on our performance, which may be measured by credit metrics such as leverage and interest coverage ratios. Accordingly, outstanding indebtedness could adversely affect our operational freedom or ability to pursue strategic transactions that we would otherwise consider to be in the best interests of stockholders, including obtaining additional indebtedness to finance such transactions.

Specifically, our combined indebtedness has important consequences to investors in our common stock, including the following:

- we are subject to substantial variable interest rate risk because our interest rate under the incremental term loan varies based on a fixed margin of 4.25% per annum over an adjusted LIBOR rate or 3.25% per annum over an adjusted base rate and our interest rate under the initial term loan varies based on a fixed margin of 2.5% over an adjusted LIBOR rate. If interest rates were to increase substantially, it would adversely affect our operating results and could affect our ability to service the term loan indebtedness;

- a portion of our cash flows is dedicated to the payment of interest and when applicable, principal, on our indebtedness and other obligations and will not be available for use in our business;

- our level of indebtedness could limit our flexibility in planning for, or reacting to, changes in our business and the markets in which we operate; and

- our high degree of indebtedness may make us more vulnerable to changes in general economic conditions and/or a downturn in our business, thereby making it more difficult for us to satisfy our obligations.

If we fail to make required debt payments, or if we fail to comply with financial or other covenants in our debt service agreements, which include a maximum leverage ratio, we would be in default under the terms of these agreements. Subject to customary cure rights, any default would permit the holders of the indebtedness to accelerate repayment of this debt and could cause defaults under other indebtedness that we have, any of which could have a material adverse effect on the trading price of our common stock.

We expect to incur substantial expenses related to the integration of MaxLinear and the acquired businesses.

We expect to incur substantial expenses in connection with completion of the integration of the operations of MaxLinear and the acquired businesses. We expect operational integration to require substantial management attention. Numerous factors, many of which are beyond our control, could affect the total cost or the timing of expected integration expenses. Moreover, many of the expenses that will be incurred are by their nature difficult to estimate accurately at the present time. These expenses could, particularly in the near term, reduce the savings that we expect to achieve from the elimination of duplicative expenses and the realization of economies of scale and cost savings related to the integration of the businesses. These integration expenses may result in MaxLinear's taking significant charges against earnings.

We have recorded additional goodwill and other intangible assets in connection with the acquired businesses. Goodwill and other acquired intangible assets could become impaired and adversely affect our future operating results.

The acquisitions of the Wi-Fi and Broadband assets business and NanoSemi are accounted for as business combinations under the acquisition method of accounting by MaxLinear in accordance with accounting principles generally accepted in the United States. Under the acquisition method of accounting, the assets and liabilities of acquired businesses are recorded, as of completion, at their respective fair values and added to our assets and liabilities. Our reported financial condition and results of operations reflect the balances and results of the acquired businesses but are not restated retroactively to reflect the historical financial position or results of operations of acquired businesses for periods prior to the acquisitions. As a result, comparisons of future results against prior period results will be more difficult for investors.

Under the acquisition method of accounting, the total purchase price is allocated to net tangible assets and identifiable intangible assets of acquired businesses based on their fair values as of the date of completion of the acquisition. The excess of the purchase price over those fair values is recorded as goodwill. Our acquisitions have resulted in the creation of goodwill and recording of a large amount of intangible assets based upon the application of the acquisition method of accounting. To the extent the value of goodwill or other intangible assets become impaired, we may be required to incur material charges relating to such impairment. We conduct our annual goodwill and indefinite-lived intangible asset impairment analysis on October 31 each year, or more frequently if we believe indicators of impairment exist. In addition, there can be no guarantee that acquired intangible assets, particularly in-process research and development, will generate revenues or profits that we include in our forecast that is the basis for their fair values as of the acquisition date. Any such impairment charges relating to goodwill or other intangible assets could have a material impact on our operating results in future periods, and the announcement of a material impairment could have an adverse effect on the trading price and trading volume of our common stock. As of December 31, 2020, our balance sheet reflected goodwill of $302.8 million and other intangible assets of $207.3 million. Consequently, we could recognize material impairment charges in the future.

In addition to our acquisitions of the Wi-Fi and Broadband assets business and NanoSemi, we may, from time to time, make additional business acquisitions or investments, which involve significant risks.

We have completed multiple acquisitions in the past four years. We may also enter into alliances or make investments in other businesses to complement our existing product offerings, augment our market coverage or enhance our technological capabilities. Any such transactions could result in:

- issuances of equity securities dilutive to our existing stockholders;
- substantial cash payments;
- the incurrence of substantial debt and assumption of unknown liabilities;
- large one-time write-offs;
- amortization expenses related to intangible assets;
- a limitation on our ability to use our net operating loss carryforwards;
- the diversion of management's time and attention from operating our business to acquisition integration challenges;
- stockholder or other litigation relating to the transaction;
- adverse tax consequences; and
- the potential loss of key employees, customers and suppliers of the acquired businesses.

Integrating acquired organizations and their products and services, including the integration of completed acquisitions, may be expensive, time-consuming and a strain on our resources and our relationships with employees, customers, distributors and suppliers, and ultimately may not be successful. The benefits or synergies we may expect from the acquisition of complementary or supplementary businesses may not be realized to the extent or in the time frame we initially anticipate. Some of the risks that may affect our ability to successfully integrate acquired businesses include those associated with:

- failure to successfully further develop the acquired products or technology;
- conforming the acquired company’s standards, policies, processes, procedures and controls with our operations;
- coordinating new product and process development, especially with respect to highly complex technologies;
- loss of key employees or customers of the acquired business;
- hiring additional management and other critical personnel;

- in the case of foreign acquisitions, the need to integrate operations across different cultures and languages and to address the particular economic, currency, political and regulatory risks associated with specific countries;
- increasing the scope, geographic diversity and complexity of our operations;
- consolidation of facilities, integration of the acquired businesses' accounting, human resource and other administrative functions and coordination of product, engineering and sales and marketing functions;
- the geographic distance between the businesses;
- liability for activities of the acquired businesses before the acquisition, including patent and trademark infringement claims, violations of laws, commercial disputes, tax liabilities and other known and unknown liabilities; and
- litigation or other claims in connection with the acquired businesses, including claims for terminated employees, customers, former stockholders or other third parties.

We have in the past been and may in the future be party to ligation related to acquisitions. Any adverse determination in litigation resulting from acquisitions could have a material adverse effect on our business and operating results.

Risks Related to Our Business

Impacts of the COVID-19 pandemic could adversely affect our business, financial condition, and results of operations.

In late January 2020 and early February 2020, in response to a severe outbreak of the novel coronavirus disease, or COVID-19, the government of China instituted mandatory quarantines in Wuhan, China, extended lunar new year holiday closures, and restricted shipments out of the country. This resulted in a temporary delay in our product shipments in the first quarter of 2020. On March 11, 2020, the World Health Organization declared a global pandemic regarding COVID-19. The COVID-19 pandemic has reached all of the countries and states in which we operate, including in California where our headquarters and central engineering team are located, as well as Spain, India, Singapore, Taiwan, Canada, Japan, South Korea, Hong Kong, Israel, Germany, and Austria, where additional engineering, sales, and administrative personnel are located. In many of these jurisdictions, local authorities have instituted stay-at-home or shelter-in-place orders. To protect the health and safety of our employees, we adopted social distancing policies including suspending employee travel and implementing remote work arrangements for substantially all of our workforce worldwide. As of December 31, 2020, some of our workforce have returned to the office at reduced capacity adhering to local health authority guidelines. While we experienced some negative impact to our net revenue and gross profits in the first half of 2020 due to several industry-wide dynamics related to COVID-19, including supply constraints described above, as well as certain customer push-out requests, we are currently benefiting from the work-from-home environment that is driving an increase in demand for certain of our products. Further, global financial markets reacted negatively to the COVID-19 pandemic's impacts causing significant declines in the stock price and market capitalization of many companies across all industries, although some have recovered. Heightened volatility and uncertainty in customer demand and the worldwide economy in general has continued as a result of the COVID-19 pandemic, and we may experience increased volatility in sales and revenues in the near future. However, the magnitude of such volatility on our business and its duration is uncertain and cannot be reasonably estimated at this time.

Other areas of our business which could be disrupted or subject to negative impacts may include, but may not be limited to, the following:

- Decreased demand in geographic locations more severely impacted by the outbreak, particularly in the U.S. and Europe;
- Further supply constraints, including delays in production from temporary facility closures, supply shortages, and foundry, assembly or test capacity limitations;
- Disruptions in product shipments from travel and shipping restrictions imposed in response to local outbreaks;
- Slow down in the pace of integration of our acquisitions resulting from remote work arrangements and/or governmental closures beyond our control;
- Reduced ability to accurately predict our future revenue and budget future expenses;
- Inefficiencies, delays and additional costs in design win, product development, production and fulfillment which may be exacerbated by remote work arrangements;

- Accounts receivable collection issues should any of our limited and significant customers experience liquidity concerns;
- Material impacts to the value of our common stock, which may result in impairment of our goodwill;
- Material impairment of our assets, if recoverability thereof becomes a concern;
- Decreased availability of capital or access thereto in the United States and from other jurisdictions in which we operate; and
- Increased data security risks from remote working arrangements of our employees and those of our customers and vendors.

Although we currently expect that our present cash and cash equivalent balances and cash flows that are generated from operations will be sufficient to meet our operating requirements for at least the next twelve months, a material adverse impact from COVID-19 could result in a need to raise additional capital or incur additional indebtedness to fund strategic initiatives or operating activities, particularly if we pursue additional acquisitions. Additional funds may not be available on terms favorable to us or at all. If we are unable to raise additional funds when needed, we may not be able to sustain our operations or execute our strategic plans.

We face intense competition and expect competition to increase in the future, which could have an adverse effect on our revenue, revenue growth rate, if any, and market share.

The global semiconductor market in general, and the connected home, wired and wireless infrastructure, and broader industrial and communications analog and mixed-signal markets in particular, are highly competitive. We compete in different target markets to various degrees on the basis of a number of principal competitive factors, including our products' performance, features and functionality, energy efficiency, size, ease of system design, customer support, product roadmap, reputation, reliability and price. We expect competition to increase and intensify as a result of industry consolidation and the resulting creation of larger semiconductor companies. Large semiconductor companies resulting from industry consolidation could enjoy substantial market power, which they could exert through, among other things, aggressive pricing that could adversely affect our customer relationships and revenues. In addition, we expect the internal resources of large, integrated original equipment manufacturers, or OEMs, may continue to enter our markets. Increased competition could result in price pressure, reduced profitability and loss of market share, any of which could materially and adversely affect our business, revenue, revenue growth rates, if any, and operating results.

As our products are integrated into a variety of communications and industrial platforms, our competitors range from large, international merchant semiconductor companies offering a wide range of semiconductor products to smaller companies specializing in narrow markets, to internal or vertically integrated engineering groups within certain of our customers. Our primary merchant semiconductor competitors include Silicon Laboratories, Inc., NXP Semiconductors N.V., MediaTek, Inc., Broadcom Ltd, Rafael Microelectronics, Inc., Inphi Corporation, M/A-COM Technology Solutions Holdings, Inc., Semtech Corporation, Qorvo Inc., Texas Instruments Incorporated, HiSilicon Technologies Co., Ltd., Analog Devices, Inc., Renesas Electronics Corporation, Maxim Integrated Products, Inc. (which recently entered into a definitive agreement to be acquired by Analog Devices), Monolithic Power Systems, Inc., Microchip Technology, Inc., Ambarella, Inc., and Infineon Technologies AG. It is quite likely that competition in the markets in which we participate will increase in the future as existing competitors improve or expand their product offerings. In addition, it is quite likely that a number of other public and private companies are in the process of developing competing products for our current and target markets. Because our products often are building block semiconductors which provide functions that in some cases can be integrated into more complex integrated circuits, we also face competition from manufacturers of integrated circuits, some of which may be existing customers or platform partners that develop their own integrated circuit products. If we cannot offer an attractive solution for applications where our competitors offer more fully integrated products, we may lose significant market share to our competitors. Some of our targeted customers for our optical interconnect solutions are module makers who are vertically integrated, where we compete with internally supplied components, and we compete with much larger analog and mixed-signal catalog competitors in the multi-market high-performance analog markets.

Our ability to compete successfully depends on factors both within and outside of our control, including industry and general economic trends. During past periods of downturns in our industry, competition in the markets in which we operate intensified as manufacturers of semiconductors reduced prices in order to combat production overcapacity and high inventory levels. Many of our competitors have substantially greater financial and other resources with which to withstand similar adverse economic or market conditions in the future. Moreover, the competitive landscape is changing as a result of intense consolidation within our industry as some of our competitors have merged with or been acquired by other competitors, and other competitors have begun to collaborate with each other. In addition, changes in government trade policies, including the imposition of tariffs and export restrictions, could limit our ability to sell our products to certain customers and adversely affect our ability to compete successfully. These developments may materially and adversely affect our current and future target markets and our ability to compete successfully in those markets.

We depend on a limited number of customers, that have undergone or are undergoing consolidation and who themselves are dependent on a consolidating set of service provider customers, for a substantial portion of our revenue, and the loss of, or a significant reduction in orders from one or more of our major customers could have a material adverse effect on our revenue and operating results.

For fiscal 2020, our top two customers, which were both direct customers, accounted for 28% of our net revenue, and our ten largest customers collectively accounted for 68% of our net revenue, of which distributor customers accounted for 41% of our net revenue. We expect that our operating results for the foreseeable future will continue to show a substantial percentage of sales dependent on a relatively small number of customers. In the future, these customers may decide not to purchase our products at all, may purchase fewer products than they did in the past, or may defer or cancel purchases or otherwise alter their purchasing patterns. Factors that could affect our revenue from these large customers include the following:

- substantially all of our sales to date have been made on a purchase order basis, which permits our customers to cancel, change or delay product purchase commitments with little or no notice to us and without penalty;

- some of our customers have sought or are seeking relationships with current or potential competitors which may affect their purchasing decisions;

- service provider and OEM consolidation across cable, satellite, and fiber markets could result in significant changes to our customers' technology development and deployment priorities and roadmaps, which could affect our ability to forecast demand accurately and could lead to increased volatility in our business; and

- technological changes in our markets could lead to substantial volatility in our revenues based on product transitions, and particularly in our broadband markets, we face risks based on changes in the way consumers are accessing and using broadband and cable services, which could affect operator demand for our products.

In addition, delays in development could impair our relationships with our strategic customers and negatively impact sales of the products under development. Moreover, it is possible that our customers may develop their own products or adopt a competitor's solution for products that they currently buy from us. If that happens, our sales would decline and our business, financial condition and results of operations could be materially and adversely affected.

Our relationships with some customers may deter other potential customers who compete with these customers from buying our products. To attract new customers or retain existing customers, we may offer these customers favorable prices on our products. In that event, our average selling prices and gross margins would decline. The loss of a key customer, a reduction in sales to any key customer or our inability to attract new significant customers could seriously impact our revenue and materially and adversely affect our results of operations.

A significant portion of our revenues are from sales of product to distributors, who then resell our product. Our agreements with certain of these distributors provide protection against price reduction on their inventories of our products. The loss of certain distributors could have a material adverse effect on our business and results of operations, and price reductions associated with their inventories of our products could have a substantial adverse effect on our operating results in the event of a dramatic decline in selling prices for these products.

In addition, the current situation relating to trade with China and governmental and regulatory concerns relating to specific Chinese companies remain fluid and unpredictable. Our current and future operating results could be materially and adversely affected by limitations on our ability to sell to one or more Chinese customers and by tariffs and other trade barriers that may be implemented by governmental authorities.

A significant, but declining portion of our revenue is attributable to demand for our products in markets for broadband (previously connected home) solutions, and development delays and consolidation trends among cable and satellite Pay-TV and broadband operators could adversely affect our future revenues and operating results.

For fiscal 2020 and 2019, revenue directly attributable to broadband (previously connected home) applications accounted for approximately 51% and 38% of our net revenue, respectively. Delays in the development of, or unexpected developments in the broadband markets could have an adverse effect on order activity by original equipment manufacturers in these markets and, as a result, on our business, revenue, operating results and financial condition. In addition, consolidation trends among Pay-TV and broadband operators may continue, which could have a material adverse effect on our future operating results and financial condition.

If we fail to penetrate new applications and markets, our revenue, revenue growth rate, if any, and financial condition could be materially and adversely affected.

We sell a significant portion of our products to manufacturers of cable broadband voice and data modems and gateways, Pay-TV set-top boxes and gateways into cable and satellite operator markets, satellite outdoor units or LNB's, optical modules for long-haul and metro telecommunications markets, and RF transceivers and modem solutions for wireless infrastructure markets. Our product offerings also include broadband data access, power management and interface technologies which are ubiquitous functions in new and existing markets such as wireless and wireline communications infrastructure, broadband access, industrial, enterprise network, and automotive applications. We have further expanded our product offerings to include Wi-Fi, ethernet and broadband gateway processor systems-on-chip, or SoCs, and intellectual property that utilizes patented machine learning techniques to improve signal integrity and power efficiency in SoCs, application-specific integrated circuits, or ASICs, and field-programmable gate arrays, or FPGAs, used in next-generation communication and artificial intelligence systems. Our future revenue growth, if any, will depend in part on our ability to further penetrate into, and expand beyond, these markets with analog, digital and mixed-signal solutions targeting the markets for Wi-Fi and broadband, high-speed optical interconnects for data center, metro, and long-haul optical modules, telecommunications wireless infrastructure, and cable DOCSIS 3.1 network infrastructure products. Each of these markets presents distinct and substantial risks. If any of these markets do not develop as we currently anticipate, or if we are unable to penetrate them successfully, it could materially and adversely affect our revenue and revenue growth rate, if any.

Broadband data modems and gateways and Pay-TV and satellite set-top boxes and video gateways continue to represent a significant North American and European revenue generator. The North American and European Pay-TV market is dominated by only a few OEMs, including Technicolor, Commscope Holding Company, Inc., Hitron Technologies, Inc., Compal Broadband Networks, Humax Co., Ltd., and Samsung Electronics Co., Ltd. These OEMs are large multinational corporations with substantial negotiating power relative to us and are undergoing significant consolidation. Securing design wins with any of these companies requires a substantial investment of our time and resources. Even if we succeed, additional testing and operational certifications will be required by the OEMs' customers, which include large Pay-TV television companies such as Comcast Corporation, Liberty Global plc, Spectrum, Sky, AT&T and EchoStar Corporation. In addition, our products will need to be compatible with other components in our customers' designs, including components produced by our competitors or potential competitors. There can be no assurance that these other companies will support or continue to support our products.

If we fail to penetrate these or other new markets upon which we target our resources, our revenue and revenue growth rate, if any, likely will decrease over time and our financial condition could suffer.

We may be unable to make the substantial and productive research and development investments that are required to remain competitive in our business.

The semiconductor industry requires substantial investment in research and development in order to develop and bring to market new and enhanced technologies and products. Many of our products originated with our research and development efforts, which we believe have provided us with a significant competitive advantage. For fiscal years 2020, 2019, and 2018, our research and development expense was $180.0 million, $98.3 million, and $120.0 million respectively. We monitor such expenditures as part of our strategy of devoting focused research and development efforts on the development of innovative and sustainable product platforms. We are committed to investing in new product development internally in order to stay competitive in our markets and plan to maintain research and development and design capabilities for new solutions in advanced semiconductor process nodes such as 28nm and 16nm and beyond. However, we do not know whether we will have sufficient resources to maintain the level of investment in research and development required to remain competitive as semiconductor process nodes continue to shrink and become increasingly complex. In addition, we cannot assure you that the technologies that are the focus of our research and development expenditures will become commercially successful.

We are currently benefiting from an uptick in demand for certain products due to the work-from-home environment caused by the COVID-19 pandemic. A significant variance in our operating results or rates of growth, if any, could lead to *substantial volatility in our stock price. We may not sustain our current growth rate, and we may not be able to manage future growth effectively.*

Our net revenue increased in 2020 to $478.6 million from $317.2 million in 2019 due to market strength attributed to the work-from-home environment that is driving an increase in demand for certain of our products, particularly those from our acquisition of the Wi-Fi and Broadband assets business. The COVID-19 pandemic could result in increased volatility in our sales and revenues. You should not rely on our operating results for any prior quarterly or annual periods as an indication of our future operating performance. Please refer to the Risk Factor entitled "*Our operating results are subject to substantial quarterly and annual fluctuations and may fluctuate significantly due to a number of factors that could adversely affect our business and our stock price*" for a discussion of factors contributing to variances in our operating results or rates of growth. If we are unable to sustain adequate revenue growth, our financial results could suffer and our stock price could decline.

To sustain and manage any future growth successfully, we believe we must effectively, among other things:

- successfully develop new products and penetrate new applications and markets;
- recruit, hire, train and manage additional qualified engineers for our research and development activities, especially in the positions of design engineering, product and test engineering and applications engineering;
- add sales personnel and expand customer engineering support offices;
- implement and improve our administrative, financial and operational systems, procedures and controls; and
- enhance our information technology support for enterprise resource planning and design engineering by adapting and expanding our systems and tool capabilities, and properly training new hires as to their use.

If we are unable to sustain and manage our growth effectively, we may not be able to take advantage of market opportunities or develop new products and we may fail to satisfy customer requirements, maintain product quality, execute our business plan, or respond to competitive pressures.

The complexity of our products could result in unforeseen delays or expenses caused by undetected defects or bugs, which could reduce the market acceptance of our new products, damage our reputation with current or prospective customers and adversely affect our operating costs.

Highly complex products like our Wi-Fi and broadband RF receivers and RF receiver SoCs, physical medium devices for optical modules, RF transceiver and modem solutions for wireless infrastructure markets, and high-performance analog solutions may contain defects and bugs when they are first introduced or as new versions are released. Where any of our products, including legacy acquired products, contain defects or bugs, or have reliability, quality or compatibility problems, we may not be able to successfully correct these problems. Consequently, our reputation may be damaged and customers may be reluctant to buy our products, which could materially and adversely affect our ability to retain existing customers and attract new customers, and our financial results. In addition, these defects or bugs could interrupt or delay sales to our customers. If any of these problems are not found until after we have commenced commercial production of a new product, we may be required to incur additional development costs and product recall, repair or replacement costs, and our operating costs could be adversely affected. These problems may also result in warranty or product liability claims against us by our customers or others that may require us to make significant expenditures to defend these claims or pay damage awards. In the event of a warranty claim, we may also incur costs if we compensate the affected customer. We maintain product liability insurance, but this insurance is limited in amount and subject to significant deductibles. There is no guarantee that our insurance will be available or adequate to protect against all claims. We also may incur costs and expenses relating to a recall of one of our customers' products containing one of our devices. The process of identifying a recalled product in devices that have been widely distributed may be lengthy and require significant resources, and we may incur significant replacement costs, contract damage claims from our customers and reputational harm. Costs or payments made in connection with warranty and product liability claims and product recalls could materially affect our financial condition and results of operations.

Average selling prices of our products could decrease rapidly, which would have a material adverse effect on our revenue and gross margins.

We may experience substantial period-to-period fluctuations in future operating results due to the erosion of our average selling prices. From time to time, we have reduced the average unit price of our products due to competitive pricing pressures, new product introductions by us or our competitors, and for other reasons, and we expect that we will have to do so again in the future. In particular, we believe that industry consolidation has provided a number of larger semiconductor companies with substantial market power, which has had an adverse impact on selling prices in some of our markets. If we are unable to offset any reductions in our average selling prices by increasing our sales volumes or introducing new products with higher margins, our revenue and gross margins will suffer. To support our gross margins, we must develop and introduce new products and product enhancements on a timely basis and continually reduce our and our customers' costs. Our inability to do so would cause our revenue and gross margins to decline. In addition, under certain of our agreements with key distributors, we provide protection for reductions in selling prices of the distributors' inventory, which could have a significant adverse effect on our operating results if the selling prices for those products fell dramatically.

If we fail to develop and introduce new or enhanced products on a timely basis, our ability to attract and retain customers could be impaired and our competitive position could be harmed.

We operate in a dynamic environment characterized by rapidly changing technologies and industry standards and technological obsolescence. To compete successfully, we must design, develop, market and sell new or enhanced products that provide increasingly higher levels of performance and reliability and meet the cost expectations of our customers. The introduction of new products by our competitors, the market acceptance of products based on new or alternative technologies, or the emergence of new industry standards could render our existing or future products obsolete. Our failure to anticipate or timely develop new or enhanced products or technologies in response to technological shifts could result in decreased revenue and our competitors winning more competitive bid processes, known as "design wins." In particular, we may experience difficulties with product design, manufacturing, marketing or certification that could delay or prevent our development, introduction or marketing of new or enhanced products. If we fail to introduce new or enhanced products that meet the needs of our customers or penetrate new markets in a timely fashion, we will lose market share and our operating results will be adversely affected.

In particular, we believe that we will need to develop new products in part to respond to changing dynamics and trends in our end user markets, including (among other trends) consolidation among cable and satellite operators, potential industry shifts away from the hardware devices and other technologies that incorporate certain of our products, and changes in consumer television viewing habits and how consumers access and receive broadcast content and digital broadband services. We cannot predict how these trends will continue to develop or how or to what extent they may affect our future revenues and operating results. We believe that we will need to continue to make substantial investments in research and development in an attempt to ensure a product roadmap that anticipates these types of changes; however, we cannot provide any assurances that we will accurately predict the direction in which our markets will evolve or that we will be able to develop, market, or sell new products that respond to such changes successfully or in a timely manner, if at all.

We are subject to order and shipment uncertainties, and differences between our estimates of customer demand and product mix and our actual results could negatively affect our inventory levels, sales and operating results.

Our revenue is generated on the basis of shipments of products under purchase orders with our customers rather than long-term purchase commitments. In addition, our customers can cancel purchase orders or defer the shipments of our products under certain circumstances. Our products are manufactured using a silicon foundry according to our estimates of customer demand, which requires us to make separate demand forecast assumptions for every customer, each of which may introduce significant variability into our aggregate estimate. We have limited visibility into future customer demand and the product mix that our customers will require, which could adversely affect our revenue forecasts and operating margins. Moreover, because our target markets are relatively new, many of our customers have difficulty accurately forecasting their product requirements and estimating the timing of their new product introductions, which ultimately affects their demand for our products. Historically, because of this limited visibility, actual results have been different from our forecasts of customer demand. Some of these differences have been material, leading to excess inventory or product shortages and revenue and margin forecasts above those we were actually able to achieve. These differences may occur in the future, and the adverse impact of these differences between forecasts and actual results could grow if we are successful in selling in and expanding the customer base for our products. In addition, the rapid pace of innovation in our industry could render significant portions of our inventory obsolete. Excess or obsolete inventory levels could result in unexpected expenses or increases in our reserves that could adversely affect our business, operating results and financial condition. Conversely, if we were to underestimate customer demand or if sufficient manufacturing capacity were unavailable, we could forego revenue opportunities, potentially lose market share and damage our customer relationships. In addition, any significant future cancellations or deferrals of product orders or the return of previously sold products due to manufacturing defects could materially and adversely impact our profit margins, increase our write-offs due to product obsolescence and restrict our ability to fund our operations.

We may have difficulty accurately predicting our future revenue and appropriately budgeting our expenses particularly as we seek to enter new markets where we may not have prior experience.

Our operating history had previously focused on developing integrated circuits for specific terrestrial, cable and satellite television, and broadband voice and data applications, satellite set-top and gateway boxes and outdoor units and physical medium devices for the optical interconnect markets, and as part of our strategy, we seek to expand our addressable market into new product categories. For example, we expanded into the markets for the wired whole-home broadband connectivity market and entered the markets for wireless telecommunications infrastructure and power management and interface technologies which are ubiquitous functions in wireless and wireline communications infrastructure, broadband access, industrial, enterprise network, and automotive applications. We have also expanded into the markets for Wi-Fi, Ethernet and Broadband Gateway Processor SoCs and intellectual property that utilizes patented machine learning techniques to improve signal integrity and power efficiency in systems-on-chip, or SoCs, application-specific integrated circuits, or ASICs, and field-programmable gate arrays, or FPGAs, used in next-generation communication and artificial intelligence systems. Our limited operating experience in these new markets or potential markets we may enter, combined with the rapidly evolving nature of our markets in general, substantial uncertainty concerning how these markets may develop and other factors beyond our control reduces our ability to accurately forecast quarterly or annual revenue. If our revenue does not increase as anticipated, we could incur significant losses due to our higher expense levels if we are not able to decrease our expenses in a timely manner to offset any shortfall in future revenue.

If we are unable to attract, train and retain qualified personnel, especially our design and technical personnel, we may not be able to execute our business strategy effectively.

Our future success depends on our ability to retain, attract and motivate qualified personnel, including our management, sales and marketing and finance, and especially our design and technical personnel. We do not know whether we will be able to attract and retain all of these personnel as we continue to pursue our business strategy. Historically, we have encountered difficulties in hiring and retaining qualified engineers because there is a limited pool of engineers with the expertise required in our field. Competition for these personnel is intense in the semiconductor industry. As the source of our technological and product innovations, our design and technical personnel represent a significant asset. The loss of the services of one or more of our key employees, especially our key design and technical personnel, or our inability to retain, attract and motivate qualified design and technical personnel, could have a material adverse effect on our business, financial condition and results of operations.

Our business would be adversely affected by the departure of existing members of our senior management team.

Our success depends, in large part, on the continued contributions of our senior management team. None of our senior management team is bound by written employment contracts to remain with us for a specified period. In addition, we have not entered into non-compete agreements with members of our senior management team. We are fortunate that many members of our executive management team have long tenures with us, but from time to time we also have been required to recruit new executive officers. With respect to executive officer recruitment and retention, we need to ensure that our executive compensation programs provide sufficient recruitment and retention incentives as well as incentives to achieve our long-term strategic business and financial objectives. We expect competition for individuals with our required skill sets, particularly technical and engineering skills, to remain intense even in weak global macroeconomic environments. The loss of any member of our senior management team could harm our ability to implement our business strategy and respond to the rapidly changing market conditions in which we operate.

Our customers require our products and our third-party contractors to undergo a lengthy and expensive qualification process which does not assure product sales.

Prior to purchasing our products, our customers require that both our products and our third-party contractors undergo extensive qualification processes, which involve testing of the products in the customer's system and rigorous reliability testing. This qualification process may continue for six months or more. However, qualification of a product by a customer does not assure any sales of the product to that customer. Even after successful qualification and sales of a product to a customer, a subsequent revision to our solutions, or changes in our customer's manufacturing process or our selection of a new supplier may require a new qualification process, which may result in delays and in us holding excess or obsolete inventory. After our products are qualified, it can take six months or more before the customer commences volume production of components or devices that incorporate our products. Despite these uncertainties, we devote substantial resources, including design, engineering, sales, marketing and management efforts, to qualifying our products with customers in anticipation of sales. If we are unsuccessful or delayed in qualifying any of our products with a customer, sales of this product to the customer may be precluded or delayed, which may result in a decrease in our revenue and cause our business to suffer.

Winning business is subject to lengthy competitive selection processes that require us to incur significant expenditures. Even if we begin a product design, customers may decide to cancel or change their product plans, which could cause us to generate no revenue from a product and adversely affect our results of operations.

We are focused on securing design wins to develop RF receivers and RF receiver SoCs, MoCA and G.hn SoCs, DBS-ODU SoCs, physical medium devices for optical modules, interface and power management devices, and SoC solutions targeting infrastructure opportunities within the telecommunications, wireless, industrial and multimarket and Wi-Fi and broadband operator markets for use in our customers' products. These selection processes typically are lengthy and can require us to incur significant design and development expenditures and dedicate scarce engineering resources in pursuit of a single customer opportunity. We may not win the competitive selection process and may never generate any revenue despite incurring significant design and development expenditures. These risks are exacerbated by the fact that some of our customers' products likely will have short life cycles. Failure to obtain a design win could prevent us from offering an entire generation of a product, even though this has not occurred to date. This could cause us to lose revenue and require us to write off obsolete inventory, and could weaken our position in future competitive selection processes. After securing a design win, we may experience delays in generating revenue from our products as a result of the lengthy development cycle typically required. Our customers generally take a considerable amount of time to evaluate our products. The typical time from early engagement by our sales force to actual product introduction runs from nine to twelve months for the consumer market, to as much as 18 to 24 months for the satellite markets, and 36 months or longer for industrial, wired and wireless infrastructure markets. The delays inherent in these lengthy sales cycles increase the risk that a customer will decide to cancel, curtail, reduce or delay its product plans, causing us to lose anticipated sales. In addition, any delay or cancellation of a customer's plans could materially and adversely affect our financial results, as we may have incurred significant expense and generated no revenue. Finally, our customers' failure to successfully market and sell their products could reduce demand for our products and materially and adversely affect our business, financial condition and results of operations. If we were unable to generate revenue after incurring substantial expenses to develop any of our products, our business would suffer.

Our operating results are subject to substantial quarterly and annual fluctuations and may fluctuate significantly due to a number of factors that could adversely affect our business and our stock price.

Our revenue and operating results have fluctuated in the past and are likely to fluctuate in the future. These fluctuations may occur on a quarterly and on an annual basis and are due to a number of factors, many of which are beyond our control. These factors include, among others:

- changes in end-user demand for the products manufactured and sold by our customers;
- the receipt, reduction or cancellation of significant orders by customers;
- fluctuations in the levels of component inventories held by our customers;
- the gain or loss of significant customers;
- market acceptance of our products and our customers' products;
- our ability to develop, introduce, and market new products and technologies on a timely basis;
- the timing and extent of product development costs;
- new product announcements and introductions by us or our competitors;
- incurrence of research and development and related new product expenditures;
- seasonality or cyclical fluctuations in our markets;
- government actions, by the United States, China or other countries, that impose barriers or restrictions that would impact our ability to sell or ship products to customers;
- currency fluctuations;
- fluctuations in IC manufacturing yields;

- significant warranty claims, including those not covered by our suppliers;
- changes in our product mix or customer mix;
- intellectual property disputes;
- loss of key personnel or the shortage of available skilled workers;
- impairment of long-lived assets, including masks and production equipment;
- the effects of competitive pricing pressures, including decreases in average selling prices of our products; and
- uncertainties arising from the impact of the COVID-19 pandemic on the market and our business operations.

These factors are difficult to forecast, and these, as well as other factors, could materially adversely affect our quarterly or annual operating results. We typically are required to incur substantial development costs in advance of a prospective sale with no certainty that we will ever recover these costs. A substantial amount of time may pass between a design win and the generation of revenue related to the expenses previously incurred, which can potentially cause our operating results to fluctuate significantly from period to period. In addition, a significant amount of our operating expenses are relatively fixed in nature due to our significant sales, research and development costs. Any failure to adjust spending or our operations quickly enough to compensate for a revenue shortfall could magnify its adverse impact on our results of operations.

We are subject to the cyclical nature of the semiconductor industry.

The semiconductor industry is highly cyclical and is characterized by constant and rapid technological change, rapid product obsolescence and price erosion, evolving standards, short product life cycles and wide fluctuations in product supply and demand. Any future downturns may result in diminished product demand, production overcapacity, high inventory levels and accelerated erosion of average selling prices. Furthermore, any upturn in the semiconductor industry could result in increased competition for access to third-party foundry and assembly capacity. We are dependent on the availability of this capacity to manufacture and assemble all of our products. None of our third-party foundry or assembly contractors has provided assurances that adequate capacity will be available to us in the future. A significant downturn or upturn could have a material adverse effect on our business and operating results.

Our business, financial condition and results of operations could be adversely affected by the political and economic conditions of the countries in which we conduct business and other factors related to our international operations.

We sell our products throughout the world. Products shipped to Asia accounted for 82% of our net revenue in the year ended December 31, 2020. In addition, as of December 31, 2020, approximately 72% of our employees are located outside of the United States. The majority of our products are manufactured, assembled and tested in Asia, and all of our major distributors are located in Asia. Multiple factors relating to our international operations and to particular countries in which we operate could have a material adverse effect on our business, financial condition and results of operations. These factors include:

- changes in political, regulatory, legal or economic conditions;
- restrictive governmental actions, such as restrictions on the transfer or repatriation of funds and foreign investments and trade protection measures, including export duties and quotas and customs duties and tariffs;
- disruptions of capital and trading markets;
- changes in import or export licensing requirements;
- transportation delays;
- civil disturbances or political instability;
- geopolitical turmoil, including terrorism, war or political or military coups;
- public health emergencies, including the COVID-19 pandemic;
- differing employment practices and labor standards;

- limitations on our ability under local laws to protect our intellectual property;
- local business and cultural factors that differ from our customary standards and practices;
- nationalization and expropriation;
- changes in tax laws;
- currency fluctuations relating to our international operating activities; and
- difficulty in obtaining distribution and support.

In addition to a significant portion of our wafer supply coming from Taiwan, Singapore, and China, substantially all of our products undergo packaging and final testing in Taiwan, Singapore, China, South Korea, and Thailand. Any conflict or uncertainty in these countries, including due to natural disaster or public health or safety concerns, could have a material adverse effect on our business, financial condition and results of operations. In addition, if the government of any country in which our products are manufactured or sold sets technical standards for products manufactured in or imported into their country that are not widely shared, it may lead some of our customers to suspend imports of their products into that country, require manufacturers in that country to manufacture products with different technical standards and disrupt cross-border manufacturing relationships which, in each case, could have a material adverse effect on our business, financial condition and results of operations. We also are subject to risks associated with international political conflicts involving the U.S. and potentially other governments. In recent years, diplomatic and trade relationships between the U.S. government and China have been frayed. Recent events in Hong Kong have also prompted other governments such as that of the United Kingdom to reconsider its trade and business relationships with China and with certain Chinese companies. Difficulties in these relationships have in a number of cases required us to take actions adverse to our business to comply with governmental restrictions on business and trade with China. In May 2019 and subsequently, we ceased business operations that were prohibited with entities affiliated with Huawei Technologies Co., Ltd., or Huawei and certain other entities, when the Bureau of Industry and Security at the U.S. Department of Commerce, or BIS, amended the Export Administration Regulations, or EAR, to add such entities to the Restricted Entity List for acting contrary to the national security or foreign policy interests of the United States. In September 2020, we further ceased business operations that were prohibited with additional entities affiliated with Huawei when the BIS again amended the EAR to add such entities to the Restricted Entity List. Similarly, we ceased business operations with entities affiliated with ZTE Corp. when the BIS imposed an export licensing requirement, which was subsequently suspended through March 28, 2017. Such suspension was lifted as of March 29, 2017, however on April 17, 2018 the U.S. Department of Commerce imposed a seven-year export ban on ZTE, which was subsequently lifted as of July 13, 2018. Although we have not had significant sales to ZTE and certain other entities, we did have increasing sales to Huawei in the past year, and we believe the imposition of governmental prohibitions on selling our products to Huawei will adversely affect our revenues and operating results in the near term. We cannot provide assurances that similar disruptions of distribution arrangements in the future or the imposition of governmental prohibitions on selling our products to particular customers will not also adversely affect our revenues and operating results. Loss of a key distributor or customer under similar circumstances could have an adverse effect on our business, revenues and operating results.

Our business is subject to various governmental regulations, and compliance with these regulations may cause us to incur significant expenses. If we fail to maintain compliance with applicable regulations, we may be forced to recall products and cease their manufacture and distribution, and we could be subject to civil or criminal penalties.

Our business is subject to various international and U.S. laws and other legal requirements, including packaging, product content, labor, import/export control regulations, the Foreign Corrupt Practices Act, and other anticorruption laws. These regulations are complex, change frequently and have generally become more stringent over time. We may be required to incur significant costs to comply with these regulations or to remedy violations. Any failure by us to comply with applicable government regulations could result in cessation of our operations or portions of our operations, product recalls or impositions of fines and restrictions on our ability to conduct our operations. In addition, because many of our products are regulated or sold into regulated industries, we must comply with additional regulations in marketing our products.

Our products and operations are also subject to the rules of industrial standards bodies, like the International Standards Organization, as well as regulation by other agencies, such as the U.S. Federal Communications Commission. If we fail to adequately address any of these rules or regulations, our business could be harmed.

For example, as indicated elsewhere in this report, we do a substantial portion of our business in Asia and particularly in China. In recent years, there has been a substantial focus by regulators in the United States and Europe on the business practices of major Chinese technology companies such as Huawei and ZTE. ZTE is our current customer, but in May 2019 and subsequent months, and again in September 2020 with additional affiliated entities, we ceased prohibited business operations with Huawei and its affiliates and certain other restricted entities. While we intend to continue to conduct our businesses in compliance with all applicable laws, including laws relating to export controls and anti-corruption, it is possible that the nature of our business and customers could result in a review of our relationships and practices by regulatory authorities. We could incur increased administrative and legal costs in order to respond to any inquiries, and any failure to comply with applicable laws could adversely affect our business and operating results. We have implemented policies and procedures, including adoption of an anti-corruption policy and procedures to ensure compliance with applicable export control laws, but there can be no assurance that these policies and procedures will prove effective.

We must conform the manufacture and distribution of our semiconductors to various laws and adapt to regulatory requirements in all countries as these requirements change. If we fail to comply with these requirements in the manufacture or distribution of our products, we could be required to pay civil penalties, face criminal prosecution and, in some cases, be prohibited from distributing our products in commerce until the products or component substances are brought into compliance.

Our products must conform to industry standards in order to be accepted by end users in our markets.

Generally, our products comprise only a part or parts of a communications device. All components of these devices must uniformly comply with industry standards in order to operate efficiently together. We depend on companies that provide other components of the devices to support prevailing industry standards. Many of these companies are significantly larger and more influential in driving industry standards than we are. Some industry standards may not be widely adopted or implemented uniformly, and competing standards may emerge that may be preferred by our customers or end users. If larger companies do not support the same industry standards that we do, or if competing standards emerge, market acceptance of our products could be adversely affected, which would harm our business.

Products for communications applications are based on industry standards that are continually evolving. Our ability to compete in the future will depend on our ability to identify and ensure compliance with these evolving industry standards. The emergence of new industry standards could render our products incompatible with products developed by other suppliers. As a result, we could be required to invest significant time and effort and to incur significant expense to redesign our products to ensure compliance with relevant standards. If our products are not in compliance with prevailing industry standards for a significant period of time, we could miss opportunities to achieve crucial design wins. We may not be successful in developing or using new technologies or in developing new products or product enhancements that achieve market acceptance. Our pursuit of necessary technological advances may require substantial time and expense.

Risks Relating to Intellectual Property

We have settled in the past intellectual property litigation and may face additional claims of intellectual property infringement. Any future litigation could be time-consuming, costly to defend or settle and result in the loss of significant rights.

The semiconductor industry is characterized by companies that hold large numbers of patents and other intellectual property rights and that vigorously pursue, protect and enforce intellectual property rights. Third parties have in the past and may in the future assert against us and our customers and distributors their patent and other intellectual property rights to technologies that are important to our business. In particular, from time to time, we receive correspondence from competitors seeking to engage us in discussions concerning potential claims against us, and we receive correspondence from customers seeking indemnification for potential claims related to infringement claims asserted against down-stream users of our products. We investigate these requests as received and could be required to enter license agreements with respect to third party intellectual property rights or indemnify third parties, either of which could have an adverse effect on our future operating results.

Claims that our products, processes or technology infringe third-party intellectual property rights, regardless of their merit or resolution are costly to defend or settle and could divert the efforts and attention of our management and technical personnel. In addition, many of our customer and distributor agreements require us to indemnify and defend our customers or distributors from third-party infringement claims and pay damages in the case of adverse rulings. Claims of this sort also could harm our relationships with our customers or distributors and might deter future customers from doing business with us. In order to maintain our relationships with existing customers and secure business from new customers, we have been required from time to time to provide additional assurances beyond our standard terms. If any future proceedings result in an adverse outcome, we could be required to:

- cease the manufacture, use or sale of the infringing products, processes or technology;

- pay substantial damages for infringement;
- expend significant resources to develop non-infringing products, processes or technology;
- license technology from the third-party claiming infringement, which license may not be available on commercially reasonable terms, or at all;
- cross-license our technology to a competitor to resolve an infringement claim, which could weaken our ability to compete with that competitor; or
- pay substantial damages to our customers or end users to discontinue their use of or to replace infringing technology sold to them with non-infringing technology.

Any of the foregoing results could have a material adverse effect on our business, financial condition, and results of operations.

We utilize a significant amount of intellectual property in our business. If we are unable to protect our intellectual property, our business could be adversely affected.

Our success depends in part upon our ability to protect our intellectual property. To accomplish this, we rely on a combination of intellectual property rights, including patents, copyrights, trademarks and trade secrets in the United States and in selected foreign countries where we believe filing for such protection is appropriate. Effective patent, copyright, trademark and trade secret protection may be unavailable, limited or not applied for in some countries. Some of our products and technologies are not covered by any patent or patent application. We cannot guarantee that:

- any of our present or future patents or patent claims will not lapse or be invalidated, circumvented, challenged or abandoned;
- our intellectual property rights will provide competitive advantages to us;
- our ability to assert our intellectual property rights against potential competitors or to settle current or future disputes will not be limited by our agreements with third parties;
- any of our pending or future patent applications will be issued or have the coverage originally sought;
- our intellectual property rights will be enforced in jurisdictions where competition may be intense or where legal protection may be weak;
- any of the trademarks, copyrights, trade secrets or other intellectual property rights that we presently employ in our business will not lapse or be invalidated, circumvented, challenged or abandoned; or
- we will not lose the ability to assert our intellectual property rights against or to license our technology to others and collect royalties or other payments.

In addition, our competitors or others may design around our protected patents or technologies. Effective intellectual property protection may be unavailable or more limited in one or more relevant jurisdictions relative to those protections available in the United States, or may not be applied for in one or more relevant jurisdictions. If we pursue litigation to assert our intellectual property rights, an adverse decision in any of these legal actions could limit our ability to assert our intellectual property rights, limit the value of our technology or otherwise negatively impact our business, financial condition and results of operations.

Monitoring unauthorized use of our intellectual property is difficult and costly. Unauthorized use of our intellectual property may have occurred or may occur in the future. Although we have taken steps to minimize the risk of this occurring, any such failure to identify unauthorized use and otherwise adequately protect our intellectual property would adversely affect our business. Moreover, if we are required to commence litigation, whether as a plaintiff or defendant as has occurred in the past, not only will this be time-consuming, but we will also be forced to incur significant costs and divert our attention and efforts of our employees, which could, in turn, result in lower revenue and higher expenses.

We also rely on customary contractual protections with our customers, suppliers, distributors, employees and consultants, and we implement security measures to protect our trade secrets. We cannot assure you that these contractual protections and security measures will not be breached, that we will have adequate remedies for any such breach or that our suppliers, employees or consultants will not assert rights to intellectual property arising out of such contracts.

In addition, we have a number of third-party patent and intellectual property license agreements. Some of these license agreements require us to make one-time payments or ongoing royalty payments. Also, a few of our license agreements contain most-favored nation clauses or other price restriction clauses which may affect the amount we may charge for our products, processes or technology. We cannot guarantee that the third-party patents and technology we license will not be licensed to our competitors or others in the semiconductor industry. In the future, we may need to obtain additional licenses, renew existing license agreements or otherwise replace existing technology. We are unable to predict whether these license agreements can be obtained or renewed or the technology can be replaced on acceptable terms, or at all.

When we settled a trademark dispute with Linear Technology Corporation, we agreed not to register the “MAXLINEAR” mark or any other marks containing the term “LINEAR”. We may continue to use “MAXLINEAR” as a corporate identifier, including to advertise our products and services, but may not use that mark on our products. The agreement does not affect our ability to use our registered trademark “MxL”, which we use on our products. Due to our agreement not to register the “MAXLINEAR” mark, our ability to effectively prevent third parties from using the “MAXLINEAR” mark in connection with similar products or technology may be affected. If we are unable to protect our trademarks, we may experience difficulties in achieving and maintaining brand recognition and customer loyalty.

We have been and may in the future be subject to information technology failures, including data protection breaches and cyber-attacks, that could disrupt our operations, damage our reputation and adversely affect our business, operations, and financial results.

We rely on our information technology systems for the effective operation of our business and for the secure maintenance and storage of confidential data relating to our business and third-party businesses. In June 2020, we announced a security incident resulting from a Maze ransomware attack affecting certain but not all operational systems within our information technology infrastructure. Because we did not satisfy the attacker’s monetary demands, on June 15, 2020, the attacker released online certain proprietary information obtained from our network. Although our internal information technology team, supplemented by a leading cyber defense firm, has been actively taking steps to contain and assess this incident, including implementing enhanced security controls to protect our information technology systems, experienced programmers or hackers may further be able to penetrate our security controls, and develop and deploy viruses, worms and other malicious software programs that compromise our confidential information or that of third parties and cause another disruption or failure of our information technology systems. In addition, we have in the past and may in the future be subject to “phishing” attacks in which third parties send emails purporting to be from reputable companies in order to obtain personal information and infiltrate our systems to initiate wire transfers or otherwise obtain proprietary or confidential information. A number of large, public companies have recently experienced losses based on phishing attacks and other cyber-attacks. The recent security incident and any future compromise of our information technology systems could result in the further unauthorized publication of our confidential business or proprietary information, result in the further unauthorized release of customer, supplier or employee data, result in violations of privacy or other laws, expose us to a risk of litigation, cause us to incur direct losses if attackers access our bank or investment accounts, or damage our reputation. The cost and operational consequences of implementing further data protection measures either as a response to specific breaches or as a result of evolving risks could be significant. In addition, our inability to use or access our information systems at critical points in time could adversely affect the timely and efficient operation of our business. Any delayed sales, significant costs or lost customers resulting from these technology failures could adversely affect our business, operations and financial results.

Third parties with which we conduct business, such as foundries, assembly and test contractors, and distributors, have access to certain portions of our sensitive data. In the event that these third parties do not properly safeguard our data that they hold, security breaches could result and negatively impact our business, operations and financial results.

The use of open source software in our products, processes and technology may expose us to additional risks and harm our intellectual property.

Our products, processes and technology sometimes utilize and incorporate software that is subject to an open source license. Open source software is typically freely accessible, usable and modifiable. Certain open source software licenses require a user who intends to distribute the open source software as a component of the user’s software to disclose publicly part or all of the source code to the user’s software. In addition, certain open source software licenses require the user of such software to make any derivative works of the open source code available to others on unfavorable terms or at no cost. This can subject previously proprietary software to open source license terms.

While we monitor the use of all open source software in our products, processes and technology and try to ensure that no open source software is used in such a way as to require us to disclose the source code to the related product, processes or technology when we do not wish to do so, such use could inadvertently occur. Additionally, if a third party software provider has incorporated certain types of open source software into software we license from such third party for our products, processes or technology, we could, under certain circumstances, be required to disclose the source code to our products, processes or technology. This could harm our intellectual property position and have a material adverse effect on our business, results of operations and financial condition.

Risks Relating to Reliance on Third-Parties

We rely on a limited number of third parties to manufacture, assemble, and test our products, and the failure to manage our relationships with our third-party contractors successfully, or impacts from natural disasters, public health crises, or other labor stoppages in the regions where such contractors operate, could adversely affect our ability to market and sell our products.

We do not have our own manufacturing facilities. We operate an outsourced manufacturing business model that utilizes third-party foundry and assembly and test capabilities. As a result, we rely on third-party foundry wafer fabrication, including sole sourcing for many components or products. Currently, the majority of our products are manufactured by Global Foundries, Semiconductor Manufacturing International Corporation, or SMIC, Taiwan Semiconductor Manufacturing Corp, or TSMC, and United Microelectronics Corporation, or UMC, at foundries located in Taiwan, Singapore, and China. We also rely on Intel Corporation for certain products under a supply agreement as described in the risk factor "*Failure to integrate the acquired businesses with our business and operations successfully in the expected time-frame or otherwise may adversely affect MaxLinear's operating results and financial condition.*" We also use third-party contractors for all of our assembly and test operations.

Relying on third party manufacturing, assembly and testing presents significant risks to us, including the following:

- failure by us, our customers, or their end customers to qualify a selected supplier;
- capacity shortages during periods of high demand or from events beyond our control;
- reduced control over delivery schedules and quality;
- shortages of materials;
- misappropriation of our intellectual property;
- limited warranties on wafers or products supplied to us; and
- potential increases in prices.

The ability and willingness of our third-party contractors to perform is largely outside our control. If one or more of our contract manufacturers or other outsourcers fails to perform its obligations in a timely manner or at satisfactory quality levels, our ability to bring products to market and our reputation could suffer. For example, in the event that manufacturing capacity is reduced or eliminated at one or more facilities, manufacturing could be disrupted, we could have difficulties fulfilling our customer orders and our net revenue could decline. In addition, if these third parties fail to deliver quality products and components on time and at reasonable prices, we could have difficulties fulfilling our customer orders, our net revenue could decline and our business, financial condition and results of operations would be adversely affected.

Additionally, our product shipment and manufacturing capacity may be similarly reduced or eliminated at one or more facilities due to the fact that the majority of our fabrication and assembly and test contractors are all located in the Pacific Rim region, principally in China, Taiwan, and Singapore. The risk of earthquakes in these geographies is significant due to the proximity of major earthquake fault lines, and Taiwan in particular is also subject to typhoons and other Pacific storms. Earthquakes, fire, flooding, or other natural disasters in Taiwan or the Pacific Rim region, or political unrest, war, labor strikes, work stoppages or public health crises, such as the outbreak of COVID-19, in countries where our contractors' facilities are located could result in the disruption of our product shipments, foundry, assembly, or test capacity. For example, as a result of the extension of the lunar new year holidays due to the outbreak of COVID-19, certain of our product shipments from China were temporarily delayed earlier in the first quarter of 2020. Although we continue to monitor the situation, it is currently unknown whether any resurgence of the outbreak will occur and disrupt our product shipments or impact manufacturing in the region over future periods. If such disruption were to recur over a prolonged period, it could have a material impact on our revenues and our business. Any disruption resulting from similar events on a larger scale or over a prolonged period could cause significant delays in shipments of our products until we are able to resume such shipments, or shift our manufacturing, assembly, or test from the affected contractor to another third-party vendor, if needed. There can be no assurance that alternative capacity could be obtained on favorable terms, if at all.

We are subject to risks associated with our distributors' product inventories and product sell-through. Should any of our distributors cease or be forced to stop distributing our products, our business would suffer.

We currently sell a large portion of our products to customers through our distributors, who maintain their own inventories of our products. Sales to distributors accounted for approximately 49%, 52%, and 42% of our net revenue in the years ended December 31, 2020, 2019, and 2018, respectively. Upon shipment of product to these distributors, title to the inventory transfers to the distributor and the distributor is invoiced, generally with 30 to 60 day terms. Distributor sales are also recognized upon shipment to the distributor and estimates of future pricing credits and/or stock rotation rights reduce revenue recognized to the net amount before the actual amounts are known. If our estimates of such credits and rights are materially understated it could cause subsequent adjustments that negatively impact our revenues and gross profits in a future period.

If our distributors are unable to sell an adequate amount of their inventories of our products in a given quarter to manufacturers and end users or if they decide to decrease their inventories of our products for any reason, our sales through these distributors and our revenue may decline. In addition, if some distributors decide to purchase more of our products than are required to satisfy end customer demand in any particular quarter, inventories at these distributors would grow in that quarter. These distributors could then reduce future orders until inventory levels realign with end customer demand, which could adversely affect our product revenue.

Our reserve estimates with respect to the products stocked by our distributors are based principally on reports provided to us by our distributors, typically on a weekly basis. To the extent that this resale and channel inventory data is inaccurate or not received in a timely manner, we may not be able to make reserve estimates accurately or at all.

We do not have any long-term supply contracts with our contract manufacturers or suppliers, and any disruption in our supply of products or materials could have a material adverse effect on our business, revenue and operating results.

We currently do not have long-term supply contracts with any of our third-party vendors, including but, not limited to Global Foundries, SMIC, TSMC, and UMC. We make substantially all of our purchases on a purchase order basis, and our contract manufacturers are not required to supply us products for any specific period or in any specific quantity. Foundry capacity may not be available when we need it or at reasonable prices. Availability of foundry capacity has in the past been reduced from time to time due to strong demand. Foundries can allocate capacity to the production of other companies' products and reduce deliveries to us on short notice. It is possible that foundry customers that are larger and better financed than we are, or that have long-term agreements with our foundry, may induce our foundry to reallocate capacity to them. This reallocation could impair our ability to secure the supply of components that we need. We generally place orders for products with some of our suppliers approximately four to five months prior to the anticipated delivery date, with order volumes based on our forecasts of demand from our customers. Accordingly, if we inaccurately forecast demand for our products, we may be unable to obtain adequate and cost-effective foundry or assembly capacity from our third-party contractors to meet our customers' delivery requirements, or we may accumulate excess inventories. On occasion, we have been unable to adequately respond to unexpected increases in customer purchase orders and therefore were unable to benefit from this incremental demand. None of our third-party contractors has provided any assurance to us that adequate capacity will be available to us within the time required to meet additional demand for our products.

We rely on third parties to provide services and technology necessary for the operation of our business. Any failure of one or more of our partners, vendors, suppliers or licensors to provide these services or technology could have a material adverse effect on our business.

We rely on third-party vendors to provide critical services, including, among other things, services related to accounting, billing, human resources, information technology, network development, network monitoring, in-licensing and intellectual property that we cannot or do not create or provide ourselves. We depend on these vendors to ensure that our corporate infrastructure will consistently meet our business requirements. The ability of these third-party vendors to successfully provide reliable and high quality services is subject to technical and operational uncertainties that are beyond our control. While we may be entitled to damages if our vendors fail to perform under their agreements with us, our agreements with these vendors limit the amount of damages we may receive. In addition, we do not know whether we will be able to collect on any award of damages or that these damages would be sufficient to cover the actual costs we would incur as a result of any vendor's failure to perform under its agreement with us. Any failure of our corporate infrastructure could have a material adverse effect on our business, financial condition and results of operations. Upon expiration or termination of any of our agreements with third-party vendors, we may not be able to replace the services provided to us in a timely manner or on terms and conditions, including service levels and cost, that are favorable to us and a transition from one vendor to another vendor could subject us to operational delays and inefficiencies until the transition is complete.

Additionally, we incorporate third-party technology into and with some of our products, and we may do so in future products. The operation of our products could be impaired if errors occur in the third-party technology we use. It may be more difficult for us to correct any errors in a timely manner if at all because the development and maintenance of the technology is not within our control. There can be no assurance that these third parties will continue to make their technology, or improvements to the technology, available to us, or that they will continue to support and maintain their technology. Further, due to the limited number of vendors of some types of technology, it may be difficult to obtain new licenses or replace existing technology. Any impairment of the technology or our relationship with these third parties could have a material adverse effect on our business.

Risks Relating to Our Common Stock

Our management team may use our available cash and cash equivalents in ways with which you may not agree or in ways which may not yield a return.

We use our cash and cash equivalents for general corporate purposes, including working capital and for repayment of outstanding long-term debt. We used a portion of these assets to acquire the Wi-Fi and Broadband assets business and NanoSemi in the third quarter of 2020. We may also, in the future, use a portion of our assets to acquire other complementary businesses, products, services or technologies. Our management has considerable discretion in the application of our cash and cash equivalents, and resources, and you will not have the opportunity to assess whether these liquid assets are being used in a manner that you deem best to maximize your return. We may use our available cash and cash equivalents and resources for corporate purposes that do not increase our operating results or market value. In addition, in the future our cash and cash equivalents, and resources may be placed in investments that do not produce significant income or that may lose value.

Anti-takeover provisions in our charter documents and under Delaware law could make an acquisition of us more difficult, limit attempts by our stockholders to replace or remove our current management and limit the market price of our common stock.

Provisions in our certificate of incorporation and bylaws, as amended and restated, may have the effect of delaying or preventing a change of control or changes in our management. These provisions provide for the following:

- authorize our Board of Directors to issue, without further action by the stockholders, up to 25,000,000 shares of undesignated preferred stock;
- require that any action to be taken by our stockholders be effected at a duly called annual or special meeting and not by written consent;
- specify that special meetings of our stockholders can be called only by our Board of Directors, our Chairman of the Board of Directors, or our President;
- establish an advance notice procedure for stockholder approvals to be brought before an annual meeting of our stockholders, including proposed nominations of persons for election to our Board of Directors;
- establish that our Board of Directors is divided into three classes, Class I, Class II and Class III, with each class serving staggered terms;
- provide that our directors may be removed only for cause;
- provide that vacancies on our Board of Directors may be filled only by a majority of directors then in office, even though less than a quorum;
- specify that no stockholder is permitted to cumulate votes at any election of directors; and

- require supermajority votes of the holders of our common stock to amend specified provisions of our charter documents.

These provisions may frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace members of our Board of Directors, which is responsible for appointing the members of our management. In addition, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporation Law, which generally prohibits a Delaware corporation from engaging in any of a broad range of business combinations with any “interested” stockholder for a period of three years following the date on which the stockholder became an “interested” stockholder.

Our share price may be volatile as a result of various factors.

The trading price of our common stock is highly volatile and could be subject to wide fluctuations in response to various factors, some of which are beyond our control. These factors include those discussed in this “Risk Factors” section of the Annual Report on Form 10-K and others such as:

- actual or anticipated fluctuations in our financial condition and operating results;
- overall conditions in the semiconductor market;
- addition or loss of significant customers;
- changes in laws or regulations applicable to our products;
- actual or anticipated changes in our growth rate relative to our competitors;
- announcements of technological innovations by us or our competitors;
- announcements by us or our competitors of significant acquisitions, strategic partnerships, joint ventures, or capital commitments;
- additions or departures of key personnel;
- competition from existing products or new products that may emerge;
- issuance of new or updated research or reports by securities analysts;
- fluctuations in the valuation of companies perceived by investors to be comparable to us;
- disputes or other developments related to proprietary rights, including patents, litigation matters, and our ability to obtain intellectual property protection for our technologies;
- acquisitions may not be accretive and may cause dilution to our earnings per shares;
- announcement or expectation of additional financing efforts;
- sales of our common stock by us or our stockholders; and
- general economic and market conditions, including the global COVID-19 pandemic.

Furthermore, the stock markets recently have experienced extreme price and volume fluctuations that have affected and continue to affect the market prices of equity securities of many companies. These fluctuations often have been unrelated or disproportionate to the operating performance of those companies. These broad market and industry fluctuations, as well as general economic, political, and market conditions such as recessions, interest rate changes or international currency fluctuations, may negatively impact the market price of our common stock. In the past, companies that have experienced volatility in the market price of their stock have been subject to securities class action litigation. We have been and may continue to be the target of this type of litigation in the future. Securities litigation against us could result in substantial costs and divert our management’s attention from other business concerns, which could seriously harm our business.

If securities or industry analysts do not publish research or reports about our business, or publish negative reports about our business, our share price and trading volume could decline.

The trading market for our common stock depends in part on the research and reports that securities or industry analysts publish about us or our business. We do not have any control over these analysts. If one or more of the analysts who cover us downgrade our shares or change their opinion of our shares, our share price would likely decline. If one or more of these analysts cease coverage of our Company or fail to regularly publish reports on us, we could lose visibility in the financial markets, which could cause our share price or trading volume to decline.

Future sales of our common stock in the public market could cause our share price to decline.

Sales of a substantial number of shares of our common stock in the public market, or the perception that these sales might occur, could depress the market price of our common stock and could impair our ability to raise capital through the sale of additional equity securities. As of December 31, 2020, we had approximately 74.5 million shares of common stock outstanding.

All shares of common stock are freely tradable without restrictions or further registration under the Securities Act of 1933, as amended, or the Securities Act, unless held by our “affiliates,” as that term is defined under Rule 144 of the Securities Act.

Our Executive Incentive Bonus Plan permits the settlement of awards under the plan in the form of shares of our common stock. We have issued shares of our common stock to settle such bonus awards for our employees, including executives, for the 2014 to 2019 performance periods, and we intend to continue this practice in the foreseeable future. We issued 0.2 million shares of our common stock for the 2019 performance period in March 2020. If we issue additional shares of our common stock to settle bonus awards in the future, such shares may be freely sold in the public market immediately following the issuance of such shares, subject to the applicable conditions of Rule 144 and our insider trading policy, and the issuance of such shares may have an adverse effect on our share price once they are issued.

We do not intend to pay dividends for the foreseeable future.

We have never declared or paid any cash dividends on our common stock and do not intend to pay any cash dividends in the foreseeable future. We anticipate that we will retain all of our future earnings for use in the development of our business and for general corporate purposes. Any determination to pay dividends in the future will be at the discretion of our Board of Directors. Accordingly, investors must rely on sales of their common stock after price appreciation, which may never occur, as the only way to realize any future gains on their investments.

General Risk Factors

Global economic conditions, including factors that adversely affect consumer spending for the products that incorporate our integrated circuits, could adversely affect our revenues, margins, and operating results.

Our products are incorporated in numerous consumer devices, and demand for such products will ultimately be driven by consumer demand for products such as televisions, personal computers, automobiles, cable modems, and set-top boxes. Many of these purchases are discretionary. Global economic volatility and economic volatility in the specific markets in which the devices that incorporate our products are ultimately sold can cause extreme difficulties for our customers and third-party vendors in accurately forecasting and planning future business activities. This unpredictability could cause our customers to reduce spending on our products, which would delay and lengthen sales cycles. Furthermore, during challenging economic times our customers may face challenges in gaining timely access to sufficient credit, which could impact their ability to make timely payments to us. These events, together with economic volatility that may face the broader economy and, in particular, the semiconductor and communications industries, may adversely affect, our business, particularly to the extent that consumers decrease their discretionary spending for devices deploying our products.

Changes in trade policies among the United States and other countries, in particular the imposition of new or higher tariffs, could place pressure on our average selling prices as our customers seek to offset the impact of increased tariffs on their own products. Increased tariffs or the imposition of other barriers to international trade could have a material adverse effect on our revenues and operating results.

The United States has imposed or proposed new or higher tariffs on certain products exported by a number of U.S. trading partners, including China, Europe, Canada, and Mexico. In response, many of those trading partners, including China, have imposed or proposed new or higher tariffs on American products. Continuing changes in government trade policies create a heightened risk of further increased tariffs that impose barriers to international trade. Our business and operating results are substantially dependent on international trade. Many of our manufacturers sell products incorporating our semiconductors into international markets.

Tariffs on our customers' products may adversely affect our gross profit margins in the future due to the potential for increased pressure on our selling prices by customers seeking to offset the impact of tariffs on their own products. In addition, tariffs could make our OEM and ODM customers' products less attractive relative to products offered by their competitors, which may not be subject to similar tariffs. Some OEM and ODMs in our industry have already implemented short-term price adjustments to offset such tariffs and transitioned their production and supply chain to locations outside of China. We believe that increases in tariffs on imported goods or the failure to resolve current international trade disputes could have a material adverse effect on our business and operating results.

If we suffer losses to our facilities or distribution system due to catastrophe, our operations could be seriously harmed.

Our facilities and distribution system, and those of our third-party contractors, are subject to risk of catastrophic loss due to fire, flood or other natural or man-made disasters. A number of our facilities and those of our contract manufacturers are located in areas with above average seismic activity. The risk of an earthquake in the Pacific Rim region or Southern California is significant due to the proximity of major earthquake fault lines. Any catastrophic loss to any of these facilities would likely disrupt our operations, delay production, shipments and revenue and result in significant expenses to repair or replace the facility. The majority of the factories we use for foundry, assembly and test, and warehousing services, are located in Asia, principally in China, Taiwan, and Singapore. Our corporate headquarters is located in Southern California. Our operations and financial condition could be seriously harmed in the event of a major earthquake, fire, or other natural or man-made disaster.

Unanticipated changes in our tax rates or unanticipated tax obligations could affect our future results.

We are subject to income taxes in the United States, Singapore and various other foreign jurisdictions.The amount of income taxes we pay is subject to our interpretation and application of tax laws in jurisdictions in which we file. Changes in current or future laws or regulations, the imposition of new or changed tax laws or regulations or new interpretations by taxing authorities or courts could affect our results of operations and lead to volatility with respect to tax expenses and liabilities from period to period. The application of tax laws and related regulations is subject to legal and factual interpretation, judgment and uncertainty. We cannot determine whether any legislative proposals may be enacted into law or what, if any, changes may be made to such proposals prior to their being enacted into law. If U.S. or international tax laws change in a manner that increases our tax obligation, it could result in a material adverse impact on our results of operations and our financial position.

We are subject to examinations and tax audits. There can be no assurance that the outcome from these audits will not have an adverse effect on our operating results or financial position.

Excess tax benefits associated with employee stock-based compensation are included in income tax expense. However, since the amount of such excess tax benefits and deficiencies depend on the fair market value of our common stock, our income tax provision is subject to volatility in our stock price and in the future, could unfavorably affect our future effective tax rate.

Our future effective tax rate could be unfavorably affected by unanticipated changes in the valuation of our deferred tax assets and liabilities, and the ultimate use and depletion of these various tax credits and net operating loss carryforwards. Changes in our effective tax rate could have a material adverse impact on our results of operations. We record a valuation allowance to reduce our net deferred tax assets to the amount that we believe is more likely than not to be realized. In making such determination, we consider all available positive and negative evidence quarterly, including scheduled reversals of deferred tax liabilities, projected future taxable income, tax planning strategies, and recent financial performance. To the extent we believe it is more likely than not that some portion of our deferred tax assets will not be realized, we record a valuation allowance against the deferred tax asset. Realization of our deferred tax assets is dependent primarily upon future taxable income in the applicable jurisdiction. Based upon our review of all positive and negative evidence, we concluded that a full valuation allowance should continue to be recorded against our state and certain federal and foreign net deferred tax assets at December 31, 2020. On a periodic basis we evaluate our deferred tax assets for realizability. The impact of releasing some or all of such valuation allowance in a future period could be material in the period in which such release occurs.

Our corporate income tax liability could materially increase if tax incentives we have negotiated in Singapore cease to be effective or applicable or if we are challenged on our use of such incentives.

We operate under certain favorable tax incentives in Singapore which are effective through March 2022 and may be extended through March 2027, and generally are dependent on our meeting certain headcount and investment thresholds. Such incentives allow certain qualifying income earned in Singapore to be taxed at reduced rates and are conditional upon our meeting certain employment and investment thresholds over time. If we fail to satisfy the conditions for receipt of these tax incentives, or to the extent U.S. or other tax authorities challenge our operation under these favorable tax incentive programs or our intercompany transfer pricing agreements, our taxable income could be taxed at higher federal or foreign statutory rates and our income tax liability and expense could materially increase beyond our projections. Each of our Singapore tax incentives is separate and distinct from the others, and may be granted, withheld, extended, modified, truncated, complied with or terminated independently without any effect on the other incentives. Absent these tax incentives, our corporate income tax rate in Singapore would generally be the 17% statutory tax rate. We are also subject to operating and other compliance requirements to maintain our favorable tax incentives. If we fail to comply with such requirements, we could lose the tax benefits and could possibly be required to refund previously realized material tax benefits. Additionally, in the future, we may fail to qualify for renewal of our favorable tax incentives or such incentives may not be available to us, which could also cause our future taxable income to increase and be taxed at higher statutory rates. Loss of one more of our tax incentives could cause us to modify our tax strategies and our operational structure, which could cause disruption in our business and have a material adverse impact on our results of operations. Further, there can be no guarantee that such modification in our tax strategy will yield tax incentives as favorable as those we have negotiated with Singapore. Our interpretations and conclusions regarding the tax incentives are not binding on any taxing authority, and if our assumptions about tax and other laws are incorrect or if these tax incentives are substantially modified or rescinded we could suffer material adverse tax and other financial consequences, which would increase our expenses, reduce our profitability and adversely affect our cash flows.

We have assumed certain unfunded defined benefit retirement plan obligations in an acquisition. Such obligations may require a significant amount of cash to fund in the future, and changes in assumptions underlying the obligation and return on plan assets may adversely affect our earnings, equity and contributions in future.

We assumed an obligation associated with certain defined benefit retirement plans, including a pension plan, which cover certain employees of the Wi-Fi and Broadband assets business and generally provide benefits based on negotiated amounts for each year of service. These plans were underfunded by $6.4 million as of December 31, 2020. We have never managed defined benefit plans in our operating history. We are required to make contributions to the pension plan. Additionally, with respect to certain other defined benefit plans, if the unfunded status reaches certain levels, we could be required to make contributions to cover the shortfall. Our obligation to make contributions may be impacted by a number of factors, many of which are beyond our control, including but not limited to, performance of plan assets and legislative changes. The net benefit obligation and cost is materially affected by the discount rate used to measure pension obligations, level of plan assets available to fund such obligations and long-term rate of return on plan assets. While such plans have not had a material impact on our results of operations for the year ended December 31, 2020, future changes in the discount rate used to measure the defined benefit obligation could result in a significant increase or decrease in the valuation of such obligations, affecting the reported funded status of our defined benefit plans as well as the net periodic pension cost in the following years. Similarly, changes in the expected return on plan assets, which may be significantly impacted by changes in investment performance or a change in portfolio mix, can result in significant changes in the net periodic pension cost in the subsequent years.

Investor confidence may be adversely impacted if we are unable to comply with Section 404 of the Sarbanes-Oxley Act of 2002, and as a result, our stock price could decline.

We are subject to rules adopted by the Securities Exchange Commission, or SEC, pursuant to Section 404 of the Sarbanes-Oxley Act of 2002, or Sarbanes-Oxley Act, which require us to include in our Annual Report on Form 10-K our management’s report on, and assessment of the effectiveness of, our internal controls over financial reporting.

If we fail to maintain the adequacy of our internal controls, there is a risk that we will not comply with all of the requirements imposed by Section 404. Moreover, effective internal controls, particularly those related to revenue recognition, are necessary for us to produce reliable financial reports and are important to helping prevent financial fraud. Any of these possible outcomes could result in an adverse reaction in the financial marketplace due to a loss of investor confidence in the reliability of our consolidated financial statements and could result in investigations or sanctions by the SEC, the New York Stock Exchange, or NYSE, or other regulatory authorities or in stockholder litigation. Any of these factors ultimately could harm our business and could negatively impact the market price of our securities. Ineffective control over financial reporting could also cause investors to lose confidence in our reported financial information, which could adversely affect the trading price of our common stock.

Our disclosure controls and procedures are designed to provide reasonable assurance of achieving their objectives. However, our management, including our principal executive officer and principal financial officer, does not expect that our disclosure controls and procedures will prevent all error and all fraud. A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, have been detected.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

Our corporate headquarters occupy approximately 68,000 square feet in Carlsbad, California under a lease that expires in June 2022. A full range of business and engineering functions are represented at our corporate headquarters, including a laboratory for research and development and manufacturing operations. In addition to our principal office spaces in Carlsbad, we have active leased facilities in Irvine, California; San Jose, California; Boston, Massachusetts; Burnaby, Canada; Bangalore, India; Singapore; Taipei and Hsinchu, Taiwan; Shenzhen, Shanghai, and Hong Kong, China; Seoul, South Korea; Tokyo, Japan; Paterna, Spain; Villach, Austria; Munich, Germany; and in Petah Tikva, Israel.

ITEM 3. LEGAL PROCEEDINGS

From time to time, we are subject to threats of litigation or actual litigation in the ordinary course of business, some of which may be material. We believe that there are no currently pending litigation matters that, if determined adversely by us, would have a material effect on our business or that would not be covered by our existing liability insurance.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

PART II — FINANCIAL INFORMATION

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Market Information and Holders

Our common stock is traded on the New York Stock Exchange, or the NYSE, under the symbol MXL.

According to our transfer agent, as of February 4, 2021, there were 71 record holders of our common stock. We believe we have approximately 22,000 beneficial holders of our common stock.

Dividend Policy

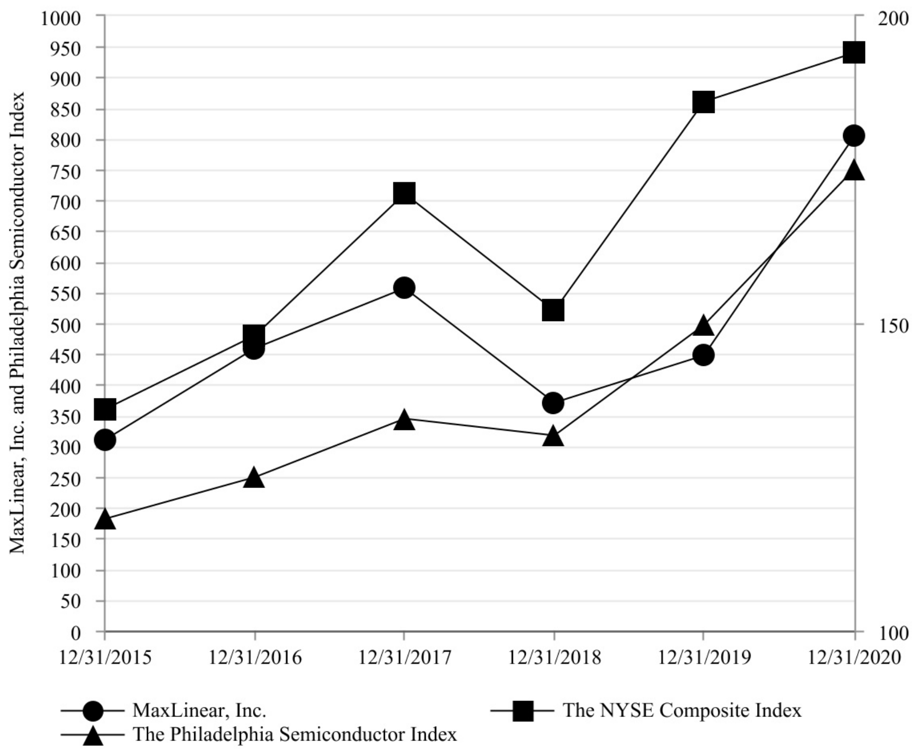
We have never declared or paid cash dividends on our common stock. We currently intend to retain all available funds and any future earnings for use in the operation of our business and do not anticipate paying any dividends on our common stock in the foreseeable future. Any future determination to declare dividends will be made at the discretion of our Board of Directors and will depend on our financial condition, operating results, capital requirements, general business conditions and other factors that our Board of Directors may deem relevant.

Stock Performance Graph

Notwithstanding any statement to the contrary in any of our previous or future filings with the SEC, the following information relating to the price performance of our common stock shall not be deemed "filed" with the SEC or "Soliciting Material" under the Exchange Act, or subject to Regulation 14A or 14C, or to liabilities of Section 18 of the Exchange Act except to the extent we specifically request that such information be treated as soliciting material or to the extent we specifically incorporate this information by reference.

The graph below compares the cumulative total stockholder return on our common stock with the cumulative total return on The NYSE Composite Index and The Philadelphia Semiconductor Index. The period shown commences on December 31, 2015 and ends on December 31, 2020, the end of our last fiscal year. The graph assumes an investment of $100 on December 31, 2015, and the reinvestment of any dividends.

The comparisons in the graph below are required by the Securities and Exchange Commission and are not intended to forecast or be indicative of possible future performance of our common stock.



Recent Sales of Unregistered Securities

None.

Recent Repurchases of Equity Securities

None.

ITEM 6. SELECTED FINANCIAL DATA

We have derived the selected consolidated statement of operations data for the years ended December 31, 2020, 2019 and 2018 and selected consolidated balance sheet data as of December 31, 2020 and 2019 from our consolidated financial statements and related notes included elsewhere in this report. We have derived the consolidated statement of operations data for the years ended December 31, 2017 and 2016 and the consolidated balance sheet data as of December 31, 2018, 2017 and 2016 from our consolidated financial statements not included in this report. Our historical results are not necessarily indicative of the results to be expected for any future period. As described in Note 1 to our consolidated financial statements included herein, as a result of the adoption of ASC 606 as of January 1, 2018 using the modified retrospective method, amounts for years prior to 2018 have not been adjusted to reflect the change to recognize certain distributor sales upon sale to the distributor, or the sell-in method, from recognition upon the Company's sale to the distributors' end customers, or the sell-through method, which required the deferral of revenue and profit on such distributor sales. Also, due to the adoption of ASC 842 on January 1, 2019 with a cumulative effect adjustment to accumulated deficit, amounts for periods prior to 2019 in the consolidated balance sheets have not been adjusted to reflect certain lease-related assets and liabilities. The following selected consolidated financial data should be read in conjunction with "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our consolidated financial statements and related notes included elsewhere in this report.

	Years Ended December 31,				
	2020	2019	2018	2017	2016
	(in thousands, except per share amounts)				
Consolidated Statement of Operations Data:					
Net revenue	$ 478,596	$ 317,180	$ 384,997	$ 420,318	$ 387,832
Cost of net revenue	265,798	149,495	176,223	212,355	157,842
Gross profit	212,798	167,685	208,774	207,963	229,990
Operating expenses:					
Research and development	179,993	98,344	120,046	112,279	97,745
Selling, general and administrative	130,025	88,762	101,789	105,831	64,454
Impairment losses	86	—	2,198	2,000	1,300
Restructuring charges	3,833	2,636	3,838	9,524	3,432
Total operating expenses	313,937	189,742	227,871	229,634	166,931
Income (loss) from operations	(101,139)	(22,057)	(19,097)	(21,671)	63,059
Interest income	409	775	78	274	572
Interest expense	(12,952)	(11,133)	(14,255)	(10,378)	(104)
Other income (expense), net	(1,170)	(69)	422	(2,223)	163
Total interest and other income (expense), net	(13,713)	(10,427)	(13,755)	(12,327)	631
Income (loss) before income taxes	(114,852)	(32,484)	(32,852)	(33,998)	63,690
Income tax provision (benefit)	(16,259)	(12,586)	(6,653)	(24,811)	2,398
Net income (loss)	$ (98,593)	$ (19,898)	$ (26,199)	$ (9,187)	$ 61,292
Net income (loss) per share:					
Basic	$ (1.35)	$ (0.28)	$ (0.38)	$ (0.14)	$ 0.96
Diluted	$ (1.35)	$ (0.28)	$ (0.38)	$ (0.14)	$ 0.91
Shares used to compute net income (loss) per share:					
Basic	73,133	71,005	68,490	66,252	63,781
Diluted	73,133	71,005	68,490	66,252	67,653

	As of December 31,				
	2020	2019	2018	2017	2016
	(in thousands)				
Consolidated Balance Sheet Data:					
Cash, cash equivalents, restricted cash, and short- and long-term investments, available-for-sale	$ 150,034	$ 93,117	$ 74,191	$ 74,412	$ 136,805
Working capital	128,057	115,208	110,044	124,918	158,304
Total assets	1,022,442	705,791	743,593	824,862	422,652
Total stockholders’ equity	391,117	414,920	399,936	387,424	352,424

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

Forward-Looking Statements

The following discussion and analysis of the financial condition and results of our operations should be read in conjunction with the consolidated financial statements and related notes included elsewhere in this report. This discussion contains forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those discussed below. Factors that could cause or contribute to such differences include, but are not limited to, those identified below, and those discussed in the section titled “Risk Factors” included elsewhere in this report.

Overview

We are a provider of communications systems-on-chip solutions used in broadband, mobile and wireline infrastructure, data center, and industrial and multi-market applications. We are a fabless integrated circuit design company whose products integrate all or substantial portions of a high-speed communication system, including radio frequency (RF), high-performance analog, mixed-signal, digital signal processing, security engines, data compression and networking layers, and power management. In most cases, these products are designed on a single silicon-die, using standard digital complimentary metal oxide semiconductor (CMOS) processes and conventional packaging technologies. We believe this approach enables our solutions to achieve superior power, performance, and cost relative to our industry competition. Our customers include electronics distributors, module makers, original equipment manufacturers (OEMs), and original design manufacturers (ODMs), who incorporate our products in a wide range of electronic devices. Examples of such devices include cable Data Over Cable Service Interface Specifications (DOCSIS), fiber and DSL broadband modems and gateways; Wi-Fi and wireline routers for home networking; radio transceivers and modems for 4G/5G base-station and backhaul infrastructure; fiber-optic modules for data center, metro, and long-haul transport networks; as well as power management and interface products used in these and many other markets.

Our highly integrated semiconductor devices and platform-level solutions are primarily manufactured using low-cost CMOS process technology. CMOS processes are ideally suited for large digital logic implementations targeting high-volume and low-cost consumer applications. Importantly, our ability to design analog and mixed-signal circuits in CMOS allows us to efficiently combine analog functionality and complex digital signal processing logic in the same integrated circuit. As a result, our solutions have exceptional levels of functional integration and performance, low manufacturing cost, and reduced power consumption. In addition, our proprietary CMOS-based radio and digital system architectures also enable shorter design cycles, significant design flexibility and low system-level cost across a wide range of broadband communications, wired and wireless infrastructure, and industrial and multi-market customer applications.

In fiscal 2020, our net revenue was derived primarily from sales of RF receivers and RF receiver systems-on-chip and connectivity solutions into broadband operator voice and data modems and gateways and connectivity adapters, global analog and digital RF receiver products for analog and digital Pay-TV applications, radio and modem solutions into wireless carrier access and backhaul infrastructure platforms, high-speed optical interconnect solutions sold into optical modules for data-center, metro and long-haul networks, and high-performance interface and power management solutions into a broad range of communications, industrial, automotive and multi-market applications. Our ability to achieve revenue growth in the future will depend, among other factors, on our ability to further penetrate existing markets; our ability to expand our target addressable markets by developing new and innovative products; changes in government trade policies; and our ability to obtain design wins with device manufacturers, in particular manufacturers of set-top boxes, data modems, and gateways for the broadband service provider and Pay-TV industries, manufacturers selling into the smartphone market, storage networking market, cable infrastructure market, industrial and automotive markets, and optical module and telecommunications infrastructure markets.

Products shipped to Asia accounted for 82%, 84% and 81% of net revenue during the years ended December 31, 2020, 2019 and 2018, respectively, including for 42%, 46%, and 43%, respectively, from products shipped to Hong Kong and 17%, 14% and 19%, respectively, from products shipped to China. Although a large percentage of our products is shipped to Asia, we believe that a significant number of the systems designed by these customers and incorporating our semiconductor products are then sold outside Asia. For example, revenue generated from sales of our cable modem products during the years ended December 31, 2020, 2019 and 2018 related principally to sales to Asian ODMs and contract manufacturers delivering products into European and North American markets. To date, all of our sales have been denominated in United States dollars.

A significant portion of our net revenue has historically been generated by a limited number of customers. Sales to customers comprise both direct sales to customers and indirect sales through distributors. In the year ended December 31, 2020, two of our direct customers accounted for 28% of our net revenue, and our ten largest customers collectively accounted for 68% of our net revenue, of which distributor customers comprised 41% of our net revenue. In the year ended December 31, 2019, one of our direct customers, Commscope, accounted for 14% of our net revenue, and our ten largest customers collectively accounted for 63% of our net revenue, of which distributor customers comprised 38% of our net revenue. In the year ended December 31, 2018, Commscope accounted for 18% of our net revenue, and our ten largest customers collectively accounted for 61% of our net revenue, of which distributor customers comprised 29% of our net revenue. For certain customers, we sell multiple products into disparate end user applications such as cable modems, satellite set-top boxes and broadband gateways.

Our business depends on winning competitive bid selection processes, known as design wins, to develop semiconductors for use in our customers' products. These selection processes are typically lengthy, and as a result, our sales cycles will vary based on the specific market served, whether the design win is with an existing or a new customer and whether our product being designed in our customer's device is a first generation or subsequent generation product. Our customers' products can be complex and, if our engagement results in a design win, can require significant time to define, design and result in volume production. Because the sales cycle for our products is long, we can incur significant design and development expenditures in circumstances where we do not ultimately recognize any revenue. We do not have any long-term purchase commitments with any of our customers, all of whom purchase our products on a purchase order basis. Once one of our products is incorporated into a customer's design, however, we believe that our product is likely to remain a component of the customer's product for its life cycle because of the time and expense associated with redesigning the product or substituting an alternative chip. Product life cycles in our target markets will vary by application. For example, in the cable operator modem and gateway sectors, a design-in can have a product life cycle of 24 to 48 months. In the industrial and wired and wireless infrastructure markets, a design-in can have a product life cycle of 24 to 60 months and beyond.

Impact of COVID-19

In late January 2020 and early February 2020, in response to a severe outbreak of the novel coronavirus disease, or COVID-19, the government of China instituted mandatory quarantines in Wuhan, China, extended lunar new year holiday closures, and restricted shipments out of the country. This resulted in a temporary delay in our product shipments in the first quarter of 2020. On March 11, 2020, the World Health Organization declared a global pandemic regarding COVID-19. The COVID-19 pandemic has reached all of the countries and states in which we operate, including in California where our headquarters and central engineering team are located, as well as Massachusetts, Spain, India, Singapore, Taiwan, Canada, France, Japan, South Korea, Hong Kong, Israel, Germany, and Austria, where additional engineering, sales, and administrative personnel are located. In many of these jurisdictions, local authorities have instituted stay-at-home or shelter-in-place orders. To protect the health and safety of our employees, we adopted social distancing policies including suspending employee travel and implementing remote work arrangements for substantially all of our workforce worldwide. As of December 31, 2020, some of our workforce has returned to the office at a reduced capacity adhering to local health authority guidelines. While we experienced some negative impact to our net revenue and gross profits in the first half of 2020 due to several industry-wide dynamics related to COVID-19, including the supply constraints described above, as well as certain customer order push-out requests, we are currently benefiting from the work-from-home environment that is driving an increase in demand for certain of our products. Further, global financial markets reacted negatively to the COVID-19 pandemic's impacts causing significant declines in the stock price and market capitalization of many companies across all industries, although some have recovered. Heightened volatility and uncertainty in customer demand and the worldwide economy has continued as a result of the COVID-19 pandemic, and we may experience increased volatility in our sales and revenues in the near future. However, the magnitude of such volatility on our business and its duration is uncertain and cannot be reasonably estimated at this time.

As described below, on July 31, 2020, we consummated transactions contemplated by a definitive agreement to acquire certain assets and assume certain liabilities from Intel Corporation, or Intel, related to its Home Gateway Platform Division, which we refer to as the Wi-Fi and Broadband assets business, and on September 9, 2020, we completed our acquisition of NanoSemi, Inc., or NanoSemi, pursuant to an Agreement and Plan of Merger with NanoSemi, dated September 9, 2020, or the Merger Agreement. These businesses also operate in jurisdictions that have been and continue to be materially affected by the COVID-19 pandemic. In particular, our Wi-Fi and Broadband assets business has major engineering, development, and other personnel in Germany, Austria, Israel, India, Singapore, Taiwan, Hong Kong, and China and NanoSemi has engineering and development personnel in Boston, Massachusetts. Attempting to complete the integration of an acquisition of assets and new personnel around the world has been and will continue to be substantially complicated by continuing restrictions on travel and social distancing. In addition, engagement with newly integrated employees from the acquisitions has been and will continue to be similarly complicated and presents potential employee retention risks. We are taking various steps to mitigate these risks, but we cannot predict whether or to what extent the pandemic may adversely affect our ability to retain employees and successfully integrate the acquired businesses. In addition, the operating results of the acquired businesses are subject to the same financial and operational risks posed to MaxLinear's current businesses, including potential declines in revenues, supply constraints, and other factors generally affecting businesses worldwide. For further discussion of potential risks arising from the acquisition, please see the discussion in Part I, Item 1A of this Annual Report on Form 10-K captioned "Risk Factors."

Recent Developments

Acquisition of Home Gateway Platform Division of Intel Corporation

On July 31, 2020, we completed our acquisition of the Home Gateway Platform Division, which we refer to as the Wi-Fi and Broadband assets business, pursuant to an Asset Purchase Agreement with Intel, dated April 5, 2020, and related agreements. We paid cash consideration of $150.0 million for the purchase of certain assets of the Wi-Fi and Broadband assets business, and assumed certain liabilities related to specified employment matters. The transaction was funded with a portion of the proceeds from a secured incremental term loan with an aggregate principal amount of $175.0 million.

Acquisition of NanoSemi, Inc.

On September 9, 2020, we completed our acquisition of NanoSemi pursuant to the Merger Agreement. The initial closing transaction consideration consisted of $10 million in cash and 804,163 shares of our common stock. In addition, the NanoSemi securityholders will receive $35 million in deferred cash payments payable in 2021, and certain NanoSemi securityholders may also receive up to an additional $35 million in potential contingent consideration, subject to the acquired business's satisfying certain financial objectives from July 1, 2020 through December 31, 2022. The stock consideration was issued in reliance on exemptions from the registration requirements of the Securities Act of 1933, as amended. In connection with the acquisition, we agreed to provide the NanoSemi stockholders with certain registration rights with respect to the shares of our common stock they received in the acquisition.

For more information, please refer to Note 3 of our consolidated financial statements.

Critical Accounting Policies and Estimates

Management's discussion and analysis of our financial condition and results of operations is based upon our financial statements which are prepared in accordance with accounting principles that are generally accepted in the United States. The preparation of these financial statements requires us to make estimates and judgments that affect the reported amounts of assets and liabilities, related disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses during the reporting period. We continually evaluate our estimates and judgments, the most critical of which are those related to revenue recognition, inventory valuation, income taxes and stock-based compensation. We base our estimates and judgments on historical experience and other factors that we believe to be reasonable under the circumstances. Materially different results can occur as circumstances change and additional information becomes known.

We believe that the following accounting policies involve a greater degree of judgment and complexity than our other accounting policies. Accordingly, these are the policies we believe are the most critical to understanding and evaluating our consolidated financial condition and results of operations.

Business Combinations

We apply the provisions of ASC 805, *Business Combinations*, in accounting for our acquisitions. ASC 805 requires us to recognize separately from goodwill the assets acquired and the liabilities assumed, at the acquisition date fair values. Goodwill as of the acquisition date is measured as the excess of consideration transferred over the acquisition date fair values of the net assets acquired and the liabilities assumed. 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 recorded to the consolidated statements of operations.

Costs to exit or restructure certain activities of an acquired company or our internal operations are accounted for as termination and exit costs pursuant to ASC 420, *Exit or Disposal Cost Obligations*, and are accounted for separately from the business combination. A liability for costs associated with an exit or disposal activity is recognized and measured at its fair value in the consolidated statement of operations in the period in which the liability is incurred.

For a given acquisition, we may identify certain pre-acquisition contingencies as of the acquisition date and may extend our review, evaluation, and adjustment of these pre-acquisition contingencies throughout the measurement period in order to obtain sufficient information to assess whether we include these contingencies as a part of the fair value estimates of assets acquired and liabilities assumed and, if so, to determine their estimated amounts. A pre-acquisition contingency (non-income tax related) is only recognized as an asset or a liability if (i) it is probable that an asset existed or a liability had been incurred at the acquisition date and (ii) the amount of the asset or liability can be reasonably estimated. Subsequent to the measurement period, changes in estimates of such contingencies will affect earnings and could have a material effect on results of operations and financial position.

In addition, uncertain tax positions and tax related valuation allowances assumed in connection with a business combination are initially estimated as of the acquisition date. We reevaluate these items quarterly based upon facts and circumstances that existed as of the acquisition date with any adjustments to the preliminary estimates being recorded to goodwill if identified within the measurement period. Subsequent to the measurement period or final determination of the estimated value of the tax allowance or contingency, whichever comes first, changes to these uncertain tax positions and tax related valuation allowances will affect the income taxes provision (benefit) in the consolidated statement of operations and could have a material impact on the results of operations and financial position.

Revenue Recognition

Our revenue is primarily generated from sales of our integrated circuits to electronics distributors, module makers, OEMs, and ODMs under individual customer purchase orders, some of which have underlying master sales agreements that specify terms governing the product sales. Effective January 1, 2018, we adopted ASC 606 and recognize revenue at the point in time when control of the products is transferred to the customer at the estimated net consideration for which collection is probable, taking into account our customer's rights to price protection, other pricing credits, unit rebates, and rights to return unsold product. Transfer of control occurs either when products are shipped to or received by the distributor or direct customer, based on the terms of the specific agreement with the customer, if we have a present right to payment and transfer of legal title and the risks and rewards of ownership to the customer has occurred. For most of our product sales, transfer of control occurs upon shipment to our distributor or direct customer. In assessing whether collection of consideration from a customer is probable, we consider the customer's ability and intention to pay that amount of consideration when it is due. Payment of invoices is due as specified in the underlying customer agreement, typically 30 days from the invoice date, which occurs on the date of transfer of control of the products to the customer. Since payment terms are less than a year, we have elected the practical expedient and do not assess whether a customer contract has a significant financing component.

A five-step approach is applied in the recognition of revenue under ASC 606: (1) identify the contract with a customer, (2) identify the performance obligations in the contract, (3) determine the transaction price, (4) allocate the transaction price to the performance obligations in the contract, and (5) recognize revenue when we satisfy a performance obligation. We applied ASC 606 to our customer contracts that were not completed before the January 1, 2018 adoption date. Customer purchase orders plus the underlying master sales agreements are considered to be contracts with the customer for purposes of applying the five-step approach under ASC 606.

Pricing adjustments and estimates of returns under contractual stock rotation rights are treated as variable consideration for purposes of determining the transaction price, and are estimated at the time control transfers using the expected value method based on our analysis of actual price adjustment claims by distributors and product and historical return rates, and then reassessed at the end of each reporting period. We also consider whether any variable consideration is constrained, since such amounts for which it is probable that a significant reversal will occur when the contingency is subsequently resolved are required to be excluded from revenues. Price adjustments are finalized at the time the products are sold through to the end customer and the distributor or end customer submits a claim to reduce the sale price to a pre-approved net price. Stock rotation allowances are capped at a fixed percentage of our sales to a distributor for a period of time, up to six months, as specified in the individual distributor contract. If our current estimates of such credits and rights are materially inaccurate, it may result in adjustments that affect future revenues and gross profits. Returns under our general assurance warranty of products for a period of one to three years have not been material and warranty-related services are not considered a separate performance obligation under the customer contracts. Most of our customers resell our product as part of their product and thus are tax-exempt, however to the extent we collect and remit taxes on product sales from customers, we have elected to exclude from the measurement of transaction price such taxes.

Each distinct promise to transfer products is considered to be an identified performance obligation for which revenue is recognized upon transfer of control of the products to the customer. Although customers may place orders for products to be delivered on multiple dates that may be in different quarterly reporting periods, all of the orders are scheduled within one year from the order date. We have opted to not disclose the portion of revenues allocated to partially unsatisfied performance obligations, which represent products to be shipped within 12 months under open customer purchase orders, at the end of the current reporting period as allowed under ASC 606. We have also elected to record sales commissions when incurred, pursuant to the practical expedient under ASC 340, as the period over which the sales commission asset that would have been recognized is less than one year.

Customer contract liabilities consist primarily of obligations to deliver rebates to customers in the form of units of products, which are included in accrued expenses and other current liabilities in the consolidated balance sheets. Other obligations to customers consist of estimates of price protection rights offered to our end customers, which are included in accrued price protection liability in the consolidated balance sheets, as well as price adjustments expected to be claimed by the distributor upon sell-through of the products to their customers, and amounts expected to be returned by distributors under stock rotation rights, which are included in accrued expenses and other current liabilities in the consolidated balance sheets. We also record a right of return asset consisting of amounts representing the products we expect to receive from customers in returns, which is included in inventory in the consolidated balance sheets, and is typically settled within six months of transfer of control to the customer, or the period over which stock rotation rights are based. Upon lapse of the time period for stock rotations, or the contractual end to price protection and rebate programs, which is approximately one to two years, and when we believe unclaimed amounts are no longer subject to payment and will not be paid, any remaining asset or liability is derecognized by an offsetting entry to cost of net revenue and net revenue. For additional disclosures regarding contract liabilities and other obligations to customers, see Note 15 to our consolidated financial statements.

We assess customer accounts receivable and contract assets for impairment in accordance with ASC 310-10-35.

Inventory Valuation

We assess the recoverability of our inventory based on assumptions about demand and market conditions. Forecasted demand is determined based on historical sales and expected future sales. Inventory is stated at the lower of cost or net realizable value. Cost is computed using standard cost, which approximates actual cost on a first-in, first-out basis and net realizable value is the estimated selling price in the ordinary course of business, less reasonably predictable costs of completion, disposal and transportation. We reduce our inventory to its lower of cost or net realizable value on a part-by-part basis to account for its obsolescence or lack of marketability. Reductions are calculated as the difference between the cost of inventory and its net realizable value based upon assumptions about future demand, market conditions and costs. Once established, these adjustments are considered permanent and are not revised until the related inventory is sold or disposed of. If actual market conditions are less favorable than those projected by management, additional inventory write-downs may be required that may adversely affect our operating results. If actual market conditions are more favorable, we may have higher gross profits when products are sold.

Production Masks

Production masks with alternative future uses or discernible future benefits are capitalized and amortized over their estimated useful life of two years to five years. To determine if the production mask has alternative future uses or benefits, we evaluate risks associated with developing new technologies and capabilities, and the related risks associated with entering new markets. Production masks that do not meet the criteria for capitalization are expensed as research and development costs.

Goodwill and Intangible Assets

Goodwill is the excess of the purchase price over the fair value of identifiable net assets acquired in business combinations accounted for under the acquisition method. Intangible assets represent purchased intangible assets including developed technology and in-process research and development, or IPR&D, technologies acquired or licensed from other companies, customer relationships, noncompete covenants, backlog, and trademarks and tradenames. Purchased finite-lived intangible assets are capitalized and amortized over their estimated useful lives. Technologies acquired or licensed from other companies, customer relationships, noncompete covenants, backlog, and trademarks and tradenames are capitalized and amortized over the lesser of the terms of the agreement, or estimated useful life. We capitalize IPR&D projects acquired as part of a business combination. On completion of each project, IPR&D assets are reclassified to developed technology and amortized over their estimated useful lives.

Impairment of Goodwill and Long-Lived Assets

Goodwill is not amortized but is tested for impairment using either a qualitative assessment, and/or quantitative assessment, which effective with our October 31, 2020 impairment test, is based on comparing the fair value of a reporting unit with its carrying amount. If the carrying amount of a reporting unit exceeds its fair value, a goodwill impairment loss is recorded. We test by reporting unit, goodwill and other indefinite-lived intangible assets for impairment at October 31 each year or more frequently if we believe indicators of impairment exist.

During development, IPR&D is not subject to amortization and is tested for impairment annually or more frequently if events or changes in circumstances indicate that the asset might be impaired. We review indefinite-lived intangible assets each year for impairment using a qualitative assessment, followed by a quantitative assessment, as needed, each year as of October 31, the date of our annual goodwill impairment review, or whenever events or changes in circumstances indicate the carrying value may not be recoverable. Recoverability of indefinite-lived intangible assets is measured by comparing the carrying amount of the asset to its fair value. In certain cases, we utilize the relief-from-royalty method when appropriate, and a fair value will be obtained based on analysis over the costs saved by owning the right instead of leasing it. Once an IPR&D project is complete, it becomes a finite-lived intangible asset and is evaluated for impairment both immediately prior to its change in classification and thereafter in accordance with our policy for long-lived assets.

We regularly review the carrying amount of our long-lived assets subject to depreciation and amortization, as well as the useful lives, to determine whether indicators of impairment may exist which warrant adjustments to carrying values or estimated useful lives. An impairment loss would be recognized when the sum of the expected future undiscounted net cash flows is less than the carrying amount of the asset. Should impairment exist, the impairment loss would be measured based on the excess of the carrying amount of the asset over the asset’s fair value.

Income Taxes

We provide for income taxes utilizing the asset and liability approach of accounting for income taxes. Under this approach, deferred taxes represent the future tax consequences expected to occur when the reported amounts of assets and liabilities are recovered or paid. Deferred taxes are presented net as noncurrent. The provision for income taxes generally represents income taxes paid or payable for the current year plus the change in deferred taxes during the year. Deferred taxes result from the differences between the financial and tax bases of our assets and liabilities and are adjusted for changes in tax rates and tax laws when changes are enacted. Valuation allowances are recorded to reduce deferred tax assets when a judgment is made that is considered more likely than not that a tax benefit will not be realized. A decision to record a valuation allowance results in an increase in income tax expense or a decrease in income tax benefit. If the valuation allowance is released in a future period, income tax expense will be reduced accordingly.

The calculation of tax liabilities involves dealing with uncertainties in the application of complex global tax regulations. The impact of an uncertain income tax position is recognized at the largest amount that is “more likely than not” to be sustained upon audit by the relevant taxing authority. An uncertain income tax position will not be recognized if it has less than a 50% likelihood of being sustained. If the estimate of tax liabilities proves to be less than the ultimate assessment, a further charge to expense would result.

In assessing the realizability of deferred tax assets, management considers whether it is more likely than not that some portion or all of the deferred tax assets will be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the periods in which those temporary differences become deductible. We continue to assess the need for a valuation allowance on the deferred tax asset by evaluating both positive and negative evidence that may exist. Any adjustment to the net deferred tax asset valuation allowance would be recorded in the income statement for the period that the adjustment is determined to be required.

On December 22, 2017, the Tax Cuts and Jobs Act, or the Tax Act, was enacted into U.S. tax law. In 2018, we made an accounting policy election to treat Global Intangible Low Taxed Income in accordance with the Tax Act as a period cost.

Stock-Based Compensation

We measure the cost of employee services received in exchange for equity incentive awards, including restricted stock units and restricted stock awards, employee stock purchase rights and stock options, based on the grant date fair value of the award. We calculate the fair value of restricted stock units and performance-based restricted stock units based on the fair market value of our common stock on the grant date. Stock-based compensation expense is then determined based on the number of restricted stock units that are expected to vest; for performance-based restricted stock units, this is the number of units that are expected to vest during the performance period if it is probable that we will achieve the performance metrics specified in the underlying award agreement. We use the Black-Scholes valuation model to calculate the fair value of stock options and employee stock purchase rights granted to employees. Stock-based compensation expense is recognized over the period during which the employee is required to provide services in exchange for the award, which is usually the vesting period. We recognize compensation expense over the vesting period using the straight-line method and classify these amounts in the statements of operations based on the department to which the related employee reports. We calculate the weighted-average expected life of options using the simplified method as prescribed by guidance provided by the Securities and Exchange Commission. This decision was based on the lack of historical data due to our limited number of stock option exercises under the 2010 Equity Incentive Plan.

Recently Adopted Accounting Pronouncements

In June 2016, the FASB issued ASU No. 2016-13, *Financial Instruments—Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments*, to replace the incurred loss methodology with an expected credit loss model that requires consideration of a broader range of information to estimate credit losses over the lifetime of the asset, including current conditions and reasonable and supportable forecasts in addition to historical loss information, to determine expected credit losses. Pooling of assets with similar risk characteristics and the use of a loss model are also required. Also, in April 2019, the FASB issued ASU No. 2019-04, *Codification Improvements to Topic 326, Financial Instruments—Credit Losses, Topic 815, Derivatives and Hedging, and Topic 825, Financial Instruments,* to clarify the inclusion of recoveries of trade receivables previously written off when estimating an allowance for credit losses. The amendments in this update were required to be applied using the modified retrospective method with an adjustment to accumulated deficit and were effective for us beginning with fiscal year 2020, including interim periods. The adoption of the amendments in this update as of January 1, 2020 did not have a material impact on our accounts receivable, net and accumulated deficit, as well as our results of operations for the year ended December 31, 2020.

In January 2017, the FASB issued ASU No. 2017-04, *Intangibles—Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment*, to simplify the subsequent measurement of goodwill by eliminating Step 2 from the goodwill impairment test. An entity no longer will determine goodwill impairment by calculating the implied fair value of goodwill by assigning the fair value of a reporting unit to all of its assets and liabilities as if the reporting unit had been acquired in a business combination. Instead, under the amendments in this update, an entity should perform its annual, or interim, goodwill impairment test by comparing the fair value of a reporting unit with its carrying amount. The FASB also eliminated the requirements for any reporting unit with a zero or negative carrying amount to perform a qualitative assessment and, if it fails that qualitative test, to perform Step 2 of the goodwill impairment test. The amendments in this update were effective for us beginning with fiscal year 2020, including interim periods. We perform our annual goodwill testing as of October 31, or more frequently if there are indicators of impairment. The adoption of the amendments in this update as of the Company's October 31, 2020 goodwill impairment test did not have a material impact on our consolidated financial position and results of operations as of and for the year ended December 31, 2020.

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*, to improve the fair value measurement reporting of financial instruments. The amendments in this update require, among other things, added disclosure of the range and weighted average of significant unobservable inputs used to develop Level 3 fair value measurements. The amendments in this update eliminate, among other things, disclosure of the reasons for and amounts of transfers between Level 1 and Level 2 for assets and liabilities that are measured at fair value on a recurring basis and an entity's valuation processes for Level 3 fair value measurements. The amendments in this update were effective for us beginning with fiscal year 2020. Retrospective application is required for all amendments in this update except the added disclosures, which should be applied prospectively. The adoption of the amendments in this update did not have a material impact on our consolidated financial position and results of operations as of and for the year ended December 31, 2020.

In August 2018, the FASB issued ASU No. 2018-15,*Intangibles–Goodwill and Other—Internal-Use Software (Subtopic 350-40): Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That is a Service Contract*, to provide additional guidance on the accounting for costs of implementing cloud computing arrangements that are service contracts. The amendments in this update require the capitalization of implementation costs during the application development stage of such hosting arrangements and amortization of the expense over the term of the arrangement including any option to extend reasonably certain to be exercised or option to terminate reasonably certain not to be exercised. Capitalized implementation costs and amortization thereof are also required to be classified in the same line item in the statements of financial position, operations and cash flows associated with the hosting service fees. The amendments in this update were effective for us beginning with fiscal year 2020. Entities may select retrospective or prospective application to all implementation costs incurred after the adoption date. We selected prospective application to all implementation costs incurred after the adoption date. The adoption of the amendments in this update did not have a material impact on our property and equipment, net and results of operations as of and for the year ended December 31, 2020.

In August 2018, the FASB issued ASU No. 2018-14*Compensation—Retirement Benefits—Defined Benefit Plans—General (Subtopic 715-20)*, to clarify disclosure requirements related to defined benefit pension plans. The amendment adds a narrative description on the reasons for significant gains and losses affecting the benefit obligation and an explanation of any other significant changes in the benefit obligation or plan assets not otherwise apparent in other disclosures. The amendment removes the disclosure of amounts in accumulated other comprehensive income expected to be recognized as part of net periodic benefit costs over the next year. The amendments in this update are effective for us beginning with fiscal year 2021. Entities are required to apply the amendments on a retrospective basis with early adoption permitted. We selected to early adopt this update. The adoption of the amendments in this update did not have a material impact on our defined benefit plan disclosures and our consolidated financial position and results of operations as of and for the year ended December 31, 2020.

In March 2020, the FASB issued ASU No. 2020-04*Reference Rate Reform (Topic 848)—Facilitation of the Effects of Reference Rate Reform on Financial Reporting*, that provides optional relief to applying reference rate reform to contracts, hedging relationships, and other transactions that reference the London Interbank Offered Rate (LIBOR), which will be discontinued by the end of 2021. Also, in January 2021, the FASB issued ASU No. 2021-01 *Reference Rate Reform (Topic 848)—Scope*, to clarify that cash flow hedges are eligible for certain optional expedients and exceptions for the application of subsequent assessment methods to assume perfect effectiveness as previously presented in ASU 2020-04. The amendments in this update are effective for us immediately and may be applied through December 31, 2022. Our LIBOR interest rate swap expired in October 2020 and was not impacted by reference rate reform. Therefore, the adoption of the amendments in this update did not have a material impact on our accumulated other comprehensive loss or our results of operations as of and for the year ended December 31, 2020.

In May 2020, the SEC issued a final rule that amends the financial statement requirements for business acquisitions and related pro forma financial information. The rule modifies the significance tests to replace total assets with aggregate worldwide market value of common equity in the investment test and to include a revenue component in the income test while requiring the use of absolute value to calculate average net income for the last five fiscal years. The rule improves the presentation of pro forma financial information by replacing pro forma adjustments with transaction accounting adjustments and adds the optional disclosure of management’s adjustments related to synergies and dis-synergies. The rule also reduces the number of acquiree annual financial statement periods required to a maximum of the two most recent fiscal years. The final rule is effective for us beginning with fiscal year 2021, with early application permitted; all applicable aspects of the rule are required to be applied upon adoption. We have early adopted the rule in our filings related to the acquisition of the Wi-Fi and Broadband assets business. The adoption of the rule did not have a material impact on our consolidated financial position and results of operations as of and for the year ended December 31, 2020.

Recently Issued Accounting Pronouncements

In December 2019, the FASB issued ASU No. 2019-12*Income Taxes (Topic 740)—Simplifying the Accounting for Income Taxes*, to remove certain exceptions and improve consistency of application, including, among other things, requiring that an entity reflect the effect of an enacted change in tax laws or rates in the annual effective tax rate computation in the interim period that includes the enactment date. The amendments in this update will be effective for us beginning with fiscal year 2021, with early adoption permitted. Most amendments within the standard are required to be applied on a prospective basis, while certain amendments must be applied on a retrospective or modified retrospective basis. The adoption of the amendments in this update is not expected to have a material impact on our consolidated financial position and results of operations.

In October 2020, the FASB issued ASU No. 2020-10*Codification Improvements*, to make incremental improvements to GAAP and address stakeholder suggestions, including, among other things, clarifying that the requirement to provide comparative information in the financial statements extends to the corresponding disclosures section. The amendments in this update will be effective for the Company beginning with fiscal year 2021, with early adoption permitted. The amendments in this update should be applied retrospectively and at the beginning of the period that includes the adoption date. The adoption of the amendments in this update is not expected to have a material impact on our consolidated financial position and results of operations.

Results of Operations

The following describes the line items set forth in our consolidated statements of operations. A discussion of changes in our results of operations during the year ended December 31, 2019 compared to the year ended December 31, 2018 has been omitted from this Annual Report on Form 10-K, but may be found in "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations" in our Annual Report on Form 10-K for the year ended December 31, 2019, filed with the SEC on February 5, 2020, which discussion is incorporated herein by reference and which is available free of charge on the SEC's website at www.sec.gov.

Net Revenue. Net revenue is primarily generated from sales of radio-frequency, analog, digital, and mixed-signal integrated circuits for the access and connectivity, wired and wireless infrastructure, and industrial and multi-market applications. A significant portion of our sales are to distributors, which then resell our products.

Cost of Net Revenue. Cost of net revenue includes the cost of finished silicon wafers processed by third-party foundries; costs associated with our outsourced packaging and assembly, test and shipping; costs of personnel, including stock-based compensation, and equipment associated with manufacturing support, logistics and quality assurance; amortization of acquired developed technology intangible assets; inventory fair value adjustments; amortization of certain production mask costs; cost of production load boards and sockets; and an allocated portion of our occupancy costs.

Research and Development. Research and development expense includes personnel-related expenses, including stock-based compensation, new product engineering mask costs, prototype integrated circuit packaging and test costs, computer-aided design software license costs, intellectual property license costs, reference design development costs, development testing and evaluation costs, depreciation expense and allocated occupancy costs. Research and development activities include the design of new products, refinement of existing products and design of test methodologies to ensure compliance with required specifications. All research and development costs are expensed as incurred.

Selling, General and Administrative. Selling, general and administrative expense includes personnel-related expenses, including stock-based compensation, amortization of certain acquired intangible assets, merger, acquisition and integration costs, third-party sales commissions, field application engineering support, travel costs, professional and consulting fees, legal fees, depreciation expense and allocated occupancy costs.

Impairment Losses. Impairment losses consist of charges resulting from the impairment of acquired intangible assets.

Restructuring Charges. Restructuring charges consist of severance, lease and leasehold impairment charges, and other charges related to restructuring plans.

Interest and Other Income (Expense), Net. Interest and other income (expense), net includes interest income, interest expense and other income (expense). Interest income consists of interest earned on our cash, cash equivalents and restricted cash balances. Interest expense consists of interest accrued on debt. Other income (expense) generally consists of income (expense) generated from non-operating transactions.

Income Tax Provision (Benefit). We make certain estimates and judgments in determining income tax expense for financial statement purposes. These estimates and judgments occur in the calculation of certain tax assets and liabilities, which arise from differences in the timing of recognition of revenue and expenses for tax and financial statement purposes and the realizability of assets in future years.

The following table sets forth our consolidated statement of operations data as a percentage of net revenue for the periods indicated:

	Years Ended December 31,	
	2020	2019
Net revenue	100 %	100 %
Cost of net revenue	56	47
Gross profit	44	53
Operating expenses:		
Research and development	38	31
Selling, general and administrative	27	28
Impairment losses	—	—
Restructuring charges	1	1
Total operating expenses	66	60
Loss from operations	(21)	(7)
Total interest and other income (expense), net	(3)	(3)
Loss before income taxes	(24)	(10)
Income tax benefit	(3)	(4)
Net loss	(21)%	(6)%

Net Revenue

	Year Ended December 31,		% Change
	2020[(1)]	2019[(1)]	2020
	(dollars in thousands)		
Broadband	$ 244,424	$ 119,320	105 %
% of net revenue	51 %	38 %	
Infrastructure	76,166	85,369	(11)%
% of net revenue	16 %	27 %	
Industrial and multi-market	87,267	79,137	10 %
% of net revenue	18 %	25 %	
Connectivity	70,739	33,354	112 %
% of net revenue	15 %	10 %	
Total net revenue	$ 478,596	$ 317,180	51 %

(1) Our net revenues by market were revised during 2020 to align with changing end-market conditions, our current business priorities, as well as growth opportunities in the four categories. The broadband category includes our prior connected home category plus the SoC business from the Wi-Fi and Broadband assets business, but excludes wired connectivity. The infrastructure category remains unchanged. Industrial and multi-market includes the previously reported revenue plus component revenues from the Wi-Fi and Broadband assets business. Our connectivity category includes primarily our MoCA/G.hn products and Wi-Fi and Ethernet revenues from the Wi-Fi and Broadband assets business.

Net revenue increased $161.4 million to $478.6 million for the year ended December 31, 2020, as compared to $317.2 million for the year ended December 31, 2019. The increase in broadband net revenue of $125.1 million primarily was the result of a partial-year contribution of gateway revenues attributable to our acquisition of the Wi-Fi and Broadband assets business on July 31, 2020 and, to a lesser extent, improvements in cable product shipments, partially offset by reductions in satellite product shipments. The increase in connectivity revenue of $37.4 million was primarily driven by a partial-year contribution of Wi-Fi and ethernet revenues attributable to our Wi-Fi and Broadband assets business acquisition, partially offset by a decline in MoCA product shipments. The increase in industrial and multi-market revenue of $8.1 million was related to increased shipments of component products attributable to our Wi-Fi and Broadband assets business acquisition, partially offset by decreased shipments of high performance analog products in this category. The decrease in infrastructure revenues of $9.2 million was primarily driven by decreased wireless backhaul and high performance analog shipments in this category.

We currently expect that revenue will fluctuate in the future, from period-to-period, based on evolving customer demand for existing products, the pace of adoption of newer products, and macroeconomic conditions.

Cost of Net Revenue and Gross Profit

	Year Ended December 31,		% Change
	2020	2019	2020
	(dollars in thousands)		
Cost of net revenue	$ 265,798	$ 149,495	78 %
% of net revenue	56 %	47 %	
Gross profit	212,798	167,685	27 %
% of net revenue	44 %	53 %	

Cost of net revenue increased $116.3 million to $265.8 million for the year ended December 31, 2020, as compared to $149.5 million for the year ended December 31, 2019. The increase was primarily driven by higher sales and a non-recurring inventory fair value adjustments of $32.9M related to our acquisition of the Wi-Fi and Broadband assets business on July 31, 2020. The decrease in gross profit percentage for the year ended December 31, 2020, as compared to the year ended December 31, 2019, was due primarily to the aforementioned non-recurring inventory fair value adjustments, as well as product mix.

We currently expect that gross profit percentage will fluctuate in the future, from period-to-period, based on changes in product mix, average selling prices, and average manufacturing costs.

Research and Development

	Year Ended December 31,		% Change
	2020	2019	2020
	(dollars in thousands)		
Research and development	$ 179,993	$ 98,344	83 %
% of net revenue	38 %	31 %	

Research and development expense increased $81.6 million to $180.0 million for the year ended December 31, 2020 from $98.3 million in the year ended December 31, 2019. The increase was primarily due to our acquisitions of the Wi-Fi and Broadband assets business and NanoSemi during the third quarter 2020, which resulted in increased engineering headcount, facilities, transition costs, and related expenses, as well as an increase in performance-based bonuses and stock-based compensation expenses. There were increases in payroll-related expenses of $54.2 million, of which $21.9 million was from performance-based bonus and stock-based compensation expenses; consulting and other outside services of $21.6 million, which includes acquisition-related transition service costs, design tools, and software license expenses; depreciation expense of $2.6 million; and occupancy expense of $1.4 million.

We expect our research and development expenses to increase in the future as we continue to focus on expanding our product portfolio and enhancing existing products.

Selling, General and Administrative

	Year Ended December 31,		% Change
	2020	2019	2020
	(dollars in thousands)		
Selling, general and administrative	$ 130,025	$ 88,762	46 %
% of net revenue	27 %	28 %	

Selling, general and administrative expense increased $41.3 million to $130.0 million for the year ended December 31, 2020, as compared to $88.8 million for the year ended December 31, 2019. The increase was primarily due to our acquisitions of the Wi-Fi and Broadband assets business and NanoSemi during the third quarter 2020, which resulted in increased personnel, facilities, transaction costs and bonuses and performance stock-based compensation expenses. Non-recurring transaction costs were $14.3 million in the year ended December 31, 2020. There were also increases in personnel-related expenses of $22.7 million, of which $16.0 million is from performance-based bonuses and stock-based compensation expenses; consulting and other outside services of $3.5 million; and occupancy expense of $1.6 million.

We expect selling, general and administrative expenses to increase in the future as we grow our sales and marketing organization to expand into existing and new markets.

Impairment Losses

	Year Ended December 31,		% Change
	2020	2019	2020
	(dollars in thousands)		
Impairment losses	$ 86	$ —	n/a
% of net revenue	— %	— %	

Impairment losses increased $0.1 million to $0.1 million for the year ended December 31, 2020, compared to $0 for the year ended December 31, 2019. Impairment losses for 2020 were related to the abandonment of an intellectual property license.

Restructuring charges

	Year Ended December 31,		% Change
	2020	2019	2020
	(dollars in thousands)		
Restructuring charges	$ 3,833	$ 2,636	45%
% of net revenue	1 %	1 %	

Restructuring charges increased $1.2 million to $3.8 million for the year ended December 31, 2020, compared to $2.6 million for the year ended December 31, 2019.

Restructuring charges in 2020 primarily consisted of lease restructuring charges of $2.0 million, including $1.5 million related to reduction in expected cash inflows from subleases, and severance-related charges of $1.6 million in connection with employee separation expenses.

Restructuring charges in 2019 primarily consisted of lease restructuring charges of $1.3 million related to exiting certain redundant facilities and severance-related charges of $1.2 million in connection with employee separation expenses.

Interest and Other Income (Expense)

	Year Ended December 31,		% Change
	2020	2019	2020
	(dollars in thousands)		
Interest and other income (expense), net	$ (13,713)	$ (10,427)	32 %
% of net revenue	(3)%	(3)%	

Interest and other income (expense), net changed by $3.3 million from a net expense of $10.4 million in the year ended December 31, 2019 to a net expense of $13.7 million for the year ended December 31, 2020. The change in interest and other income (expense), net was primarily due to an increase of $1.8 million in interest expense on outstanding debt and an increase of $1.1 million in other income (expenses) resulting from non-recurring gain on reversal of liability for an assumed indemnification obligation recognized in 2019. The increase in interest expense on outstanding debt includes the impact of an additional $3.3 million in interest expense from the incremental term loan used to fund our 2020 acquisitions, partially offset by a decrease in interest expense on the initial term loan of $1.9 million pertaining to a lower average balance of such debt outstanding.

Income Tax Provision (Benefit)

	Year Ended December 31,		% Change
	2020	2019	2020
	(dollars in thousands)		
Income tax benefit	$ (16,259)	$ (12,586)	29 %
% of pre-tax loss	14 %	39 %	

The income tax benefit for the year ended December 31, 2020 was $16.3 million or approximately 14% of pre-tax loss compared to an income tax benefit of $12.6 million or approximately 39% of pre-tax loss for the year ended December 31, 2019.

The income tax benefit for the year ended December 31, 2020 primarily related to the mix of pre-tax income among jurisdictions, excess tax benefits related to stock-based compensation, and release of certain reserves for uncertain tax positions under ASC 740-10. Also included in income tax benefit for the year ended December 31, 2020 was a tax benefit related to the Coronavirus Aid, Relief and Economic Security Act, or CARES Act, enacted effective March 27, 2020, and a tax provision related to a change in judgment regarding the final outcome of the Altera tax case. Such tax benefit relates to our ability to carry back our 2019 net operating loss, originally valued at a 21% federal tax rate, to offset income taxes paid in prior periods at the 35% federal tax rate in effect at that time.

The income tax benefit for the year ended December 31, 2019 primarily related to the mix of pre-tax income among jurisdictions, discrete tax benefits related to stock-based compensation, and release of certain reserves for uncertain tax positions under ASC 740-10.

Liquidity and Capital Resources

As of December 31, 2020, we had cash and cash equivalents of $148.9 million, restricted cash of $1.1 million, and net accounts receivable of $67.4 million and our working capital was $128.1 million.

Our primary uses of cash are to fund operating expenses and purchases of inventory, property and equipment, and from time to time, the acquisition of businesses. We also use cash to pay down outstanding debt. In July 2020, we funded our $150.0 million acquisition of the Wi-Fi and Broadband assets business with a portion of the net proceeds of our $175.0 million incremental term loan, of which $157.8 million remained outstanding as of December 31, 2020. In September 2020, we paid $10 million in cash and issued 804,163 shares of common stock to acquire NanoSemi and the NanoSemi securityholders will receive $35 million in deferred cash payments payable in 2021. In addition, certain NanoSemi stockholders may receive up to an additional $35 million in potential contingent consideration, subject to the acquired business satisfying certain financial objectives from July 1, 2020 through December 31, 2022.

Commencing on July 31, 2020, the incremental term loan of $175.0 million amortizes in quarterly installments of principal equal to (i) 1.25% of the original aggregate principal amount of the incremental term loan on the last day of each of the first through fourth full fiscal quarters of the Company after July 31, 2020, (ii) 2.50% of the original aggregate principal amount of the Incremental Term Loan on the last day of each of the fifth through eighth full fiscal quarters of the Company after July 31, 2020, and (iii) 3.75% of the original aggregate principal amount of the incremental term loan on the last day of each of the ninth through the eleventh full fiscal quarters of the Company after July 31, 2020. The incremental term loan has a term of three years and will mature on July 31, 2023, at which time all outstanding principal and accrued and unpaid interest on the incremental term loan is due. The Company also has an existing initial term loan with outstanding principal of $212.0 million due at maturity on May 12, 2024. As of December 31, 2020, the aggregate outstanding principal balance on the initial and incremental term loans was $369.8 million.

Heightened volatility and uncertainty in customer demand and the worldwide economy in general continues to impact business and financial markets as a result of the COVID-19 pandemic, and we may experience decreased sales and revenues in the near future. A material adverse impact from COVID-19 could result in a need to raise additional capital or incur additional indebtedness to fund strategic initiatives or operating activities, particularly if we pursue additional acquisitions. Our future capital requirements will depend on many factors, including impacts from the Wi-Fi and Broadband assets business and NanoSemi and our efforts to integrate these businesses, changes in revenue, the expansion of our engineering, sales and marketing activities, the timing and extent of our expansion into new territories, the timing of introductions of new products and enhancements to existing products, the continuing market acceptance of our products and potential material investments in, or acquisitions of, complementary businesses, services or technologies. Additional funds may not be available on terms favorable to us or at all. If we are unable to raise additional funds when needed, we may not be able to sustain our operations or execute our strategic plans.

Our cash and cash equivalents are impacted by the timing of when we pay expenses as reflected in the change in our outstanding accounts payable and accrued expenses. Cash used to fund operating expenses in our consolidated statements of cash flows excludes the impact of non-cash items such as amortization and depreciation of acquired intangible assets, leased right-of-use assets and property and equipment, inventory fair value adjustments, stock-based compensation, and impairment of leased right-of-use assets and related leasehold improvements. Cash used to fund capital purchases and acquisitions of businesses is included in investing activities in our consolidated statements of cash flows. Cash proceeds from debt and cash used to pay down outstanding debt is included in financing activities in our consolidated statements of cash flows.

Our primary sources of cash are cash receipts on accounts receivable from our shipment of products to distributors and direct customers, and from billings made on our behalf to customers for products sold by Intel under a transition services agreement. Aside from the amounts billed to our customers, net cash collections of accounts receivable are impacted by the efficiency of our cash collections process, which can vary from period to period depending on the payment cycles of our major distributor customers, and relative linearity of shipments period-to-period. Our credit agreement, as amended, under which we entered into a term loan to partially fund our acquisition of Exar, permits us to request incremental loans in an aggregate principal amount not to exceed the sum of $160.0 million (subject to adjustments for any voluntary prepayments), plus an unlimited amount that is subject to pro forma compliance with certain secured leverage ratio and total leverage ratio tests. We incurred an incremental loan of $175.0 million under this credit agreement with new initial lenders and used a portion of the net proceeds to fund our $150.0 million acquisition of the Wi-Fi and Broadband assets business.

Following is a summary of our working capital, cash and cash equivalents, and restricted cash for the periods indicated:

	December 31,	
	2020	2019
	(in thousands)	
Working capital	$ 128,057	$ 115,208
Cash and cash equivalents	$ 148,901	$ 92,708
Short-term restricted cash	115	349
Long-term restricted cash	1,018	60
Total cash and cash equivalents, restricted cash and investments	$ 150,034	$ 93,117

Following is a summary of our cash flows provided by (used in) operating activities, investing activities and financing activities for the years ended December 31, 2020 and 2019. A discussion of cash flows for the year ended December 31, 2018 has been omitted from this Annual Report on Form 10-K, but may be found in “Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations,” under the heading “Liquidity and Capital Resources” in our Annual Report on Form 10-K for the year ended December 31, 2019, filed with the SEC on February 5, 2020, which discussion is incorporated herein by reference and which is available free of charge on the SEC’s website at www.sec.gov.

	Years Ended December 31,	
	2020	2019
	(in thousands)	
Net cash provided by operating activities	$ 73,593	$ 78,348
Net cash used in investing activities	(175,286)	(6,973)
Net cash provided by (used in) financing activities	159,649	(53,383)
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(1,039)	934
Increase in cash, cash equivalents and restricted cash	$ 56,917	$ 18,926

Cash Flows from Operating Activities

Net cash provided by operating activities was $73.6 million for the year ended December 31, 2020. Net cash provided by operating activities primarily consisted of the positive impact from $162.5 million in non-cash items and $28.9 million in changes in operating assets and liabilities, partially offset by the negative impact of net loss of $98.6 million and deferred income taxes and excess tax benefits totaling $19.2 million. Non-cash items included in net loss for the year ended December 31, 2020 primarily consisted of depreciation and amortization of property, equipment, acquired intangible assets and leased right-of-use assets of $76.5 million, stock-based compensation of $47.6 million, and inventory fair value adjustments of $32.9 million.

Net cash provided by operating activities was $78.3 million for the year ended December 31, 2019. Net cash provided by operating activities consisted of positive cash flow from operations including $101.1 million in non-cash operating expenses and $16.9 million in changes in operating assets and liabilities, partially offset by net loss of $19.9 million and deferred income taxes and excess tax benefits from stock-based compensation of $19.8 million. Non-cash items included in net loss for the year ended December 31, 2019 primarily included depreciation and amortization of property, equipment and intangible assets and leased right-of-use assets of $66.4 million, stock-based compensation of $32.1 million. During the year ended December 31, 2019, we also exited certain leased facilities, which resulted in impairment of leased right-of-use assets of $9.2 million and leasehold impairments of $1.4 million, which was partially offset by a gain on extinguishment of related lease liabilities of $10.4 million, all of which are non-cash items that did not affect cash flows.

Cash Flows from Investing Activities

Net cash used in investing activities was $175.3 million for the year ended December 31, 2020 and consisted of $160.0 million in cash used in the acquisitions, comprising $150.0 million for the Wi-Fi and Broadband assets business and $10 million in initial cash for NanoSemi, $12.5 million in purchases of property and equipment, and $2.8 million in purchase of intangible assets.

Net cash used in investing activities was $7.0 million for the year ended December 31, 2019. Net cash used in investing activities consisted primarily of $6.9 million in purchases of property and equipment.

Cash Flows from Financing Activities

Net cash provided by financing activities was $159.6 million for the year ended December 31, 2020. Net cash provided by financing activities consisted primarily of $175.0 million in proceeds from borrowings under an incremental term loan we entered in July 2020 in part in connection with the acquisition of the Wi-Fi and Broadband assets business, and cash inflows from net proceeds from issuance of common stock upon exercise of stock options of $8.1 million, partially offset by aggregate repayments of principal on outstanding debt of $17.2 million, minimum tax withholding paid on behalf of employees for restricted stock units of $3.5 million, and payments of debt issuance costs of $2.7 million.

Net cash used in financing activities was $53.4 million for the year ended December 31, 2019. Net cash used in financing activities primarily consisted of cash outflows from aggregate prepayments of principal on outstanding debt of $50.0 million and $12.0 million in minimum tax withholding paid on behalf of employees for restricted stock units, partially offset by cash inflows of $8.6 million in net proceeds from issuance of common stock upon exercise of stock options.

We believe that our $148.9 million of cash and cash equivalents at December 31, 2020 will be sufficient to fund our projected operating requirements for at least the next twelve months. As of December 31, 2020, our indebtedness totaled $369.8 million, which consists of $212.0 million outstanding principal under an initial term loan and $157.8 million under an incremental term loan. We have repaid $230.2 million of debt through December 31, 2020. The credit agreement, as amended, permits the Company to request incremental loans in an aggregate principal amount not to exceed the sum of $160.0 million (subject to adjustments for any voluntary prepayments), plus an unlimited amount that is subject to pro forma compliance with certain secured leverage ratio and total leverage ratio tests. Incremental loans are subject to certain additional conditions, including obtaining additional commitments from the lenders then party to the credit agreement or new lenders. The initial term loan facility has a seven-year term expiring in May 2024 and bears interest at either an Adjusted LIBOR or an Adjusted Base Rate, at our option, plus a fixed applicable margin. The outstanding principal on the initial term loan is due at maturity on May 12, 2024. The incremental term loan facility has a three-year term expiring in July 2023 and bears interest, at our option, at either an Adjusted LIBOR plus a fixed applicable margin of 4.25% per annum or an Adjusted Base Rate plus a fixed applicable margin of 3.25% per annum. The incremental term loan of $175.0 million amortizes in quarterly installments of principal equal to (i) 1.25% of the original aggregate principal amount of the incremental term loan on the last day of each of the first through fourth full fiscal quarters of the Company following the date of the incremental term loan, (ii) 2.50% of the original aggregate principal amount of the incremental term loan on the last day of each of the fifth through eighth full fiscal quarters of the Company, and (iii) 3.75% of the original aggregate principal amount of the incremental term loan on the last day of each of the ninth through the eleventh full fiscal quarters of the Company.

Our cash and cash equivalents in recent years have been favorably affected by our implementation of an equity-based bonus program for our employees, including executives. In connection with that bonus program, in March 2020, we issued 0.2 million freely-tradable shares of our common stock in settlement of bonus awards for the 2019 performance period. We expect to implement a similar equity-based plan for fiscal 2020, but our compensation committee retains discretion to effect payment in cash, stock, or a combination of cash and stock.

Warranties and Indemnifications

In connection with the sale of products in the ordinary course of business, we often make representations affirming, among other things, that our products do not infringe on the intellectual property rights of others, and agree to indemnify customers against third-party claims for such infringement. Further, our certificate of incorporation and bylaws require us to indemnify our officers and directors against any action that may arise out of their services in that capacity, and we have also entered into indemnification agreements with respect to all of our directors and certain controlling persons.

Off-Balance Sheet Arrangements

As part of our ongoing business, we do not participate in transactions that generate relationships with unconsolidated entities or financial partnerships, such as entities often referred to as structured finance or special purpose entities, or SPEs, which would have been established for the purpose of facilitating off-balance sheet arrangements or other contractually narrow or limited purposes. As of December 31, 2020, we were not involved in any unconsolidated SPE transactions.

Contractual Obligations

As of December 31, 2020, future minimum payments under long-term debt, non-cancelable operating leases, inventory purchase obligations and other obligations were as follows:

	Payments due				
	Total	**Less than 1 year**	**1-3 years**	**3-5 years**	**More than 5 years**
			(in thousands)		
Long-term debt obligations	$ 369,812	$ —	$ 157,812	$ 212,000	$ —
Operating lease obligations	30,658	9,032	11,030	5,802	4,794
Inventory purchase obligations	71,211	71,211	—	—	—
Other obligations	50,523	21,315	28,761	447	—
Total	$ 522,204	$ 101,558	$ 197,603	$ 218,249	$ 4,794

Other obligations consist of contractual payments due for software licenses.

Our consolidated balance sheet at December 31, 2020 included $5.9 million in other long-term liabilities for uncertain tax positions, some of which may result in cash payment. The future payments related to uncertain tax positions recorded as other long-term liabilities have not been presented in the table above due to the uncertainty of the amounts and timing of cash settlement with the taxing authorities.

Our contractual obligations including long-term debt, leases, inventory purchase obligations and other obligations, increased by $272.4 million to $522.2 million as of December 31, 2020, from $249.8 million as of December 31, 2019 primarily as a result of an incremental term loan of $175.0 million, which we primarily used to fund our $150.0 million acquisition of the Wi-Fi and Broadband assets business, as well as increased orders of inventory placed with our vendors and with Intel under the transition services agreement, and increased orders of software licenses during the period.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Market risk represents the risk of loss that may impact our financial position due to adverse changes in financial market prices and rates. Our market risk exposure is primarily a result of fluctuations in foreign currency exchange rates and interest rates. We do not hold or issue financial instruments for trading purposes.

Foreign Currency Risk

To date, our international customer and vendor agreements have been denominated mostly in United States dollars. Accordingly, we have limited exposure to foreign currency exchange rates and do not enter into foreign currency hedging transactions. The functional currency of certain foreign subsidiaries is the local currency. Accordingly, the effects of exchange rate fluctuations on the net assets of these foreign subsidiaries' operations are accounted for as translation gains or losses in accumulated other comprehensive income (loss) within stockholders' equity. A hypothetical change of 100 basis points in such foreign currency exchange rates would result in a change to translation gain/loss in accumulated other comprehensive income of approximately $0.6 million.

Interest Rate Risk

On May 12, 2017, we entered into a credit agreement with certain lenders and a collateral agent in connection with the acquisition of Exar. The credit agreement provides for an initial secured term B loan facility, or the Initial Term Loan, in an aggregate principal amount of $425.0 million. As of December 31, 2020, borrowings under the Initial Term Loan were $212.0 million. The credit agreement permits the Company to request incremental loans in an aggregate principal amount not to exceed the sum of $160.0 million (subject to adjustments for any voluntary prepayments), plus an unlimited amount that is subject to pro forma compliance with certain secured leverage ratio and total leverage ratio tests. Incremental loans are subject to certain additional conditions, including obtaining additional commitments from the lenders then party to the credit agreement or new lenders. In connection with the acquisition of the Wi-Fi and Broadband assets business, on July 31, 2020, we entered into an incremental term loan with certain lenders that amends the credit agreement dated as of May 12, 2017. The incremental term loan agreement provided for a secured incremental term loan facility in an aggregate principal amount of $175.0 million, or the Incremental Term Loan. As of December 31, 2020, the outstanding principal borrowings under the Incremental Term Loan was $157.8 million.

The Initial Term Loan facility has a seven-year term and bears interest at either an Adjusted LIBOR or an Adjusted Base Rate, at our option, and, in each case, plus a fixed applicable margin. In November 2017, to hedge a substantial portion of our existing interest rate risk with respect to the term loans, we entered into a fixed-for-floating interest rate swap agreement with an amortizing notional amount to swap some of our variable rate interest payments under our term loans for fixed interest payments bearing an interest rate of 1.74685% through October 2020. As a result of entering the swap, the interest rate on a substantial portion of our long-term debt was effectively fixed at approximately 4.25% until the swap expired in October 2020. The Initial Term Loan is still subject to a 2.5% fixed applicable margin during the remaining term of the loan. The Incremental Term Loan bears interest, at our option, at an Adjusted LIBOR plus a fixed applicable margin of 4.25% per annum or an Adjusted Base Rate plus a fixed applicable margin of 3.25% per annum.

We are subject to a variable amount of interest on the principal balance of the loans and could be adversely impacted by rising interest rates in the future. If LIBOR interest rates had increased by 10%, or 1000 basis points, during the periods presented, the rate increase would have resulted in an immaterial increase to interest expense.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

The financial statements and supplementary data required by this item are included in Part IV, Item 15 of this Report.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

ITEM 9A. CONTROLS AND PROCEDURES

Evaluation of Disclosure and Procedures

We maintain disclosure controls and procedures that are designed to ensure that information required to be disclosed in our periodic reports filed with the SEC is recorded, processed, summarized and reported within the time periods specified in the rules and forms of the SEC and that such information is accumulated and communicated to our management, including our principal executive officer and principal financial officer, as appropriate, to allow for timely decisions regarding required disclosure. In designing and evaluating the disclosure controls and procedures, management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives, and no evaluation of controls and procedures can provide absolute assurance that all control issues and instances of fraud, if any, within a company have been detected. Management is required to apply its judgment in evaluating the cost-benefit relationship of possible controls and procedures.

As required by Rule 13a-15(b) of the Securities Exchange Act of 1934, as amended, or the Exchange Act, prior to filing this Form 10-K, we carried out an evaluation, under the supervision and with the participation of our management, including our principal executive officer and principal financial officer, of the effectiveness of the design and operation of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) of the Exchange Act) as of the end of the period covered by this Form 10-K. Based on their evaluation, our principal executive officer and principal financial officer concluded that our disclosure controls and procedures were effective as of the end of the period covered by this Form 10-K.

Management's Annual Report on Internal Controls over Financial Reporting

Our management, including our principal executive officer and principal financial officer, is responsible for establishing and maintaining adequate internal control over financial reporting, as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act. Our management, including our principal executive officer and principal financial officer, evaluated the effectiveness of our internal control over financial reporting based on criteria established in the Internal Control — Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based upon that evaluation, management concluded that our internal control over financial reporting was effective as of December 31, 2020. Management's evaluation of the effectiveness of our internal control over financial reporting as of December 31, 2020 did not include internal controls over financial reporting that had not yet been integrated for a portion of the Home Gateway Platform Division of Intel Corporation, which we refer to as the Wi-Fi and Broadband assets business, which we acquired in a business combination in July 2020, as described below. Assessment of a recently acquired business may be omitted from management's report on internal control over financial reporting in the year of acquisition under SEC guidelines. The omitted portion of the Wi-Fi and Broadband assets business relates to certain sales and other transactions made on our behalf by Intel Corporation under the transition services agreement and comprised approximately 5% of our total assets and 3% of our total liabilities as of December 31, 2020 and approximately 23% of total revenues and 19% of cost of goods sold for the year ended December 31, 2020. The effectiveness of our internal control over financial reporting as of December 31, 2020 has been audited by Grant Thornton LLP, an independent registered public accounting firm, and Grant Thornton LLP has issued a report on our internal control over financial reporting, which is included herein.

Changes in Internal Control over Financial Reporting

An evaluation was performed under the supervision and with the participation of our management, including our principal executive officer and principal financial officer, to determine whether any change in our internal control over financial reporting occurred during the fiscal quarter ended December 31, 2020 that materially affected, or is reasonably likely to materially affect, our internal control over financial reporting. On July 31, 2020, we completed the acquisition of the Home Gateway Platform Division of Intel Corporation, which we refer to as the Wi-Fi and Broadband assets business. On September 9, 2020, we completed the acquisition of NanoSemi, Inc. We have completed the integration of NanoSemi into our existing system of internal control over financial reporting; however, we are in the process of integrating the processes, systems, and controls relating to the Wi-Fi and Broadband assets business into our existing system of internal control over financial reporting in accordance with our integration plans through the fiscal quarter ended December 31, 2020. We expect to complete the integration of the internal controls over financial reporting related to the Wi-Fi and Broadband assets business in 2021. There were no changes in our internal control over financial reporting identified in connection with the evaluation required by paragraph (d) of Rule 13a-15 or Rule 15d-15 of the Securities Exchange Act of 1934, as amended, that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Board of Directors and Stockholders
MaxLinear, Inc.

Opinion on internal control over financial reporting
We have audited the internal control over financial reporting of MaxLinear, Inc. (a Delaware corporation) and subsidiaries (the "Company") as of December 31, 2020, based on criteria established in the 2013 *Internal Control—Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO"). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2020, based on criteria established in the 2013 *Internal Control—Integrated Framework* issued by COSO.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the consolidated financial statements of the Company as of and for the year ended December 31, 2020, and our report dated February 11, 2021 expressed an unqualified opinion on those financial statements.

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 Annual Report on Internal Control over Financial Reporting ("Management's Report"). 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.

Our audit of, and opinion on, the Company's internal control over financial reporting does not include the internal control over financial reporting for the portion of the business not yet integrated from the acquisition of the Home Gateway Platform Division of Intel Corporation, which management refers to as the Wi-Fi and Broadband assets business. The omitted portion of the Wi-Fi and Broadband assets business relates to certain sales and other transactions made on the Company's behalf by Intel Corporation under a transition services agreement and comprises approximately 5% of total assets, 3% of total liabilities, 23% of total revenues, and 19% of total cost of goods sold as of and for the year ended December 31, 2020. As indicated in Management's Report, the Wi-Fi and Broadband assets business was acquired during 2020. Management's assertion on the effectiveness of the Company's internal control over financial reporting excluded the internal control over financial reporting related to certain sales and other transactions as discussed.

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/ Grant Thornton LLP

Newport Beach, California
February 11, 2021

ITEM 9B. OTHER INFORMATION

None.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information required by Item 10 with respect to our directors and executive officers will be either (i) included in an amendment to this Annual Report on Form 10-K or (ii) incorporated by reference to our Definitive Proxy Statement to be filed in connection with our 2021 Annual Meeting of Stockholders, or the 2021 Proxy Statement. Such amendment in the 2021 Proxy Statement will be filed with the Securities and Exchange Commission no later than 120 days after December 31, 2020.

Item 405 of Regulation S-K calls for disclosure of any known late filing or failure by an insider to file a report required by Section 16(a) of the Exchange Act. This information will be contained under the caption “Related Person Transactions and Section 16(a) Beneficial Ownership Reporting Compliance” in either an amendment to this Annual Report on Form 10-K or the 2021 Proxy Statement and is incorporated herein by reference.

Code of Conduct

We have adopted a code of ethics and employee conduct that applies to our board of directors and all of our employees, including our chief executive officer and principal financial officer.

Our code of conduct is available at our website by visiting www.maxlinear.com and clicking through “Investors,” “Corporate Governance,” “Governance,” “Governance Documents,” and “Code of Conduct.” When required by the rules of the New York Stock Exchange, or NYSE, or the Securities and Exchange Commission, or SEC, we will disclose any future amendment to, or waiver of, any provision of the code of conduct for our chief executive officer and principal financial officer or any member or members of our board of directors on our website within four business days following the date of such amendment or waiver.

The information required by Item 10 with respect to our audit committee is incorporated by reference from the information set forth under the caption “Corporate Governance and Board of Directors — Board Committees” in either an amendment to this Annual Report on Form 10-K or the 2021 Proxy Statement.

ITEM 11. EXECUTIVE COMPENSATION

The information required by Item 11 is incorporated by reference from the information set forth under the captions “Compensation of Non-Employee Directors” and “Executive Compensation” in either an amendment to this Annual Report on Form 10-K or our 2021 Proxy Statement.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The information required by Item 12 is incorporated by reference from the information set forth under the captions “Executive Compensation — Equity Compensation Plan Information” and “Security Ownership” in either an amendment to this Annual Report on Form 10-K or our 2021 Proxy Statement.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The information required by Item 13 is incorporated by reference from the information set forth under the captions “Corporate Governance and Board of Directors — Director Independence” and “Related Person Transactions and Section 16(a) Beneficial Ownership Reporting Compliance” in either an amendment to this Annual Report on Form 10-K or our 2021 Proxy Statement.

ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES

The information required by Item 14 is incorporated by reference from the information set forth under the caption “Proposal Number 3 — Ratification of Appointment of Independent Registered Public Accounting Firm” in either an amendment to this Annual Report on Form 10-K or our 2021 Proxy Statement.

PART IV — FINANCIAL INFORMATION

ITEM 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULES

a) Documents filed as part of the report

1. Financial Statements

Our consolidated financial statements are attached hereto and listed on the Index to Consolidated Financial Statements of this Annual Report on Form 10-K.

2. Financial Statement Schedules

Schedule II. Valuation and Qualifying Accounts —Years ended December 31, 2020, 2019 and 2018

All other schedules are omitted as the required information is inapplicable, or the information is presented in the financial statements or related notes.

SCHEDULE II – VALUATION AND QUALIFYING ACCOUNTS (in thousands):

Classification	Balance at beginning of year	Additions (deductions) charged to expenses	Other Additions	(Deductions)	Balance at end of year
Allowance for credit losses (previously, allowance for doubtful accounts)					
2020	$ —	$ —	$ —	$ —	$ —
2019	46	—	—	(46)	—
2018	73	—	—	(27)	46
Warranty reserves					
2020	$ 553	$ 300	$ —	$ (153)	$ 700
2019	519	74	—	(40)	553
2018	941	(414)	—	(8)	519
Valuation allowance for deferred tax assets					
2020	$ 77,957	$ (7,385)	$ 1,239	$ —	$ 71,811
2019	79,196	(1,239)	—	—	77,957
2018	84,560	(5,761)	397	—	79,196

3. Exhibits

Exhibit Number	Exhibit Title
2.1	Agreement and Plan of Merger and Reorganization, dated as of February 3, 2015, by and among MaxLinear, Inc., a Delaware corporation, Entropic Communications, Inc., a Delaware corporation, Excalibur Acquisition Corporation, a Delaware corporation and a wholly-owned subsidiary of MaxLinear, and Excalibur Subsidiary, LLC, a Delaware limited liability company and wholly-owned subsidiary of MaxLinear (incorporated by reference to Exhibit 2.1 to the Registrant's Current Report on Form 8-K filed on February 4, 2015 (File No. 001-34666)).
2.2	Agreement and Plan of Merger, dated as of March 28, 2017, by and among MaxLinear, Inc., a Delaware corporation, Exar Corporation, a Delaware corporation, and Eagle Acquisition Corporation, a Delaware corporation and a wholly-owned subsidiary of MaxLinear (incorporated by reference to Exhibit 2.1 to the Registrant's Current Report on Form 8-K filed on March 29, 2017 (File No. 001-34666)).
2.3	Asset Purchase Agreement, dated as of April 5, 2020, by and among MaxLinear, Inc., a Delaware corporation, Intel Corporation, a Delaware corporation, and MaxLinear Asia Singapore Private Limited, a wholly-owned subsidiary of MaxLinear (incorporated by reference to Exhibit 2.1 to the Registrant's Current Report on Form 8-K filed on April 6, 2020 (File No. 001-34666)).
3.1	Registrant's Amended and Restated Certificate of Incorporation, as filed with the Secretary of State of the State of Delaware on March 29, 2010 (incorporated by reference to Exhibit 3.5 of the Registrant's Registration Statement on Form S-1 and all amendments thereto (File No. 333-162947)).
3.2	Registrant's Amended and Restated Bylaws, as amended to date (incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K filed on November 10, 2015 (File No. 001-34666)).
3.3	Registrant's Amended and Restated Bylaws, as amended to date (incorporated by reference to Exhibit 3.2 to the Registrant's Current Report on Form 8-K filed on February 16, 2017 (File No. 001-34666)).
3.4	Certificate of Retirement (incorporated by reference to Exhibit 3.1 to the Amendment No. 1 on Form 8-A filed with the Securities and Exchange Commission on March 30, 2017 (Registration No. 001-34666)).
4.1	Specimen common stock certificate of Registrant (incorporated by reference to Exhibit 4.1 of the Registrant's Amendment No. 1 on Form 8-A filed on March 30, 2017 (File No. 001-34666)).
*4.2	Description of the registrant's securities registered pursuant to Section 12 of the Securities Exchange Act of 1934.
+10.1	Form of Director and Executive Officer Indemnification Agreement (incorporated by reference to Exhibit 10.1 of the Registrant's Registration Statement on Form S-1 and all amendments thereto (File No. 333-162947)).
+10.2	Form of Director and Controlling Person Indemnification Agreement (incorporated by reference to Exhibit 10.2 of the Registrant's Registration Statement on Form S-1 and all amendments thereto (File No. 333-162947)).
+10.3	2004 Stock Plan, as amended (incorporated by reference to Exhibit 10.3 of the Registrant's Annual Report on Form 10-K filed on February 6, 2013 (File No. 001-34666)).
+10.4	Form of Stock Option Agreement under the 2004 Stock Plan (incorporated by reference to Exhibit 10.4 of the Registrant's Registration Statement on Form S-1 and all amendments thereto (File No. 333-162947)).
+10.5	Amendment No. 1 to the form of Stock Option Agreement under the 2004 Stock Plan (incorporated by reference to Exhibit 10.5 of the Registrant's Registration Statement on Form S-1 and all amendments thereto (File No. 333-162947)).
+10.6	2010 Equity Incentive Plan, as amended on December 13, 2018 (incorporated by reference to Exhibit 10.3 of the Registrant's Current Report on Form 8-K filed on December 19, 2018 (File No. 001-34666)).
+10.7	Form of Agreement under the 2010 Equity Incentive (incorporated by reference to Exhibit 10.7 of the Registrant's Quarterly Report on Form 10-Q filed on July 28, 2011 (File No. 001-34666)).
+10.8	2010 Employee Stock Purchase Plan, as amended (incorporated by reference to Exhibit 10.8 of the Registrant's Current Report on Form 8-K filed on August 15, 2016 (File No. 001-34666)).
+10.12	Form of Change in Control Agreement for Chief Executive Officer and Chief Financial Officer (incorporated herein by reference to Exhibit 10.12 of the Registrant's Annual Report on Form 10-K filed on February 17, 2016).
+10.13	Form of Change in Control Agreement for Executive Officers (incorporated herein by reference to Exhibit 10.13 of the Registrant's Annual Report on Form 10-K filed on February 17, 2016).
10.14	Lease Agreement, dated May 18, 2009, between the Registrant and JCCE - Palomar, LLC (incorporated by reference to Exhibit 10.14 of the Registrant's Registration Statement on Form S-1 and all amendments thereto (File No. 333-162947)).

Exhibit Number	Exhibit Title
†10.15	Sublease Agreement, dated May 9, 2009, between the Registrant and CVI Laser, LLC (incorporated by reference to Exhibit 10.15 of the Registrant's Registration Statement on Form S-1 and all amendments thereto (File No. 333-162947)).
†10.16	Intellectual Property License Agreement, dated June 18, 2009, between the Registrant and Intel Corporation, (incorporated by reference to Exhibit 10.16 of the Registrant's Registration Statement on Form S-1 and all amendments thereto (File No. 333-162947)).
+†10.17	Employment Offer Letter, dated November 9, 2012, between the Registrant and Will Torgerson (incorporated by reference to Exhibit 10.17 of the Registrant's Annual Report on Form 10-K filed on February 6, 2013 (File No. 001-34666)).
†10.18	Distributor Agreement, dated June 5, 2009, between the Registrant and Moly Tech Limited (incorporated by reference to Exhibit 10.18 of the Registrant's Registration Statement on Form S-1 and all amendments thereto (File No. 333-162947)).
†10.19	Distributor Agreement, dated October 3, 2005, between the Registrant and Tomen Electronics Corporation (incorporated by reference to Exhibit 10.19 of the Registrant's Registration Statement on Form S-1 and all amendments thereto (File No. 333-162947)).
†10.20	Distributor Agreement, dated August 19, 2009, between the Registrant and Lestina International Ltd. (incorporated by reference to Exhibit 10.20 of the Registrant's Registration Statement on Form S-1 and all amendments thereto (File No. 333-162947)).
+10.21	MaxLinear, Inc. Executive Bonus Plan, as amended (incorporated herein by reference to Exhibit 10.21 of the Registrant's Annual Report on Form 10-K filed on February 17, 2016).
+10.22	Employment Offer Letter, dated April 22, 2011, between the Registrant and Michael LaChance (incorporated by reference to Exhibit 10.22 of the Registrant's Annual Report on Form 10-K filed on March 14, 2012 (File No. 001-34666)).
10.23	Stock Repurchase Agreement, dated August 21, 2012, by and among the Registrant, Mission Ventures III, L.P., Mission Ventures Affiliates III, L.P., and U.S. Venture Partners VIII, L.P. (incorporated by reference to Exhibit 10.23 of the Registrant's Current Report on Form 8-K filed on August 22, 2012 (File No. 001-34666)).
10.24	Stock Repurchase Agreement, dated October 31, 2012, by and among the Registrant, U.S. Venture Partners VIII, L.P, USVP VIII Affiliates Fund, L.P., USVP Entrepreneur Partners VIII-A, L.P. and USVP Entrepreneur Partners VIII-B, L.P. (incorporated by reference to Exhibit 10.24 of the Registrant's Current Report on Form 8-K filed on October 31, 2012 (File No. 001-34666)).
10.26	Lease Agreement, dated December 17, 2013, between Registrant and The Campus Carlsbad, LLC (incorporated by reference to Exhibit 10.26 of the Registrant's Annual Report on Form 10-K filed on February 7, 2014 (File No. 001-34666)).
10.28	Form of MaxLinear Voting Agreement (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed on February 4, 2015 (File No. 001-34666)).
10.29	Form of Entropic Voting Agreement (incorporated by reference to Exhibit 10.2 to the Registrant's Current Report on Form 8-K filed on February 4, 2015 (File No. 001-34666)).
10.30	First Amendment to Lease, dated May 6, 2015, between Registrant, on the one hand, and Brookwood CB I, LLC and Brookwood CB II, LLC, as tenants in common and successors-in-interest to The Campus Carlsbad, LLC, on the other hand (incorporated by reference to Exhibit 10.1 of Registrant's Quarterly Report on Form 10-Q filed on August 10, 2015 (File No. 333-34666)).
+10.31	Entropic Communications, Inc. 2007 Equity Incentive Plan and Form of Option Agreement, Form of Option Grant Notice thereunder and Notice of Exercise (incorporated herein by reference to Entropic Communication, Inc.'s Annual Report on Form 10-K filed on March 3, 2008 (File No. 001-33844)).
+10.32	Entropic Communications, Inc. 2007 Non-Employee Directors' Stock Option Plan and Form of Option Agreement, Forms of Grant Notice, and Notice of Exercise thereunder (incorporated herein by reference to Entropic Communications, Inc.'s Registration Statement on Form S-1 filed on July 27, 2007 (No. 333-144899)).
10.33	Lease Agreement, dated November 11, 2015, between Registrant and The Northwestern Mutual Life Insurance Company (incorporated herein by reference to Exhibit 10.33 of the Registrant's Annual Report on Form 10-K filed on February 17, 2016).
10.34	Asset Purchase Agreement, by and between the Company and Microsemi, dated as of April 28, 2016 (incorporated herein by reference to Exhibit 10.1 of the Registrant's Current Report on Form 8-K filed on April 28, 2016).

Exhibit Number	Exhibit Title
10.35	Asset Purchase Agreement, dated as of May 9, 2016, by and between the Registrant and Broadcom (incorporated herein by reference to Exhibit 10.1 of the Registrant's Current Report on Form 8-K filed on May 9, 2016).
+10.36	Employment Promotion Letter, dated February 11, 2016, between the Registrant and Connie Kwong (incorporated herein by reference to Exhibit 10.2 of the Registrant's Current Report on Form 10-Q filed on May 9, 2016).
10.37	Debt Commitment Letter by and among MaxLinear, Inc., JPMorgan Chase Bank, N.A., Deutsche Bank AG New York Branch, and Deutsche Bank Securities Inc., dated as of March 28, 2017 (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K/A filed on March 31, 2017 (File No. 001-34666)).
10.38	Credit Agreement, dated as of May 12, 2017, by and among MaxLinear, Inc., the lenders from time to time party thereto, and JPMorgan Chase Bank, N.A., as administrative agent and collateral agent (incorporated by references to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed on May 12, 2017 (File No. 001-34666)).
10.39	Security Agreement, dated as of May 12, 2017, by and among MaxLinear, Inc., the subsidiary guarantors from time to time party thereto, and JPMorgan Chase Bank, N.A., as collateral agent (incorporated by references to Exhibit 10.2 to the Registrant's Current Report on Form 8-K filed on May 12, 2017 (File No. 001-34666)).
+10.40	Employment Offer Letter, dated June 7, 2018, between the Registrant and Steven Litchfield (incorporated by reference to Exhibit 10.1 to the Registrants Current Report on Form 10-Q filed on August 7, 2018 (File No. 001-34666)).
+10.41	Employment Offer Letter, dated June 27, 2018, between the Registrant and Michael Bollesen (incorporated by reference to Exhibit 10.2 to the Registrants Current Report on Form 10-Q filed on August 7, 2018 (File No. 001-34666)).
+10.42	Form of Change in Control Agreement for Chief Executive Officer and Chief Financial Officer, as amended (incorporated herein by reference to Exhibit 10.1 of the Registrant's Form 8-K filed on December 19, 2018 (File No. 001-34666)).
+10.43	Form of Change in Control Agreement for Executive Officers, as amended (incorporated herein by reference to Exhibit 10.2 of the Registrant's Form 8-K filed on December 19, 2018 (File No. 001-34666)).
+10.44	Executive Incentive Bonus Plan, as amended on December 13, 2018 (incorporated by reference to Exhibit 10.4 of the Registrant's Current Report on Form 8-K filed on December 19, 2018 (File No. 001-34666)).
+10.45	Clawback Policy, as adopted on December 13, 2018 (incorporated by reference to Exhibit 10.5 of the Registrant's Current Report on Form 8-K filed on December 19, 2018 (File No. 001-34666)).
+†10.46	Form of Restricted Stock Unit Award Agreement for Performance-Based Awards under the 2010 Equity Incentive Plan (incorporated herein by reference to Exhibit 10.1 of the Registrant's Form 10-Q filed on July 25, 2019 (File No. 001-34666)).
10.47	Debt Commitment Letter by and among MaxLinear, Inc., MUFG Union Bank, and Wells Fargo Bank, N.A. dated as of April 5, 2020 (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed on April 6, 2020 (File No. 001-34666)).
10.48	Incremental Amendment No. 1, dated as of July 31, 2020, by and among MaxLinear, the guarantors party thereto, the lenders party thereto, MUFG Bank, Ltd., as administrative agent, and MUFG as collateral agent.
*11.1	Statement re computation of income (loss) per share (included in Part IV, Item 15 of this Form 10-K).
*21.1	Subsidiaries of the Registrant.
*23.1	Consent of Independent Registered Public Accounting Firm.
*24.1	Power of Attorney (included on the signature page of this Form 10-K).
*31.1	Certification of Principal Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
*31.2	Certification of Principal Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
#*32.1	Certification pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS	XBRL Instance Document - the instance document does not appear in the interactive data file because its XBRL tags are embedded within the inline XBRL document.
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document

Exhibit Number	Exhibit Title
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	XBRL Taxonomy Extension Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document

* Filed herewith.

\# In accordance with Item 601(b)(32)(ii) of Regulation S-K and SEC Release No. 33-8238 and 34-47986, Final Rule: Management's Reports on Internal Control Over Financial Reporting and Certification of Disclosure in Exchange Act Periodic Reports, the certifications furnished pursuant to this item will not be deemed "filed" for purposes of Section 18 of the Exchange Act (15 U.S.C. 78r), or otherwise subject to the liability of that section. Such certification will not be deemed to be incorporated by reference into any filing under the Securities Act or the Exchange Act, except to the extent that the registrant specifically incorporates it by reference.

\+ Indicates a management contract or compensatory plan.

† Confidential treatment has been requested and received for certain portions of these exhibits.

(b) Exhibits

The exhibits filed as part of this report are listed in Item 15(a)(3) of this Form 10-K.

(c) Schedules

The financial statement schedule required by Regulation S-X and Item 8 of this form is listed in Item 15(a)(2) of this Form 10-K.

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.

MAXLINEAR, INC.

(Registrant)

By: /s/ KISHORE SEENDRIPU, Ph.D.
Kishore Seendripu, Ph.D.
President and Chief Executive Officer
(Principal Executive Officer)

Date: February 11, 2021

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Kishore Seendripu, Ph.D. and Steven Litchfield, and each of them, his true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, to sign any and all amendments (including post-effective amendments) to this Annual Report on Form 10-K and to file the same, with all exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto each of said attorneys-in-fact and agents, full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that each of said attorneys-in-facts and agents, or his substitute or substitutes, or any of them, shall do or cause to be done by virtue hereof.

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:

Signature	Title	Date
/s/ KISHORE SEENDRIPU, Ph.D. Kishore Seendripu, Ph.D.	President, Chief Executive Officer, and Director (Principal Executive Officer)	February 11, 2021
/s/ STEVEN G. LITCHFIELD Steven G. Litchfield	Chief Financial Officer and Chief Corporate Strategy Officer (Principal Financial Officer)	February 11, 2021
/s/ CONNIE KWONG Connie Kwong	Corporate Controller (Principal Accounting Officer)	February 11, 2021
/s/ THOMAS E. PARDUN Thomas E. Pardun	Lead Director	February 11, 2021
/s/ DANIEL A. ARTUSI Daniel A. Artusi	Director	February 11, 2021
/s/ CAROLYN D. BEAVER Carolyn D. Beaver	Director	February 11, 2021
/s/ GREGORY P. DOUGHERTY Gregory P. Dougherty	Director	February 11, 2021
/s/ ALBERT J. MOYER Albert J. Moyer	Director	February 11, 2021
/s/ DONALD E. SCHROCK Donald E. Schrock	Director	February 11, 2021
/s/ THEODORE TEWKSBURY, Ph.D. Theodore Tewksbury, Ph.D.	Director	February 11, 2021

MaxLinear, Inc.

Index to Consolidated Financial Statements

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Board of Directors and Stockholders
MaxLinear, Inc.

Opinion on the financial statements
We have audited the accompanying consolidated balance sheets of MaxLinear, Inc. (a Delaware corporation) and subsidiaries (the "Company") as of December 31, 2020 and 2019, the related consolidated statements of operations, comprehensive income (loss), stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2020, and the related notes and financial statement schedule included under Item 15(a) (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2020 and 2019, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2020, in conformity with accounting principles generally accepted in the United States of America.

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, 2020, based on criteria established in the 2013 *Internal Control—Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO"), and our report dated February 11, 2021 expressed an unqualified opinion.

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 supporting 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 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.

Business combinations - valuation of identifiable intangible assets
As discussed in Note 3 to the financial statements, the Company acquired the Home Gateway Platform Division, which the Company refers to as the Wi-Fi and Broadband Assets business, pursuant to an Asset Purchase Agreement with Intel Corporation on July 31, 2020 for a purchase consideration of $150.0 million, which resulted in identifiable intangible assets of $58.0 million. Further, on September 9, 2020, the Company acquired NanoSemi, Inc. for a total purchase price of $61.2 million, which resulted in identifiable intangible assets of $19.9 million. Management estimated the fair value of identifiable intangible assets using available valuation methods.

We identified the valuation of identifiable intangible assets as a critical audit matter. The principal consideration for our determination that valuation of identifiable intangible assets is a critical audit matter is that management's judgments and estimates in selecting valuation methods, and determining significant assumptions and prospective financial information are subject to a high level of judgment and estimation uncertainty. Therefore, subjective and complex auditor judgment is necessary to evaluate the reasonableness of management's selections, judgments and assumptions since the application of alternative methods and assumptions can result in differing estimates of fair value and historical results may not be indicative of the future due to uncertainties arising from technological advances, complexities in developing new products, industry consolidation and economic factors.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the financial statements. These procedures included, among others:

- Utilizing a valuation specialist to assist in evaluating the appropriateness of the Company's selection of valuation methods for the identifiable intangible assets and evaluating the reasonableness of significant assumptions used, including the discount rate, contributory asset charges, and long-term growth rates;
- Evaluating significant assumptions of prospective financial information used, such as growth rates, customer attrition rate, the technology obsolescence curve and margin percentages, were reasonable by considering past performance, industry data, current market forecasts, and whether such assumptions were consistent with evidence obtained in other areas of the audit;
- Testing the mathematical accuracy of the calculations; and
- Testing the design and operating effectiveness of internal controls relating to the valuation reports and allocation of purchase price, which included management's review of the preliminary valuation report for the completeness and mathematical accuracy of the data, evaluating the reasonableness of significant assumptions used in the calculations, such as assumed growth rates, customer attrition rate, margin percentages, discount rate, contributory asset charges and the long term growth rates as compared to industry and market data.

Inventory valuation
As discussed in Note 1 to the financial statements, the Company assesses the recoverability of its inventory based on judgments and assumptions about future demand and market conditions. Future demand is determined based on historical sales and expected future sales. The Company reduces its inventory to its lower of cost or net realizable value on a part-by-part basis to account for its obsolescence or lack of marketability. Reductions are calculated as the difference between the cost of inventory and its net realizable value based upon the assumptions about future demand, market conditions, and costs.

We identified inventory valuation as a critical audit matter. The principal consideration for our determination that inventory valuation is a critical audit matter is that management's estimates of future demand and market conditions are subject to a high level of estimation uncertainty. Therefore, subjective and complex auditor judgment is necessary to evaluate the reasonableness of management's judgments and assumptions since historical results may not be indicative of the future due to uncertainties arising from technological advances, complexities in developing new products, industry consolidation and economic factors.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included, among others:

- Evaluating management's assumptions with regard to future demand by considering whether:
  - Current and past results indicated management's ability to reliably forecast future demand. We compared prior year forecasts of future demand to actual results in the current year;
  - Changes contemplated in forecasted future demand compared with the current year actual results are reasonable; and
  - The information was consistent with evidence obtained in other areas of the audit;
- Evaluating the propriety of significant adjustments to the inventory valuation calculations, by making inquiries of management and reviewing judgments, assumptions and documentation supporting such adjustments;
- Testing the completeness, accuracy, and relevance of underlying data used in the estimate of net realizable value of its inventories; and
- Testing the design and operating effectiveness of internal controls over the inventory valuation adjustments, including management's review of the demand forecast and significant adjustments to the inventory valuation calculations.

Realizability of deferred tax assets
As discussed in Note 1 to the financial statements, management records valuation allowances to reduce deferred tax assets when a judgment is made that is considered more likely than not that a tax benefit will not be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the periods in which those temporary differences will become deductible. The Company assesses the need for a valuation allowance by evaluating both positive and negative evidence that may exist.

We identified the realizability of deferred tax assets as a critical audit matter. The principal consideration for our determination that the realizability of deferred tax assets is a critical audit matter is that the forecast of future taxable income is an accounting estimate subject to a high level of estimation. There is inherent uncertainty and subjectivity related to management's judgments and assumptions regarding the Company's international tax structure and transfer pricing agreements, determination of the taxable income by jurisdiction, and the impacts of the Tax Act on future taxable income, which are complex in nature and require significant auditor judgment.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. With the assistance of engagement team members possessing specialized skill in income tax matters, our audit procedures related to the realizability of deferred tax assets included the following, among others:

- Reviewing management's application of the rules under the Tax Act with a focus on Global Intangible Low-Taxed Income and the ordering rules and its expected impact on estimated future taxable income;
- Comparing the scheduled reversals of deferred tax liabilities to the underlying financial and tax accounting records;
- Comparing the forecast of future taxable income to the following:
  - Prior year actual results by jurisdiction to evaluate the reasonableness of significant changes contemplated for the following year;
  - Forecasts of future information used in other areas, such as inventory valuation and impairment assessment of intangible assets, to evaluate completeness and consistency;
- Reviewing the Company's transfer pricing assumptions, including royalty rates and cost plus markups, applied by the Company and its non-US subsidiaries; and
- Testing the design and operating effectiveness of management's internal controls over the completeness and accuracy of the forecast of future taxable income and the proper application of relevant tax law to support the realizability of deferred tax assets.

/s/ Grant Thornton LLP

We have served as the Company's auditor since 2016.

Newport Beach, California
February 11, 2021

MAXLINEAR, INC.
CONSOLIDATED BALANCE SHEETS
(in thousands, except par value amounts)

	December 31, 2020	December 31, 2019
Assets		
Current assets:		
Cash and cash equivalents	$ 148,901	$ 92,708
Short-term restricted cash	115	349
Accounts receivable, net	67,442	50,411
Inventory	97,839	31,510
Prepaid expenses and other current assets	47,421	6,792
Total current assets	361,718	181,770
Long-term restricted cash	1,018	60
Property and equipment, net	39,470	16,613
Leased right-of-use assets	21,886	10,978
Intangible assets, net	207,266	187,971
Goodwill	302,828	238,330
Deferred tax assets	86,065	67,284
Other long-term assets	2,191	2,785
Total assets	$ 1,022,442	$ 705,791
Liabilities and stockholders’ equity		
Current liabilities:		
Accounts payable	$ 32,751	$ 13,442
Accrued price protection liability	47,766	12,557
Accrued expenses and other current liabilities	105,842	31,171
Accrued compensation	47,302	9,392
Total current liabilities	233,661	66,562
Long-term lease liabilities	20,862	9,335
Long-term debt	363,592	206,909
Other long-term liabilities	13,210	8,065
Total liabilities	631,325	290,871
Commitments and contingencies		
Stockholders’ equity:		
Preferred stock, $0.0001 par value; 25,000 shares authorized, no shares issued or outstanding	—	—
Common stock, $0.0001 par value; 550,000 shares authorized, 74,536 shares issued and outstanding at December 31, 2020 and 71,931 shares issued and outstanding at December 31, 2019	7	7
Additional paid-in capital	602,064	529,596
Accumulated other comprehensive income (loss)	1,435	(887)
Accumulated deficit	(212,389)	(113,796)
Total stockholders’ equity	391,117	414,920
Total liabilities and stockholders’ equity	$ 1,022,442	$ 705,791

See accompanying notes.

MAXLINEAR, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS
(in thousands, except per share data)

	Years Ended December 31,		
	2020	2019	2018
Net revenue	$ 478,596	$ 317,180	$ 384,997
Cost of net revenue	265,798	149,495	176,223
Gross profit	212,798	167,685	208,774
Operating expenses:			
Research and development	179,993	98,344	120,046
Selling, general and administrative	130,025	88,762	101,789
Impairment losses	86	—	2,198
Restructuring charges	3,833	2,636	3,838
Total operating expenses	313,937	189,742	227,871
Loss from operations	(101,139)	(22,057)	(19,097)
Interest income	409	775	78
Interest expense	(12,952)	(11,133)	(14,255)
Other income (expense), net	(1,170)	(69)	422
Total interest and other income (expense), net	(13,713)	(10,427)	(13,755)
Loss before income taxes	(114,852)	(32,484)	(32,852)
Income tax benefit	(16,259)	(12,586)	(6,653)
Net loss	$ (98,593)	$ (19,898)	$ (26,199)
Net loss per share:			
Basic	$ (1.35)	$ (0.28)	$ (0.38)
Diluted	$ (1.35)	$ (0.28)	$ (0.38)
Shares used to compute net loss per share:			
Basic	73,133	71,005	68,490
Diluted	73,133	71,005	68,490

See accompanying notes.

MAXLINEAR, INC.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)
(in thousands)

	Years Ended December 31,		
	2020	2019	2018
Net loss	$ (98,593)	$ (19,898)	$ (26,199)
Other comprehensive income (loss), net of tax:			
Foreign currency translation adjustments, net of tax expense of $216 in 2020, expense of $136 in 2019 and benefit of $200 in 2018	1,010	160	(1,572)
Net actuarial gain on pension and other defined benefit plans, net of tax expense of $0 in 2020	1,172	—	—
Unrealized gain (loss) on interest rate swap, net of tax expense of $8 in 2020, benefit of $341 in 2019 and expense of $187 in 2018	225	(1,319)	702
Less: Reclassification adjustments of unrealized gain on interest rate swap, net of tax of $0 in 2020	(85)	—	—
Unrealized gain (loss) on interest rate swap, net of tax	140	(1,319)	702
Other comprehensive income (loss)	2,322	(1,159)	(870)
Total comprehensive loss	$ (96,271)	$ (21,057)	$ (27,069)

See accompanying notes.

MAXLINEAR, INC.
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(in thousands)

	Common Stock		Additional Paid-In Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount				
Balance at December 31, 2017	67,400	$ 7	$ 455,497	$ 1,039	$ (69,119)	$ 387,424
Common stock issued pursuant to equity awards, net	1,875	—	1,761	—	—	1,761
Employee stock purchase plan	276	—	4,452	—	—	4,452
Stock-based compensation	—	—	31,734	—	—	31,734
Cumulative effect of adoption of new accounting principles	—	—	(157)	103	1,688	1,634
Other comprehensive loss	—	—	—	(870)	—	(870)
Net loss	—	—	—	—	(26,199)	(26,199)
Balance at December 31, 2018	69,551	7	493,287	272	(93,630)	399,936
Common stock issued pursuant to equity awards, net	2,132	—	140	—	—	140
Employee stock purchase plan	248	—	4,109	—	—	4,109
Stock-based compensation	—	—	32,060	—	—	32,060
Cumulative effect of adoption of new accounting principles	—	—	—	—	(268)	(268)
Other comprehensive loss	—	—	—	(1,159)	—	(1,159)
Net loss	—	—	—	—	(19,898)	(19,898)
Balance at December 31, 2019	71,931	7	529,596	(887)	(113,796)	414,920
Common stock issued pursuant to equity awards, net	1,515	—	3,997	—	—	3,997
Common stock issued for merger, net	804	—	17,080	—	—	17,080
Employee stock purchase plan	286	—	3,794	—	—	3,794
Stock-based compensation	—	—	47,597	—	—	47,597
Other comprehensive income	—	—	—	2,322	—	2,322
Net loss	—	—	—	—	(98,593)	(98,593)
Balance at December 31, 2020	74,536	$ 7	$ 602,064	$ 1,435	$ (212,389)	$ 391,117

See accompanying notes.

MAXLINEAR, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)

	Years Ended December 31,		
	2020	2019	2018
Operating Activities			
Net loss	$ (98,593)	$ (19,898)	$ (26,199)
Adjustments to reconcile net loss to cash provided by operating activities:			
Amortization and depreciation	76,513	66,401	79,027
Impairment losses	86	—	2,198
Inventory fair value adjustments	32,945	—	—
Amortization of debt issuance costs and accretion of discount on debt and leases	2,201	1,577	1,148
Stock-based compensation	47,597	32,060	31,721
Deferred income taxes	(18,488)	(15,693)	(12,144)
Loss on disposal of property and equipment	—	46	430
Impairment of leasehold improvements	319	1,442	735
Impairment of leased right-of-use assets	1,508	9,240	—
Gain on extinguishment of lease liabilities	—	(10,437)	—
(Gain) loss on foreign currency and other	1,289	760	(809)
Excess tax benefits on stock-based awards	(677)	(4,064)	(2,028)
Changes in operating assets and liabilities, net of acquisitions:			
Accounts receivable	(16,856)	9,090	6,595
Inventory	(31,837)	10,195	11,696
Prepaid expenses and other assets	(38,954)	3,805	1,071
Leased right-of-use assets	441	3,044	—
Accounts payable, accrued expenses and other current liabilities	57,094	1,261	5,923
Accrued compensation	32,606	2,021	8,961
Deferred revenue and deferred profit	—	—	(138)
Accrued price protection liability	34,719	(3,966)	(5,117)
Lease liabilities	(6,386)	(8,142)	—
Other long-term liabilities	(1,934)	(394)	(381)
Net cash provided by operating activities	73,593	78,348	102,689
Investing Activities			
Purchases of property and equipment	(12,487)	(6,887)	(7,825)
Purchases of intangible assets	(2,799)	(86)	—
Cash used in acquisitions, net of cash acquired	(160,000)	—	—
Net cash used in investing activities	(175,286)	(6,973)	(7,825)
Financing Activities			
Net proceeds from the issuance of debt	175,000	—	—
Payment of debt issuance cost	(2,696)	—	—
Repayment of debt	(17,188)	(50,000)	(93,000)
Net proceeds from issuance of common stock	8,068	8,603	6,839
Minimum tax withholding paid on behalf of employees for restricted stock units	(3,535)	(11,986)	(7,623)
Net cash provided by (used in) financing activities	159,649	(53,383)	(93,784)
Effect of exchange rate changes on cash and cash equivalents	(1,039)	934	(1,301)
Increase in cash, cash equivalents and restricted cash	56,917	18,926	(221)
Cash, cash equivalents and restricted cash at beginning of period	93,117	74,191	74,412
Cash, cash equivalents and restricted cash at end of period	$ 150,034	$ 93,117	$ 74,191
Supplemental disclosures of cash flow information:			
Cash paid for interest	$ 11,082	$ 11,259	$ 13,957
Cash paid for income taxes	$ 2,822	$ 4,417	$ 5,426
Supplemental disclosures of non-cash investing and financing activities:			
Common stock issued in acquisitions, at fair value	$ 17,080	$ —	$ —
Deferred payments of purchase price for acquisitions, at fair value	$ 34,100	$ —	$ —
Issuance of shares for payment of bonuses	$ 3,258	$ 7,632	$ 6,997

See accompanying notes.

1. Organization and Summary of Significant Accounting Policies

Description of Business

MaxLinear, Inc. was incorporated in Delaware in September 2003. MaxLinear, Inc., together with its wholly owned subsidiaries, collectively referred to as MaxLinear, or the Company, is a provider of communications systems-on-chip (SoC) solutions used in broadband, mobile and wireline infrastructure, data center, and industrial and multi-market applications. MaxLinear is a fabless integrated circuit design company whose products integrate all or substantial portions of a high-speed communication system, including radio frequency (RF), high-performance analog, mixed-signal, digital signal processing, security engines, data compression and networking layers, and power management. MaxLinear's customers include electronics distributors, module makers, original equipment manufacturers, or OEMs, and original design manufacturers, or ODMs, who incorporate the Company's products in a wide range of electronic devices, including cable Data Over Cable Service Interface Specifications (DOCSIS), fiber and DSL broadband modems and gateways; Wi-Fi and wireline routers for home networking; radio transceivers and modems for 4G/5G base-station and backhaul infrastructure; fiber-optic modules for data center, metro, and long-haul transport networks; as well as power management and interface products used in these and many other markets.

Basis of Presentation and Principles of Consolidation

The consolidated financial statements include the accounts of MaxLinear, Inc. and its wholly owned subsidiaries and have been prepared in accordance with accounting principles generally accepted in the United States of America, or GAAP. All intercompany transactions and investments have been eliminated in consolidation.

The functional currency of certain foreign subsidiaries is the local currency. Accordingly, assets and liabilities of these foreign subsidiaries are translated at the current exchange rate at the balance sheet date and historical rates for equity. Revenue and expense components are translated at weighted average exchange rates in effect during the period. Gains and losses resulting from foreign currency translation are included as a component of stockholders' equity. Foreign currency transaction gains and losses are included in the results of operations, and to date, have not been material.

Use of Estimates and Significant Risks and Uncertainties

The preparation of consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the amounts reported in the consolidated financial statements and accompanying notes of the consolidated financial statements. Actual results could differ from those estimates.

In the year ended December 31, 2020, the Company's revenues were impacted by the coronavirus disease, or COVID-19, pandemic. In particular, the Company experienced some negative impact to its revenue and gross profits in the first half of 2020 due to several industry-wide dynamics related to COVID-19 including supply constraints as well as customer requests to temporarily delay shipments. Although the Company has benefited from increased demand for certain of its products from the work-from-home environment in the second half of 2020, heightened volatility and uncertainty in customer demand and the worldwide economy in general has continued, and the Company may experience increased volatility in its sales and revenues in the near future. However, the magnitude of such volatility on the Company's business and its duration is uncertain and cannot be reasonably estimated at this time.

The Company also believes that its $148.9 million of cash and cash equivalents at December 31, 2020 will be sufficient to fund its projected operating requirements for at least the next twelve months. A material adverse impact from COVID-19 could result in a need to raise additional capital or incur additional indebtedness to fund strategic initiatives or operating activities, particularly if the Company pursues additional acquisitions. The Company's future capital requirements will depend on many factors, including the Company's efforts to complete the integration of the acquired Wi-Fi and Broadband assets business and NanoSemi (Note 3), changes in revenue, the expansion of engineering, sales and marketing activities, the timing and extent of expansion into new territories, the timing of introductions of new products and enhancements to existing products, the continuing market acceptance of the Company's products and potential material investments in, or acquisitions of, complementary businesses, services or technologies. Additional funds may not be available on terms favorable to the Company or at all. If the Company is unable to raise additional funds when needed, it may not be able to sustain its operations or execute its strategic plans.

The Company is not aware of any specific event or circumstance that would require an update to its estimates or adjustments to the carrying value of its assets and liabilities as of February 11, 2021, the issuance date of this Annual Report on Form 10-K. Actual results could differ from those estimates, particularly if the Company experiences material impacts from

COVID-19.

Business Combinations

The Company applies the provisions of ASC 805, *Business Combinations*, in accounting for its acquisitions. It requires the Company to recognize separately from goodwill the assets acquired and the liabilities assumed, at the acquisition date fair values. Goodwill as of the acquisition date is measured as the excess of consideration transferred over the acquisition date fair values of the net assets acquired and the liabilities assumed. While the Company uses its best estimates and assumptions to accurately value assets acquired and liabilities assumed at the acquisition date as well as contingent consideration, where applicable, its 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, the Company records 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 recorded to the consolidated statements of operations.

Costs to exit or restructure certain activities of an acquired company or the Company's internal operations are accounted for as termination and exit costs pursuant to ASC 420, *Exit or Disposal Cost Obligations*, and are accounted for separately from the business combination. A liability for costs associated with an exit or disposal activity is recognized and measured at its fair value in the consolidated statements of operations in the period in which the liability is incurred.

For a given acquisition, the Company may identify certain pre-acquisition contingencies as of the acquisition date and may extend its review, evaluation, and adjustment of these pre-acquisition contingencies throughout the measurement period in order to obtain sufficient information to assess whether the Company includes these contingencies as a part of the fair value estimates of assets acquired and liabilities assumed and, if so, to determine their estimated amounts. A pre-acquisition contingency (non-income tax related) is only recognized as an asset or a liability if: (i) it is probable that an asset existed or a liability had been incurred at the acquisition date and (ii) the amount of the asset or liability can be reasonably estimated. Subsequent to the measurement period, changes in estimates of such contingencies will affect earnings and could have a material effect on the Company's results of operations and financial position.

In addition, uncertain tax positions and tax-related valuation allowances assumed, if any, in connection with a business combination are initially estimated as of the acquisition date. The Company re-evaluates these items quarterly based upon facts and circumstances that existed as of the acquisition date with any adjustments to the preliminary estimates being recorded to goodwill if identified within the measurement period. Subsequent to the end of the measurement period or final determination of the estimated value of the tax allowance or contingency, whichever comes first, changes to these uncertain tax positions and tax related valuation allowances will affect the income tax provision (benefit) in the consolidated statements of operations and could have a material impact on the results of operations and financial position.

Cash and Cash Equivalents

The Company considers all liquid investments with a maturity of three months or less when purchased to be cash equivalents. Cash equivalents are recorded at cost, which approximates market value.

Accounts Receivable

The Company performs ongoing credit evaluations of its customers and assesses each customer's credit worthiness. The Company monitors collections and payments from its customers and maintains an allowance for doubtful accounts, which effective January 1, 2020, is based upon applying an expected credit loss rate to receivables based on the historical loss rate from similar high risk customers adjusted for current conditions, including any specific customer collection issues identified, and forecasts of economic conditions. Delinquent account balances are written off after management has determined that the likelihood of collection is remote. The allowance for credit losses as of December 31, 2020 and the activity in this account, including the current-period provision for expected credit losses for the year ended December 31, 2020, were not material.

Inventory

The Company assesses the recoverability of its inventory based on assumptions about demand and market conditions. Forecasted demand is determined based on historical sales and expected future sales. Inventory is stated at the lower of cost or net realizable value. Cost is computed using standard cost, which approximates actual cost on a first-in, first-out basis and net realizable value is the estimated selling price in the ordinary course of business, less reasonably predictable costs of completion, disposal and transportation. The Company reduces its inventory to its lower of cost or net realizable value on a part-by-part basis to account for its obsolescence or lack of marketability. Reductions are calculated as the difference between the cost of inventory and its net realizable value based upon assumptions about future demand, market conditions and costs. Once established, these adjustments are considered permanent and are not revised until the related inventory is sold or disposed of.

Fair Value of Financial Instruments

The carrying amount of cash and cash equivalents, restricted cash, accounts receivable, accounts payable and accrued expenses and compensation are considered to be representative of their respective fair values because of the short-term nature of these accounts. The interest rate swap was carried at fair value prior to its expiration in 2020.

Property and Equipment

Property and equipment is carried at cost and depreciated over the estimated useful lives of the assets, ranging from two to five years, using the straight-line method. Leasehold improvements are stated at cost and amortized over the shorter of the estimated useful lives of the assets or the lease term.

Production Masks

Production masks with alternative future uses or discernible future benefits are capitalized and amortized over their estimated useful life of two to five years. To determine if the production mask has alternative future uses or benefits, the Company evaluates risks associated with developing new technologies and capabilities, and the related risks associated with entering new markets. Production masks that do not meet the criteria for capitalization are expensed as research and development costs.

Goodwill and Intangible Assets

Goodwill is the excess of the purchase price over the fair value of identifiable net assets acquired in business combinations accounted for under the acquisition method. Intangible assets represent purchased intangible assets including developed technology, in-process research and development, or IPR&D, technologies acquired or licensed from other companies, customer relationships, non-compete covenants, backlog, and trademarks and tradenames. Purchased finite-lived intangible assets are capitalized and amortized over their estimated useful lives. Technologies acquired or licensed from other companies, customer relationships, non-compete covenants, backlog, and trademarks and tradenames are capitalized and amortized over the lesser of the terms of the agreement, or estimated useful life. The Company capitalizes IPR&D projects acquired as part of a business combination. On completion of each project, IPR&D assets are reclassified to developed technology and amortized over their estimated useful lives.

Impairment of Goodwill and Long-Lived Assets

Goodwill is not amortized but is tested for impairment using either a qualitative assessment, and/or quantitative assessment, which effective with its October 31, 2020 impairment test, is based on comparing the fair value of a reporting unit with its carrying amount. If the carrying amount of a reporting unit exceeds its fair value, a goodwill impairment loss is recorded. The Company tests by reporting unit, goodwill and other indefinite-lived intangible assets for impairment as of October 31 each year or more frequently if it believes indicators of impairment exist.

During development, IPR&D is not subject to amortization and is tested for impairment annually or more frequently if events or changes in circumstances indicate that the asset might be impaired. The Company reviews indefinite-lived intangible assets for impairment using a qualitative assessment, followed by a quantitative assessment, as needed, each year as of October 31, the date of its annual goodwill impairment review, or whenever events or changes in circumstances indicate the carrying value may not be recoverable. Recoverability of indefinite-lived intangible assets is measured by comparing the carrying amount of the asset to its fair value. In certain cases, the Company utilizes the relief-from-royalty method when appropriate, and a fair value will be obtained based on analysis over the costs saved by owning the right instead of leasing it.

Once an IPR&D project is complete, it becomes a finite-lived intangible asset and is evaluated for impairment both immediately prior to its change in classification and thereafter in accordance with the Company's policy for long-lived assets.

The Company regularly reviews the carrying amount of its long-lived assets subject to depreciation and amortization, as well as the useful lives, to determine whether indicators of impairment may exist which warrant adjustments to carrying values or estimated useful lives. An impairment loss would be recognized when the sum of the expected future undiscounted net cash flows is less than the carrying amount of the asset. Should impairment exist, the impairment loss would be measured based on the excess of the carrying amount of the asset over the asset’s fair value.

During the years 2020, 2019, and 2018, the Company identified impairment of intangible assets of $0.1 million, $0 and $2.2 million, respectively. Refer to *Goodwill and Intangible Assets,* Note 5 for more information.

Revenue Recognition

The Company's revenue is primarily generated from sales of the Company’s integrated circuits to electronics distributors, module makers, OEMs, and ODMs under individual customer purchase orders, some of which have underlying master sales agreements that specify terms governing the product sales. Effective January 1, 2018, the Company adopted ASC 606 and recognizes such revenue at the point in time when control of the products is transferred to the customer at the estimated net consideration for which collection is probable, taking into account the customer's rights to price protection, other pricing credits, unit rebates, and rights to return unsold product. Transfer of control occurs either when products are shipped to or received by the distributor or direct customer, based on the terms of the specific agreement with the customer, if the Company has a present right to payment and transfer of legal title and the risks and rewards of ownership to the customer has occurred. For most of the Company's product sales, transfer of control occurs upon shipment to the distributor or direct customer. In assessing whether collection of consideration from a customer is probable, the Company considers the customer's ability and intention to pay that amount of consideration when it is due. Payment of invoices is due as specified in the underlying customer agreement, typically 30 days from the invoice date, which occurs on the date of transfer of control of the products to the customer. Since payment terms are less than a year, the Company has elected the practical expedient and does not assess whether a customer contract has a significant financing component.

A five-step approach is applied in the recognition of revenue under ASC 606: (1) identify the contract with a customer, (2) identify the performance obligations in the contract, (3) determine the transaction price, (4) allocate the transaction price to the performance obligations in the contract, and (5) recognize revenue when the Company satisfies a performance obligation. The Company applied ASC 606 to its customer contracts that were not completed before the January 1, 2018 adoption date. Customer purchase orders plus the underlying master sales agreements are considered to be contracts with the customer for purposes of applying the five-step approach under ASC 606.

Pricing adjustments and estimates of returns under contractual stock rotation rights are treated as variable consideration for purposes of determining the transaction price, and are estimated at the time control transfers using the expected value method based on the Company's analysis of actual price adjustment claims by distributors and historical product return rates, and then reassessed at the end of each reporting period. The Company also considers whether any variable consideration is constrained, since such amounts for which it is probable that a significant reversal will occur when the contingency is subsequently resolved are required to be excluded from revenues. Price adjustments are finalized at the time the products are sold through to the end customer and the distributor or end customer submits a claim to reduce the sale price to a pre-approved net price. Stock rotation allowances are capped at a fixed percentage of the Company's sales to a distributor for a period of time, up to six months, as specified in the individual distributor contract. If the Company's current estimates of such credits and rights are materially inaccurate, it may result in adjustments that affect future revenues and gross profits. Returns under the Company's general assurance warranty of products for a period of one to three years have not been material and warranty-related services are not considered a separate performance obligation under the customer contracts. Most of the Company's customers resell the Company's product as part of their product and thus are tax-exempt; however, to the extent the Company collects and remits taxes on product sales from customers, it has elected to exclude from the measurement of transaction price such taxes.

Each distinct promise to transfer products is considered to be an identified performance obligation for which revenue is recognized upon transfer of control of the products to the customer. Although customers may place orders for products to be delivered on multiple dates that may be in different quarterly reporting periods, all of the orders are scheduled within one year from the order date. The Company has opted to not disclose the portion of revenues allocated to partially unsatisfied performance obligations, which represent products to be shipped within 12 months under open customer purchase orders, at the end of the current reporting period as allowed under ASC 606. The Company has also elected to record sales commissions when incurred, pursuant to the practical expedient under ASC 340, as the period over which the sales commission asset that would have been recognized is less than one year.

Customer contract liabilities consist primarily of obligations to deliver rebates to customers in the form of units of products which are included in accrued expenses and other current liabilities in the consolidated balance sheets. Other obligations to customers consist of estimates of price protection rights offered to the Company's end customers, which are included in accrued price protection liability in the consolidated balance sheets, as well as price adjustments expected to be claimed by the distributor upon sell-through of the products to their customers, and amounts expected to be returned by distributors under stock rotation rights, which are included in accrued expenses and other current liabilities in the consolidated balance sheets. The Company also records a right of return asset, consisting of amounts representing the products the Company expects to receive from customers in returns, which is included in inventory in the consolidated balance sheets, and is typically settled within six months of transfer of control to the customer, or the period over which stock rotation rights are based. Upon lapse of the time period for stock rotations, or the contractual end to price protection and rebate programs, which is approximately one to two years, and when the Company believes unclaimed amounts are no longer subject to payment and will not be paid, any remaining asset or liability is derecognized by an offsetting entry to cost of net revenue and net revenue. For additional disclosures regarding contract liabilities and other obligations to customers, see Note 15**.**

The Company assesses customer accounts receivable and contract assets for impairment in accordance with ASC 310-10-35.

Warranty

The Company generally provides a warranty on its products for a period of one to three years. The Company makes estimates of product return rates and expected costs to replace the products under warranty at the time revenue is recognized based on historical warranty experience and any known product warranty issues. If actual return rates and/or replacement costs differ significantly from these estimates, adjustments to recognize additional cost of net revenue may be required in future periods. As of December 31, 2020 and 2019, the Company has warranty reserves of $0.7 million and $0.6 million, respectively, based on the Company's estimates.

Segment Information

The Company operates in one segment as it has developed, marketed and sold primarily only one class of similar products, radio-frequency, high-performance analog and mixed-signal communications system-on-chip solutions for the connected home, wired and wireless infrastructure markets and industrial and multi-market applications.

Operating segments are defined as components of an enterprise about which separate financial information is available that is evaluated regularly by the chief operating decision maker, or decision-making group, in deciding how to allocate resources and in assessing performance. The Company's chief operating decision maker is its Chief Executive Officer. The Company's Chief Executive Officer reviews financial information presented on a consolidated basis for purposes of allocating resources and evaluating financial performance. The Company has one business activity and there are no segment managers who are held accountable for operations, operating results and plans for products or components below the consolidated unit level. Accordingly, the Company reports as a single operating segment.

Stock-based Compensation

The Company measures the cost of employee services received in exchange for equity incentive awards, including restricted stock units and restricted stock awards, employee stock purchase rights and stock options based on the grant date fair value of the award. The Company calculates the fair value of restricted stock units and performance-based restricted stock units based on the fair market value of the Company's common stock on the grant date. Stock-based compensation expense is then determined based on the number of restricted stock units that are expected to vest; for performance-based restricted stock units, this is the number of units that are expected to vest during the performance period if it is probable that the Company will achieve the performance metrics specified in the underlying award agreement. The Company uses the Black-Scholes valuation model to calculate the fair value of stock options and employee stock purchase rights granted to employees. Stock-based compensation expense is recognized over the period during which the employee is required to provide services in exchange for the award, which is usually the vesting period. The Company recognizes compensation expense over the vesting period using the straight-line method and classifies these amounts in the consolidated statements of operations based on the department to which the related employee reports.

Research and Development

Costs incurred in connection with the development of the Company's technology and future products are charged to research and development expense as incurred.

Leases

The Company’s leases primarily consist of facility leases which are classified as operating leases. The Company assesses whether an arrangement contains a lease at inception. Effective January 1, 2019, the Company recognizes a lease liability to make contractual payments under all leases with terms greater than twelve months and a corresponding right-of-use asset, representing its right to use the underlying asset for the lease term. The lease liability is initially measured at the present value of the lease payments over the lease term using the collateralized incremental borrowing rate since the implicit rate is unknown. Options to extend or terminate a lease are included in the lease term when it is reasonably certain that the Company will exercise such an option. The right-of-use asset is initially measured as the contractual lease liability plus any initial direct costs and prepaid lease payments made, less any lease incentives. Upon adoption of ASC 842 on January 1, 2019, the carrying value of lease-related restructuring liabilities for certain restructured leases existing at that date, was offset against the related right-of-use assets. Lease expense is recognized on a straight-line basis over the lease term.

Upon adoption of ASC 842, the Company elected certain practical expedients and accordingly has (1) carried forward its prior assessments of (a) whether existing contracts on the January 1, 2019 adoption date contain leases, (b) classification of leases as operating or financing and (c) initial direct costs for existing leases and (2) considered hindsight in determining the lease term and assessing impairment of the right-of-use-asset. In addition, the Company used a portfolio approach for its facility leases when making judgments and estimates, such as the discount rate.

Leased right-of-use assets are subject to impairment testing as a long-lived asset at the asset-group level. The Company monitors its long-lived assets for indicators of impairment. As the Company's leased right-of-use assets primarily relate to facility leases, early abandonment of all or part of facility as part of a restructuring plan is typically an indicator of impairment. If impairment indicators are present, the Company tests whether the carrying amount of the leased right-of-use asset is recoverable including consideration of sublease income, and if not recoverable, measures impairment loss for the right-of-use asset or asset group.

Derivatives and Hedging Activities

The Company records derivatives in the consolidated balance sheets at fair value. Hedge accounting is applied to derivatives designated in a hedging relationship. A derivative designated as a hedge of a forecasted transaction is carried at fair value with the effective portion of a derivative’s gain or loss recorded in other comprehensive income (i.e., a separate component of stockholders’ equity) and subsequently recognized in earnings in the same period or periods the hedged forecasted transaction affects earnings. The ineffective portion of a derivative’s gain or loss is recorded in earnings as it occurs. Changes in certain terms of the hedged transactions, including the selection of interest rate from one-month LIBOR to another rate could cause ineffectiveness in the derivatives and result in reclassification of amounts in accumulated other comprehensive income (loss) into earnings.

Pension and Other Defined Benefit Retirement Obligations

The costs of pension and certain other defined benefit employee retirement benefits are required to be recognized based upon actuarial valuations. The related net retirement benefit obligation is recognized as the excess of the projected benefit obligation over the fair value of the plan assets. In measuring the retirement benefit obligation, the discount rate, expected long-term rate of return on plan assets, and long-term rate of salary increase are the most significant assumptions. Retirement benefit costs primarily represent the increase in the actuarial present value of the retirement benefit obligation.

Income Taxes

The Company provides for income taxes utilizing the asset and liability approach of accounting for income taxes. Under this approach, deferred taxes represent the future tax consequences expected to occur when the reported amounts of assets and liabilities are recovered or paid. Deferred taxes are presented net as noncurrent. The provision for income taxes generally represents income taxes paid or payable for the current year plus the change in deferred taxes during the year. Deferred taxes result from the differences between the financial and tax bases of the Company’s assets and liabilities and are adjusted for changes in tax rates and tax laws when changes are enacted. Valuation allowances are recorded to reduce deferred tax assets when a judgment is made that is considered more likely than not that a tax benefit will not be realized. A decision to record a valuation allowance results in an increase in income tax expense or a decrease in income tax benefit. If the valuation allowance is released in a future period, income tax expense will be reduced accordingly.

The calculation of tax liabilities involves dealing with uncertainties in the application of complex global tax regulations. The impact of an uncertain income tax position is recognized at the largest amount that is “more likely than not” to be sustained upon audit by the relevant taxing authority. An uncertain income tax position will not be recognized if it has less than a 50% likelihood of being sustained. If the estimate of tax liabilities proves to be less than the ultimate assessment, a further charge to expense would result.

In assessing the realizability of deferred tax assets, management considers whether it is more likely than not that some portion or all of the deferred tax assets will be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the periods in which those temporary differences become deductible. The Company continually assesses the need for a valuation allowance on the deferred tax asset by evaluating both positive and negative evidence that may exist. Any adjustment to the net deferred tax asset valuation allowance would be recorded in the income statement for the period that the adjustment is determined to be required.

On December 22, 2017, the Tax Cuts and Jobs Act, or the Tax Act, was enacted into U.S. tax law. In 2018, the Company made an accounting policy election to treat Global Intangible Low Taxed Income in accordance with the Tax Act as a period cost.

Comprehensive Income (Loss)

Comprehensive income (loss) is defined as the change in equity (net assets) of a business entity during a period from transactions and other events and circumstances from non-owner sources. Other comprehensive income (loss) includes certain changes in equity that are excluded from net income (loss), net of tax, such as foreign currency translation gains and losses, and unrealized gains and losses from interest rate hedging activities.

Litigation and Settlement Costs

Legal costs are expensed as incurred. The Company is involved in disputes, litigation and other legal actions in the ordinary course of business. The Company continually evaluates uncertainties associated with litigation and records a charge equal to at least the minimum estimated liability for a loss contingency when both of the following conditions are met: (i) information available prior to issuance of the financial statements indicates that it is probable that an asset had been impaired or a liability had been incurred at the date of the financial statements and (ii) the loss or range of loss can be reasonably estimated.

Recently Adopted Accounting Pronouncements

In June 2016, the FASB issued ASU No. 2016-13,*Financial Instruments—Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments*, to replace the incurred loss methodology with an expected credit loss model that requires consideration of a broader range of information to estimate credit losses over the lifetime of the asset, including current conditions and reasonable and supportable forecasts in addition to historical loss information, to determine expected credit losses. Pooling of assets with similar risk characteristics and the use of a loss model are also required. Also, in April 2019, the FASB issued ASU No. 2019-04, *Codification Improvements to Topic 326, Financial Instruments—Credit Losses, Topic 815, Derivatives and Hedging, and Topic 825, Financial Instruments,* to clarify the inclusion of recoveries of trade receivables previously written off when estimating an allowance for credit losses. The amendments in this update were required to be applied using the modified retrospective method with an adjustment to accumulated deficit and were effective for the Company beginning with fiscal year 2020, including interim periods. The adoption of the amendments in this update as of January 1, 2020 did not have a material impact on the Company's accounts receivable, net and accumulated deficit, as well as its results of operations for the year ended December 31, 2020.

In January 2017, the FASB issued ASU No. 2017-04,*Intangibles—Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment*, to simplify the subsequent measurement of goodwill by eliminating Step 2 from the goodwill impairment test. An entity no longer will determine goodwill impairment by calculating the implied fair value of goodwill by assigning the fair value of a reporting unit to all of its assets and liabilities as if the reporting unit had been acquired in a business combination. Instead, under the amendments in this update, an entity should perform its annual, or interim, goodwill impairment test by comparing the fair value of a reporting unit with its carrying amount. The FASB also eliminated the requirements for any reporting unit with a zero or negative carrying amount to perform a qualitative assessment and, if it fails that qualitative test, to perform Step 2 of the goodwill impairment test. The amendments in this update are effective for the Company beginning with fiscal year 2020, including interim periods. The adoption of the amendments in this update as of the Company's October 31, 2020 goodwill impairment test date did not have a material impact on the Company's consolidated financial position and results of operations as of and for the year ended December 31, 2020.

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*, to improve the fair value measurement reporting of financial instruments. The amendments in this update require, among other things, added disclosure of the range and weighted average of significant unobservable inputs used to develop Level 3 fair value measurements. The amendments in this update eliminate, among other things, disclosure of the reasons for and amounts of transfers between Level 1 and Level 2 for assets and liabilities that are measured at fair value on a recurring basis and an entity's valuation processes for Level 3 fair value measurements. The amendments in this update were effective for the Company beginning with fiscal year 2020. Retrospective application is required for all amendments in this update except the added disclosures, which should be applied prospectively. The adoption of the amendments in this update did not have a material impact on the Company’s consolidated financial position and results of operations as of and for the year ended December 31, 2020.

In August 2018, the FASB issued ASU No. 2018-15,*Intangibles - Goodwill and Other—Internal-Use Software (Subtopic 350-40): Customer’s Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That is a Service Contract*, to provide additional guidance on the accounting for costs of implementing cloud computing arrangements that are service contracts. The amendments in this update require the capitalization of implementation costs during the application development stage of such hosting arrangements and amortization of the expense over the term of the arrangement including any option to extend reasonably certain to be exercised or option to terminate reasonably certain not to be exercised. Capitalized implementation costs and amortization thereof are also required to be classified in the same line item in the statements of financial position, operations and cash flows associated with the hosting service fees. The amendments in this update were effective for the Company beginning with fiscal year 2020. Entities may select retrospective or prospective application to all implementation costs incurred after the adoption date. The Company has selected prospective application. The adoption of the amendments in this update did not have a material impact on the Company’s consolidated financial position and results of operations as of and for the year ended December 31, 2020.

In August 2018, the FASB issued ASU No. 2018-14*Compensation—Retirement Benefits—Defined Benefit Plans—General (Subtopic 715-20)*, to clarify disclosure requirements related to defined benefit pension plans. The amendment adds a narrative description on the reasons for significant gains and losses affecting the benefit obligation and an explanation of any other significant changes in the benefit obligation or plan assets not otherwise apparent in other disclosures. The amendment removes the disclosure of amounts in accumulated other comprehensive income expected to be recognized as part of net periodic benefit costs over the next year. The amendments in this update are effective for the Company beginning with fiscal year 2021. Entities are required to apply the amendments on a retrospective basis with early adoption permitted. The Company selected to early adopt this update. The adoption of the amendments in this update did not have a material impact on the Company's defined benefit plan disclosures and the Company's consolidated financial position and results of operations as of and for the year ended December 31, 2020.

In March 2020, the FASB issued ASU No. 2020-04*Reference Rate Reform (Topic 848)—Facilitation of the Effects of Reference Rate Reform on Financial Reporting* that provides optional relief to applying reference rate reform to contracts, hedging relationships, and other transactions that reference the London Interbank Offered Rate (LIBOR), which will be discontinued by the end of 2021. Also, in January 2021, the FASB issued ASU No. 2021-01 *Reference Rate Reform (Topic 848)—Scope*, to clarify that cash flow hedges are eligible for certain optional expedients and exceptions for the application of subsequent assessment methods to assume perfect effectiveness as previously presented in ASU 2020-04. The amendments in this update are effective immediately and may be applied through December 31, 2022. The Company's LIBOR interest rate swap expired in October 2020 and was not impacted by reference rate reform. Therefore, the adoption of the amendments in this update did not have a material impact on the Company’s accumulated other comprehensive loss or its results of operations as of and for the year ended December 31, 2020.

In May 2020, the SEC issued a final rule that amends the financial statement requirements for business acquisitions and related pro forma financial information. The rule modifies the significance tests to replace total assets with aggregate worldwide market value of common equity in the investment test and to include a revenue component in the income test while requiring the use of absolute value to calculate average net income for the last five fiscal years. The rule improves the presentation of pro forma financial information by replacing pro forma adjustments with transaction accounting adjustments and adds the optional disclosure of management’s adjustments related to synergies and dis-synergies. The rule also reduces the number of acquiree annual financial statement periods required to a maximum of the two most recent fiscal years. The final rule is effective for the Company beginning with fiscal year 2021, with early application permitted; all applicable aspects of the rule are required to be applied upon adoption. The Company has early adopted the rule in its filings related to the acquisition of the Wi-Fi and Broadband assets business. The adoption of the rule did not have an impact on the Company’s consolidated financial position and results of operations as of and for the year ended December 31, 2020.

Recently Issued Accounting Pronouncements

In December 2019, the FASB issued ASU No. 2019-12*Income Taxes (Topic 740)—Simplifying the Accounting for Income Taxes*, to remove certain exceptions and improve consistency of application, including, among other things, requiring that an entity reflect the effect of an enacted change in tax laws or rates in the annual effective tax rate computation in the interim period that includes the enactment date. The amendments in this update will be effective for the Company beginning with fiscal year 2021, with early adoption permitted. Most amendments within the standard are required to be applied on a prospective basis, while certain amendments must be applied on a retrospective or modified retrospective basis. The adoption of the amendments in this update is not expected to have a material impact on the Company's consolidated financial position and results of operations.

In October 2020, the FASB issued ASU No. 2020-10*Codification Improvements*, to make incremental improvements to GAAP and address stakeholder suggestions, including, among other things, clarifying that the requirement to provide comparative information in the financial statements extends to the corresponding disclosures section. The amendments in this update will be effective for the Company beginning with fiscal year 2021, with early adoption permitted. The amendments in this update should be applied retrospectively and at the beginning of the period that includes the adoption date. The adoption of the amendments in this update is not expected to have a material impact on the Company's consolidated financial position and results of operations.

2. Net Income (Loss) Per Share

Basic earnings per share, or EPS, is calculated by dividing net loss by the weighted-average number of common shares outstanding for the period, without consideration for common stock equivalents. Diluted EPS is computed by dividing net income by the weighted-average number of common shares outstanding for the period and the weighted-average number of dilutive common stock equivalents outstanding for the period determined using the treasury-stock method. For purposes of this calculation, common stock options, restricted stock units and restricted stock awards are considered to be common stock equivalents and are only included in the calculation of diluted EPS when their effect is dilutive. In periods in which the Company has a net loss, dilutive common stock equivalents are excluded from the calculation of diluted EPS.

The table below presents the computation of basic and diluted earnings per share:

	Years Ended December 31,		
	2020	2019	2018
	(in thousands, except per share amounts)		
Numerator:			
Net loss	$ (98,593)	$ (19,898)	$ (26,199)
Denominator:			
Weighted average common shares outstanding—basic	73,133	71,005	68,490
Dilutive common stock equivalents	—	—	—
Weighted average common shares outstanding—diluted	73,133	71,005	68,490
Net loss per share:			
Basic	$ (1.35)	$ (0.28)	$ (0.38)
Diluted	$ (1.35)	$ (0.28)	$ (0.38)

For the years ended December 31, 2020, 2019, and 2018, the Company incurred net losses and accordingly excluded common stock equivalents for outstanding stock-based awards, which represented all potentially dilutive securities, of 3.2 million, 2.5 million, and 3.7 million, respectively, from the calculation of diluted net loss per share due to their anti-dilutive nature.

3. Business Combinations

Acquisition of the Wi-Fi and Broadband assets business

On July 31, 2020, the Company and certain of its designated subsidiaries completed their acquisition of the Home Gateway Platform Division, which the Company refers to as the Wi-Fi and Broadband assets business, pursuant to an Asset Purchase Agreement with Intel Corporation, or Intel, dated April 5, 2020 (the “Asset Purchase Agreement”), and related agreements. The Company paid cash consideration of $150.0 million for the purchase of certain assets of the Wi-Fi and Broadband assets business, and assumed certain liabilities primarily related to specified employment matters. The transaction was funded with a portion of the net proceeds from a secured incremental term loan with an aggregate principal amount of $175.0 million (Note 8).

The Wi-Fi and Broadband assets business develops a broad portfolio of connected home products, including Wi-Fi, Ethernet and Broadband Gateway Processor SoCs, which enables the Company to strengthen its existing connected home portfolio by bringing together a complete, scalable, and complementary platform of connectivity and access solutions to address its customers’ needs across target end-markets.

The acquired assets and assumed liabilities, together with the employees who joined the Company and its subsidiaries as a result of the transaction, represent a business as defined in ASC 805, *Business Combinations.* The Company is integrating the acquired assets and rehired employees into the Company’s existing business.

The Asset Purchase Agreement also contains customary representations, warranties and covenants, including indemnification provisions set forth therein. Pursuant to the Purchase Agreement, Intel has retained, and will be obligated to indemnify MaxLinear for, certain liabilities, including but not limited to those relating to the Home Gateway Platform Division for pre-closing taxes and specified employment matters, and MaxLinear has assumed, and will indemnify Intel for, certain liabilities, including but not limited to those relating to the Home Gateway Platform Division and the Transferred Assets for certain pre-closing and post-closing actions, events and periods (including certain product-related liabilities for products sold prior to the Closing for up to a $25.0 million cap), and specified employment matters.

In connection with the transaction, the Company and Intel have entered into as of the closing certain other ancillary agreements, including (i) an intellectual property matters agreement, pursuant to which Intel will grant to the Company a license to certain intellectual property rights for use by the Company in connection with the acquired assets and the Company will grant back to Intel a license to the intellectual property rights in the acquired assets, (ii) a supply agreement, pursuant to which Intel will manufacture and fabricate certain products for the Company that are part of the acquired assets, (iii) an ethernet network controller services agreement, pursuant to which the Company will provide Intel with certain development services with respect to certain Intel ethernet network controller products, (iv) a transition services agreement, pursuant to which Intel will provide certain services on a transitional basis for up to a 12-month period after the closing, the scope of which includes services relating to real estate and facilities, information technology, and supply chain, procurement, sales operations, and engineering support, and (v) a side letter regarding the delayed transfer of certain inventory. Pursuant to the delayed inventory side letter, the Company has control and economic benefits of the inventory, but the title and possession of the inventory has been delayed until the last day that Intel provides services under the transition services agreement.

Acquisition Consideration

The following table summarizes the fair value of purchase price consideration to acquire the Wi-Fi and Broadband assets business (in thousands):

Description	Amount
Fair value of purchase consideration:	
Cash	$ 150,000

Purchase Price Allocation

The following is an allocation of purchase price as of the July 31, 2020 acquisition closing date based upon an estimate of the fair value of the assets acquired and the liabilities assumed by the Company in the acquisition (in thousands):

Description		Amount
Purchase price allocation:		
Inventory	$	67,100
Property and equipment		17,641
Identifiable intangible assets		58,000
Deferred tax assets		457
Accrued expenses		(68)
Accrued price protection liability		(413)
Accrued compensation		(7,916)
Other long-term liabilities		(8,197)
Identifiable net assets acquired		126,604
Goodwill		23,396
Total purchase price	$	150,000

The fair value of inventories acquired with the Wi-Fi and Broadband assets business included acquisition accounting fair market value adjustments of $32.9 million. The Company recognized $32.9 million in inventory fair value adjustments in cost of sales in the consolidated statement of operations for the year ended December 31, 2020.

The following is a summary of identifiable intangible assets acquired and the related expected lives for the finite-lived intangible assets (in thousands):

Category	Estimated Life in Years		Fair Value
Finite-lived intangible assets:			
Developed technology	7	$	43,200
Customer-related intangible	5		6,800
Product backlog	0.58		800
			50,800
Indefinite-lived intangible assets:			
IPR&D	N/A		7,200
Total identifiable intangible assets acquired		$	58,000

Acquisition of NanoSemi, Inc.

On September 9, 2020, the Company completed its acquisition of NanoSemi, Inc. or NanoSemi, pursuant to an Agreement and Plan of Merger (the “Merger Agreement”) with NanoSemi, dated September 9, 2020. The initial closing transaction consideration consisted of $10.0 million in cash and 804,163 shares of MaxLinear’s common stock. In addition, the NanoSemi securityholders will receive $35.0 million in deferred cash payments payable in 2021, and certain NanoSemi securityholders may also receive up to an additional $35.0 million in potential contingent consideration, subject to the acquired business’s satisfying certain financial objectives from July 1, 2020 through December 31, 2022. The stock consideration was issued in reliance on exemptions from the registration requirements of the Securities Act of 1933, as amended. In connection with the acquisition, MaxLinear agreed to provide the NanoSemi stockholders with certain registration rights with respect to the shares of MaxLinear common stock they received in the acquisition.

NanoSemi is an industry-leading provider of intellectual property that utilizes patented machine learning techniques to improve signal integrity and power efficiency in systems-on-chip, or SoCs, application-specific integrated circuits, or ASICs, and field-programmable gate arrays, or FPGAs, used in next-generation communication and artificial intelligence systems. Its technology enables higher throughput connections for 5G, Wi-Fi, and WiGig smartphones and base stations while simultaneously reducing energy consumption.

Acquisition Consideration

The following table summarizes the fair value of purchase price consideration to acquire NanoSemi (in thousands):

Description		**Amount**
Fair value of purchase consideration:		
Cash	$	10,000
Common stock issued[1]		17,080
Deferred payments[2]		34,100
Contingent consideration[3]		—
Total purchase price	$	61,180

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[1] The fair value of common stock issued in the merger is based on 804,163 shares issued on the September 9, 2020 acquisition date at the closing price of the Company's common stock of $21.24 per share.
[2] The fair value of the deferred payments was determined by discounting to present value payments totaling $35.0 million expected to be made to NanoSemi securityholders throughout 2021.
[3] The fair value of contingent consideration is zero as the applicable financial objectives from July 1, 2020 through December 31, 2022 are not expected to be met based on the Company's forecast.

Purchase Price Allocation

The following is an allocation of purchase price as of the September 9, 2020 acquisition closing date based upon an estimate of the fair value of the assets acquired and the liabilities assumed by the Company in the acquisition (in thousands):

Description		**Amount**
Purchase price allocation:		
Accounts receivable	$	175
Prepaid expenses and other current assets		879
Property and equipment		177
Leased right-of-use assets		1,805
Identifiable intangible assets		19,900
Accounts payable		(602)
Accrued expenses and other current liabilities		(323)
Accrued compensation		(223)
Long-term lease liabilities		(1,546)
Other long-term liabilities		(164)
Identifiable net assets acquired		20,078
Goodwill		41,102
Total purchase price	$	61,180

The following is a summary of identifiable intangible assets acquired and the related expected lives for the finite-lived intangible assets (in thousands):

Category	Estimated Life in Years	Fair Value
Finite-lived intangible assets:		
Developed technology	7	$ 17,500
Trademarks and tradenames	7	1,000
Customer-related intangible	5	900
Product backlog	5.33	500
Total identifiable intangible assets acquired		$ 19,900

Assumptions in the Allocations of Purchase Price

Management prepared the purchase price allocations for the Wi-Fi and Broadband assets business and NanoSemi, and in doing so considered or relied in part upon reports of a third party valuation expert to calculate the fair value of certain acquired assets, which primarily included identifiable intangible assets, inventory, and property and equipment, and the portions of the purchase consideration for NanoSemi expected to be paid to NanoSemi securityholders in the future, as described above. Certain NanoSemi securityholders that are employees are not required to remain employed in order to receive the deferred payments and contingent consideration; accordingly, the fair value of the deferred payments and contingent consideration have been accounted for as a portion of the purchase consideration.

Estimates of fair value require management to make significant estimates and assumptions. The goodwill recognized is attributable primarily to the acquired workforce, expected synergies, and other benefits that MaxLinear believes will result from integrating the operations of the Wi-Fi and Broadband assets business and NanoSemi with the operations of MaxLinear. Certain liabilities included in the purchase price allocations are based on management's best estimates of the amounts to be paid or settled and based on information available at the time the purchase price allocations were prepared. Adjustments between the preliminary purchase price allocations initially recorded as reflected in the Company's interim condensed consolidated financial statements as of September 30, 2020 and the amounts reflected as of December 31, 2020 primarily resulted from a refinement of the Company's forecast with respect to the NanoSemi business, resulting in a decrease in estimated fair value of contingent consideration to $0 and a decrease in the valuation of intangible assets; and updates to our evaluation of certain income tax positions with respect to both acquisitions. Updates to the valuations of certain assets acquired and liabilities assumed and our evaluation of certain income tax positions may result in changes to the recorded amounts of assets and liabilities, with corresponding adjustments to goodwill amounts in subsequent periods. We expect to complete the purchase price allocations within 12 months of the respective acquisition dates.

The fair value of the identified intangible assets acquired from the Wi-Fi and Broadband assets business and NanoSemi was estimated using an income approach. Under the income approach, an intangible asset's fair value is equal to the present value of future economic benefits to be derived from ownership of the asset. Indications of value are developed by discounting future net cash flows to their present value at market-based rates of return. More specifically, the fair value of the developed technology, IPR&D and backlog assets was determined using the multi-period excess earnings method, or MPEEM. MPEEM is an income approach to fair value measurement attributable to a specific intangible asset being valued from the asset grouping's overall cash-flow stream. MPEEM isolates the expected future discounted cash-flow stream to its net present value. Significant factors considered in the calculation of the developed technology and IPR&D intangible assets were the risks inherent in the development process, including the likelihood of achieving technological success and market acceptance. Each project was analyzed to determine the unique technological innovations, the existence and reliance on core technology, the existence of any alternative future use or current technological feasibility and the complexity, cost, and time to complete the remaining development. Future cash flows for each project were estimated based on forecasted revenue and costs, taking into account the expected product life cycles, market penetration, and growth rates. Developed technology will begin amortization immediately and IPR&D will begin amortization upon the completion of each project. If any of the projects are abandoned, the Company will be required to impair the related IPR&D asset.

In connection with the acquisition of the Wi-Fi and Broadband assets business, the Company has assumed liabilities which primarily consist of accrued employee compensation and benefits in jurisdictions where such transfer is required either by law or by work council agreement. In connection with the acquisition of NanoSemi, the Company assumed certain operating liabilities. The liabilities assumed in these acquisitions are included in the respective purchase price allocations above.

Goodwill recorded in connection with the Wi-Fi and Broadband assets business and NanoSemi was $23.4 million and $41.1 million, respectively. The Company does not expect to deduct any of the acquired goodwill for tax purposes.

Proforma Combined Financial Information

The following table presents unaudited pro forma combined financial information for each of the periods presented, as if the acquisitions of the Wi-Fi and Broadband assets business and NanoSemi had occurred at the beginning of fiscal year 2019:

	Years Ended December 31,	
	2020	2019
	(in thousands)	
Net revenue – proforma combined	$ 703,165	$ 708,139
Net loss – proforma combined	$ (101,783)	$ (152,070)

The following adjustments were included in the unaudited pro forma combined net revenues:

	Years Ended December 31,	
	2020	2019
	(in thousands)	
Net revenue	$ 478,596	$ 317,180
Add: Net revenue – acquired businesses	224,569	390,959
Net revenues – proforma combined	$ 703,165	$ 708,139

The following adjustments were included in the unaudited pro forma combined net loss:

	Years Ended December 31,	
	2020	2019
	(in thousands)	
Net loss	$ (98,593)	$ (19,898)
Add: Results of operations – acquired businesses	(63,882)	(97,368)
Less: Proforma adjustments		
Depreciation of property and equipment	5,810	2,020
Amortization of intangible assets	11,428	17,583
Inventory fair value adjustments	32,945	(32,945)
Acquisition and integration expenses	14,243	(14,243)
Interest expense	(4,963)	2,816
Other expense	1,867	(7,604)
Income taxes	(638)	(2,431)
Net loss – proforma combined	$ (101,783)	$ (152,070)
Net loss per share – proforma combined:		
Basic	$ (1.39)	$ (2.12)
Diluted	$ (1.39)	$ (2.12)
Shares used to compute net loss per share – proforma combined:		
Basic	73,133	71,809
Diluted	73,133	71,809

The pro forma combined financial information for the year ended December 31, 2020 includes aggregate non-recurring adjustments of $33.7 million consisting of inventory fair value adjustments of $32.9 million and amortization of intangible assets of $0.8 million, respectively, for which the related assets have useful lives of less than one year.

The pro forma combined financial information is presented for illustrative purposes only and is not necessarily indicative of the consolidated results of operations of the consolidated business had the acquisitions actually occurred at the beginning of fiscal year 2019 or of the results of future operations of the consolidated business. The unaudited pro forma financial information does not reflect any operating efficiencies and cost saving that may be realized from the integration of the acquisitions in the Company's consolidated statements of operations.

For the year ended December 31, 2020, $209.7 million of revenue and $110.7 million of gross profit, excluding $36.3 million consisting of inventory fair-value adjustments of $32.9 million and amortization of acquired intangible assets of $3.4 million for the Wi-Fi and Broadband assets business and NanoSemi since the acquisition date, are included in the Company’s consolidated statement of operations.

Acquisition and integration-related costs of $14.2 million related to the acquisitions of the Wi-Fi and Broadband assets business and NanoSemi were included in selling, general, and administrative expenses in the Company’s statement of operations for the year ended December 31, 2020.

4. Restructuring Activity

From time to time, the Company approves and implements restructuring plans as a result of internal resource alignment, and cost saving measures. Such restructuring plans include terminating employees, vacating certain leased facilities, and cancellation of contracts.

The following table presents the activity related to the plans, which is included in restructuring charges in the consolidated statements of operations:

	Years Ended December 31,		
	2020	2019	2018
		(in thousands)	
Employee separation expenses	$ 1,620	$ 1,150	$ 2,094
Lease related expenses	1,998	1,301	1,608
Other	215	185	136
	$ 3,833	$ 2,636	$ 3,838

Lease related charges for the year ended December 31, 2020 included the impairment of leased right-of-use assets of $1.5 million related to a reduction in expected cash inflows from subleases. Lease related and other charges for the years ended December 31, 2019 and 2018 primarily related to exiting certain redundant facilities.

The following table presents a roll-forward of the Company's restructuring liability for the years ended December 31, 2020 and 2019. The restructuring liability is included in accrued expenses and other current liabilities and other long-term liabilities in the consolidated balance sheets.

	Employee Separation Expenses	Lease Related Expenses	Other	Total
	(in thousands)			
Liability as of December 31, 2018	$ 409	$ 1,490	$ 47	$ 1,946
Transfer to right-of-use asset	—	(299)	—	(299)
Restructuring charges	1,150	1,301	185	2,636
Cash payments	(1,559)	(1,720)	(163)	(3,442)
Non-cash charges	—	46	(50)	(4)
Liability as of December 31, 2019	—	818	19	837
Restructuring charges	1,620	1,998	215	3,833
Cash payments	(2,165)	(322)	(36)	(2,523)
Reimbursement due from Intel (Note 6)	4,415	—	—	4,415
Non-cash charges and adjustments	(596)	(1,774)	(195)	(2,565)
Liability as of December 31, 2020	3,274	720	3	3,997
Less: current portion as of December 31, 2020	(3,274)	(351)	(3)	(3,628)
Long-term portion as of December 31, 2020	$ —	$ 369	$ —	$ 369

As of December 31, 2020, the remaining employee separation balance primarily consists of reduction in force costs that will be reimbursed by Intel and other severance payments, and remaining lease related charges primarily consist of common area maintenance obligations. The Company does not expect to incur additional material costs related to current restructuring plans.

5. Goodwill and Intangible Assets

Goodwill

Goodwill arises from the acquisition method of accounting for business combinations and represents the excess of the purchase price over the fair value of the net assets and other identifiable intangible assets acquired. The fair values of net tangible assets and intangible assets acquired are based upon preliminary valuations and the Company's estimates and assumptions are subject to change within the measurement period (potentially up to one year from the acquisition date).

The following table presents the changes in the carrying amount of goodwill for the periods indicated:

	Years Ended December 31, 2020	2019
	(in thousands)	
Beginning balance	$ 238,330	$ 238,330
Acquisitions (Note 3)	64,498	—
Ending balance	$ 302,828	$ 238,330

The Company performs an annual goodwill impairment assessment on October 31st each year, using a quantitative assessment comparing the fair value of each reporting unit, which the Company has determined to be the entity itself, with its carrying amount, including goodwill. If the carrying amount of a reporting unit exceeds its fair value, an impairment loss is recorded.

As a result of the Company's impairment assessment, no goodwill impairment was recognized as of October 31, 2020. In addition to its annual review, the Company performs a test of impairment when indicators of impairment are present. As of December 31, 2020, there were no indications of impairment of the Company's goodwill balances.

Acquired Intangibles

Finite-lived Intangible Assets

The following table sets forth the Company's finite-lived intangible assets resulting from business acquisitions and other purchases, which continue to be amortized:

		December 31, 2020			December 31, 2019		
	Weighted Average Useful Life (in Years)	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Gross Carrying Value	Accumulated Amortization	Net Carrying Amount
				(in thousands)			
Licensed technology	5.9	$ 4,869	$ (2,006)	$ 2,863	$ 2,156	$ (1,583)	$ 573
Developed technology	6.9	304,061	(146,252)	157,809	243,361	(108,522)	134,839
Trademarks and trade names	6.2	14,800	(8,818)	5,982	13,800	(6,511)	7,289
Customer relationships	4.6	128,800	(96,047)	32,753	121,100	(75,847)	45,253
Non-compete covenants	3.0	1,100	(1,100)	—	1,100	(1,083)	17
Backlog	2.4	1,300	(641)	659	—	—	—
	6.2	$ 454,930	$ (254,864)	$ 200,066	$ 381,517	$ (193,546)	$ 187,971

The following table sets forth amortization expense associated with finite-lived intangible assets, which is included in the consolidated statements of operations as follows:

	Years Ended December 31,		
	2020	2019	2018
Cost of net revenue	$ 37,784	$ 33,932	$ 35,821
Research and development	5	48	150
Selling, general and administrative	23,529	23,035	31,976
	$ 61,318	$ 57,015	$ 67,947

Amortization of finite-lived intangible assets in cost of net revenue in the consolidated statements of operations results primarily from acquired developed technology.

The following table sets forth activity during the years ended December 31, 2020 and 2019 related to finite-lived intangible assets:

	Years Ended December 31,	
	2020	2019
	(in thousands)	
Beginning balance	$ 187,971	$ 240,500
Acquisitions (Note 3)	70,700	—
Other additions	2,799	86
Transfers to developed technology from IPR&D	—	4,400
Amortization	(61,318)	(57,015)
Impairment losses	(86)	—
Ending balance	$ 200,066	$ 187,971

The Company regularly reviews the carrying amounts of its long-lived assets subject to depreciation and amortization, as well as the related useful lives, to determine whether indicators of impairment may exist which warrant adjustments to carrying values or estimated useful lives. An impairment loss is recognized when the sum of the expected future undiscounted net cash flows is less than the carrying amount of the asset. Should impairment exist, the impairment loss is measured based on the excess of the carrying amount of the asset over the asset's fair value. During the year ended December 31, 2019, no impairment losses related to finite-lived intangible assets were recognized. Impairment losses related to finite-lived intangible assets for the year ended December 31, 2020 was $0.1 million and related to purchased licensed technology and for the year ended December 31, 2018 was $2.2 million and related to acquired developed technology.

The following table presents future amortization of the Company's finite-lived intangible assets at December 31, 2020:

	Amortization (in thousands)
2021	$ 66,772
2022	48,908
2023	36,802
2024	20,804
2025	10,706
Thereafter	16,074
Total	$ 200,066

Indefinite-lived Intangible Assets

Indefinite-lived intangible assets consist entirely of acquired in-process research and development technology, or IPR&D. The following table sets forth the Company's activities related to the indefinite-lived intangible assets:

	Years Ended December 31,	
	2020	2019
	(in thousands)	
Beginning balance	$ —	$ 4,400
Acquisitions (Note 3)	7,200	—
Transfers to developed technology from IPR&D	—	(4,400)
Ending balance	$ 7,200	$ —

The Company performs its annual assessment of indefinite-lived intangible assets on October 31 each year or more frequently if events or changes in circumstances indicate that the asset might be impaired utilizing a qualitative test as a precursor to the quantitative test comparing the fair value of the assets with their carrying amount. Based on the qualitative test, if it is more likely than not that indicators of impairment exists, the Company proceeds to perform a quantitative analysis. Based on the Company's assessment as of October 31, 2020, no indicators of impairment were identified. In the years ended December 31, 2020, 2019 and 2018, no IPR&D impairment losses were recorded.

6. Financial Instruments

The composition of financial instruments were as follows:

	December 31, 2020	December 31, 2019
	(in thousands)	
Liabilities		
Contingent consideration (Note 3)	$ —	$ —
Interest rate swap	$ —	$ 37

The fair values of the Company's financial instrument is the amount that would be received in an asset sale or paid to transfer a liability in an orderly transaction between unaffiliated market participants and is recorded using a hierarchical disclosure framework based upon the level of subjectivity of the inputs used in measuring assets and liabilities. The levels are described below:

Level 1: Quoted prices (unadjusted) in active markets that are accessible at the measurement date for assets or liabilities.

Level 2: Observable prices that are based on inputs not quoted on active markets, but corroborated by market data.

Level 3: Unobservable inputs are used when little or no market data is available.

The Company classifies its financial instrument within Level 2 of the fair value hierarchy on the basis of models utilizing market observable inputs. The interest rate swap has been valued on the basis of valuations provided by third-party pricing services, as derived from standard valuation or pricing models. Market-based observable inputs for the interest rate swap include one month LIBOR-based yield curves over the term of the swap. The Company reviews third-party pricing provider models, key inputs and assumptions and understands the pricing processes at its third-party providers in determining the overall reasonableness of the fair value of its Level 2 financial instruments. The Company also considers the risk of nonperformance by assessing the swap counterparty's credit risk in the estimate of fair value of the interest rate swap. Through the expiration of the swap in October 2020, the Company has not made any adjustments to the valuations obtained from its third party pricing providers.

The contingent consideration liability is associated with the Company's acquisition of NanoSemi (Note 3) and is classified as a Level 3 financial instrument. The fair value of contingent consideration is based on applying the Monte Carlo simulation method to forecast achievement under various contingent consideration events which may result in up to $35.0 million in payments subject to the acquired business's satisfying certain financial objectives from July 1, 2020 through December 31, 2022, under the Merger Agreement. Key inputs in the valuation include forecasted revenue, of which the financial objectives are not expected to be met, revenue volatility and discount rate. Underlying forecast mathematics were based on Geometric Brownian Motion in a risk-neutral framework and discounted back to the applicable period in which the accumulative thresholds were achieved at discount rates commensurate with the risk and expected payout term of the contingent consideration.

The following are the financial instruments that are measured on a recurring basis. The contingent consideration liability, a Level 3 financial instrument, was $0 as of December 31, 2020. The interest rate swap, which expired in October 2020 and was a Level 2 financial instrument, was a liability of $0.04 million as of December 31, 2019.

The following table summarizes activity for the interest rate swap:

	Fair Value at December 31, 2020	Fair Value at December 31, 2019
	(in thousands)	
Interest rate swap		
Beginning balance	$ (37)	$ 1,623
Unrealized gain (loss) recognized in other comprehensive income (loss)	122	(1,660)
Gain recognized in earnings	(85)	—
Ending balance	$ —	$ (37)

There were no transfers between Level 1, Level 2 or Level 3 fair value hierarchy categories of financial instruments in the years ended December 31, 2020 and 2019.

Financial Instruments Not Recorded at Fair Value on a Recurring Basis

Some of the Company's financial instruments are not measured at fair value on a recurring basis but are recorded at amounts that approximate fair value due to their liquid or short-term nature. Such financial assets and financial liabilities include: cash and cash equivalents, restricted cash, net receivables, certain other assets, accounts payable, accrued price protection liability, accrued expenses, accrued compensation costs, and other current liabilities.

The Company's long-term debt is not recorded at fair value on a recurring basis, but is measured at fair value for disclosure purposes (Note 8).

7. Balance Sheet Details

Cash, cash equivalents, and restricted cash consist of the following:

	December 31, 2020	December 31, 2019
	(in thousands)	
Cash and cash equivalents	$ 148,901	$ 92,708
Short-term restricted cash	115	349
Long-term restricted cash	1,018	60
Total cash, cash equivalents and restricted cash	$ 150,034	$ 93,117

As of December 31, 2020 and December 31, 2019, cash and cash equivalents included $20.4 million and $20.4 million of money market funds, respectively. As of December 31, 2020 and 2019, the Company has restricted cash of $1.1 million and $0.4 million, respectively. The cash is restricted in connection with guarantees for certain import duties and office leases.

Inventory consists of the following:

	December 31, 2020	December 31, 2019
	(in thousands)	
Work-in-process	$ 35,852	$ 14,525
Finished goods	61,987	16,985
	$ 97,839	$ 31,510

Prepaid and other current assets consist of the following:

	December 31, 2020	December 31, 2019
	(in thousands)	
Prepaid expenses	$ 7,674	$ 3,366
Other receivables	32,762	—
Other current assets	6,985	3,426
	$ 47,421	$ 6,792

As of December 31, 2020, other receivables of $32.8 million consist of amounts due from Intel of approximately $28.4 million for amounts collected on the Company's behalf from customers on sales of the Company's products under the transition services agreement and of approximately $4.4 million for reimbursement of certain severance and other personnel-related costs pursuant to the Asset Purchase Agreement (Note 3).

Property and equipment consist of the following:

	Useful Life (in Years)	December 31, 2020	December 31, 2019
		(in thousands)	
Furniture and fixtures	5	$ 2,524	$ 2,199
Machinery and equipment	3-5	55,456	35,660
Masks and production equipment	2-5	19,205	15,209
Software	3	7,194	5,956
Leasehold improvements	1-5	16,871	16,186
Construction in progress	N/A	8,050	746
		109,300	75,956
Less accumulated depreciation and amortization		(69,830)	(59,343)
		$ 39,470	$ 16,613

Depreciation expense for the years ended December 31, 2020, 2019, and 2018 was $11.3 million, $7.3 million, and $11.1 million, respectively.

Accrued price protection liability consists of the following activity:

	Years Ended December 31,	
	2020	2019
	(in thousands)	
Beginning balance	$ 12,557	$ 16,454
Charged as a reduction of revenue	48,942	24,449
Reversal of unclaimed rebates	(159)	(42)
Payments	(13,574)	(28,304)
Ending balance	$ 47,766	$ 12,557

Accrued expenses and other current liabilities consist of the following:

	December 31, 2020	December 31, 2019
	(in thousands)	
Deferred purchase price payments	$ 34,484	$ —
Payables under transition services agreement	17,420	—
Accrued technology license payments	5,821	4,500
Accrued professional fees	2,620	861
Accrued engineering and production costs	3,448	4,491
Accrued restructuring	3,628	294
Accrued royalty	1,965	923
Short-term lease liabilities	8,144	4,810
Accrued customer credits	1,135	832
Income tax liability	1,193	65
Customer contract liabilities	29	107
Accrued obligations to customers for price adjustments	10,277	8,382
Accrued obligations to customers for stock rotation rights	2,036	1,410
Other	13,642	4,496
	$ 105,842	$ 31,171

As of December 31, 2020, other payables of $17.4 million consist of amounts due to Intel of approximately $9.1 million for purchases of inventory and $8.3 million for other operating expenses incurred by Intel on behalf of MaxLinear under the transition services agreement (Note 3).

The following table summarizes the balances in accumulated other comprehensive income (loss) by component:

	Cumulative Translation Adjustments	Interest Rate Hedge	Pension and Other Defined Benefit Plan Obligation	Total
		(in thousands)		
Balance at December 31, 2018	$ (907)	$ 1,179	$ —	$ 272
Other comprehensive income (loss) before reclassifications, net of tax	160	(1,319)	—	(1,159)
Balance at December 31, 2019	(747)	(140)	—	(887)
Other comprehensive income (loss) before reclassifications, net of tax	1,010	225	1,172	2,407
Amounts reclassified, net of tax	—	(85)	—	(85)
Net current period other comprehensive income (loss)	1,010	140	1,172	2,322
Balance at December 31, 2020	$ 263	$ —	$ 1,172	$ 1,435

8. Debt and Interest Rate Swap

Debt

The carrying amount of the Company's long-term debt consists of the following:

	December 31, 2020	December 31, 2019
	(in thousands)	
Principal balance:		
Initial term loan	$ 212,000	$ 212,000
Incremental term loan	157,812	—
	369,812	212,000
Less:		
Unamortized debt discount	(1,767)	(1,328)
Unamortized debt issuance costs	(4,453)	(3,763)
Net carrying amount of long-term debt	363,592	206,909
Less: current portion of long-term debt	—	—
Long-term debt, non-current portion	$ 363,592	$ 206,909

As of December 31, 2020 and 2019, the weighted average effective interest rate on long-term debt was approximately 4.4% and 4.9%, respectively.

During the year ended December 31, 2020, the Company recognized amortization of debt discount of $0.4 million and debt issuance costs of $1.1 million to interest expense. During the year ended December 31, 2019, the Company recognized amortization of debt discount of $0.3 million and debt issuance costs of $0.9 million to interest expense. During the year ended December 31, 2018, the Company recognized amortization of debt discount of $0.3 million and debt issuance costs of $0.8 million to interest expense.

The approximate fair value of the term loan as of December 31, 2020 and 2019 was $376.1 million and $214.6 million, respectively, which was estimated on the basis of inputs that are observable in the market and which is considered a Level 2 measurement method in the fair value hierarchy.

As of December 31, 2020, future payments of principal are as follows:

	Amount (in thousands)
2021	$ —
2022	15,312
2023	142,500
2024	212,000
Total principal payments due	369,812
Less: current portion	—
Long-term debt principal, non-current portion	$ 369,812

Initial Term Loan

On May 12, 2017, the Company entered into a credit agreement with certain lenders and a collateral agent in connection with the acquisition of Exar Corporation. The credit agreement provides for an initial secured term B loan facility, or the "Initial Term Loan," in an aggregate principal amount of $425.0 million. The credit agreement permits the Company to request incremental loans in an aggregate principal amount not to exceed the sum of $160.0 million (subject to adjustments for any voluntary prepayments), plus an unlimited amount that is subject to pro forma compliance with certain secured leverage ratio and total leverage ratio tests. Incremental loans are subject to certain additional conditions, including obtaining additional commitments from the lenders then party to the credit agreement or new lenders.

Loans under the credit agreement bear interest, at the Company's option, at a rate equal to either (i) a base rate equal to the highest of (x) the federal funds rate, plus 0.50%, (y) the prime rate then in effect and (z) an adjusted LIBOR rate determined on the basis of a one- three- or six-month interest period, plus 1.0% or (ii) an adjusted LIBOR rate, subject to a floor of 0.75%, in each case, plus an applicable margin of 2.50% in the case of LIBOR rate loans and 1.50% in the case of base rate loans. Commencing on September 30, 2017, the Initial Term Loan will amortize in equal quarterly installments equal to 0.25% of the original principal amount of the Initial Term Loan, with the balance payable on the maturity date. The Initial Term Loan has a term of seven years and will mature on May 12, 2024, at which time all outstanding principal and accrued and unpaid interest on the Initial Term Loan must be repaid. The Company is also required to pay fees customary for a credit facility of this size and type.

The Company is required to make mandatory prepayments of the outstanding principal amount of term loans under the credit agreement with the net cash proceeds from the disposition of certain assets and the receipt of insurance proceeds upon certain casualty and condemnation events, in each case, to the extent not reinvested within a specified time period, from excess cash flow beyond stated threshold amounts, and from the incurrence of certain indebtedness. The Company has the right to prepay its term loans under the credit agreement, in whole or in part, at any time without premium or penalty, subject to certain limitations and a 1.0% soft call premium applicable during the first six months for the loan term. The Company exercised its right to prepay and made aggregate payments of principal of $213.0 million to date through December 31, 2020.

The Company's obligations under the credit agreement are required to be guaranteed by certain of its domestic subsidiaries meeting materiality thresholds set forth in the credit agreement. Such obligations, including the guaranties, are secured by substantially all of the assets of the Company and the subsidiary guarantors pursuant to a security agreement with the collateral agent.

The credit agreement contains customary affirmative and negative covenants, including covenants limiting the ability of the Company and its restricted subsidiaries to, among other things, incur debt, grant liens, undergo certain fundamental changes, make investments, make certain restricted payments, and sell assets, in each case, subject to limitations and exceptions. As of December 31, 2020, the Company was in compliance with such covenants. The credit agreement also contains customary events of default that include, among other things, certain payment defaults, cross defaults to other indebtedness, covenant defaults, change in control defaults, judgment defaults, and bankruptcy and insolvency defaults. If an event of default exists, the lenders may require immediate payment of all obligations under the credit agreement, and may exercise certain other rights and remedies provided for under the credit agreement, the other loan documents and applicable law.

The debt is carried at its principal amount, net of unamortized debt discount and issuance costs, and is not adjusted to fair value each period. The issuance date fair value of the liability component of the debt in the amount of $398.5 million was determined using a discounted cash flow analysis, in which the projected interest and principal payments were discounted back to the issuance date of the term loan at a market interest rate for nonconvertible debt of 4.6%, which represents a Level 2 fair value measurement. The debt discount of $2.1 million and debt issuance costs of $6.0 million are being amortized to interest expense using the effective interest method from the issuance date through the contractual maturity date of the term loan of May 12, 2024.

Incremental Term Loan

In connection with the acquisition of the Wi-Fi and Broadband assets business, on July 31, 2020, the Company entered into an incremental term loan agreement with certain lenders that amends the credit agreement, dated as of May 12, 2017 with a secured incremental term loan facility in an aggregate principal amount of $175.0 million (the "Incremental Term Loan").

The Incremental Term Loan bears interest, at the Company's option, at an Adjusted LIBOR plus a fixed applicable margin of 4.25% per annum or an Adjusted Base Rate plus a fixed applicable margin of 3.25% per annum. The Incremental Term Loan is subject to a financial covenant of an initial maximum total net leverage ratio of 3.5 to 1 which decreases to 3.0 to 1 beginning with the sixth full fiscal quarter ending after July 31, 2020. During any period during which the Company (i) fails to maintain a public corporate rating from S&P that is equal to or higher than BB- and a public corporate rating from Moody's that is equal to or higher than Ba3 or (ii) fails to maintain a total leverage ratio of 3.0 to 1 or less, the applicable margin will increase to 4.75% in the case of LIBOR Rate loans and 3.75% in the case of Base Rate loans. As of December 31, 2020, the Company was in compliance with such covenants.

Commencing on July 31, 2020, the Incremental Term Loan amortizes in quarterly installments of principal equal to (i)1.25% of the original aggregate principal amount of the Incremental Term Loan on the last day of each of the first through fourth full fiscal quarters of the Company after July 31, 2020, (ii) 2.50% of the original aggregate principal amount of the Incremental Term Loan on the last day of each of the fifth through eighth full fiscal quarters of the Company after July 31, 2020, and (iii) 3.75% of the original aggregate principal amount of the Incremental Term Loan on the last day of each of the ninth through the eleventh full fiscal quarters of the Company after July 31, 2020. The Incremental Term Loan has a term of three years and will mature on July 31, 2023, at which time all outstanding principal and accrued and unpaid interest on the Incremental Term Loan is due. The Company is also required to pay fees customary for a credit facility of this size and type. The Company has made aggregate payments of principal of $17.2 million to date through December 31, 2020.

The debt is carried at its principal amount, net of unamortized debt discount and issuance costs, and is not adjusted to fair value each period. The issuance date fair value of the liability component of the debt in the amount of $181.1 million was determined using a discounted cash flow analysis, in which the projected interest and principal payments were discounted back to the issuance date of the term loan at a market interest rate for nonconvertible debt of 3.2%, which represents a Level 3 fair value measurement. The debt discount of $0.9 million and debt issuance costs of $1.8 million are being amortized to interest expense using the effective interest method from the issuance date through the contractual maturity date of the term loan of July 31, 2023.

Interest Rate Swap

In November 2017, the Company entered into a fixed-for-floating interest rate swap with an amortizing notional amount to swap a substantial portion of variable rate LIBOR interest payments under its term loans for fixed interest payments bearing an interest rate of 1.74685%. The interest rate swap expired in October 2020. The Company's outstanding debt was still subject to a 2.5% fixed applicable margin during the term of the loan. The interest rate swap was designated as a cash flow hedge of a portion of floating rate interest payments on long-term debt and effectively fixed the interest rate on a substantial portion of the Company's long-term debt at approximately 4.25%. Accordingly, the Company applied cash flow hedge accounting to the interest rate swap and it was recorded at fair value as an asset or liability and the effective portion of changes in the fair value of the interest rate swap, as measured quarterly, were reported in other comprehensive income (loss). As of December 31, 2019, the fair value of the interest rate swap was a $0.04 million liability and was included in other current liabilities in the consolidated balance sheet (Note 6). The change in fair value related to the interest rate swap asset included in other comprehensive income (loss) for the years ended December 31, 2020, 2019, and 2018 was a $0.1 million increase, a $1.7 million decrease and a $0.9 million increase in fair value, respectively. Upon expiration of the interest rate swap, a total $0.1 million of unrealized gain was recorded in interest income and included in gain/loss on foreign currency and other in the statement of cash flows at December 31, 2020.

9. Stock-Based Compensation and Employee Benefit Plans

Common Stock

Each share of common stock is entitled to one vote per share and holders of the common stock vote as a single class of stock on any matter that is submitted to a vote of stockholders.

Employee Compensation Plans

At December 31, 2020, the Company had stock-based compensation awards outstanding under the following plans: the 2004 Stock Plan, the 2010 Equity Incentive Plan, as amended, or 2010 Plan, and the 2010 Employee Stock Purchase Plan, or ESPP, and plans under which equity incentive awards were assumed in connection with the acquisitions of Entropic Corporation in 2015 and Exar Corporation in 2017. All current stock awards are issued under the 2010 Plan and ESPP.

2010 Equity Incentive Plan

The 2010 Plan, as amended, provides for the grant of incentive stock options, non-statutory stock options, restricted stock awards, restricted stock unit awards, stock appreciation rights, performance-based stock awards, and other forms of equity compensation, or collectively, stock awards. The aggregate number of shares of common stock that may be issued pursuant to stock awards under the 2010 Plan will increase by any shares subject to stock options or other awards granted under the 2004 Stock Plan that expire or otherwise terminate without having been exercised in full and shares issued pursuant to awards granted under the 2004 Stock Plan that are forfeited to or repurchased by the Company. In addition, the number of shares of common stock reserved for issuance will automatically increase on the first day of each fiscal year, equal to the lesser of: 2,583,311 shares of the Company's common stock; four percent (4%) of the outstanding shares of the Company's common stock on the last day of the immediately preceding fiscal year; or such lesser amount as the Company's board of directors may determine. Options granted will generally vest over a four years period and the term can be from seven to ten years.

The 2010 plan , as amended, contains a clawback policy, which requires the Company's executive officers to repay to MaxLinear certain incentive compensation if (i) the Company restates its financial statements as a result of a material error or due to material non-compliance with reporting requirements under applicable law; (ii) no more than three (3) years have elapsed since the original filing date of the financial statements; and (iii) an independent committee of the board's compensation committee determines, in its sole discretion, that the misreporting event occurred due to fraud or intentional misconduct within MaxLinear and, following consideration of such factors as the committee may deem reasonable and appropriate, including the extent to which an executive officer knew or should have known of the factors resulting in the misreporting, that the executive officer should repay any "recoverable compensation." Recoverable compensation is defined in the clawback policy but generally includes any cash or equity compensation paid to executive officers under the Company's Executive Incentive Bonus Plan or 2010 Equity Incentive Plan, as amended, to the extent the amount actually paid by MaxLinear exceeds the amount that would have been paid if the financial misreporting event had not occurred. To date, there has been no repayment of compensation from executive officers pursuant to such clawback policy.

As of December 31, 2020, the number of shares reserved for future issuance under the 2010 Plan and awards outstanding under the 2004 Plan are 14,879,764 shares and 0 shares, respectively.

2010 Employee Stock Purchase Plan

The ESPP authorizes the issuance of shares of the Company's common stock pursuant to purchase rights granted to the Company's employees. The number of shares of the Company's common stock reserved for issuance will automatically increase on the first day of each fiscal year, equal to the least of: 968,741 shares of the Company's common stock; one and a quarter percent (1.25%) of the outstanding shares of the Company's common stock on the first day of the fiscal year; or such lesser amount as may be determined by the Company's board of directors or a committee appointed by the Company's board of directors to administer the ESPP. The ESPP is implemented through a series of offerings of purchase rights to eligible employees. Under the ESPP, the Company may specify offerings with a duration of not more than 27 months, and may specify shorter purchase periods within each offering. Each offering will have one or more purchase dates on which shares of the Company's common stock will be purchased for employees participating in the offering. An offering may be terminated under certain circumstances. Generally, all eligible employees, including executive officers, employed by the Company may participate in the ESPP and may contribute up to 15% of their earnings for the purchase of the Company's common stock under the ESPP. Unless otherwise determined by the Company's board of directors, common stock will be purchased for accounts of employees participating in the ESPP at a price per share equal to the lower of (a) 85% of the fair market value of a share of the Company's common stock on the first date of an offering or (b) 85% of the fair market value of a share of the Company's common stock on the date of purchase. As of December 31, 2020, the number of shares of common stock reserved for future issuance under the ESPP is3,365,693 shares.

Employee Incentive Bonus

In May 2013, the Company's compensation committee amended its Executive Incentive Bonus Plan to permit the settlement of awards under the plan in any combination of cash or shares of its common stock. Additionally, the Company settles a majority of bonus awards for all other employees in common stock. When bonus awards are settled in common stock issued under the 2010 Plan, the number of shares issuable to plan participants is determined based on the closing sales price of the Company's common stock as determined in trading on the New York Stock Exchange on the date approved by the Board of Directors. In March 2020 and February 2019, the Company issued 0.2 million and 0.3 million freely-tradable shares, respectively, of its common stock in settlement of bonus awards to employees, including executives, for the 2019 and 2018 performance periods, respectively. At December 31, 2020, an accrual of $32.8 million was recorded for bonus awards for employees for the 2020 performance period, which the Company intends to settle primarily in shares of its common stock, unless otherwise required to be settled in cash due to local laws or agreements. Common stock in settlement of employee bonuses is to be issued under the Company''s 2010 Equity Incentive Plan, as amended, with the number of shares issuable to plan participants determined based on the closing sales price of the Company's common stock as determined in trading on the New York Stock Exchange at a date to be determined. The Company's compensation committee retains discretion to effect payment in cash, stock, or a combination of cash and stock.

Stock-Based Compensation

The Company recognizes stock-based compensation expense in the consolidated statements of operations, based on the department to which the related employee reports, as follows:

	Years Ended December 31,		
	2020	2019	2018
	(in thousands)		
Cost of net revenue	$ 577	$ 557	$ 489
Research and development	22,252	16,545	17,953
Selling, general and administrative	24,172	14,938	13,279
Restructuring expense	596	—	—
	$ 47,597	$ 32,040	$ 31,721

The total unrecognized compensation cost related to unvested restricted stock units as of December 31, 2020 was $79.7 million, and the weighted average period over which these equity awards are expected to vest is 2.8 years. The total unrecognized compensation cost related to performance-based restricted stock units as of December 31, 2020 was $11.4 million, and the weighted average period over which these equity awards are expected to vest is1.4 years. The total unrecognized compensation cost related to unvested stock options as of December 31, 2020 was $1.0 million, and the weighted average period over which these equity awards are expected to vest is1.5 years.

Restricted Stock Units

A summary of the Company's restricted stock unit activity is as follows:

	Number of Shares (in thousands)	Weighted-Average Grant-Date Fair Value per Share
Outstanding at December 31, 2019	2,924	$ 21.72
Granted	4,601	18.96
Vested	(1,197)	20.57
Canceled	(496)	18.44
Outstanding at December 31, 2020	5,832	20.05

Performance-Based Restricted Stock Units

Performance-based restricted stock units are eligible to vest at the end of each fiscal year in a three-year performance period based on the Company's annual growth rate in net sales and non-GAAP diluted earnings per share (subject to certain adjustments) over baseline results relative to the growth rates for a peer group of companies for the same metrics and periods.

For the performance-based restricted stock units granted, 60% of each performance-based award is subject to the net sales metric for the performance period and 40% is subject to the non-GAAP diluted earnings per share metric for the performance period. The maximum percentage for a particular metric is 250% of the target number of units subject to the award related to that metric, however, vesting of the performance stock units is capped at 30% and 100%, respectively, of the target number of units subject to the award in years one and two, respectively, of the three-year performance period.

As of December 31, 2020, the Company believes that it is probable that the Company will achieve performance metrics specified in the award agreement based on its expected revenue and non-GAAP diluted EPS results over the performance period and calculated growth rates relative to its peers' expected results based on data available, as defined in the respective award agreements.

A summary of the Company's performance-based restricted stock unit activity is as follows:

	Number of Shares (in thousands)	Weighted-Average Grant-Date Fair Value per Share
Outstanding at December 31, 2019	445	$ 22.21
Granted[(1)]	1,416	11.67
Vested	(21)	22.21
Canceled	(118)	15.98
Outstanding at December 31, 2020	1,722	13.97

[(1)] Number of shares granted is based on the maximum percentage achievable in the performance-based restricted stock unit award.

Employee Stock Purchase Rights and Stock Options

Employee Stock Purchase Rights

During the year ended December 31, 2020, there were 285,633 shares of common stock purchased under the ESPP at a weighted average price of $13.29.

The fair values of employee stock purchase rights were estimated using the Black-Scholes option pricing model at their respective grant date using the following assumptions:

	Years Ended December 31, 2020	2019	2018
Weighted-average grant date fair value per share	$6.41 - $8.66	$5.48 - $6.61	$5.01 - $5.37
Risk-free interest rate	0.12% - 0.15%	1.59% - 2.43%	2.09% - 2.51%
Dividend yield	— %	— %	— %
Expected term (in years)	0.5	0.5	0.5
Volatility	59.72% - 93.25%	40.47% - 43.14%	38.82% - 46.17%

The risk-free interest rate assumption was based on the United States (U.S.) Treasury zero-coupon bonds with maturities similar to those of the expected term of the award being valued. The assumed dividend yield was based on the Company's expectation of not paying dividends in the foreseeable future. The expected term is the duration of the offering period for each grant date. In addition, the estimated volatility incorporates the historical volatility over the expected term based on the Company's daily closing stock prices.

Stock Options

A summary of the Company's stock option activity is as follows:

	Number of Options (in thousands)	Weighted-Average Exercise Price	Weighted-Average Contractual Term (in years)	Aggregate Intrinsic Value (in thousands)
Outstanding at December 31, 2019	1,337	$ 13.05		
Exercised	(496)	9.78		
Canceled	(44)	20.85		
Outstanding at December 31, 2020	797	$ 14.67	2.7	$ 18,757
Vested and expected to vest at December 31, 2020	797	$ 14.67	2.7	$ 18,757
Exercisable at December 31, 2020	664	$ 13.90	2.4	$ 16,123

No stock options were granted by the Company during the years ended December 31, 2020 and 2019.

The fair values of stock options granted in 2018 were estimated using the Black-Scholes option pricing model on the grant date using the following assumptions:

	December 31, 2018
Weighted-average grant date fair value per share	$ 8.14
Risk-free interest rate	2.76 %
Dividend yield	— %
Expected term (in years)	5.50
Volatility	44.30 %

The risk-free interest rate assumption was based on the U.S. Treasury's rates for zero-coupon bonds with maturities similar to those of the expected term of the award being valued. The assumed dividend yield was based on the Company's expectation of not paying dividends in the foreseeable future. The expected term of the options was calculated using the simplified method as prescribed by guidance provided by the SEC. This decision was based on the lack of historical data due to the Company's limited number of stock option exercises under the 2010 Equity Incentive Plan. Estimated volatility incorporates historical volatility of the Company over the expected term based on the Company's daily closing stock prices.

The intrinsic value of stock options exercised during 2020, 2019 and 2018 was $4.9 million, $22.2 million, and $8.1 million, respectively. Cash received from exercise of stock options was $4.4 million, $4.5 million and $0.7 million during the years ended December 31, 2020, 2019 and 2018, respectively. The tax benefit from stock options exercised was $5.2 million, $20.7 million, and $7.8 million during the years ended December 31, 2020, 2019 and 2018, respectively.

10. Income Taxes

The domestic and international components of loss before income taxes are presented as follows:

	Years Ended December 31, 2020	2019	2018
	(in thousands)		
Domestic	$ (112,778)	$ (61,893)	$ 16,405
Foreign	(2,074)	29,409	(49,257)
Loss before income taxes	$ (114,852)	$ (32,484)	$ (32,852)

The income tax provision (benefit) consists of the following:

	Years Ended December 31,		
	2020	2019	2018
	(in thousands)		
Current:			
Federal	$ (176)	$ 1,604	$ 3,292
State	12	16	37
Foreign	2,687	1,560	1,640
Total current	2,523	3,180	4,969
Deferred:			
Federal	(18,595)	(13,793)	788
State	(705)	(1,829)	(2,799)
Foreign	8,025	1,095	(3,884)
Change in valuation allowance	(7,507)	(1,239)	(5,727)
Total deferred	(18,782)	(15,766)	(11,622)
Total income tax benefit	$ (16,259)	$ (12,586)	$ (6,653)

The actual income tax provision (benefit) differs from the amount computed using the federal statutory rate as follows:

	Years Ended December 31,		
	2020	2019	2018
	(in thousands)		
Provision (benefit) at statutory rate	$ (24,119)	$ (6,821)	$ (6,814)
State income taxes (net of federal benefit)	9	11	20
Research and development credits	(6,521)	(7,815)	(8,849)
Foreign rate differential	2,354	(4,489)	8,640
Stock compensation	5,425	(2,750)	74
Foreign income inclusion	1,446	3,936	1,103
Provision to return	(286)	1,887	(27)
Uncertain tax positions	222	1,244	1,463
Permanent and other	131	716	1,319
Foreign unremitted earnings	(233)	(103)	1,960
Tax Act	—	—	185
Transaction costs	883	—	—
Attribute expirations	11,937	2,837	—
Valuation allowance	(7,507)	(1,239)	(5,727)
Total income tax benefit	$ (16,259)	$ (12,586)	$ (6,653)

The components of the deferred income tax assets are as follows:

	December 31,	
	2020	2019
	(in thousands)	
Deferred tax assets:		
Net operating loss carryforwards	$ 65,790	$ 65,477
Research and development credits	79,019	80,404
Accrued expenses and other	11,669	7,768
Lease obligation	1,731	2,047
Accrued compensation	4,442	1,441
Stock-based compensation	5,415	3,460
	168,066	160,597
Less valuation allowance	(71,811)	(77,957)
	96,255	82,640
Deferred tax liabilities:		
Fixed assets	(42)	(246)
Leased right-of-use assets	(1,099)	(1,483)
Intangible assets	(9,049)	(13,627)
Net deferred tax assets	$ 86,065	$ 67,284

At December 31, 2020, the Company had federal, state and foreign tax net operating loss carryforwards of approximately $281.3 million, $78.7 million and $4.4 million, respectively. The federal and state tax loss carryforwards will begin to expire in 2021 and 2028, respectively, unless previously utilized. The foreign tax loss carryforwards will not expire.

At December 31, 2020, the Company had federal, state and foreign tax credit carryforwards of approximately $49.0 million, $90.1 million and $1.9 million, respectively. The federal and foreign tax credit carryforwards will begin to expire in 2023 and 2026, respectively, unless previously utilized. The state tax credit carryforwards do not expire. The Company also has foreign incentive deductions of approximately $5.8 million that do not expire.

The Company utilizes the asset and liability method of accounting for income taxes, under which deferred taxes are determined based on temporary differences between the financial statement and tax basis of assets and liabilities using tax rates expected to be in effect during the years in which the temporary differences reverse. The Company records a valuation allowance to reduce its deferred taxes to the amount it believes is more likely than not to be realized. In making such determination, the Company considers all available positive and negative evidence quarterly, including scheduled reversals of deferred tax liabilities, projected future taxable income, tax planning strategies, and recent financial performance. Forming a conclusion that a valuation allowance is not required is difficult when there is negative evidence such as cumulative losses in recent years. The Company believes it is more likely than not to realize certain federal and foreign deferred assets. The Company continues to maintain a valuation allowance on its state deferred taxes, certain of its federal deferred tax assets, and certain foreign deferred tax assets in jurisdictions where the Company has cumulative losses or otherwise is not expected to utilize certain tax attributes. The Company does not incur expense or benefit in certain tax-free jurisdictions in which it operates.

The income tax benefit for the year ended December 31, 2020 primarily related to the generation of research and development tax credits, mix of pre-tax income among jurisdictions, excess tax benefits related to stock-based compensation, and release of certain reserves for uncertain tax positions under ASC 740-10.

The income tax benefit for the year ended December 31, 2019 and 2018 primarily related to the mix of pre-tax income among jurisdictions, discrete tax benefits related to stock-based compensation, and release of certain reserves for uncertain tax positions under ASC 740-10.

Income tax positions must meet a more-likely-than-not threshold to be recognized. Income tax positions that previously failed to meet the more-likely-than-not threshold are recognized in the first subsequent financial reporting period in which that threshold is met. Previously recognized tax positions that no longer meet the more-likely-than-not threshold are de-recognized in the first financial reporting period in which that threshold is no longer met. The Company records potential penalties and interest accrued related to unrecognized tax benefits within the consolidated statements of operations as income tax expense. At December 31, 2020, the Company's unrecognized tax benefits totaled $63.8 million, $54.3 million of which, if recognized at a time when the valuation allowance no longer exists, would affect the effective tax rate. The Company does not expect its unrecognized tax benefits to change significantly over the next 12 months. At December 31, 2020 and 2019, the Company had accrued interest and penalties of approximately $0.6 million and $0.9 million, respectively. The total amounts of interest and penalties recognized for the years ended December 31, 2020, 2019, and 2018 were not material.

The following table summarizes the changes to the unrecognized tax benefits during 2020, 2019 and 2018:

		(in thousands)
Balance as of December 31, 2017	$	63,086
Additions based on tax positions related to the current year		3,080
Additions related to acquisitions		—
Decreases based on tax positions of prior year		(4,696)
Balance as of December 31, 2018	$	61,470
Additions based on tax positions related to the current year		1,678
Decreases based on tax positions of prior year		(1,121)
Balance as of December 31, 2019	$	62,027
Additions based on tax positions related to the current year		1,506
Additions related to acquisitions		1,154
Decreases based on tax positions of prior year		(922)
Balance as of December 31, 2020	$	63,765

The Company is subject to federal and state income tax in the United States and is also subject to income tax in certain other foreign tax jurisdictions. At December 31, 2020, the statutes of limitations for the assessment of federal, state, and foreign income taxes are closed for the years before 2017, 2016 and 2015, respectively.

In April 2017, the Company's subsidiary in Singapore began operating under certain tax incentives in Singapore, which are generally effective through March 2022, and are conditional upon meeting certain employment and investment thresholds in Singapore. Under the incentives, qualifying income derived from certain sales of the Company's integrated circuits is taxed at a concessionary rate over the incentive period, and there are reduced Singapore withholding taxes on certain intercompany royalties during the incentive period. Primarily because of the Company's Singapore net operating losses and a full valuation allowance in Singapore, the incentives did not have a material impact on the Company's income tax expense for the years ended December 31, 2020, 2019 and 2018.

On March 27, 2020, the U.S. government enacted the Coronavirus Aid, Relief, and Economic Security Act, or the CARES Act, a $2 trillion relief package comprising a combination of tax provisions and other stimulus measures. The CARES Act broadly provides entities tax payment relief and significant business incentives and makes certain technical corrections to the 2017 Tax Cuts and Jobs Act, or the Tax Act. The tax relief measures for entities include a five-year net operating loss carry back, increases interest expense deduction limits, acceleration of alternative minimum tax credit refunds, payroll tax relief, and a technical correction to allow accelerated deductions for qualified improvement property. The Act also provides other non-income tax benefits, including federal funding for a range of stabilization measures and emergency funding to assist those impacted by the COVID-19 pandemic. Similar legislation is being enacted in other jurisdictions in which the Company operates. ASC Topic 740, *Income Taxes*, requires the effect of changes in tax rates and laws on deferred tax balances to be recognized in the period in which new legislation is enacted. The enactment of the CARES Act and similar legislation in other jurisdictions in which the Company operates was not material to the Company's income tax benefit for the year ended December 31, 2020.

On July 27, 2015, the US Tax Court decided on behalf of Altera Corporation, or Altera US, that certain 2003 Internal Revenue Service, or IRS regulations underpinning the transfer pricing between related parties for shared costs were invalid. The case involved the cost-sharing arrangement, or CSA entered into by Altera US with an international subsidiary. Pursuant to the terms of the CSA, the parties agreed to share the risks and costs of research and development, or R&D activities, including granted stock options and other stock-based compensation, or SBC, to certain of its employees responsible for conducting the R&D activities. In allocating the costs to be shared pursuant to that CSA, Altera US included the cash compensation of its employees engaged in R&D in the shared cost pool but excluded their SBC. The IRS had imposed transfer pricing adjustments in each of the tax years 2004 through 2007 on the basis of Altera US' failure to include SBC costs in its CSA cost pool. On June 7, 2019, in a 2-1 ruling, a panel of the Ninth Circuit Court of Appeals reversed the Tax Court's holding and upheld a 2003 IRS regulation that requires participants in a CSA to share SBC costs. After the Ninth Circuit Court's reversal, Altera filed a petition for en banc review of the decision by Ninth Circuit judges. The petition was denied, and the taxpayer decided to appeal to the Supreme Court. On June 22, 2020, the Supreme Court of the United States announced that it was denying the petition for certiorari and will not review an appeals court decision in the case of Altera Corporation & Subsidiaries v. Commissioner (Altera v. Comm). The announcement represented new information that the Company considered in its second quarter tax provision for the six months ended June 30, 2020. The evaluation of this ruling for all open tax periods was not material to the Company's income tax benefit for the year ended December 31, 2020.

11. Employee Retirement Plans

Defined Contribution Plan

The Company has a 401(k) defined contribution retirement plan (the 401(k) Plan) covering all eligible employees. Participants may voluntarily contribute on a pre-tax basis an amount not to exceed a maximum contribution amount pursuant to Section 401(k) of the Internal Revenue Code. The Company is not required to contribute, nor has it contributed, to the 401(k) Plan for any of the periods presented.

Pension and Other Defined Benefit Retirement Obligations

In connection with the July 31, 2020 acquisition of the Wi-Fi and Broadband assets business (Note 3), the Company assumed an obligation of $7.9 million associated with certain defined benefit retirement plans, including a pension plan. The benefit is based on a formula applied to eligible employee earnings. Net periodic benefit costs were $0.2 million for the year ended December 31, 2020 and were recorded to research and development expenses in the consolidated statement of operations.

Benefit Obligation and Plan Assets for Pension Benefit Plans

The vested benefit obligation for a defined-benefit pension or other retirement plan is the actuarial present value of the vested benefits to which the employee is currently entitled based on the employee's expected date of separation or retirement.

		December 31, 2020
		(in thousands)
Changes in projected benefit obligation:		
Projected benefit obligation, beginning of period	$	—
Projected benefit obligation assumed in acquisition		13,274
Service cost		157
Interest cost		59
Actuarial (gain) loss		(1,172)
Benefits paid		(786)
Currency exchange rate changes		490
Projected benefit obligation, end of period		**12,022**
Changes in fair value of plan assets:		
Fair value of plan assets, beginning of period		—
Plan assets transferred from acquisition		5,417
Currency exchange rate changes		217
Fair value of plan assets, end of period		**5,634**
Net unfunded status	**$**	**6,388**
Amounts recognized in the Consolidated Balance Sheets		
Other long-term liabilities	$	6,388
Accumulated other comprehensive (income) loss, before tax	$	(1,172)

Changes in actuarial gains and losses in the projected benefit obligation are primarily driven by discount rate movement. The Company uses the corridor approach to amortize actuarial gains and losses. Under this approach, net actuarial gains or losses in excess of 10% of the larger of the projected benefit obligation or the fair value of plan assets are amortized on a straight-line basis.

As of December 31, 2020, all plans had accumulated benefit obligations and projected benefit obligations in excess of plan assets. As of December 31, 2020, the accumulated benefit obligations were $11.1 million for the pension plans.

		December 31, 2020
		(in thousands)
Plans with accumulated benefit obligation in excess of plan assets		
Accumulated benefit obligation	$	11,127
Plan assets	$	5,634
Plans with projected benefit obligation in excess of plan assets		
Projected benefit obligation	$	12,022
Plan assets	$	5,634

Assumptions for Pension Benefit Plans

	December 31, 2020
	(in thousands)
Weighted average actuarial assumptions used to determine benefit obligations	
Discount rate	0.5% - 0.6%
Rate of compensation increase	2.6% - 3.8%
Weighted average actuarial assumptions used to determine costs	
Discount rate	0.5% - 0.6%
Expected long-term rate of return on plan assets	0.79 %
Rate of compensation increase	2.6% - 3.8%

The Company establishes the discount rate for each pension plan by analyzing current market long-term bond rates and matching the bond maturity with the average duration of the pension liabilities. The Company establishes the long-term expected rate of return by developing a forward-looking, long-term return assumption for each pension fund asset class, taking into account factors such as the expected real return for the specific asset class and inflation. A single, long-term rate of return is then calculated as the weighted average of the target asset allocation percentages and the long-term return assumption for each asset class.

Pension Plan Assets

The plan assets are currently all in liquid cash and cash equivalents and an investment strategy is being developed to ensure that sufficient assets are available to pay pension benefits as they come due.

Estimated Future Benefit Payments for Pension Benefit Plans

The estimated benefit payments over the next five years and beyond are as follows:

	Estimated Future Benefit Payments
	(in thousands)
2021	$ —
2022	—
2023	20
2024	48
2025	48
Thereafter	762
	879

12. Leases

Operating Leases

Operating lease arrangements primarily consist of office leases expiring at various years through 2028. These leases often have original terms of 2 to 7 years and contain options to extend the lease up to 5 years or terminate the lease, which are included in leased right-of-use assets and lease liabilities in the consolidated balance sheet when the Company is reasonably certain it will renew the underlying leases. Since the implicit rate of such leases is unknown and the Company is not reasonably certain to renew its leases, the Company has elected to apply a collateralized incremental borrowing rate to facility leases on the original lease term in calculating the present value of future lease payments. As of December 31, 2020 and 2019, the weighted average discount rate for operating leases was4.0% and 5.0%, respectively, and the weighted average remaining lease term for operating leases was4.6 years and 2.9 years, respectively.

The table below presents aggregate future minimum payments due under leases, reconciled to lease liabilities included in the consolidated balance sheet as of December 31, 2020:

	Operating Leases (in thousands)
2021	$ 9,032
2022	7,336
2023	3,694
2024	2,958
2025	2,844
Thereafter	4,794
Total minimum payments	30,658
Less: imputed interest	(2,655)
Less: unrealized translation gain	1,013
Total lease liabilities	29,006
Less: short-term lease liabilities	(8,144)
Lease liabilities - long-term	$ 20,862

Operating lease costs were $5.2 million, $3.1 million and $4.5 million for the years ended December 31, 2020, 2019 and 2018, respectively.

Short-term lease costs for the years ended December 31, 2020 and 2019 were not material. There were $15.9 million and $0.5 million of right-of-use assets obtained in exchange for new lease liabilities for the years ended December 31, 2020 and 2019, respectively, including $1.8 million in right-of-use assets from acquisitions in 2020 (Note 3).

Subleases

The Company has a subleased facility that it ceased using in connection with a restructuring plan (Note 4). Such sublease expires in fiscal 2021, and future minimum rental income under the sublease is $0.1 million.

Total sublease income related to leased facilities the Company ceased using in connection with a restructuring plan for the years ended December 31, 2020, 2019 and 2018 was approximately $0.4 million, $1.2 million and $2.4 million, respectively (Note 4).

Lease Terminations

In the year ended December 31, 2019, the Company terminated certain facility leases and a related sublease, which were due to expire in 2022 to 2023, upon release from the landlords. The Company had previously ceased use of all or portions of the related facilities. As a result of such terminations, the Company reduced leased right-of-use assets by approximately $9.2 million, lease liabilities by approximately $10.1 million, and other related liabilities by approximately $0.3 million in the consolidated balance sheet. The related net impact in the consolidated statement of operations was a gain of approximately $1.2 million, which consisted of a gain on extinguishment of lease-related liabilities of $10.4 million, partially offset by impairment of leased right-of-use assets of $9.2 million. The Company also recorded impairment of related leasehold improvements of $1.4 million.

13. Commitments and Contingencies

Inventory Purchase and Other Contractual Obligations

As of December 31, 2020, future minimum payments under inventory purchase and other obligations are as follows:

	Inventory Purchase Obligations	Other Obligations	Total
		(in thousands)	
2021	$ 71,211	$ 21,315	$ 92,526
2022	—	18,640	18,640
2023	—	10,121	10,121
2024	—	447	447
Total minimum payments	$ 71,211	$ 50,523	$ 121,734

Other obligations consist of contractual payments due for software licenses.

Our inventory purchase obligations and other obligations increased by $99.1 million to $121.7 million as of December 31, 2020, from $22.6 million as of December 31, 2019 primarily as a result of increased orders of software licenses and inventory placed with our vendors during the period, which is due in part to our 2020 acquisitions (Note 3).

Other Matters

In addition, from time to time, the Company is subject to threats of litigation or actual litigation in the ordinary course of business, some of which may be material. The Company believes that there are no other currently pending litigation matters that, if determined adversely by the Company, would have a material effect on the Company's business or that would not be covered by the Company’s existing liability insurance.

14. Concentration of Credit Risk, Significant Customers and Geographic Information

Concentration of Credit Risk

Financial instruments, which potentially subject the Company to concentrations of credit risk, consist primarily of cash and cash equivalents and accounts receivable. Collateral is generally not required for customer receivables. The Company limits its exposure to credit loss by placing its cash with high credit quality financial institutions. At times, such deposits may be in excess of insured limits. The Company has not experienced any losses on its deposits of cash and cash equivalents.

Significant Customers

The Company markets its products and services to manufacturers of a wide range of electronic devices (Note 1). The Company sells its products both directly to customers and through third-party distributors, both of which are referred to as the Company’s customers (Note 15). The Company makes periodic evaluations of the credit worthiness of its customers.

Customers comprising greater than 10% of net revenues for each of the periods presented are as follows:

	Years Ended December 31,		
	2020	2019	2018
Percentage of total net revenue			
Customer A (direct)	15 %	14 %	18 %
Customer B (direct)	13 %	*	*

Balances greater than 10% of accounts receivable, based on the Company’s billings to the contract manufacturer customers, are as follows:

	December 31,	
	2020	2019
Percentage of gross accounts receivable		
Customer B (direct)	17 %	*
Customer C (distributor)	13 %	*
Customer D (distributor)	*	10 %

Suppliers comprising greater than 10% of total inventory purchases are as follows:

	Years ended December 31,		
	2020	2019	2018
Vendor A	34 %	*	*
Vendor B	20 %	14 %	19 %
Vendor C	11 %	17 %	16 %
Vendor D	*	13 %	15 %
Vendor E	*	15	13 %

* Represents less than 10% of the inventory purchases for the respective period.

Geographic Information

The Company's consolidated net revenues by geographic area based on ship-to location are as follows (in thousands):

	Years Ended December 31,					
	2020		2019		2018	
	Amount	% of total net revenue	Amount	% of total net revenue	Amount	% of total net revenue
Asia	$ 393,579	82 %	$ 265,122	84 %	$ 312,877	81 %
United States	15,501	3 %	13,984	4 %	18,060	5 %
Rest of world	69,516	15 %	38,074	12 %	54,060	14 %
Total	$ 478,596	100 %	$ 317,180	100 %	$ 384,997	100 %

The products shipped to individual countries representing greater than 10% of net revenue for each of the periods presented are as follows:

	Years Ended December 31,		
	2020	2019	2018
Percentage of total net revenue			
Hong Kong	42 %	46 %	43 %
China	17 %	14 %	19 %

The determination of which country a particular sale is allocated to is based on the destination of the product shipment. No other individual country accounted for more than 10% of net revenue during these periods. Although a large percentage of the Company’s products is shipped to Asia, and in particular, Hong Kong and China, the Company believes that a significant number of the systems designed by customers and incorporating the Company’s semiconductor products are subsequently sold outside Asia to Europe, Middle East, and Africa, or EMEA markets and North American markets.

Long-lived assets, which consists of property and equipment, net, leased right-of-use assets, intangible assets, net, and goodwill, by geographic area are as follows (in thousands):

	As of December 31,			
	2020		2019	
	Amount	% of total	Amount	% of total
United States	$ 403,071	72 %	$ 385,302	85 %
Singapore	136,967	24 %	63,556	14 %
Rest of world	31,412	5 %	5,034	1 %
Total	$ 571,450	100 %	$ 453,892	100 %

15. Revenue from Contracts with Customers

Revenue by Market

The table below presents disaggregated net revenues by market (in thousands):

	Year Ended December 31,		
	2020[(1)]	2019[(1)]	2018
Broadband	$ 244,424	$ 119,320	$ 207,336
% of net revenue	51 %	38 %	54 %
Infrastructure	76,166	85,369	82,388
% of net revenue	16 %	27 %	21 %
Industrial and multi-market	87,267	79,137	95,273
% of net revenue	18 %	25 %	25 %
Connectivity	70,739	33,354	—
% of net revenue	15 %	11 %	— %
Total net revenue	$ 478,596	$ 317,180	$ 384,997

[(1)] The Company’s net revenues by market was revised during 2020 to align with changing end-market conditions, the Company’s current business priorities, as well as growth opportunities in the four categories. The broadband category includes the Company’s prior connected home category plus the SoC business from the Wi-Fi and Broadband assets business, but excludes wired connectivity. The infrastructure category remains unchanged. Industrial and multi-market includes the previously reported revenue plus component revenues from the Wi-Fi and Broadband assets business. The Company’s connectivity category includes primarily its MoCA/G.hn products and Wi-Fi and Ethernet revenues from the Wi-Fi and Broadband assets business. The 2019 amounts were adjusted to reflect the change in market categories; however, 2018 amounts have not been adjusted.

Revenues from sales to the Company’s distributors accounted for49%, 52% and 42% of net revenue for the years ended December 31, 2020, 2019 and 2018, respectively.

Contract Liabilities

As of December 31, 2020 and 2019, customer contract liabilities consist of estimates of obligations to deliver rebates to customers in the form of units of products and were approximately $0.03 million and $0.1 million, respectively. Revenue recognized in the years ended December 31, 2020 and 2019 that was included in the contract liability balance as of the beginning of those respective years was immaterial.

There were no material changes in the contract liabilities balance during the years ended December 31, 2020 and 2019.

Obligations to Customers for Price Adjustments and Returns and Assets for Right-of-Returns

As of December 31, 2020 and 2019, obligations to customers consisting of estimates of price protection rights offered to the Company's end customers totaled $47.8 million and $12.6 million and are included in accrued price protection liability in the consolidated balance sheets. For activity in this account, including amounts included in net revenue, refer to Note 7. As of December 31, 2020 and 2019, other obligations to customers representing estimates of price adjustments to be claimed by distributors upon sell-through of their inventory to their end customer were $10.3 million and $8.4 million, respectively. As of December 31, 2020 and 2019, other obligations to customers representing estimates of stock rotation returns to be claimed by distributors on products sold were $2.0 million and $1.4 million, respectively. Obligations to customers for estimates of price adjustments and stock rotation return rights are included in accrued expenses and other current liabilities in the consolidated balance sheets (Note 7). The increase in revenue in the years ended December 31, 2020 and 2019 from net changes in transaction prices for amounts included in obligations to customers for price adjustments as of the beginning of those respective years was not material.

As of December 31, 2020 and 2019, right of return assets under customer contracts representing the estimates of product inventory the Company expects to receive from customers in stock rotation returns were approximately $0.6 million and $0.3 million, respectively. Right of return assets are included in inventory in the consolidated balance sheets (Note 7).

As of December 31, 2020 and 2019, there wereno impairment losses recorded on customer accounts receivable.

16. Selected Quarterly Financial Data (Unaudited)

The following table presents the Company's unaudited quarterly financial data for each of the eight quarters in the period ended December 31, 2020. In management's opinion, this information has been presented on the same basis as the audited consolidated financial statements included in a separate section of this report, and all necessary adjustments, consisting only of normal recurring adjustments, have been included in the amounts below to present fairly the unaudited quarterly results when read in conjunction with the audited consolidated financial statements and related notes. The operating results for any quarter should not be relied upon as necessarily indicative of results for any future period.

	Year Ended December 31, 2020			
	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
	(in thousands, except per share amounts)			
Net revenue	$ 62,027	$ 65,220	$ 156,633	$ 194,716
Gross profit	$ 30,762	$ 32,743	$ 66,206	$ 83,087
Net loss	$ (15,469)	$ (21,807)	$ (36,645)	$ (24,672)
Net loss per share:				
Basic	$ (0.21)	$ (0.30)	$ (0.50)	$ (0.33)
Diluted	$ (0.21)	$ (0.30)	$ (0.50)	$ (0.33)

	Year Ended December 31, 2019			
	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
	(in thousands, except per share amounts)			
Net revenue	$ 84,635	$ 82,507	$ 80,020	$ 70,018
Gross profit	$ 45,077	$ 44,080	$ 41,904	$ 36,624
Net loss	$ (4,851)	$ (2,229)	$ (4,714)	$ (8,104)
Net loss per share:				
Basic	$ (0.07)	$ (0.03)	$ (0.07)	$ (0.11)
Diluted	$ (0.07)	$ (0.03)	$ (0.07)	$ (0.11)

EXHIBIT 21.1

SIGNIFICANT SUBSIDIARIES OF MAXLINEAR, INC.

Name	Jurisdiction
MaxLinear Asia Singapore Pte. Ltd.	Singapore

EXHIBIT 23.1

Consent of Independent Registered Public Accounting Firm

We have issued our reports dated February 11, 2021, with respect to the consolidated financial statements, financial statement schedule, and internal control over financial reporting included in the Annual Report of MaxLinear, Inc. on Form 10-K for the year ended December 31, 2020. We consent to the incorporation by reference of said reports in the Registration Statements of MaxLinear, Inc. on Form S-3 (File No. 333-248697), Form S-4 (File No. 333-202679) and on Forms S-8 (File No. 333-217021, File No. 333-218022, File No. 333-223847, File No. 333-230606, and File No. 333-237274).

/s/ Grant Thornton LLP

Newport Beach, California
February 11, 2021

EXHIBIT 31.1

Certification of Principal Executive Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002

I, Kishore Seendripu, Ph.D., certify that:

1. I have reviewed this Form 10-K of MaxLinear, 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 11, 2021

/s/ Kishore Seendripu, Ph.D.
Kishore Seendripu, Ph.D.
President and Chief Executive Officer
(Principal Executive Officer)

EXHIBIT 31.2

Certification of Principal Financial Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002

I, Steven G. Litchfield, certify that:

1. I have reviewed this Form 10-K of MaxLinear, 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 11, 2021	/s/ Steven G. Litchfield
		Steven G. Litchfield Chief Financial Officer and Chief Corporate Strategy Officer (Principal Financial Officer)

EXHIBIT 32.1

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

I, Kishore Seendripu, Ph.D., 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 MaxLinear, Inc. on Form 10-K for the fiscal year ended December 31, 2020 fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and that information contained in such Annual Report on Form 10-K fairly presents in all material respects the financial condition and results of operations of MaxLinear, Inc.

Date:	February 11, 2021	By:	/s/ Kishore Seendripu, Ph.D.
		Name:	Kishore Seendripu, Ph.D.
		Title:	President and Chief Executive Officer

I, Steven G. Litchfield, 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 MaxLinear, Inc. on Form 10-K for the fiscal year ended December 31, 2020 fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and that information contained in such Annual Report on Form 10-K fairly presents in all material respects the financial condition and results of operations of MaxLinear, Inc.

Date:	February 11, 2021	By:	/s/ Steven G. Litchfield
		Name:	Steven G. Litchfield
		Title:	Chief Financial Officer and Chief Corporate Strategy Officer