**2019 Annual Report**

Dear Fellow Shareholders,

Front and center for our company is the execution of our five-year growth strategy. The underlying secular themes of safety, resource efficiency and the ever-increasing connected world remain intact. These long-term trends drive ever-greater sophistication in electrical architecture, increasing the content of our circuit protection, power control and sensing products in applications across industrial, transportation and electronics end markets. We are committed to executing our growth strategy underpinned by these secular themes and our strong business fundamentals.

When developing our strategy, we considered a period of soft demand, which we experienced in 2019 after several years of strong growth. During the year, our global teams remained focused on driving long-term growth, profitability, and cash generation, enabling us to successfully navigate a challenging end market environment. We balanced short-term cost containment, while continuing to make strategic investments to support our long-term growth objectives. For the full year, we achieved an adjusted operating margin of 14 percent[1], adjusted EBITDA margin of 20 percent[2] and generated $183 million in free cash flow[3] — representing a 132 percent conversion from net income of $139 million — exceeding our 100 percent target. We returned $140 million of our free cash flow to shareholders through dividends and share repurchases, reinforcing the strength of our balance sheet and reiterating our commitment to deliver ongoing value to our shareholders.

Our Industrial product segment delivered strong performance and achieved an operating margin of approximately 20 percent. Within our Automotive product segment, we drove continued profitability improvement and achieved double-digit operating margins. Through our close customer partnerships in our Electronics product segment, we managed a dynamic demand environment to deliver mid-teens operating margins.

We advanced several strategic initiatives:

- Across our target end markets we secured key design wins for a wide range of applications in all regions.
    - *In industrial applications,* we expanded our geographic presence with wins in power protection and conversion for renewable energy projects and energy storage, temperature sensors for automated factories and HVAC systems, and power semiconductors for industrial motor drives.
    - *In transportation applications*, we advanced our long-term content position with wins in the growing electric vehicle market for hybrid and electric vehicle battery systems and on-vehicle chargers, power control and distribution systems for commercial vehicles, power semiconductors for ignition systems, and solar, speed, position and fluid level sensors.
    - *In electronics applications,* we leveraged our deep, strategic relationships with our channel partners and end customers to capture wins in protection and power semiconductors for data centers and telecom infrastructure, consumer electronics, building and home automation, and sensors for home security systems and smart meters.

  As a trusted partner to our more than 100,000 end customers, we see the expanding need for our full range of protect, control and sensing technologies increasing across the end markets we serve.

- We took steps to optimize our global operations as we continued our integration of the IXYS business and also embarked on several infrastructure improvements to drive efficiency and increase capacity. We began construction of a new facility that will further expand our power semiconductor capabilities — a key driver of our growth strategy. Once completed, this strategic investment will build on the IXYS acquisition and our portfolio of high-performance power semiconductor products. We are confident that these actions, as well as others planned, will continue to drive long-term growth and profitability.

- As a testament to our global execution oriented culture, we again earned the Association for Manufacturing Excellence award — this time in Piedras Negras, Mexico. Notably, five of our facilities around the world have received this recognition over the last four years. It is the innovation, hard work and dedication of our 11,000 worldwide associates that affords us our long-standing global reputation for product quality and reliability, excellent engineering support and customer responsiveness. Operational excellence remains the foundation of our strong business fundamentals as evidenced by our repeated recognition.

During 2019, we made significant progress across our business segments and end markets as we continued to execute our growth strategy in a challenging market. We are confident we remain well positioned to meet the changing needs of our customers, pursue continued growth and maximize shareholder value. Looking ahead, our leading technologies, global footprint, close customer relationships and talented associates position us for continued long-term growth in excess of the markets we serve within the secular themes of safety, resource efficiency and the ever-increasing connected world.

The evolution of our company continues to highlight the importance of global sustainability. Environmentally, many of our products are targeting and enabling sustainable and green applications and we are focused on reducing our overall impact on the environment. Socially, human capital remains a priority on a global basis as we continue to build worldwide talent, promote a diverse and inclusive workplace and partner with local non-profit organizations to engage with the communities in which we operate. From a governance standpoint, we are committed to maintaining a high-functioning, diverse board. Consistent with this, I am pleased that Maria C. Green has joined the Littelfuse Board of Directors. Maria brings a wealth of global public company leadership experience and is a great addition. We are committed to enhancing our ESG efforts across our organization.

In closing, thank you for your ongoing support of our company and the confidence you put forth in us as we continue to execute our growth strategy.

Dave Heinzmann
President and Chief Executive Officer

CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS UNDER THE PRIVATE SECURITIES LITIGATION REFORM ACT OF 1995 ("PSLRA") - The statements contained in the letter to shareholders and the other sections of this report and in the Company's Annual Report on Form 10-K that are not historical facts are intended to constitute "forward-looking statements" entitled to the safe-harbor provisions of the PSLRA. These statements may involve risks and uncertainties, including, but not limited to, risks relating to product demand and market acceptance, economic conditions, the impact of competitive products and pricing, product quality problems or product recalls, capacity and supply difficulties or constraints, coal mining exposures reserves, failure of an indemnification for environmental liability, exchange rate fluctuations, commodity price fluctuations, the effect of the company's accounting policies, labor disputes, restructuring costs in excess of expectations, pension plan asset returns less than assumed, integration of acquisitions, uncertainties related to political and regulatory changes and other risks that may be detailed in "Item 1A, Risk Factors" in the Form 10-K and in the Company's other Securities and Exchange Commission filings.

A reconciliation of these non-GAAP financial measures to the most directly comparable financial measure calculated and presented in accordance with GAAP is set forth on the following pages:
[1]Adjusted operating margin excludes acquisition-related and integration costs, restructuring, impairment and other charges and certain purchase accounting adjustments, as applicable.
[2]Adjusted EBITDA margin excludes acquisition-related and integration costs, restructuring, impairment and other charges, certain purchase accounting adjustments and amortization and depreciation, as applicable.
[3]Free cash flow is calculated as cash provided by operating activities less capital expenditures.

## LITTELFUSE, INC.
## GAAP TO NON-GAAP RECONCILIATON
## (In millions of USD except per share amounts unaudited)

| **Non-GAAP adjustments - expense** | **2019** |
|---|---|
| Acquisition-related and integration costs | $ 8.9 |
| Restructuring, impairment and other charges | 13.0 |
| Non-GAAP adjustments to operating income | 21.9 |
| Other expense, net | 10.0 |
| Non-operating foreign exchange loss | 5.2 |
| Non-GAAP adjustments to income before income taxes | 37.1 |
| Income taxes | 7.1 |
| Non-GAAP adjustments to net income | $ 30.0 |
| Total EPS impact | $ 1.22 |

| **Adjusted operating margin / Adjusted EBITDA reconciliation** | **2019** |
|---|---|
| Net sales | $ 1,503.9 |
| GAAP operating income | $ 192.8 |
| Add back non-GAAP adjustments to operating income | 21.9 |
| Adjusted operating income | $ 214.7 |
| *Adjusted operating margin* | *14.3%* |
| Add back amortization | 40.0 |
| Add back depreciation | 52.5 |
| Adjusted EBITDA | $ 307.2 |
| *Adjusted EBITDA margin* | *20.4%* |

| **Free cash flow reconciliation** | **2019** |
|---|---|
| Net cash provided by operating activities | $ 245.3 |
| Less: Purchases of property, plant and equipment | (61.9) |
| Free cash flow | $ 183.4 |

**NON-GAAP FINANCIAL MEASURES**

The information included in the letter to shareholders includes the non-GAAP financial measures of adjusted operating margin, adjusted EBITDA margin and free cash flow. These non-GAAP financial measures exclude the effect of certain expenses and income not related directly to the underlying performance of our fundamental business operations. The company believes that adjusted operating margin and adjusted EBITDA margin provide useful information to investors regarding its operational performance because they enhance an investor's overall understanding of our core financial performance and facilitate comparisons to historical results of operations, by excluding items that are not related directly to the underlying performance of our fundamental business operations or historical business operations. The letter to shareholders also includes the non-GAAP measure of free cash flow. The company believes free cash flow is a useful measure of its ability to generate cash. A reconciliation of these non-GAAP financial measures to the most directly comparable GAAP financial measures is included herein. The company believes that these non-GAAP financial measures are commonly used by financial analysts and others in the industries in which we operate, and thus further provide useful information to investors. Management additionally uses these measures when assessing the performance of the business and for business planning purposes. Note that our definitions of these non-GAAP financial measures may differ from those terms as defined or used by other companies.

# 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 |
| (Mark one) | for the fiscal year ended December 28, 2019 |
| | Or |
| ☐ | Transition Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934 for the transition period from to |

Commission file number 0-20388

# LITTELFUSE, INC.
(Exact name of registrant as specified in its charter)

| | |
|---|---|
| Delaware | 36-3795742 |
| (State or other jurisdiction of incorporation or organization) | (I.R.S. Employer Identification No.) |

8755 West Higgins Road Suite 500
Chicago, Illinois 60631
(Address of principal executive offices)

773-628-1000
(Registrant's telephone number, including area code)

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

| Title of Each Class | Trading Symbol | Name of Each Exchange On Which Registered |
|---|---|---|
| Common Stock, $0.01 par value | LFUS | NASDAQ Global Select Market[SM] |

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 and posted pursuant to Rule 405 of Regulation S-T (Section 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post 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," "small 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 is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

The aggregate market value of 24,104,227 shares of voting stock held by non-affiliates of the registrant was approximately $4,264,278,799 based on the last reported sale price of the registrant's Common Stock as reported on the NASDAQ Global Select Market[SM] on June 29, 2019.

As of February 18, 2020, the registrant had outstanding 24,425,955 shares of Common Stock, net of Treasury Shares.

**DOCUMENTS INCORPORATED BY REFERENCE**

Portions of the Littelfuse, Inc. Proxy Statement for the 2020 Annual Meeting of Stockholders (the "Proxy Statement") are incorporated by reference into Part III of this Form 10-K.

## TABLE OF CONTENTS

## FORWARD-LOOKING STATEMENTS

Certain statements contained in this Annual Report on Form 10-K that are not historical facts are intended to constitute "forward-looking statements" entitled to the safe-harbor provisions of the Private Securities Litigation Reform Act of 1995 ("PSRLA"). These statements may involve risks and uncertainties, including, but not limited to, risks relating to product demand and market acceptance; economic conditions; the impact of competitive products and pricing; product quality problems or product recalls; capacity and supply difficulties or constraints; coal mining exposures reserves; failure of an indemnification for environmental liability; exchange rate fluctuations; commodity price fluctuations; the effect of the company's accounting policies; labor disputes; restructuring costs in excess of expectations; pension plan asset returns less than assumed; uncertainties related to political and regulatory changes; integration of acquisitions may not be achieved in a timely manner, or at all; and other risks that may be detailed in "Item 1A. *Risk Factors*" below and in the Company's other Securities and Exchange Commission filings.

## AVAILABLE INFORMATION

The Company is subject to the reporting and information requirements of the Securities Exchange Act of 1934, as amended and as a result, are obligated to file annual, quarterly, and current reports, proxy statements, and other information with the United States Securities and Exchange Commission ("SEC"). The Company makes these filings available free of charge on its website (http://investor.littelfuse.com) as soon as reasonably practicable after it electronically files them with, or furnish them to, the SEC. Information on the Company's website does not constitute part of this Annual Report on Form 10-K. In addition, the SEC maintains a website (http://www.sec.gov) that contains the Company's annual, quarterly, and current reports, proxy and information statements, and other information the Company electronically files with, or furnishes to, the SEC. The Company's website and the information contained therein or connected thereto are not incorporated into this Annual Report on Form 10-K.

## PART I

## ITEM 1. BUSINESS.

### GENERAL

Littelfuse, Inc., was incorporated under the laws of the State of Delaware in 1991. References herein to the "Company," "we," "our" or "Littelfuse" refer to Littelfuse, Inc. and its subsidiaries. References herein to "2019", "fiscal 2019" or "fiscal year 2019" refer to the fiscal year ended December 28, 2019. References herein to "2018", "fiscal 2018" or "fiscal year 2018" refer to the fiscal year ended December 29, 2018. References herein to "2017", "fiscal 2017" or "fiscal year 2017" refer to the fiscal year ended December 30, 2017. The Company operates on a 52-53 week fiscal year (4-4-5 basis) ending on the Saturday closest to December 31.

### OVERVIEW

Founded in 1927, Littelfuse is a global manufacturer of leading technologies in circuit protection, power control and sensing. Serving over 100,000 end customers, the Company's products are found in automotive and commercial vehicles, industrial applications, data and telecommunications, medical devices, consumer electronics and appliances. With its broad product portfolio of fuses, semiconductors, polymers, ceramics, relays and sensors, and extensive global infrastructure, the Company's worldwide associates partner with its customers to design, manufacture and deliver innovative, high-quality solutions for a safer, greener and increasingly connected world.

#### *Segments*

The Company conducts its business through three reportable segments: Electronics, Automotive, and Industrial. Within these segments, the Company designs, manufactures and sells components and modules for circuit protection, power control and sensing products throughout the world. The circuit protection products protect against electrostatic discharge, power surges, short circuits, voltage spikes and other harmful occurrences; our power control products safely and efficiently control power and improve productivity and our sensor products are used to identify and detect temperature, proximity, flow speed and fluid level in various applications. For segment and geographical information and consolidated net sales and operating income see Item 7, *Management's Discussion and Analysis of Financial Condition and Results of Operations* and Note 16, *Segment Information,* of the Notes to Consolidated Financial Statements included in this Annual Report.

- *Electronics Segment*: Consists of one of the broadest product offerings in the industry, including fuses and fuse accessories, positive temperature coefficient ("PTC") resettable fuses, solid state relays, polymer electrostatic discharge ("ESD") suppressors, varistors, positions and fluid sensors, temperature sensors, reed switch based magnetic sensing, gas discharge tubes; semiconductor products such as discrete transient voltage suppressor ("TVS") diodes, TVS diode arrays, protection and switching thyristors, metal-oxide-semiconductor field-effect transistors ("MOSFETs"), integrated circuits, silicon carbide diodes; and insulated gate bipolar transistors ("IGBT") technologies. The segment covers a broad range of end markets, including industrial and automotive electronics, electric vehicle and related infrastructure, data and telecommunications, medical devices, alternative energy, consumer electronics and white goods.

- *Automotive Segment:* Consists of a wide range of circuit protection, power control and sensing technologies for global original equipment manufacturers ("OEMs"), Tier-I suppliers and parts distributors in passenger car, heavy duty truck, off-road vehicles, material handling, agricultural, construction and other commercial vehicle end markets. Passenger car fuse products include fuses and fuse accessories for internal combustion engine vehicles and hybrid and electric vehicles including blade fuses, battery cable protectors, resettable fuses, high-current fuses, and high-voltage fuses. Commercial vehicle products include fuses and fuse holders, switches, high power relays, and power distribution modules for the commercial vehicle industry. Automotive sensor products include a wide range of automotive and commercial vehicle products designed to monitor passenger occupants, including comfort and convenience sensors, safety and environment as well as applications in the vehicle's powertrain.

- *Industrial Segment:* Consists of power fuses and holders, protection relays and controls and other circuit protection products for use in various industrial applications such as oil, gas, mining, alternative energy, electric vehicle infrastructure, non-residential construction, HVAC systems, elevators and other industrial equipment.

***Strategy***

In December 2016, the Company announced its five-year strategic plan. Building upon its achievements from its previous five-year plan and leveraging the global mega trends of safety, resource efficiency and connectivity, the Company is targeting an average annual accelerated organic growth of 5-7 percent and growth from strategic acquisitions of 5-7 percent. The Company's strategic goals include growing its circuit protection, power control and sensor platforms. The Company expects to do this through content and share gains, targeting underpenetrated geographies and high-growth niche applications, leveraging investments in its people, innovations and operating systems, and capitalizing on growth opportunities where technologies and applications are converging across its segments, while continuing to acquire and integrate businesses that fit its strategic focus areas.

***Recent Acquisitions***

- *IXYS Corporation:* On January 17, 2018, the Company acquired IXYS corporation ("IXYS"), a global pioneer in the power semiconductor and integrated circuit markets with a focus on medium to high voltage power semiconductors across the industrial, communications, consumer and medical markets. IXYS had a broad customer base, serving more than 3,500 customers through its direct sales force and global distribution partners. The purchase price for IXYS was $856.5 million, which included consideration of cash, Littelfuse common stock, and the value of converted, or cash settled IXYS equity awards. The operations of IXYS are included in the Electronics segment.

- *U.S. Sensor:* On July 7, 2017, the Company acquired the assets of U.S. Sensor Corporation ("U.S. Sensor") for $24.3 million. U.S. Sensor manufactures a variety of high quality negative temperature coefficient thermistor probes and assemblies. The acquisition expands the Company's existing sensor portfolio in several key electronics and industrial end markets. The operations of U.S. Sensor are included in the Electronics segment.

- *Monolith Semiconductor Inc.*: On February 28, 2017, pursuant to a Securities Purchase Agreement between the Company and the stockholders of Monolith Semiconductor Inc. ("Monolith"), a U.S. start-up Company developing silicon carbide technology, the Company increased its investment in Monolith by acquiring approximately 62% of the outstanding common stock of Monolith for $15.0 million. During 2018, the Company acquired the remaining outstanding stock of Monolith for $9.0 million based on Monolith meeting certain technical and sales targets, and now owns 100% of Monolith. The operations of Monolith are included in the Electronics segment.

- *ON Portfolio:* On August 29, 2016, the Company acquired certain assets of select businesses (the "ON Portfolio") of ON Semiconductor Corporation for $104.0 million. The acquired business, which is included in the Electronics segment, consists of a product portfolio that includes transient voltage suppression ("TVS") diodes, switching thyristors, and IGBTs for automotive ignition applications. The acquisition expands the Company's offerings in power semiconductor applications as well as increases its presence in the automotive electronics market. The ON Portfolio products have strong synergies with the Company's existing circuit protection business, will strengthen its channel partnerships and customer engagement, and expand its power semiconductor portfolio.

- *Menber's:* On April 4, 2016, the Company completed the acquisition of Menber's S.p.A. ("Menber's") headquartered in Legnago, Italy for $19.2 million (net of cash acquired and after settlement of a working capital adjustment). The acquired business is part of the Company's commercial vehicle product business within the Automotive segment and specializes in the design, manufacturing, and selling of manual and electrical high current switches and trailer connectors for commercial vehicles. The transaction expands the Company's commercial vehicle products business globally.

- *PolySwitch:* On March 25, 2016, the Company acquired 100% of the circuit protection business ("PolySwitch") of TE Connectivity Ltd. for $348.3 million (net of cash acquired and after settlement of certain post-closing adjustments). The PolySwitch business, which is split between the Automotive and Electronics segments, has a leading position in polymer based resettable circuit protection devices, with a strong global presence in the automotive, battery, industrial, communications and mobile computing markets. PolySwitch has manufacturing facilities in Shanghai and Kunshan, China, and Tsukuba, Japan. The acquisition allows the Company to strengthen its global circuit protection product portfolio, as well as expands its presence in the automotive electronics and battery protection end markets. The acquisition also significantly increases the Company's presence in Japan.

***Sales and Operations***

The Company operates in three geographic regions: Asia-Pacific, the Americas, and Europe. The Company manufactures products and sells to customers in all three regions.

Net sales by segment for the periods indicated are as follows:

| | Fiscal Year | | |
|---|---|---|---|
| **(in millions)** | **2019** | **2018** | **2017** |
| Electronics | $ 961.1 | $ 1,124.3 | $ 661.9 |
| Automotive | 428.5 | 479.8 | 453.2 |
| Industrial | 114.3 | 114.4 | 106.4 |
| Total | $ 1,503.9 | $ 1,718.5 | $ 1,221.5 |

Net sales in the Company's three geographic regions, based upon the shipped-to destination, are as follows:

| | Fiscal Year | | |
|---|---|---|---|
| **(in millions)** | **2019** | **2018** | **2017** |
| Asia-Pacific | $ 656.8 | $ 753.3 | $ 541.1 |
| Americas | 508.4 | 578.6 | 436.5 |
| Europe | 338.7 | 386.6 | 243.9 |
| Total | $ 1,503.9 | $ 1,718.5 | $ 1,221.5 |

The Company's products are sold worldwide through distributors, a direct sales force and manufacturers' representatives in certain regions. For the fiscal year 2019, approximately 71% of the Company's net sales were to customers outside the United States ("U.S."), including approximately 28% to China.

The Company manufactures many of its products on fully integrated manufacturing and assembly equipment. The Company maintains product quality through a Global Quality Management System with most manufacturing sites certified under ISO 9001:2000. In addition, several of the Littelfuse manufacturing sites are also certified under IATF 16949 and ISO 14001.

Additional information regarding the Company's sales by geographic area and long-lived assets in different geographic areas is in Note 16, *Segment Information,* of the Notes to Consolidated Financial Statements included in this Annual Report.

## BUSINESS ENVIRONMENT

### *Electronics Segment*

The Company designs, develops and manufactures a wide range of components and modules that provide circuit protection, power control and sensing for a multitude of electronic, transportation and industrial applications. Circuit protection technologies in the Electronics Segment are designed to protect against harmful occurrences like voltage spikes, short circuits, power surges and electrostatic discharge. Products include fuses and fuse accessories, PTC resettable fuses, ESD suppressors, varistors, gas discharge tubes, semiconductor products such as discrete TVS diodes, TVS diode arrays, protection and switching thyristors, integrated circuits, and silicon carbide diodes.

The Company also offers a wide range of power control products used to convert and regulate energy and safely and efficiently control power across a broad spectrum of industrial applications like renewable energy and storage, motor drives and power conversion. Products include a comprehensive portfolio of semiconductor components and modules including thyristors, rectifiers and fast recovery diodes, IGBTs and wide band gap devices. The acquisition of IXYS helped the Company expand its power semiconductor portfolio in medium and high-power applications and technology expertise. The Company expects to continue to diversify and expand its presence within industrial electronics markets, leveraging the strong IXYS industrial OEM customer base.

As products become increasingly sophisticated, smarter and more connected, the need for complex sensor technologies continues to grow. Sensor products in the Electronics Segment are used in a wide variety of applications including white goods, building and home automation, industrial controls, and commercial vehicles.

### *Automotive Segment*

The Company is a primary supplier of fuses and circuit protection technologies to global automotive OEMs, through sales made to Tier One automotive suppliers, main-fuse box, and wire harness manufacturers that incorporate the fuses into their products, as well as automotive component parts manufacturers, and automotive parts distributors. The Company also sells its fuses in the replacement parts market, with its products being sold through merchandisers, discount stores, and service stations, as well as under private label by national firms.

Circuit protection needs in the automotive space are expected to generate additional content-per-vehicle exceeding global auto production, with the continued electronification of vehicles, as well as market growth, development, and penetration of hybrid and electric vehicles.

The Company also continues to focus on its automotive sensor business and products. Products include a wide range of automotive and commercial vehicle products designed to monitor passenger occupants, including comfort and convenience sensors, safety and environment as well as applications in the vehicle's powertrain.

The Company has expanded the Automotive segment into the commercial vehicle end markets through various acquisitions, as well as internal product development. Additional products in this market include: power distribution modules, low and high current switches, relays, battery management products, ignition key switches, and trailer connectors. Products are sold directly to a mix of OEMs, Tier One suppliers, aftermarket channels, as well as through general distribution.

### *Industrial Segment*

The Company designs and sells a broad range of power fuses and holders, protection relays and controls and other circuit protection products for use in various industrial applications such as oil and gas, mining, alternative energy, electric vehicle and related infrastructure, non-residential construction, HVAC systems, elevators and other industrial equipment. These products are used to protect personnel and equipment from excessive currents, over voltages, and electrical shock hazards.

Products are sold through electrical distributors, electronics channel partnerships and directly to OEM's. The Company sees growth opportunities through expanding the end markets and geographies it serves and growing its sales through electronics channel partnerships, and continuing to invest in new product development.

## PRODUCT DESIGN AND DEVELOPMENT

The Company employs scientific, engineering, and other personnel to continually improve its existing product lines and to develop new products at its research, product design, and development ("R&D") and engineering facilities with primary locations in China, Germany, Italy, Japan, Lithuania, Mexico, Philippines, Taiwan(China), United Kingdom, and the U.S. The Company maintains a staff of engineers, chemists, material scientists and technicians whose primary responsibility is to design and develop new products.

Proposals for the development of new products are initiated primarily by sales, marketing, and product management personnel with input from customers. The entire product development process usually ranges from a few months to a few years based on the complexity of development, with continuous efforts to reduce the development cycle. During fiscal years 2019, 2018, and 2017, the Company expended $80.5 million, $87.3 million, and $50.5 million, respectively, on R&D.

## PATENTS, TRADEMARKS, AND OTHER INTELLECTUAL PROPERTY

The Company generally relies on patents, trademarks, licenses, and nondisclosure agreements to protect its intellectual property and proprietary products. In cases where it is deemed necessary by management, key employees are required to sign an agreement that they will maintain the confidentiality of the Company's proprietary information and trade secrets.

The Company owns a large portfolio of patents worldwide and new products are continually being developed to replace older products. The Company regularly applies for patent protection on such new products. While, in the aggregate, the Company's patents are important in the operation of its businesses, the Company believes that the loss by expiration or otherwise of any one patent or group of patents would not materially affect its business.

## MANUFACTURING

The Company's manufacturing facilities are in China, Germany, Italy, Japan, Lithuania, Mexico, Philippines, Portugal, the United Kingdom, and the United States. The Company performs the majority of its own fabrication and maintains in-house capabilities for metal stamping, surface mount assembly, plating (silver, nickel, zinc, and oxides) and thermoplastic molding. In addition, the Company fabricates semiconductor wafers for certain applications and maintains in-house capability for epitaxy fabrication, die attach, and wafer probe testing. After sub-components are readied for assembly, final assembly is accomplished on fully automatic and semi-automatic assembly machines. Quality assurance and operations personnel, using techniques such as statistical process control, perform tests, checks and measurements during the production process to maintain the highest levels of product quality, including safety and reliability, and customer satisfaction. Additionally, the Company utilizes external wafer foundries and subcontracted test and assembly facilities for a portion of its semiconductor business.

The principal raw materials for the Company's products include copper and copper alloys, heat-resistant plastics, zinc, melamine, glass, silver, gold, raw silicon, solder, and various gases. The Company uses a single source for several heat-resistant plastics and for zinc but has specifically identified capable alternative heat-resistant plastics and zinc sources. All other raw materials are purchased from a number of readily available outside sources.

## MARKETING

The Company goes to market through a worldwide selling organization consisting of direct sales personnel, distribution partners and manufacturers' representatives. The direct sales force closely works with global OEM, Tier One automotive, consulting engineers, and major end customers to design-in and sell the Company's circuit protection, power control and sensing products. The distributors provide fulfillment for a majority of customers including those partnered with electronic manufacturing services ("EMS"). The direct sales force is supplemented with manufacturers' representatives. The Company has sales offices and direct sales channels in all major regions of the world.

### *Electronics Segment*

Most Electronics segment products are sold through broad line distribution partners, including global distributors such as Arrow Electronics, Inc., Future Electronics and TTI, Inc, and regional and high service distributors, including Digi-Key and Mouser, as well as directly to OEM's. Many of our products are incorporated into applications with complex design technical support requirements. These may be sold through our direct salesforce and fulfilled through our distribution partners.

***Automotive Segment***

The Company primarily uses a direct sales force to service all of the major automotive and commercial vehicle OEMs, system suppliers, and Tier One automotive and aftermarket customers globally.

The Company also leverages its automotive customer relationships to sell products from the Electronics segment into automotive end markets, primarily to Tier One automotive customers. These revenues are reported in the Electronics segment.

***Industrial Segment***

The Company markets and sells its power fuses and protection relays through manufacturers' representatives, and industrial and electrical distributors, primarily across North America and through a worldwide direct sales force & electronics channels. The electrical and industrial distribution network includes electrical contractors, municipalities, utilities and factories.

## CUSTOMERS

The Company directly sells to nearly 6,400 customers and distributors worldwide. Sales to Arrow Electronics, Inc., which were reported in our Electronics, Automotive and Industrial segments, were 10.7%, 10.7% and 10.6% of consolidated net sales in 2019, 2018, and 2017, respectively. No other single customer accounted for more than 10% of net sales during any of the last three years. During fiscal 2019, 2018, and 2017, net sales to customers outside the U.S. accounted for approximately 71%, 70%, and 69%, respectively, of the Company's total net sales.

## COMPETITION

The Company's products compete with similar products of other manufacturers, some of which may have substantially greater financial resources than the Company. In the Electronics segment, the Company's competitors include Eaton Corporation, Bel Fuse Inc., Bourns Inc., EPCOS, ON Semiconductor Corporation, Infineon Technologies, STMicroelectronics NV, Semtech Corporation, and Vishay Intertechnology Inc. In the Automotive segment, the Company's competitors include Eaton Corporation, Pacific Engineering, MTA, CTS Corporation, Amphenol Corporation, Sensata Technologies Holding NV, and TE Connectivity Ltd. In the Industrial segment, the Company's major competitors include Eaton Corporation, GE Multilin, and Mersen. The Company believes that it globally competes on the basis of innovative products, the breadth of its product line, the quality, design and performance of its products based on their reliability, consistency and safety, its technical capabilities and application expertise, and the responsiveness of its customer service.

## BACKLOG

The backlog of unfilled orders at December 28, 2019 was approximately \$477.6 million, compared to \$405.7 million at December 29, 2018 with the increase primarily driven by the Electronics segment, partially offset by a decrease from the Automotive segment. Substantially all the orders currently in backlog are scheduled for delivery in 2020.

## EMPLOYEES

As of December 28, 2019, the Company employed approximately 11,300 employees worldwide. Approximately 20% of the Company's total workforce was employed under collective bargaining agreements at December 28, 2019. In Mexico, the Company has two separate collective bargaining agreements, one for 1,758 employees in Piedras Negras, expiring January 31, 2022 and the second for 600 employees in Matamoros, expiring January 1, 2022. In Germany, the Company has collective bargaining agreements with approximately 375 employees in Lampertheim and Essen, expiring March 31, 2020. In the United Kingdom, the Company has a collective bargaining agreement with some of the employees in Chippenham. Overall, the Company has historically maintained satisfactory employee relations and considers employee relations to be good.

## ENVIRONMENTAL REGULATION

The Company is subject to numerous foreign, federal, state, and local regulations relating to air and water quality, the disposal of hazardous waste materials, safety and health. Compliance with applicable environmental regulations has not significantly changed the Company's competitive position, capital spending or earnings in the past and the Company does not presently anticipate that compliance with such regulations will change its competitive position, capital spending or earnings for the foreseeable future.

The Company believes that it is currently in compliance in all material respects with applicable environmental laws and regulations.

Littelfuse GmbH, which was acquired by the Company in May 2004, is responsible for maintaining closed coal mines in Germany from legacy operations. The Company is compliant with German regulations pertaining to the maintenance of the mines and has an accrual related to certain of these coal mine shafts based on an engineering study estimating the cost of remediating the dangers (such as a shaft collapse) of certain of these closed coal mine shafts in Germany. The accrual is reviewed annually and calculated based upon the estimated costs of remediating the shafts. Further information regarding the coal mine liability accrual is provided in Note 1, *Summary of Significant Accounting Policies and Other Information,* of the Notes to Consolidated Financial Statements included in this Annual Report.

**ITEM 1A. RISK FACTORS.**

The Company's business, financial condition, and results of operations are subject to various risks and uncertainties, including the risk factors it has identified below. Any of the following risk factors could materially and adversely affect the Company's business, financial condition, or results of operations. These factors are not necessarily listed in order of importance.

***1) Operational Risks:***

***The Company's industry is subject to intense competitive pressures.***

The Company operates in markets that are highly competitive. The Company competes on the basis of price, product performance and quality, service, and / or brand name across the industries and markets it serves. Competitive pressures could affect the prices the Company is able to charge its customers or demand for its products.

The Company may not always be able to compete on price, particularly when compared to manufacturers with lower cost structures. Some of the Company's competitors have substantially greater sales, financial and manufacturing resources and may have greater access to capital than the Company. As other companies enter its markets or develop new products, competition may further intensify. The Company's failure to compete effectively could materially adversely affect its business, financial condition, and results of operations.

***The Company engages in strategic acquisitions and may not realize the anticipated benefits of the acquisitions and / or may encounter difficulties in integrating these businesses.***

The Company seeks to grow through strategic acquisitions. In the past, the Company has acquired a number of businesses or companies and additional product lines and assets. The Company intends to continue to expand and diversify its operations with additional future acquisitions.

An acquired business, technology, service or product could under-perform relative to the Company's expectations and the price paid for it, or not perform in accordance with the Company's anticipated timetable. This could cause the Company's financial results to differ from expectations in any given fiscal period, or over the long term. The success of these transactions also depends on the Company's ability to integrate the assets, operations, and personnel associated with these acquisitions. The Company may encounter difficulties in integrating acquisitions with the Company's operations and may not realize the degree or timing of the benefits that are anticipated from an acquisition.

The Company may also discover liabilities or deficiencies associated with the companies or assets it acquires that were not identified in advance, which may result in significant unanticipated costs. The effectiveness of the Company's due diligence review and its ability to evaluate the results of such due diligence are dependent upon the accuracy and completeness of statements and disclosures made or actions taken by the companies acquired or their representatives, as well as the limited amount of time in which acquisitions are executed. In addition, the Company may fail to accurately forecast the financial impact of an acquisition transaction, including tax and accounting charges. Acquisitions may also result in recording of significant additional expenses to the results of operations and recording of substantial intangible assets on the balance sheet upon closing. Any of these factors may adversely affect the Company's financial condition and results of operations.

***Disruptions in the Company's manufacturing, supply or distribution chain could result in an adverse impact on results of operations.***

The Company sources materials and sells product through various international network channels. A disruption could occur within the Company's manufacturing, distribution or supply chain network. This could include damage or destruction due to various causes including natural disasters or political instability which would cause one or more of these network channels to become non-operational. This could adversely affect the Company's ability to manufacture or deliver its products in a timely manner, impair its ability to meet customer demand for products and result in lost sales or damage to its reputation. Such a disruption could have a material adverse effect on the Company's business, financial condition and results of operations.

***The Company may be unable to manufacture and deliver products in a manner that is responsive to its customers' needs.***

The end markets for the Company's products are characterized by technological change, frequent new product introductions and enhancements, changes in customer requirements and emerging industry standards. The introduction of products embodying new technologies and the emergence of new industry standards could render its existing products obsolete and unmarketable before it can recover any or all of its research, development, and commercialization expenses on capital investments. Furthermore, the life cycles of its products may change and are difficult to estimate.

The Company's future success will depend upon its ability to manufacture and deliver products in a manner that is responsive to its customers' needs. The Company will need to develop and introduce new products and product enhancements on a timely basis that keep pace with technological developments and emerging industry standards and address increasingly sophisticated requirements of its customers. The Company invests heavily in research and development without knowing that it will recover these costs. The Company's competitors may develop products or technologies that will render its products non-competitive or obsolete. If it cannot develop and market new products or product enhancements in a timely and cost-effective manner, its business, financial condition and results of operations could be materially adversely affected.

***The Company's business may be interrupted by labor disputes or other interruptions of supplies.***

A work stoppage could occur at certain Company facilities, most likely as a result of disputes under collective bargaining agreements or in connection with negotiations of new collective bargaining agreements. In addition, the Company may experience a shortage of supplies for various reasons, such as financial distress, work stoppages, natural disasters, or production difficulties that may affect one of its suppliers. A significant work stoppage, or an interruption or shortage of supplies for any reason, if protracted, could substantially adversely affect the Company's business, financial condition and results of operations. The transfer of the Company's manufacturing operations and changes in its distribution model could disrupt operations for a limited time.

***Failure to attract and retain qualified personnel could affect the Company's business results.***

The Company's success, both generally and in connection with mergers and acquisitions, depends on the Company's ability to attract, retain, and motivate a highly-skilled and diverse management team and workforce. Failure to ensure that the Company has the depth and breadth of personnel with the necessary skill set and experience could impede its ability to deliver growth objectives and execute the Company's strategy. Competition for qualified employees among companies that rely heavily upon engineering and technology is at times intense, and the loss of qualified employees could hinder the Company's ability to conduct research activities successfully and develop marketable products.

***The Company may not be successful protecting its intellectual property.***

The Company considers its intellectual property, including patents, trade names, and trademarks, to be of significant value to its business as a whole. The Company's products are manufactured, marketed, and sold under a portfolio of patents, trademarks, licenses, and other forms of intellectual property, some of which expire or are allowed to lapse at various dates in the future. The Company develops and acquires new intellectual property on an ongoing basis and considers all of its intellectual property to be valuable. The Company's policy is to file applications and obtain patents for the great majority of its novel and innovative new products including product modifications and improvements. Based on the broad scope of its product lines, the Company believes that the loss or expiration of any single intellectual property right would not have a material adverse effect upon its consolidated results of operations, financial position and cash flows; however, multiple losses or expirations could have a material adverse effect upon the Company's consolidated results of operations, financial position and cash flows.

***<u>2) Regulatory Risks:</u>***

***Changes in U.S. and other countries trade policy, including the imposition of tariffs and the resulting consequences, may have a material adverse impact on our business and results of operations.***

The U.S. government has adopted a new approach to trade policy and in some cases to renegotiate, or potentially terminate, certain existing bilateral or multi-lateral trade agreements. It has also imposed tariffs on certain foreign goods and products. These measures may materially increase costs for goods imported into the United States. This in turn could require us to materially increase prices to our customers which may reduce demand, or, if we do not or are unable to increase prices, could result in lower margins on products sold. Changes in U.S. trade policy have resulted in, and could result in more, U.S. trading partners adopting responsive trade policies making it more difficult or costly for us to export our products to those countries. Additionally, continued geo-political issues may result in customers in China seeking to source products from local suppliers, which could result in lower sales or lost customers.

***The Company is exposed to political, economic, and other risks that arise from operating a multinational business.***

The Company's customers, suppliers, employees and operations are located in numerous countries around the world, and contribute significantly to its revenues and earnings. Sales to customers outside the U.S. constituted approximately 71% of the Company's net sales in fiscal 2019. Many of the Company's key customers are located outside of U.S. and maintain global operations. Serving a global customer base and remaining competitive in the global marketplace requires the Company to diversify its operations outside the U.S. to capitalize on customer and market opportunities, build a global workforce and maintain a cost efficient structure. In addition, the Company sources a significant amount of raw materials, components and finished goods from third-party suppliers and contract manufacturers. The Company's operating activities are subject to a number of risks generally associated with multi-national operations, including risks relating to the following:

- general economic conditions;
- currency fluctuations and exchange restrictions;
- import and export duties and restrictions;
- the imposition of tariffs and other import or export barriers;
- compliance with regulations governing import and export activities;
- current and changing regulatory requirements;
- political and economic instability;
- potentially adverse income tax consequences;
- transportation delays and interruptions;
- labor unrest;
- natural disasters;
- terrorist activities;
- public health concerns, including the recent outbreak of the coronavirus impacting China and elsewhere;
- difficulties in staffing and managing multi-national operations; and
- limitations on the Company's ability to enforce legal rights and remedies.

More recently, the coronavirus outbreak originating from China at the beginning of 2020 has resulted in extended shutdowns of numerous business activities in the region and supply chain disruptions, which has impacted the sales, production and shipment of products in and out of its borders. These shutdowns and disruptions have impacted the Company's manufacturing and supply chain operations, as well as those of its suppliers, contract manufacturers and customers. As new developments continue to arise, the Company is not yet able to fully ascertain the impact on its sales, manufacturing, supply chain and operations to its business and financial results, both inside and outside of China. Health concerns in China or other countries in which the Company or the Company's suppliers, contract manufacturers and customers operate could result in social, economic, and labor instability.

Any of these factors could have a material adverse effect on the Company's consolidated results of operations, financial position and cash flows.

***Environmental liabilities could adversely impact the Company's financial position.***

Foreign, federal, state and local laws and regulations impose various restrictions and controls on the discharge of materials, chemicals and gases used in the Company's manufacturing processes or in its finished goods. These environmental regulations have required the Company to expend a portion of its resources and capital on relevant compliance programs. Under these laws and regulations, the Company could be held financially responsible for remedial measures if its current or former properties are contaminated or if it sends waste to a landfill or recycling facility that becomes contaminated, even if the Company did not cause the contamination. The Company may be subject to additional common law claims if it releases substances that damage or harm third parties. In addition, future changes in environmental laws or regulations may require additional investments in capital equipment or the implementation of additional compliance programs. Any failure to comply with new or existing environmental laws or regulations could subject the Company to significant liabilities and could have a material adverse effect on its consolidated results of operations, financial position and cash flows.

In the conduct of manufacturing operations, the Company has handled and does handle materials that are considered hazardous, toxic or volatile under federal, state, and local laws. The risk of accidental release of such materials cannot be completely eliminated. In addition, the Company operates or owns facilities located on or near real property that was formerly owned and operated by others. Certain of these properties were used in ways that involved hazardous materials. Contaminants may migrate from, within or through these properties. These releases or migrations may give rise to claims. Where third parties are responsible for contamination, the third parties may not have funds, or not make funds available when needed, to pay remediation costs imposed upon the Company under environmental laws and regulations.

The Company is responsible for the maintenance of discontinued coal mining operations in Germany. The risk of environmental remediation exists, and the Company is in the process of remediating the mines considered to be the most at risk.

### ***3) Financial Risks:***

***Reorganization activities may lead to additional costs and material adverse effects.***

In the past, the Company has taken actions to restructure and optimize its production and manufacturing capabilities and efficiencies through relocations, consolidations, plant closings or asset sales. In the future, the Company may take additional restructuring actions including the consolidating, closing or selling of additional facilities. These actions could result in impairment charges and various charges for such items as idle capacity, disposition costs and severance costs, in addition to normal or attendant risks and uncertainties. The Company may be unsuccessful in any of its current or future efforts to restructure or consolidate its business. Plans to minimize or eliminate any loss of revenues during restructuring or consolidation may not be achieved. These activities may have a material adverse effect upon the Company's business, financial condition and results of operations.

***The Company's ability to manage currency or commodity price fluctuations or supply shortages is limited.***

As a resource-intensive manufacturing operation, the Company is exposed to a variety of market and asset risks, including the effects of changes in commodity prices, foreign currency exchange rates, and interest rates. The Company has multiple sources of supply for the majority of its commodity requirements. However, significant shortages that disrupt the supply of raw materials or result in price increases could affect prices the Company charges its customers, its product costs, and the competitive position of its products and services. The Company monitors and manages these exposures as an integral part of its overall risk management program, which recognizes the unpredictability of markets and seeks to reduce the potentially adverse effects on its results. Nevertheless, changes in currency exchange rates, commodity prices and interest rates cannot always be predicted. In addition, because of intense price competition and the Company's high level of fixed costs, it may not be able to address such changes even if they are foreseeable. Substantial changes in these rates and prices could have a material adverse effect on the Company's results of operations and financial condition. In addition, significant portions of its revenues and earnings are exposed to changes in foreign currency rates. As it operates in multiple foreign currencies, changes in those currencies relative to the U.S. dollar will impact its revenues and expenses. The impact of possible currency devaluation in countries experiencing high inflation rates or significant exchange fluctuations can impact the Company's results and financial guidance. For additional discussion of interest rate, currency or commodity price risk, see Item 7A, *Quantitative and Qualitative Disclosures about Market Risk*.

***The Company's effective tax rate could materially increase as a consequence of various factors, including interpretations and administrative guidance in regard to the Tax Act (defined below), U.S. and/or international tax legislation, mix of the Company's earnings by jurisdiction, and U.S. and non-U.S. jurisdictional tax audits.***

On December 22, 2017, the U.S. enacted legislation commonly referred to as the Tax Cuts and Jobs Act (the "Tax Act"). Although certain administrative guidance has been issued, the appropriate application of many provisions of the Tax Act remain uncertain. As discussed more fully in Note 14, *Income Taxes*, of the Notes to Consolidated Financial Statements included in this Annual Report, adjustments to income tax expense may be necessary in future periods if provisions of the Tax Act, and their interaction with other provisions of the U.S. Internal Revenue Code, are interpreted differently than interpretations made by the Company, whether through issuance of additional administrative guidance, or through further review of the Tax Act by the Company and its advisors. Such adjustments could have a material adverse effect on the Company's future effective tax rate and cash flows.

The Company is subject to taxes in the U.S. and numerous non-U.S. jurisdictions. Therefore, it is subject to changes in tax laws in each of these jurisdictions. Certain European jurisdictions, including Germany and the Netherlands, have enacted or will enact tax legislation based upon directives from the European Union. Such legislation could potentially deny tax deductions for certain expenses and/or subject to tax the income earned in certain low tax jurisdictions. Although the Company believes such legislation will not adversely impact its future effective tax rate, there can be no assurance that its analysis, based upon the currently available information, is correct. The Company's income tax rate in certain non-U.S. jurisdictions, including the Philippines, is substantially lower than the U.S. statutory tax rate. Legislative proposals have been made from time to time to reduce these tax benefits, in some cases with the tax increase phased in over a multi-year transition period. The Philippines is currently contemplating such legislation which could adversely impact the Company's future effective tax rate. The outcome of these and other legislative developments, including changes to interpretations of recently enacted legislation, could have a material adverse effect on the Company's future effective tax rate and cash flows.

The Organization for Economic Co-operation and Development is working with a group of more than 100 countries to seek agreement to modify the international tax system before the end of 2020 to address the influence of the digital economy. This effort could result in a significant change to the tax treatment of multinationals, subjecting them to tax in additional jurisdictions, modifying the methods by which they allocate profits among jurisdictions, and subjecting them to a global or country by country minimum level of tax. The outcome of this effort could have a material adverse effect on the Company's effective tax rate and cash flows.

The Company has three subsidiaries in China which benefit from lower tax rates due to "tax holidays" which apply for three-year periods, subject to extension. The tax holiday for two of these subsidiaries expired at the end of 2019 (one will seek an extension and the tax holiday benefits for the other is not material). The tax holiday for the third subsidiary will expire the end of 2020 and it will seek an extension. There can be no assurance that such extensions will be granted.

The tax rates applicable in the jurisdictions within which the Company operates vary widely. Therefore, the Company's effective tax rate may be adversely affected by changes in the mix of its earnings by jurisdiction.

The Company's tax returns are subject to examination by various U.S. and non-U.S. tax authorities, including the U.S. Internal Revenue Service. The Company regularly assesses the likelihood of an adverse outcome resulting from these examinations to determine the adequacy of its provision for income taxes. However, there can be no assurance as to the outcome of these examinations.

***A decline in expected profitability of the Company or individual reporting units of the Company could result in the impairment of assets, including goodwill and other long-lived assets.***

The Company holds material amounts of goodwill and other long-lived assets on its balance sheet. A decline in expected profitability, particularly if there is a decline in the global economy, could call into question the recoverability of the Company's related goodwill and other long-lived tangible and intangible assets and require the write-down or write-off of these assets. Such an occurrence could have a material adverse effect on the Company's consolidated results of operations, financial position and cash flows.

***A significant fluctuation between the U.S. dollar and other currencies could adversely impact the Company's revenue and earnings.***

Although the Company's financial results are reported in U.S. dollars, the majority of the Company's operations consist of manufacturing and sales activities in foreign countries. The Company's most significant net long exposure is to the euro. The Company's most significant net short exposures are to the Chinese renminbi, Mexican peso, and Philippine peso. Changes in foreign exchange rates could have an adverse effect on the Company's results of operations, financial position and cash flows.

***The Company's revenues may vary significantly from period to period.***

The Company's revenues may vary significantly from one period to another due to a variety of factors including:

- changes in customers' buying decisions;
- changes in demand for its products;
- changes in its distributor inventory stocking;
- the Company's product mix;
- the Company's effectiveness in managing manufacturing processes;
- costs and timing of its component purchases;
- the effectiveness of its inventory control;
- the degree to which it is able to utilize its available manufacturing capacity;
- the Company's ability to meet delivery schedules;
- general economic and industry conditions;
- local conditions and events that may affect its production volumes, such as labor conditions and political instability; and
- seasonality of certain product lines.

***The bankruptcy or insolvency of a major customer could adversely affect the Company.***

The bankruptcy or insolvency of a major customer could result in lower sales revenue and cause a material adverse effect on the Company's consolidated results of operations, financial position and cash flows. In addition, the bankruptcy or insolvency of a major auto manufacturer or significant supplier likely could lead to substantial disruptions in the automotive supply base, resulting in lower demand for the Company's products, which would likely cause a decrease in sales revenue and have a substantial adverse impact on the Company's consolidated results of operations, financial position and cash flows.

***The inability to maintain access to capital markets may adversely affect the Company's business and financial results.***

The Company's ability to invest in its businesses, make strategic acquisitions, and refinance maturing debt obligations may require access to the capital markets and sufficient bank credit lines to support short-term borrowings. If the Company is unable to access the capital markets or bank credit facilities, it could experience a material adverse effect on its consolidated results of operations, financial position and cash flows.

***Fixed costs may reduce operating results if sales fall below expectations.***

The Company's expense levels are based, in part, on its expectations for future sales. Many of the Company's expenses, particularly those relating to capital equipment and manufacturing overhead, are relatively fixed. The Company might not be able to reduce spending quickly enough to compensate for reductions in sales. Accordingly, shortfalls in sales could materially and adversely affect the Company's consolidated results of operations, financial position and cash flows.

***The volatility of the Company's stock price could affect the value of an investment in the Company's stock and future financial position.***

The market price of the Company's stock can fluctuate widely. Between December 29, 2018 and December 28, 2019, the closing sale price of the Company's common stock ranged between a low of $149.80 and a high of $206.00. The volatility of the stock price may be related to any number of factors, such as volatility in the financial markets, general macroeconomic conditions, industry conditions, market expectations concerning the Company's results of operations, or the volatility of its revenues as discussed above under "The Company's Revenues May Vary Significantly from Period to Period." The historic market price of the Company's common stock may not be indicative of future market prices. The Company may not be able to sustain or increase the value of its common stock. Declines in the market price of the Company's stock could adversely affect the Company's ability to retain personnel with stock incentives, to acquire businesses or assets in exchange for stock and/or to conduct future financing activities with or involving the Company's common stock.

***The Company is exposed to, and may be adversely affected by, potential security breaches or other disruptions to its information technology systems and data security.***

The Company relies on its information technology systems and networks in connection with many of its business activities. Some of these networks and systems are managed directly by the Company, while others are managed by third-party service providers and are not under the Company's direct control. The Company's operations routinely involve receiving, storing, processing and transmitting sensitive information pertaining to its business, customers, dealers, suppliers, employees, and other sensitive matters. As with most companies, the Company has experienced cyber-attacks, attempts to breach its systems, and other similar incidents, none of which have been material. Any future cyber incidents could, however, materially disrupt operational systems; result in loss of trade secrets or other proprietary or competitively sensitive information; compromise personally identifiable information regarding employees or customers or other third parties; and jeopardize the security of the Company's facilities. A cyber incident could be caused by malicious outsiders using sophisticated methods to circumvent firewalls, encryption, and other security defenses. Because techniques used to obtain unauthorized access or to sabotage systems change frequently and generally are not recognized until they are launched against a target, the Company may be unable to anticipate these techniques or to implement adequate preventative measures. Information technology security threats, including security breaches, computer malware, and other cyber-attacks are increasing in both frequency and sophistication and could create financial liability, subject the Company to legal or regulatory sanctions or damage the Company's reputation with customers, dealers, suppliers, and other stakeholders. The Company continuously seeks to maintain a robust program of information security and controls, but the impact of a material information technology event could have a material adverse effect on the Company's competitive position, reputation, results of operations, financial position and cash flows.

***Customer demands and regulations related to conflict-free minerals may force the Company to incur additional expenses.***

The Dodd-Frank Wall Street Reform and Consumer Protection Act requires disclosure of use of “conflict” minerals mined from the Democratic Republic of Congo and adjoining countries and efforts to prevent the use of such minerals. In the semiconductor industry, these minerals are most commonly found in metals. As there may be only a limited number of suppliers offering “conflict free” metals, the Company cannot be certain that it will be able to obtain necessary metals in sufficient quantities or at competitive prices. Also, the Company may face challenges with its customers and suppliers if it is unable to sufficiently verify that the metals used in its products are “conflict free.”

**ITEM 1B. UNRESOLVED STAFF COMMENTS.**
None.

**ITEM 2. PROPERTIES.**

The Company’s engineering and research and development, manufacturing, sales, and distribution centers are located in approximately 69 owned or leased facilities worldwide with primary operations in China, Germany, Italy, Japan, Lithuania, Mexico, Netherlands, Philippines, South Korea, United Kingdom, and the U.S. totaling approximately 3.5 million square feet. The Company’s owned facilities include approximately 2.0 million square feet and the Company’s leased facilities include approximately 1.5 million square feet. The Company’s corporate headquarters is located in the U.S. in Chicago, Illinois.

The Company believes its facilities are adequate to meet its requirements for the foreseeable future.

**ITEM 3. LEGAL PROCEEDINGS.**

The Company is not a party to any material legal proceedings, other than routine litigation incidental to its business.

**ITEM 4. MINE SAFETY DISCLOSURES.**

Not applicable.

**Information about our Executive Officers.**

The executive officers of the Company are as follows:

| Name | Age | Position |
|---|---|---|
| David W. Heinzmann | 56 | President and Chief Executive Officer |
| Meenal A. Sethna | 50 | Executive Vice President and Chief Financial Officer |
| Ryan K. Stafford | 52 | Executive Vice President, Chief Legal and Human Resources Officer and Corporate Secretary |
| Matthew J. Cole | 48 | Senior Vice President, Business Development and Strategy |
| Alexander Conrad | 54 | Senior Vice President and General Manager, Passenger Vehicle Business |
| Deepak Nayar | 60 | Senior Vice President and General Manager, Electronics and Industrial Business |
| Michael P. Rutz | 48 | Senior Vice President and General Manager, Semiconductor Products |

**David W. Heinzmann,** President and Chief Executive Officer and a member of the Board of Directors. Mr. Heinzmann began his career at Littelfuse in 1985 as a manufacturing engineer and has held positions of increasing responsibility since that time, including Vice President, Global Operations, from 2007 to 2014, and Chief Operating Officer from 2014 until assuming his current position in 2017.

**Meenal A. Sethna**, Executive Vice President and Chief Financial Officer. Ms. Sethna joined Littelfuse in 2015 as Senior Vice President of Finance until assuming her current position in 2016. Prior to joining Littelfuse, Ms. Sethna served from 2011 to 2015 as Vice President and Corporate Controller of Illinois Tool Works Inc., a diversified manufacturer of specialized industrial equipment, consumables, and related service businesses. Ms. Sethna is a Certified Public Accountant in Illinois.

**Ryan K. Stafford**, Executive Vice President, Chief Legal and Human Resources Officer and Corporate Secretary. Mr. Stafford joined Littelfuse as its first General Counsel in 2007 and became Corporate Secretary in 2017. Prior to joining Littelfuse, Mr. Stafford served in a number of roles at Tyco International Ltd., including Vice President of China Operations and Vice President & General Counsel for its Engineered Products & Services Business Segment.

**Matthew J. Cole,** Senior Vice President, Business Development and Strategy. Mr. Cole joined Littelfuse in 2015 as Senior Vice President and General Manager, Industrial Business Unit, and held that position until assuming his current position in February 2019. Prior to joining Littelfuse, Mr. Cole served from 2009 to 2015 as Vice President and General Manager of the Advanced Measurement Technology division of AMETEK, a global leader in electronic instruments and electromechanical devices.

**Alexander Conrad,** Senior Vice President and General Manager, Passenger Vehicle Business. Mr. Conrad joined Littelfuse in 2005 as Sales Manager, Germany & Eastern Europe. He then held various positions of increasing responsibility at Littelfuse including Sales Director EMEA; Global Director of Sales; Managing Director, Passenger Car Products from 2013 to 2014; and Vice President, Passenger Car Products, from 2015 until assuming his current position in July 2018.

**Deepak Nayar**, Senior Vice President and General Manager, Electronics and Industrial Business. Mr. Nayar joined Littelfuse in 2005 as Business Line Director of the Electronics Business Unit. He then held various positions of increasing responsibility at Littelfuse including Vice President, Global Sales, Electronics Business Unit, and from 2011 until assuming his current position in February 2019, Senior Vice President, Electronics Business Unit.

**Michael P. Rutz**, Senior Vice President and General Manager, Semiconductor Products. Mr. Rutz joined Littelfuse in 2014 as Vice President of Supply Chain and Operational Excellence. Mr. Rutz then served as Senior Vice President of Global Operations from 2015 until assuming his current position in February 2019. Prior to joining Littelfuse, Mr. Rutz served from 2011 to 2014 as Senior Vice President Global Supply Chain at WMS Industries Inc., a Chicago-based manufacturer of equipment and software for the gaming industry.

## PART II

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

Shares of the Company’s common stock are traded under the symbol “LFUS” on the NASDAQ Global Select Market[SM].

**Number of Holders**

As of February 18, 2020, there were 69 holders of record of the Company’s common stock.

**Dividend Policy**

The future dividend policy will be determined by the Board of Directors based upon its evaluation of earnings, cash availability, and general business prospects. Currently, there are restrictions on the payment of dividends contained in the Company’s credit agreements that relate to the maintenance of certain financial ratios. However, the Company expects to continue paying cash dividends on a quarterly basis for the foreseeable future.

**Recent Sales of Unregistered Securities**

There were no sales of unregistered securities by us or affiliates during the fiscal year ended December 28, 2019.

**Purchases of Equity Securities**

On May 2, 2018, the Company announced that the Company’s Board of Directors had authorized the repurchase of up to 1,000,000 shares of the Company’s common stock under a program for the period May 1, 2018 to April 30, 2019 (the "2018 program"). On May 1, 2019, the Company announced that the Company's Board of Directors had authorized a new program to repurchase up to 1,000,000 shares of the Company's common stock for the period May 1, 2019 to April 30, 2020 (the "2019 program"). As of April 30, 2019, 528,112 shares remained available for repurchases under the 2018 program. During the fiscal year ended December 28, 2019, the Company repurchased 579,916 shares of its common stock totaling $95.0 million. There were 500,000 shares remaining available for purchase under the 2019 program as of December 28, 2019.

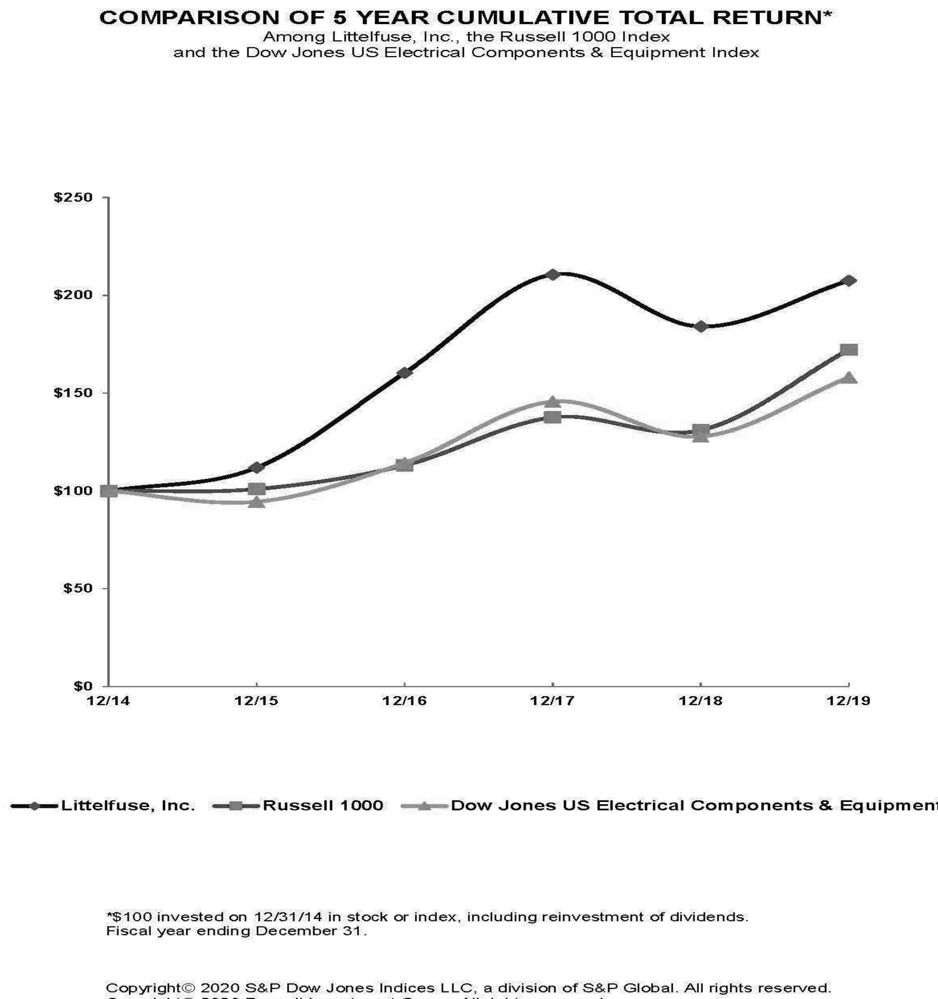
The table below presents shares of the Company’s common stock which were acquired by the Company during fiscal year ended December 28, 2019:

| Period | Total number of shares purchased | Average price paid per share | Total number of shares purchased as part of publicly announced plans or programs | Maximum number of shares that may yet be purchased under the plans or programs |
|---|---|---|---|---|
| **2018 Program** | | | | |
| December 30 through January 26 | 66,796 | $ 169.11 | 66,796 | 541,232 |
| January 27 through February 23 | 13,120 | $ 172.16 | 13,120 | 528,112 |
| February 24 through March 30 | — | — | — | 528,112 |
| March 31 through April 30 | — | — | — | 528,112 |
| **2019 Program** | | | | |
| May 1 through May 25 | 90,301 | $ 170.53 | 90,301 | 909,699 |
| May 26 through June 29 | 97,913 | $ 169.09 | 97,913 | 811,786 |
| June 30 through July 27 | 49,816 | $ 171.13 | 49,816 | 761,970 |
| July 28 through August 24 | 230,000 | $ 156.75 | 230,000 | 531,970 |
| August 25 through September 28 | 31,970 | $ 154.80 | 31,970 | 500,000 |
| Total | 579,916 | $ 163.88 | 579,916 | 500,000 |

**Stock Performance Graph**

*The following stock performance graph and related information shall not be deemed "soliciting material" or "filed" with the Securities and Exchange Commission, nor shall such information be incorporated by reference into any future filings under the Securities Act of 1933 or Securities Exchange Act of 1934, each as amended, except to the extent that the Company specifically incorporates it by reference into such filing.*

The following stock performance graph compares the five-year cumulative total return on Littelfuse common stock to the five-year cumulative total returns on the Russell 1000 Index and the Dow Jones Electrical Components and Equipment Industry Group Index. The Company believes that the Russell 1000 Index and the Dow Jones Electrical Components and Equipment Industry Group Index represent a broad market index and peer industry group for total return performance comparison. The stock performance shown on the graph below represents historical stock performance and is not necessarily indicative of future stock price performance.




| | 12/14 | 12/15 | 12/16 | 12/17 | 12/18 | 12/19 |
|---|---|---|---|---|---|---|
| Littelfuse, Inc. | $ 100 | $ 112 | $ 160 | $ 211 | $ 184 | $ 207 |
| Russell 1000 | 100 | 101 | 113 | 138 | 131 | 172 |
| Dow Jones US Electrical Components & Equipment | 100 | 94 | 114 | 146 | 128 | 158 |

The Dow Jones Electrical Components and Equipment Industry Group Index includes the common stock of A. O. Smith Corp.; AAON, Inc.; American Superconductor Corp.; AMETEK, Inc.; Amphenol Corp.; Arrow Electronics, Inc.; Avnet, Inc.; AVX Corp.; Capstone Turbine Corp.; CTS Corp.; General Cable Corp.; Hubbell Inc. Class B; Jabil Circuit, Inc.; KEMET Corp.; Littelfuse, Inc.; Methode Electronics, Inc.; Plexus Corp.; Powerwave Technologies, Inc.; Regal-Beloit Corp.; Vicor Corp.; and Vishay Intertechnology, Inc.

For Littelfuse, Inc. and all indexes noted above, a $100 investment made on December 27, 2014 and reinvestment of all dividends is assumed. Returns for the Company's fiscal years presented above are as of the last day of the respective fiscal year which was January 2, 2016, December 31, 2016, December 30, 2017, December 29, 2018, and December 28, 2019 for the fiscal years 2015, 2016, 2017, 2018, and 2019, respectively.

**ITEM 6. SELECTED FINANCIAL DATA.**

The information presented below provides selected financial data of the Company during the past five fiscal years and should be read in conjunction with Item 7, *Management's Discussion and Analysis of Financial Condition and Results of Operations*, and Item 8, *Financial Statements and Supplementary Data*, for the respective years presented:

| **(in thousands, except per share data)** | **2019** | **2018** | **2017** | **2016** | **2015** |
|---|---|---|---|---|---|
| Net sales | $ 1,503,873 | $ 1,718,468 | $ 1,221,534 | $ 1,056,159 | $ 867,864 |
| Gross profit | 541,449 | 652,541 | 506,533 | 413,117 | 330,499 |
| Operating income | 192,791 | 225,049 | 218,511 | 130,644 | 104,157 |
| Net income | 139,082 | 164,565 | 119,519 | 104,488 | 80,866 |
| Per share of common stock: | | | | | |
| Income from continuing operations | | | | | |
| - Basic | 5.66 | 6.62 | 5.27 | 4.63 | 3.58 |
| - Diluted | 5.60 | 6.52 | 5.21 | 4.60 | 3.56 |
| Cash dividends paid | 1.82 | 1.60 | 1.40 | 1.24 | 1.08 |
| Cash and cash equivalents | 531,139 | 489,733 | 429,676 | 275,124 | 328,786 |
| Total assets | 2,559,898 | 2,614,306 | 1,740,102 | 1,491,194 | 1,065,475 |
| Short-term debt | 10,000 | 10,000 | 6,250 | 6,250 | 87,000 |
| Long-term debt, less current portion | 669,158 | 684,730 | 489,361 | 447,892 | 83,753 |

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

The following discussion of the Company's financial condition and results of operations should be read together with the Consolidated Financial Statements and notes to those statements included in Item 8 of Part II of this Annual Report on Form 10-K.

**BUSINESS**

For a description of the Company's business, segments and product offerings, see Item 1, *Business*.

**2019 EXECUTIVE OVERVIEW**

Net sales decreased by $214.6 million, or 12.5%, in 2019 compared to 2018. The decrease was primarily driven by lower volume across the Electronics and Automotive segments and $25.0 million or 1.5% of unfavorable changes in foreign exchange rates, partially offset by higher volume in the Industrial segment. The Company recognized net income of $139.1 million, or $5.60 per diluted share, in 2019 compared to net income of $164.6 million, or $6.52 per diluted share in 2018. The decrease in net income reflects lower operating income in the Electronics and Automotive segments, partially offset by lower non-segment charges compared to prior year primarily due to the IXYS acquisition.

The Company continues to take actions to improve its cost structure and drive the synergies from the integration of IXYS. The Company expects to realize cost savings from the restructuring activities taken during 2019 including the reorganization of certain manufacturing, selling and administrative functions across all segments and the closure of a European manufacturing facility in the automotive sensors business within the Automotive segment.

Net cash provided by operating activities was $245.3 million for the year ended December 28, 2019 as compared to $331.8 million for the year ended December 29, 2018. The decrease in net cash provided by operating activities was primarily driven by lower earnings and higher working capital levels primarily due to the timing of supplier payments, payroll year-end cut off and higher annual incentive compensation payments in 2019.

During the fiscal year 2019, the Company repurchased 579,916 shares of its common stock totaling $95.0 million. During the fiscal year 2018, the Company repurchased 391,972 shares of its common stock totaling $67.9 million. From September 30, 2018 until December 28, 2019, the Company repurchased 971,888 shares of its common stock at an average price of $167.65 totaling $162.9 million.

**OUTLOOK**

*Vision and Strategy*

The Company works with its customers to design and develop technologies that help them build safer, more reliable and more efficient products for a safer, greener and increasingly connected world in virtually every market that uses electrical energy; for example, automotive and commercial vehicles, industrial applications like renewable energy and storage, motor drives and power conversion, data and telecommunications, medical devices, consumer electronics and appliances. Built upon that framework, the Company's strategy is centered on growing its circuit protection, power control and sensor platforms.

The Company's strategic plan is focused on increasing shareholder value by driving profitable sales growth, earnings per share growth, strong cash flow generation, and deploying capital consistent with its long-term capital allocation priorities. The Company pursues the following major strategic initiatives, which are summarized below, along with more specific areas of focus.

| Strategic Objective | | 2020 and Future Priorities |
|---|---|---|
| Double digit sales growth | ● | Grow through increased product content with existing customers and increased market share |
| | ● | Expand portfolio into new and underpenetrated geographies and end markets |
| | ● | Increase innovation capabilities and investments |
| | ● | Expand presence in products and applications that are converging across business segments |
| | ● | Targeted mergers and acquisitions |
| EPS growth | ● | Focus on higher profitability growth opportunities |
| | ● | Improve operating margins through operational excellence |
| | ● | Disciplined approach to balancing costs with long-term strategic investments |
| Cash flow and liquidity | ● | Disciplined management of working capital |
| | ● | Deployment of capital consistent with capital allocation priorities |
| | ● | Mergers and acquisitions that align with strategy and financial metrics |
| | ● | Grow dividend in line with earnings |
| | ● | Opportunistic share repurchases |

The Company's strategy is to generate profitable sales growth. In order to accomplish this, the Company is focusing on accelerating organic growth by increasing its content and share gains, enhancing technology efforts to drive innovation, capitalizing on cross segment opportunities, and gaining traction in underpenetrated geographies and markets. The Company will continue to make targeted strategic acquisitions that align to its strategy and financial metrics to support new business, products, markets, and technologies while leveraging existing customers and targeting new customers.

Management believes that profitable growth through a combination of organic growth and strategic acquisitions is critical to the Company's competitiveness, while enhancing value the Company delivers to its customers and other stakeholders. In addition, the Company continues to implement initiatives across all platforms to enhance productivity while managing its cost structure to align with business conditions, including integration of operations and streamlining administrative and support activities to drive improved operating margins.

The Company seeks to deploy its capital consistent with capital allocation priorities. Priorities for capital deployment, over time, include investments to drive increased organic growth, targeted acquisitions that align to the Company's strategic and financial metrics and returning capital to shareholders through dividends and opportunistic share repurchases.

The Company uses several key indicators to gauge progress toward achieving these objectives. These indicators include organic sales growth, operating margins, cash flow from operations and capital expenditures. Through cycles, the Company targets double-digit long-term (2017-2021) sales growth, split between 5-7% average annual accelerated organic sales growth and 5-7% average annual accelerated growth from strategic acquisitions, while targeting operating margins between 17% and 19% and double-digit earnings per share growth. Cash flow from operations less capital expenditures is targeted to approximate or exceed net income but in any given year can be significantly impacted by the timing of non-recurring or infrequent expenditures.

*Significant Accounting Policies and Critical Estimates*

**Critical Accounting Policies and Estimates**

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, the 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. The Company's most critical accounting policies are those that are most important to the portrayal of its financial condition and results of operations, and which require the Company to make its most difficult and subjective judgments, often as a result of the need to make estimates of matters that are inherently uncertain. The Company has identified the following as its most critical accounting policies and judgments. Although management believes that its estimates and assumptions are reasonable, they are based upon information available when they are made, and therefore, actual results may differ from these estimates under different assumptions or conditions. The Company has reviewed these critical accounting policies and related disclosures with the Audit Committee of its Board of Directors. Significant accounting policies are more fully described in the Notes to Consolidated Financial Statements included elsewhere in this Annual Report.

***Revenue Recognition***

On December 31, 2017, the Company adopted new guidance on revenue from contracts with customers using the modified retrospective method. The adoption did not have a significant impact on the Company's consolidated financial statements.

*Revenue Disaggregation*

The following table disaggregates the Company's revenue by primary business units for the fiscal years ended December 28, 2019 and December 29, 2018:

| | Fiscal Year Ended December 28, 2019 | | | |
|---|---|---|---|---|
| **(in thousands)** | **Electronics Segment** | **Automotive Segment** | **Industrial Segment** | **Total** |
| Electronics – Semiconductor | $ 563,572 | $ — | $ — | $ 563,572 |
| Electronics – Passive Products and Sensors | 397,508 | — | — | 397,508 |
| Passenger Car Products | — | 218,560 | — | 218,560 |
| Commercial Vehicle Products | — | 111,972 | — | 111,972 |
| Automotive Sensors | — | 98,001 | — | 98,001 |
| Industrial Products | — | — | 114,260 | 114,260 |
| Total | $ 961,080 | $ 428,533 | $ 114,260 | $ 1,503,873 |

| (in thousands) | Fiscal Year Ended December 29, 2018 Electronics Segment | Automotive Segment | Industrial Segment | Total |
|---|---|---|---|---|
| Electronics – Semiconductor | $ 648,967 | $ — | $ — | $ 648,967 |
| Electronics – Passive Products and Sensors | 475,329 | — | — | 475,329 |
| Passenger Car Products | — | 240,501 | — | 240,501 |
| Commercial Vehicle Products | — | 121,562 | — | 121,562 |
| Automotive Sensors | — | 117,728 | — | 117,728 |
| Industrial Products | — | — | 114,381 | 114,381 |
| Total | $ 1,124,296 | $ 479,791 | $ 114,381 | $ 1,718,468 |

See Note 16, *Segment Information,* for net sales by segment and countries.

*Revenue Recognition*

The Company recognizes revenue on product sales in the period in which the Company satisfies its performance obligation and control of the product is transferred to the customer. The Company's sales arrangements with customers are predominately short term in nature and generally provide for transfer of control at the time of shipment as this is the point at which title and risk of loss of the product transfers to the customer. At the end of each period, for those shipments where title to the products and the risk of loss and rewards of ownership do not transfer until the product has been received by the customer, the Company adjusts revenues and cost of sales for the delay between the time that the products are shipped and when they are received by the customer. The amount of revenue recorded reflects the consideration to which the Company expects to be entitled in exchange for goods and may include adjustments for customer allowance, rebates and price adjustments. The Company's distribution channels are primarily through direct sales and independent third-party distributors.

The Company has elected the practical expedient under Accounting Standards Codification ("ASC") 340-40-25-4 to expense commissions when incurred as the amortization period of the commission asset the Company would have otherwise recognized is less than one year.

*Revenue and Billing*

The Company generally accepts orders from customers through receipt of purchase orders or electronic data interchange based on written sales agreements and purchasing contracts. Contract pricing and selling agreement terms are based on market factors, costs, and competition. Pricing is often negotiated as an adjustment (premium or discount) from the Company's published price lists. The customer is invoiced when the Company's products are shipped to them in accordance with the terms of the sales agreement. As the Company's standard payment terms are less than one year, the Company has elected the practical expedient under ASC 606-10-32-18 to not assess whether a contract has a significant financing component. The Company also elected the practical expedient provided in ASC 606-10-25-18B to treat all product shipping and handling activities as fulfillment activities, and therefore recognize the gross revenue associated with the contract, inclusive of any shipping and handling revenue. This is similar to the Company's prior practice and therefore the effect of the new guidance is immaterial.

*Ship and Debit Program*

Some of the terms of the Company's sales agreements and normal business conditions provide customers (distributors) the ability to receive price adjustments on products previously shipped and invoiced. This practice is common in the industry and is referred to as a "ship and debit" program. This program allows the distributor to debit the Company for the difference between the distributors' contracted price and a lower price for specific transactions. Under certain circumstances (usually in a competitive situation or large volume opportunity), a distributor will request authorization for pricing allowances to reduce its price. When the Company approves such a reduction, the distributor is authorized to "debit" its account for the difference between the contracted price and the lower approved price. The Company establishes reserves for this program based on historic activity, electronic distributor inventory levels and actual authorizations for the debit and recognizes these debits as a reduction of revenue.

*Return to Stock*

The Company has a return to stock policy whereby certain customers, with prior authorization from the Company's management, can return previously purchased goods for full or partial credit. The Company establishes an estimated allowance for these returns based on historic activity. Sales revenue and cost of sales are reduced to anticipate estimated returns.

*Volume Rebates*

The Company offers volume-based sales incentives to certain customers to encourage greater product sales. If customers achieve their specific quarterly or annual sales targets, they are entitled to rebates. The Company estimates the projected amount of rebates that will be achieved by the customer and recognizes this estimated cost as a reduction to revenue as products are sold.

*Allowance for Doubtful Accounts:*

The Company evaluates the collectability of its trade receivables based on a combination of factors. The Company regularly analyzes its significant customer accounts and, when the Company becomes aware of a specific customer's inability to meet its financial obligations, the Company records a specific reserve for bad debt to reduce the related receivable to the amount the Company reasonably believes is collectible. The Company also records allowances for all other customers based on a variety of factors including the length of time the receivables are past due, the financial health of the customer, macroeconomic considerations and past experience. Historically, the allowance for doubtful accounts has been adequate to cover bad debts. If circumstances related to specific customers change, the estimates of the recoverability of receivables could be further adjusted.

***Inventory***

The Company performs regular detailed assessments of inventory, which include a review of, among other factors, demand requirements, product life cycle and development plans, component cost trends, product pricing, shelf life, and quality issues. Based on the analysis, the Company records adjustments to inventory for excess quantities, obsolescence or impairment when appropriate to reflect inventory at net realizable value. Historically, inventory reserves have been adequate to reflect inventory at net realizable values.

***Goodwill***

The Company's methodology for allocating the purchase price of acquisitions is based on established valuation techniques that reflect the consideration of a number of factors, including valuations performed by third-party appraisers when appropriate. Goodwill is measured as the excess of the cost of an acquired entity over the fair value assigned to identifiable assets acquired and liabilities assumed. Based on its current organization structure, the Company has seven reporting units for which cash flows are determinable and to which goodwill has been allocated.

The Company annually tests goodwill for impairment on the first day of its fiscal fourth quarter, or more frequently if an event occurs or circumstances change that would more likely than not reduce the fair value of a reporting unit below its carrying value. The Company also performs an interim review for indicators of impairment each quarter to assess whether an interim impairment review is required for any reporting unit. As part of its interim reviews, management analyzes potential changes in the value of individual reporting units based on each reporting unit's operating results for the period compared to expected results as of the prior year's annual impairment test. In addition, management considers how other key assumptions, including discount rates and expected long-term growth rates, used in the last annual impairment test, could be impacted by changes in market conditions and economic events. Based on the interim assessments, management concluded that no events or changes in circumstances indicated that it was more likely than not that the fair value for any reporting unit had declined below its carrying value.

*Quantitative Assessment for Impairment*

For the seven reporting units with goodwill, the Company compares the estimated fair value of each reporting unit to its carrying value. If the carrying value of a reporting unit exceeded the estimated fair value, the difference between the estimated fair value and carrying value is recorded as the amount of the goodwill impairment charge. The results of the goodwill impairment test as of September 30, 2019 indicated that the estimated fair values for each of the seven reporting units exceeded their respective carrying values. Accordingly, there were no goodwill impairment charges recorded as part of the Company's 2019 annual goodwill impairment test.

As part of its impairment test for these reporting units, the Company engaged a third-party appraisal firm to assist in the Company's determination of the estimated fair values. This determination included estimating the fair value of each reporting unit using both the income and market approaches. The income approach requires management to estimate a number of factors for each reporting unit, including projected operating results, economic projections, anticipated future cash flows, discount rates and the allocation of shared or corporate items. The market approach estimates fair values using comparable marketplace fair value data from within a comparable industry grouping. The Company weighted both the income and market approach equally to estimate the concluded fair value of each reporting unit. The determination of fair value requires the Company to make significant estimates and assumptions, which primarily include, but are not limited to: the selection of appropriate peer group companies; control premiums appropriate for acquisitions in which the Company competes; the discount rate; terminal growth rates; and forecasts of revenue, operating income, depreciation and amortization and capital expenditures.

*Goodwill Impairment Assumptions*

Although the Company believes its estimates of fair value are reasonable, actual financial results could differ from those estimates due to the inherent uncertainty involved in making such estimates. Changes in assumptions concerning future financial results or other underlying assumptions could have a significant impact on the fair value of the reporting units. Future declines in the overall market value of the Company's equity may also result in a conclusion that the fair value of one or more reporting units has declined below its carrying value.

One measure of the sensitivity of the amount of goodwill impairment charges to key assumptions is the amount by which each reporting unit "passed" (fair value exceeds the carrying value) the goodwill impairment test. All seven of the reporting units passed the goodwill impairment test, with fair values that exceeded the carrying values by between 40% and 268% of their respective estimated fair values. As of the most recent annual test conducted on September 30, 2019, the Company noted that the excess of fair value over the carrying value, was 217%, 42%, 137%, 213%, 40%, 89%, and 268% for its reporting units: Electronics-Passive Products and Sensors, Electronics-Semiconductor, Passenger Car Products, Commercial Vehicle Products, Automotive Sensors, Relays, and Power Fuse, respectively. Relatively small changes in the Company's key assumptions would not have resulted in any reporting units failing the goodwill impairment test.

Generally, changes in estimates of expected future cash flows would have a similar effect on the estimated fair value of the reporting unit. That is, a 1.0% decrease in estimated annual future cash flows would decrease the estimated fair value of the reporting unit by approximately 1.0%. The estimated long-term net sales growth rate can have a significant impact on the estimated future cash flows, and therefore, the fair value of each reporting unit. A 1.0% decrease in the long-term net sales growth rate would have resulted in no reporting units failing the goodwill impairment test. Of the other key assumptions that impact the estimated fair values, most reporting units have the greatest sensitivity to changes in the estimated discount rate. The estimated discount rate was 9.7% for the Electronics-Semiconductor, Passenger Car Products and Commercial Vehicle Products reporting units, and 10.7% for the Electronics-Passive Products and Sensor reporting unit and 11.7% for the Automotive Sensors, Power Fuse and Relays reporting units. A 1.0% increase in the estimated discount rates would have resulted in no reporting units failing the annual goodwill impairment test. The Company believes that its estimates of future cash flows and discount rates are reasonable, but future changes in the underlying assumptions could differ due to the inherent uncertainty in making such estimates. Additionally, price deterioration or lower volume could have a significant impact on the fair values of the reporting units.

***Long-Lived Assets***

The Company evaluates the recoverability of other long-lived assets, including property, plant and equipment and certain identifiable intangible assets, whenever events or changes in circumstances indicate that the carrying value of an asset or asset group may not be recoverable. Factors which could trigger an impairment review include significant underperformance relative to historical or projected operating results, significant changes in the manner of use of the assets or the strategy for the overall business, a significant decrease in the market value of the assets or significant negative industry or economic trends. When the Company determines that the carrying value of long-lived assets may not be recoverable based upon the existence of one or more of the indicators, the assets are assessed for impairment based on the estimated future undiscounted cash flows expected to result from the use of the asset and its eventual disposition. If the carrying value of an asset exceeds its estimated future undiscounted cash flows, an impairment loss is recorded for the excess of the asset's carrying value over its fair value. During the year-ended December 28, 2019, the Company recognized non-cash impairment charges of $0.3 million for certain machinery and equipment related to the closure of a European manufacturing facility in the automotive sensors business within the Automotive segment. During the year ended December 29, 2018, the Company recognized non-cash impairment charges of $1.6 million and $0.5 million related to a building for sale and the Custom Products reporting unit trade name, respectively, associated with the exit of the Custom business within the Industrial Segment. During the year ended December 30, 2017, the Company recognized a loss of $2.9 million related to certain machinery and equipment in the Electronics and Automotive segments due to changes in the expected use of these certain assets.

***Environmental Liabilities***

Environmental liabilities are accrued based on estimates of the probability of potential future environmental exposure. Costs related to on-going maintenance of environmental sites are expensed as incurred. If actual or estimated probable future losses exceed the Company's recorded liability for such claims, it would record additional charges as other expense during the period in which the actual loss or change in estimate occurred. The Company evaluates its reserve for coal mine remediation annually utilizing a third-party expert.

***Pension and Supplemental Executive Retirement Plan***

The Company records annual income and expense amounts relating to its pension and postretirement benefits plans based on calculations which include various actuarial assumptions including discount rates, expected long-term rates of return and compensation increases. The Company reviews its actuarial assumptions on an annual basis as of the fiscal year-end balance sheet date (or more frequently if a significant event requiring remeasurement occurs) and modifies the assumption based on current rates and trends when it is appropriate to do so. The effects of modifications are recognized immediately on the Consolidated Balance Sheets but are generally amortized into operating earnings over future periods, with the deferred amount recorded in accumulated other comprehensive income (loss). The Company believes that the assumptions utilized in recording its obligations under its plans are reasonable based on its experience, market conditions and input from its actuaries and investment advisors. The Company maintains several pension plans in international locations. The expected returns on plan assets and discount rates are determined based on each plan's investment approach, local interest rates and plan participant profiles. The weighted-average discount rates for the Company's defined benefit plans primarily in Europe and the Asia-Pacific regions at December 28, 2019 and December 29, 2018 were 2.3% and 3.1%, respectively.

A 50 basis point change in the discount rates at December 28, 2019 would have the following effect on the projected benefit obligation:

| **(in millions)** | **0.5% Increase** | **0.5% Decrease** |
|---|---|---|
| Projected benefit obligation | $ (8.9) | $ 9.7 |

***Equity-based Compensation***

Equity-based compensation expense is recorded for stock-option awards and restricted share units based upon the fair values of the awards. The fair value of stock-option awards is estimated at the grant date using the Black-Scholes option pricing model, which includes assumptions for volatility, expected term, risk-free interest rate and dividend yield. Expected volatility is based on implied volatilities from traded options on Littelfuse stock, historical volatility of Littelfuse stock and other factors. Historical data is used to estimate employee termination experience and the expected term of the options. The risk-free interest rate is based on the U.S. Treasury yield curve in effect at the time of grant. The Company initiated a quarterly cash dividend in 2010 and expects to continue making cash dividend payments in the foreseeable future. The fair value of restricted share units is determined based on the Company's stock price on the grant date reduced by the present value of expected dividends through the vesting period.

Total equity-based compensation expense for all equity compensation plans was $19.9 million, $28.2 million, and $17.3 million in 2019, 2018, and 2017, respectively. Further information regarding this expense is provided in Note 12, *Stock-Based Compensation*, of the Notes to Consolidated Financial Statements included in this Annual Report.

***Income Taxes***

The Company accounts for income taxes using the liability method. Deferred taxes are recognized for the future effects of temporary differences between financial and income tax reporting using tax rates in effect for the years in which the differences are expected to reverse. The Company recognizes deferred taxes for temporary differences, operating loss carryforwards and tax credit and other tax attribute carryforwards (excluding carryforwards where usage has been determined to be remote). Deferred tax assets are reduced by a valuation allowance if it is more likely than not that some portion, or all, of the deferred tax assets will not be realized. U.S. state and non-U.S. income taxes are provided on the portion of non-U.S. income that is expected to be remitted to the U.S. and be taxable (and non-U.S. income taxes are provided on the portion of non-U.S. income that is expected to be remitted to an upper-tier non-U.S. entity). Deferred tax assets and liabilities are adjusted for the effects of changes in tax laws and rates on the date of enactment.

Deferred income taxes are not provided on the excess of the investment value for financial reporting over the tax basis of investments in those non-U.S. subsidiaries for which such excess is considered to be permanently reinvested in those operations. Management regularly evaluates whether non-U.S. earnings are expected to be permanently reinvested. This evaluation requires judgment about the future operating and liquidity needs of the Company and its non-U.S. subsidiaries. Changes in economic and business conditions, non-U.S. or U.S. tax laws (such as the Tax Act), or the Company's financial situation could result in changes to these judgments and the need to record additional tax liabilities.

The Company recognizes the tax benefit from an uncertain tax position only if it is more likely than not that the tax position will be sustained on examination by the taxing authorities, based on the technical merits of the position. The tax benefits recognized in the financial statements from such a position are measured based on the largest benefit that has a greater than 50% likelihood of being realized upon ultimate settlement.

On December 22, 2017, the U.S. enacted legislation commonly referred to as the Tax Cuts and Jobs Act (the "Tax Act"). Among other things, the Tax Act reduces the U.S. corporate federal income tax rate from 35% to 21%, adds base broadening provisions which limit deductions and address excessive international tax planning, imposes a one-time tax (the "Toll Charge") on accumulated earnings of certain non-U.S. subsidiaries and enables repatriation of earnings of non-U.S. subsidiaries free of U.S. federal income tax. Other than the Toll Charge (which, except for the IXYS impact, was applicable to the Company for 2017), the provisions are generally applicable to the Company in 2018 and beyond.

In accordance with the guidance provided in SEC Staff Accounting Bulletin ("SAB") No. 118, in the fourth quarter of 2017 the Company recorded a charge of $47.0 million as a provisional reasonable estimate of the impact of the Tax Act, including $49.0 million for the Toll Charge net of $2.0 million for other net tax benefits. In the fourth quarter of 2018, within the measurement period outlined in SAB No. 118, the Company finalized its estimates of the impact of the Tax Act as of December 29, 2018 and recorded a charge of $3.2 million, including $2.3 million for the Toll Charge and $0.9 million for the net impact of other items. In addition, the Company recorded $7.0 million for the Toll Charge associated with IXYS as part of the IXYS acquisition purchase price allocation. This was reflected in the opening balance sheet as an increase to goodwill and other long-term liabilities.

One of the base broadening provisions of the Tax Act is the global intangible low-taxed income provisions ("GILTI"). In accordance with guidance issued by the FASB staff, the Company has adopted an accounting policy to treat any GILTI inclusions as a period cost if and when incurred. Thus, for the fiscal years ended December 28, 2019 and December 29, 2018, deferred taxes were computed without consideration of the possible future impact of the GILTI provisions, and any current year impact was recorded as a part of the current portion of income tax expense.

Further information regarding income taxes, including a detailed reconciliation of current year activity, is provided in Note 14, *Income Taxes*, of the Notes to Consolidated Financial Statements included in this Annual Report.

***Off-Balance Sheet Arrangements***

The Company does not have off-balance sheet arrangements as defined under SEC rules. The Company does 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.

In the financial review that follows, the Company discusses its consolidated results of operations, financial position, cash flows and certain other information. This discussion should be read in conjunction with the Company's Consolidated Financial Statements and related notes.

**RESULTS OF OPERATIONS FOR THE YEAR ENDED DECEMBER 28, 2019 AS COMPARED TO THE YEAR ENDED DECEMBER 29, 2018**

The fiscal year 2019 included approximately $21.9 million of non-segment charges, of which $8.9 million of charges are acquisition-related and integration charges primarily related to the IXYS acquisition and other contemplated acquisitions, and $13.0 million of restructuring charges primarily related to employee termination costs. See Note 8, *Restructuring, Impairment and Other Charges,* for further discussion.

The fiscal year 2018 included approximately $88.7 million of non-segment charges, of which $82.9 million of charges are primarily related to the IXYS acquisition as described in Note 2, *Acquisitions and Dispositions*, of the Notes to Consolidated Financial Statements included in this Annual Report. These charges include $36.9 million of purchase accounting inventory step-up charges, $18.7 million in acquisition-related and integration costs primarily related to legal, accounting and other expenses, $12.4 million in backlog amortization costs, $8.3 million of employee termination costs and other restructuring charges, $4.5 million of stock compensation expense recognized immediately upon close for converted IXYS options related to prior service periods, and $2.1 million change in control expense related to IXYS. In addition, there were $5.8 million of employee termination costs, impairment and other restructuring charges and acquisition-related expenses for other contemplated acquisitions, which included charges associated with the exit of the Custom business in the second quarter within the Industrial segment.

Fiscal year 2019 also included approximately $5.2 million in foreign currency exchange losses primarily attributable to changes in the value of the euro, Chinese renminbi, and Japanese Yen against the U.S. dollar, while fiscal year 2018 also included approximately $0.9 million in foreign currency exchange gains primarily attributable to changes in the value of the euro, Mexico peso, Philippine peso and Chinese renminbi against the U.S. dollar.

| | Fiscal Year | | | |
|---|---|---|---|---|
| **(in thousands, except % change)** | **2019** | **2018** | **Change** | **% Change** |
| Net sales | $ 1,503,873 | $ 1,718,468 | $ (214,595) | (12.5)% |
| Gross profit | 541,449 | 652,541 | (111,092) | (17.0)% |
| Operating expenses | 348,658 | 427,492 | (78,834) | (18.4)% |
| Operating income | 192,791 | 225,049 | (32,258) | (14.3)% |
| Other income, net | (583) | (1,599) | 1,016 | (63.5)% |
| Income before income taxes | 165,884 | 204,942 | (39,058) | (19.1)% |
| Income taxes | 26,802 | 40,377 | (13,575) | (33.6)% |
| Net income | 139,082 | 164,565 | (25,483) | (15.5)% |

***Net Sales***

Net sales for 2019 of $1,503.9 million decreased $214.6 million, or 12.5%, compared to the prior year primarily due to lower volume across the Electronics and Automotive segments driven by electronics distribution partners and end customers reducing excess inventories, a decline in global auto production and a decline in global end market demand, and $25.0 million or 1.5% of unfavorable changes in foreign exchange rates.

***Gross Profit***

Gross profit was $541.4 million, or 36.0% of net sales, in 2019, compared to $652.5 million, or 38.0% of net sales, in 2018. The decrease in gross profit is primarily due to lower volumes across the Electronics and Automotive segments driven by electronics distribution partners and end customers reducing excess inventories, a decline in global auto production and a decline in global end market demand, unfavorable price and product mix, and costs related to restructuring activities taken during 2019. In 2018 the IXYS purchase accounting inventory step-up charge of $36.9 million negatively impacted the 2018 gross margin by 2.1%.

***Operating Expenses***

Total operating expenses were $348.7 million, or 23.2% of net sales, for 2019 compared to $427.5 million, or 24.9% of net sales, for 2018. The decrease in operating expenses of $78.8 million was primarily due to lower annual incentive compensation expenses, reduced backlog amortization expense of $12.4 million, lower acquisition-related and integration costs of $11.3 million, global cost saving initiatives, and $4.5 million stock compensation expense and $2.1 million of change in control expense related to the 2018 IXYS acquisition.

***Operating Income***

Operating income for 2019 was $192.8 million, a decrease of $32.3 million or 14.3% compared to $225.0 million for 2018. The decrease in operating income is primarily due to lower gross profit across the Electronics and Automotive segments, partially offset by lower operating expenses noted above and the $36.9 million purchase accounting inventory step-up charges in 2018. Operating margins decreased from 13.1% in 2018 to 12.8% in 2019 primarily driven by lower gross profit margin discussed above.

***Income Before Income Taxes***

Income before income taxes for 2019 was $165.9 million, or 11.0% of net sales compared to $204.9 million, or 11.9% of net sales, for 2018. In addition to the factors impacting comparative results for operating income discussed above, income before income taxes was unfavorably impacted by foreign exchange losses of $5.2 million during the fiscal year ended December 28, 2019 compared to foreign exchange gains of $0.9 million during the fiscal year ended December 29, 2018, and decreases of $1.0 million in other income primarily due to the impairment charges of $7.3 million for certain other investments and a $2.6 million loss on the disposal of a business within the Electronics segment during the fiscal year 2019, partially offset by unrealized investment gains associated with our equity investments and higher interest income.

**Income Taxes**

Income tax expense for 2019 was $26.8 million, or an effective tax rate of 16.2% compared to income tax expense of $40.4 million, or an effective tax rate of 19.7%, for 2018. The 2019 income tax expense includes a benefit of $3.3 million from the recognition of previously unrecognized tax benefits (and the reversal of the related accrued interest) due to a lapse in the statute of limitations. The 2018 income tax expense includes a charge of $3.2 million associated with finalizing the 2017 provisional reasonable estimate, including $2.3 million for the Toll Charge and $0.9 million for the net impact of other items. Additionally, our tax rates are lower than the applicable U.S. statutory tax rate primarily due to income earned in lower tax jurisdictions, partially offset by the impact of taxes on unremitted earnings, the GILTI tax provisions and non-U.S. losses and expenses with no tax benefit.

**Segment Information**

The Company reports its operations by the following segments: Electronics, Automotive and Industrial. Segment information is described more fully in Note 16, *Segment Information*, of the Notes to Consolidated Financial Statements included in this Annual Report.

The following table is a summary of the Company's net sales by segment:

| | Fiscal Year | | | |
|---|---|---|---|---|
| **(in millions)** | **2019** | **2018** | **Change** | **% Change** |
| Electronics | $ 961.1 | $ 1,124.3 | $ (163.2) | (14.5)% |
| Automotive | 428.5 | 479.8 | (51.3) | (10.7)% |
| Industrial | 114.3 | 114.4 | (0.1) | (0.1)% |
| Total | $ 1,503.9 | $ 1,718.5 | $ (214.6) | (12.5)% |

***Electronics Segment***

The Electronics segment net sales decreased $163.2 million, or 14.5%, in 2019 compared to 2018 primarily due to lower volume across all businesses due to electronics distribution partners and end customer reducing excess inventories, a decline in global end market demand, and unfavorable changes in foreign exchange rates of $13.5 million.

***Automotive Segment***

Net sales in the Automotive segment decreased $51.3 million, or 10.7%, in 2019 compared to 2018 due to lower volume across all businesses primarily from a decline in global auto production, declines in commercial vehicle end market demand, and unfavorable changes in foreign exchange rates of $10.9 million.

***Industrial Segment***

The Industrial segment net sales decreased slightly by $0.1 million, or 0.1%, in 2019 compared to 2018 primarily due to the exit of the Custom business during the second quarter of 2018 and unfavorable changes in foreign exchange rates of $0.6 million, partially offset by higher volume across all businesses.

**Geographic Net Sales Information**

Net sales by geography represent net sales to customer or distributor locations. The following table is a summary of the Company’s net sales by geography:

| | Fiscal Year | | | |
|---|---|---|---|---|
| **(in millions)** | **2019** | **2018** | **Change** | **% Change** |
| Asia-Pacific | $ 656.8 | $ 753.3 | $ (96.5) | (12.8)% |
| Americas | 508.4 | 578.6 | (70.2) | (12.1)% |
| Europe | 338.7 | 386.6 | (47.9) | (12.4)% |
| Total | $ 1,503.9 | $ 1,718.5 | $ (214.6) | (12.5)% |

***Asia-Pacific***

Asia-Pacific net sales decreased $96.5 million, or 12.8%, in 2019 compared to 2018. The decrease in net sales was primarily due to lower volume across all businesses within the Electronics segment and the Automotive segment, and unfavorable changes in foreign exchange rates of $6.8 million.

***Americas***

Net sales in the Americas decreased $70.2 million, or 12.1%, in 2019 compared to 2018 primarily due to lower volume across all businesses within the Electronics segment and the Automotive segment, the exit of the Custom business within Industrial segment during the second quarter of 2018 and unfavorable changes in foreign exchange rates of $0.8 million, partially offset by higher volume in the power fuse and relay business within Industrial segments.

***Europe***

European net sales decreased $47.8 million, or 12.4%, in 2019 compared to 2018. The decrease in net sales was primarily due to lower volume across all businesses within the Electronics segment and the Automotive segment, and unfavorable changes in foreign exchange rates of $17.4 million, partially offset by higher volume in the power fuse business within the Industrial segment.

**RESULTS OF OPERATIONS FOR THE YEAR ENDED DECEMBER 29, 2018 AS COMPARED TO THE YEAR ENDED DECEMBER 30, 2017**

The following table summarizes the Company's consolidated results of operations for periods presented. The fiscal year 2018 includes approximately $88.7 million of non-segment charges, of which $82.9 million of charges are primarily related to the IXYS acquisition as described in Note 2, *Acquisitions and Dispositions*, of the Notes to Consolidated Financial Statements included in this Annual Report. These charges include $36.9 million of purchase accounting inventory step-up charges, $18.7 million in acquisition-related and integration costs primarily related to legal, accounting and other expenses, $12.4 million in backlog amortization costs, $8.3 million of employee termination costs and other restructuring charges, $4.5 million of stock compensation expense recognized immediately upon close for converted IXYS options related to prior service periods, and $2.1 million change in control expense related to IXYS. In addition, there were $5.8 million of employee termination costs, impairment and other restructuring charges and acquisition-related expenses for other contemplated acquisitions and included charges associated with the exit of the Custom business in the second quarter within the Industrial segment.

The fiscal year 2017 includes approximately $10.3 million of non-segment charges. These included acquisition-related and integration costs related to legal, accounting and other expenses associated with completed or pending acquisitions of approximately $8.0 million, including $1.6 million of purchase accounting inventory charges related to the Company's 2017 acquisition of U.S. Sensor as described in Note 2, *Acquisitions and Dispositions*, of the Notes to Consolidated Financial Statements included in this Annual Report, and $2.2 million of charges related to restructuring and production transfers in the Company's Asia operations.

Fiscal year 2018 also included approximately $0.9 million in foreign currency exchange gains primarily attributable to changes in the value of the euro, Mexico peso, Philippine peso and Chinese renminbi against the U.S. dollar, while fiscal year 2017 also included approximately $2.4 million in foreign currency exchange losses primarily attributable to changes in the value of the euro, Philippine peso and Chinese renminbi against the U.S. dollar.

| | Fiscal Year | | | |
|---|---|---|---|---|
| **(in thousands, except % change)** | **2018** | **2017** | **Change** | **% Change** |
| Net sales | $ 1,718,468 | $ 1,221,534 | $ 496,934 | 40.7 % |
| Gross profit | 652,541 | 506,533 | 146,008 | 28.8 % |
| Operating expenses | 427,492 | 288,022 | 139,470 | 48.4 % |
| Operating income | 225,049 | 218,511 | 6,538 | 3.0 % |
| Other income, net | (1,599) | (1,282) | (317) | 24.7 % |
| Income before income taxes | 204,942 | 204,037 | 905 | 0.4 % |
| Income taxes | 40,337 | 84,518 | (44,181) | (52.3)% |
| Net income | 164,565 | 119,519 | 45,046 | 37.7 % |

***Net Sales***

Net sales for 2018 of $1,718.5 million increased $496.9 million, or 40.7%, compared to the prior year with increases of $378.2 million and $6.5 million resulting from incremental net sales related to the IXYS and U.S. Sensor acquisitions, respectively, $16.7 million of favorable changes in foreign exchange rates, and volume growth across all three segments.

***Gross Profit***

Gross profit was $652.5 million, or 38% of net sales, in 2018, compared to $506.5 million, or 41.5% of net sales, in 2017. The increase in gross profit reflects the IXYS acquisition and volume growth and expense leverage across all segments. The decrease in gross margin is primarily due to the purchase accounting inventory charges of $36.9 million, which negatively impacted gross margin by 2.1 percentage points, and an unfavorable mix of products from the IXYS acquisition, which historically had lower gross margins.

***Operating Expenses***

Total operating expenses were $427.5 million, or 24.9% of net sales, for 2018 compared to $288.0 million, or 23.6% of net sales, for 2017. The increase in operating expenses of $139.5 million was primarily due to the incremental operating expenses related to the IXYS and U.S. Sensor acquisitions, an increase in amortization expense of $27.5 million resulting from the acquisition of IXYS as well as higher acquisition-related and integration costs of $12.1 million. Total operating expenses as a percent of net sales increased from 23.6% in 2017 to 24.9% in 2018 primarily due to the higher amortization expense and acquisition-related and integration charges noted above.

***Operating Income***

Operating income for 2018 was $225.0 million, an increase of $6.5 million or 3.0% compared to $218.5 million for 2017. The increase in operating income is primarily due to the acquisition of IXYS and volume growth in the Electronics and Industrial segments, partially offset by $36.9 million of purchase accounting inventory charges, higher acquisition-related and integration charges and amortization expense. Operating margins decreased from 17.9% in 2017 to 13.1% in 2018 driven by the purchase accounting inventory charges, higher amortization expense and acquisition-related and integration charges that negatively impacted margins by 2.1%, 1.6% and 0.7%, respectively.

***Income Before Income Taxes***

Income before income taxes for 2018 was $204.9 million, or 11.9% of net sales compared to $204.0 million, or 16.7% of net sales, for 2017. In addition to the factors impacting comparative results for operating income discussed above, income before income taxes was unfavorably impacted by higher interest expense of $9.2 million mainly resulting from increased borrowings, partially offset by  increases in foreign exchange gains of $3.2 million.

**Income Taxes**

Income tax expense for 2018 was $40.4 million, or an effective tax rate of 19.7% compared to income tax expense of $84.5 million, or an effective tax rate of 41.4%, for 2017. The 2018 income tax expense includes a charge of $3.2 million associated with finalizing the 2017 provisional reasonable estimate, including $2.3 million for the Toll Charge and $0.9 million for the net impact of other items. The 2017 income tax expense includes a charge of $47 million as a provisional reasonable estimate of the impact of the Tax Act, including $49 million for the Toll Charge net of $2 million for other net tax benefits. Additionally, our tax rates are lower than the applicable U.S. statutory tax rate primarily due to income earned in lower tax jurisdictions, partially offset by the impact of taxes on unremitted earnings, and, with respect to 2018, the impact of the GILTI provisions of the Tax Act and non-U.S. losses and expenses with no tax benefit.

**Segment Information**

The Company reports its operations by the following segments: Electronics, Automotive and Industrial. Segment information is described more fully in Note 16, *Segment Information*, of the Notes to Consolidated Financial Statements included in this Annual Report.

The following table is a summary of the Company's net sales by segment:

| | Fiscal Year | | | |
|---|---|---|---|---|
| **(in millions)** | **2018** | **2017** | **Change** | **% Change** |
| Electronics | $ 1,124.3 | $ 661.9 | $ 462.4 | 69.9% |
| Automotive | 479.8 | 453.2 | 26.6 | 5.9% |
| Industrial | 114.4 | 106.4 | 8.0 | 7.5% |
| Total | $ 1,718.5 | $ 1,221.5 | $ 497.0 | 40.7% |

***Electronics Segment***

The Electronics segment net sales increased $462.4 million, or 69.9%, in 2018 compared to 2017 due to incremental net sales related to the IXYS and U.S. Sensor acquisitions of $378.2 million and $6.5 million, respectively, volume growth driven by the continued strong demand across various end markets and geographies, and favorable foreign exchange impacts of $6.5 million.

***Automotive Segment***

Net sales in the Automotive segment increased $26.6 million, or 5.9%, in 2018 compared to 2017 due to volume growth across all businesses primarily led by the commercial vehicle and sensor businesses, and favorable foreign exchange impacts of $9.8 million.

***Industrial Segment***

The Industrial segment net sales increased $8.0 million, or 7.5%, in 2018 compared to 2017 primarily due to volume growth in the power fuse and relay businesses and favorable foreign exchange impacts of $0.4 million, partially offset by a decline in sales from the exit of the Custom business during 2018.

**Geographic Net Sales Information**

Net sales by geography represent net sales to customer or distributor locations. The following table is a summary of the Company's net sales by geography:

| | Fiscal Year | | | |
|---|---|---|---|---|
| **(in millions)** | **2018** | **2017** | **Change** | **% Change** |
| Asia-Pacific | $ 753.3 | $ 541.1 | $ 212.2 | 39.2% |
| Americas | 578.6 | 436.5 | 142.1 | 32.6% |
| Europe | 386.6 | 243.9 | 142.7 | 58.5% |
| Total | $ 1,718.5 | $ 1,221.5 | $ 497.0 | 40.7% |

***Asia-Pacific***

Asia-Pacific net sales increased $212.2 million, or 39.2%, in 2018 compared to 2017. The increase in net sales was primarily due to incremental net sales related to the IXYS acquisition of $173.9 million and volume growth across all segments as well as favorable foreign exchange impacts of $3.7 million.

***Americas***

Net sales in the Americas increased $142.1 million, or 32.6%, in 2018 compared to 2017 driven by incremental net sales related to the IXYS and U.S. Sensor acquisitions of $90.7 million and $5.5 million, respectively, volume growth across all segments and favorable foreign exchange impacts of $0.4 million.

***Europe***

European net sales increased $142.7 million, or 58.5%, in 2018 compared to 2017. The increase in net sales was primarily due to incremental net sales related to the IXYS acquisition of $113.6 million with volume growth across the Electronics and Automotive segments as well as favorable foreign exchange impacts of $12.6 million.

## Liquidity and Capital Resources

Cash and cash equivalents were $531.1 million as of December 28, 2019, an increase of $41.4 million as compared to December 29, 2018.

As of December 28, 2019, $333.2 million of the Company's $531.1 million cash and cash equivalents was held by non-U.S. subsidiaries. Of the $333.2 million, at least $165 million can be repatriated with minimal tax consequences, although in certain cases a non-U.S. withholding tax would be payable but subsequently refunded. With respect to the remaining $168.2 million, the Company has recognized deferred tax liabilities on approximately $78.5 million as of December 28, 2019 because the amounts are not considered to be permanently reinvested, and the Company may access additional amounts through loans and other means. Repatriation of some non-U.S. cash balances is restricted by local laws. Management regularly evaluates whether foreign earnings are expected to be permanently reinvested. This evaluation requires judgment about the future operating and liquidity needs of the Company and its foreign subsidiaries. Changes in economic and business conditions, non-U.S. or U.S. tax laws could result in changes to these judgments and the need to record additional tax liabilities.

The Company has historically supported its liquidity needs through cash flows from operations. Management expects that the Company's (i) current level of cash, cash equivalents, and marketable securities, (ii) current and forecasted cash flows from operations, (iii) availability under existing funding arrangements, and (iv) access to capital in the capital markets will provide sufficient funds to support the Company's operations, capital expenditures, investments, and debt obligations on both a short-term and long-term basis.

*Revolving Credit Facility/Term Loan*

On March 4, 2016, the Company entered into a five-year credit agreement ("Credit Agreement") with a group of lenders for up to $700.0 million. The Credit Agreement consisted of an unsecured revolving credit facility ("Revolving Credit Facility") of $575.0 million and an unsecured term loan credit facility ("Term Loan") of up to $125.0 million. In addition, the Company had the ability, from time to time, to increase the size of the Revolving Credit Facility and the Term Loan by up to an additional $150.0 million, in the aggregate, in each case in minimum increments of $25.0 million, subject to certain conditions and the agreement of participating lenders.

On October 13, 2017, the Company amended the Credit Agreement to increase the Revolving Credit Facility from $575.0 million to $700.0 million and increase the Term Loan from $125.0 million to $200.0 million and to extend the expiration date from March 4, 2021 to October 13, 2022. The Credit Agreement also includes the option for the Company to increase the size of the Revolving Credit Facility and the Term Loan by up to an additional $300.0 million, in the aggregate, subject to the satisfaction of certain conditions set forth in the Credit Agreement. Term Loans may be made in up to two advances. The first advance of $125.0 million occurred on October 13, 2017 and the second advance of $75.0 million occurred on January 16, 2018. For the Term Loan, the Company is required to make quarterly principal payments of 1.25% of the original term loan ($2.5 million quarterly) through maturity, with the remaining balance due on October 13, 2022. The Company paid $10.0 million of principal payments on the Term Loan for the fiscal year ended December 28, 2019.

Outstanding borrowings under the Credit Agreement bear interest, at the Company's option, at either LIBOR fixed for interest periods of one, two, three or six-month periods plus 1.00% to 2.00%, or at the bank's Base Rate, as defined, plus 0.00% to 1.00%, based upon the Company's Consolidated Leverage Ratio, as defined. The Company is also required to pay commitment fees on unused portions of the credit agreement ranging from 0.15% to 0.25%, based on the Consolidated Leverage Ratio, as defined in the agreement. The credit agreement includes representations, covenants and events of default that are customary for financing transactions of this nature. The effective interest rate on outstanding borrowings under the credit facility was 3.20% at December 28, 2019.

As of December 28, 2019, the Company had no amounts outstanding in letters of credit and had available $353.4 million of borrowing capacity under the Revolving Credit Facility.

*Senior Notes*

On December 8, 2016, the Company entered into a Note Purchase Agreement, pursuant to which the Company issued and sold €212 million aggregate principal amount of senior notes in two series. The funding date for the Euro denominated senior notes occurred on December 8, 2016 for €117 million in aggregate amount of 1.14% Senior Notes, Series A, due December 8, 2023 ("Euro Senior Notes, Series A due 2023"), and €95 million in aggregate amount of 1.83% Senior Notes, Series B due December 8, 2028 ("Euro Senior Notes, Series B due 2028") (together, the "Euro Senior Notes"). Interest on the Euro Senior Notes is payable semiannually on June 8 and December 8, commencing June 8, 2017.

On December 8, 2016, the Company entered into a Note Purchase Agreement, pursuant to which the Company issued and sold $125 million aggregate principal amount of senior notes in two series. On February 15, 2017, $25 million in aggregate principal amount of 3.03% Senior Notes, Series A, due February 15, 2022 ("U.S. Senior Notes, Series A due 2022"), and $100 million in aggregate principal amount of 3.74% Senior Notes, Series B, due February 15, 2027 ("U.S. Senior Notes, Series B due 2027") (together, the "U.S. Senior Notes due 2022 and 2027") were funded. Interest on the U.S. Senior Notes due 2022 and 2027 is payable semiannually on February 15 and August 15, commencing August 15, 2017.

On November 15, 2017, the Company entered into a Note Purchase Agreement pursuant to which the Company issued and sold $175 million in aggregate principal amount of senior notes in two series. On January 16, 2018, $50 million aggregate principal amount of 3.48% Senior Notes, Series A, due February 15, 2025 ("U.S. Senior Notes, Series A due 2025") and $125 million in aggregate principal amount of 3.78% Senior Notes, Series B, due February 15, 2030 ("U.S. Senior Notes, Series B due 2030") (together, the "U.S. Senior Notes due 2025 and 2030" and with the Euro Senior Notes and the U.S. Senior Notes due 2022 and

2027, the “Senior Notes”) were funded. Interest on the U.S. Senior Notes due 2025 and 2030 is payable semiannually on February 15 and August 15, commencing August 15, 2018.

The Company was in compliance with its debt covenants as of December 28, 2019 and expects to remain in compliance based on management’s estimates of operating and financial results for 2020 and the foreseeable future. As of December 28, 2019, the Company met all the conditions required to borrow under the Credit Agreement and management expects the Company to continue to meet the applicable borrowing conditions.

*Acquisitions*

During the year ended December 29, 2018, the Company paid $306.5 million, net of cash acquired, for the acquisition of IXYS. Pursuant to the Securities Purchase Agreement, the Company paid $9.0 million for the acquisition of the remaining 38% outstanding common stock of Monolith during the year ended December 29, 2018. The Company financed the cash portion of the IXYS acquisition with a combination of cash on hand and borrowings under the credit facility.

During the year ended December 30, 2017, the Company paid $38.5 million, net of cash acquired, for the acquisitions of U.S Sensor and Monolith. The Company financed these acquisitions with a combination of cash on hand and borrowings under the credit facility.

***Cash Flow Overview***

Operating cash inflows are largely attributable to sales of the Company’s products. Operating cash outflows are largely attributable to recurring expenditures for raw materials, labor, rent, interest, taxes and other operating activities.

The following describes the Company’s cash flows for the twelve months ended December 28, 2019 and December 29, 2018:

| | Fiscal Year | |
|---|---|---|
| **(in millions)** | **2019** | **2018** |
| Net cash provided by operating activities | $ 245.3 | $ 331.8 |
| Net cash used in investing activities | (56.4) | (382.3) |
| Net cash (used in) provided by financing activities | (146.3) | 121.9 |
| Effect of exchange rate changes on cash and cash equivalents | (1.2) | (11.4) |
| Increase in cash and cash equivalents | 41.4 | 60.0 |
| Cash and cash equivalents at beginning of year | 489.7 | 429.7 |
| Cash and cash equivalents at end of year | $ 531.1 | $ 489.7 |

*Cash Flow from Operating Activities*

Net cash provided by operating activities was $245.3 million for 2019, compared to $331.8 million during 2018. The decrease in net cash provided by operating activities was primarily driven by lower earnings and higher working capital levels primarily due to the timing of supplier payments, payroll year-end cut off and higher annual incentive compensation payments in 2019.

*Cash Flow from Investing Activities*

Net cash used in investing activities was $56.5 million for 2019, compared to $382.3 million during 2018. Net cash used for the acquisition of IXYS was $306.5 million and $9.0 million for the acquisition of the remaining 38% outstanding common stock of Monolith in 2018. Capital expenditures were $61.9 million, representing a decrease of $12.9 million compared to 2018. The Company also received proceeds of $6.2 million in 2019 primarily as a result of the sale of a property within the Industrial segment.

*Cash Flow from Financing Activities*

Net cash used in financing activities was $146.3 million for 2019 compared to net cash provided by financing activities of $121.9 million for 2018. The Company repurchased 579,916 shares of its common stock during fiscal 2019 totaling $95.0 million, but made payments of  $99.4 million related to settled share repurchases. The Company made payments of $10.0 million on the term loan in 2019 as compared to $310.0 million of proceeds from the credit facility, term loan and senior notes payable and $102.5 million of payments on the credit facility and term loan during 2018.

The following describes the Company's cash flows for the twelve months ended December 29, 2018 and December 30, 2017:

| | Fiscal Year | |
|---|---|---|
| **(in millions)** | **2018** | **2017** |
| Net cash provided by operating activities | $ 331.8 | $ 269.2 |
| Net cash used in investing activities | (382.3) | (96.1) |
| Net cash provided by (used in) financing activities | 121.9 | (24.7) |
| Effect of exchange rate changes on cash and cash equivalents | (11.4) | 6.2 |
| Increase (decrease) in cash and cash equivalents | 60.0 | 154.6 |
| Cash and cash equivalents at beginning of year | 429.7 | 275.1 |
| Cash and cash equivalents at end of year | $ 489.7 | $ 429.7 |

*Cash Flow from Operating Activities*

Net cash provided by operating activities was $331.8 million for 2018, compared to $269.2 million during 2017. The increase in net cash provided by operating activities was primarily driven by higher earnings and favorable working capital management that more than offset higher payments related to cash taxes and acquisition and integration costs.

*Cash Flow from Investing Activities*

Net cash used in investing activities was $382.3 million for 2018, compared to $96.1 million during 2017. Net cash used for the acquisition of IXYS was $306.5 million in 2018 compared to acquisitions of $38.5 million in 2017 related to the acquisition of a majority stake in Monolith for $14.2 million and the acquisition of U.S. Sensor for $24.3 million. Capital expenditures were $74.8 million, representing an increase of $8.8 million compared to 2017. The Company also received proceeds of $9.6 million in 2018 primarily as a result of the sale of a building.

*Cash Flow from Financing Activities*

Net cash provided by financing activities was $121.9 million for 2018 compared to net cash used in financing activities of $24.7 million for 2017. The Company had $310.0 million of proceeds from the credit facility, term loan and senior notes payable partially offset by payments of $102.5 million on credit facility and the term loan in 2018 as compared to $149.4 million of proceeds from the credit facility, term loan and senior notes payable and $134.7 million of payments on credit facility and the term loan during 2017. The Company repurchased 391,972 shares of its common stock during fiscal 2018 totaling $63.6 million.

***Dividends***

Cash dividends paid totaled $44.7 million, $40.0 million and $31.8 million for 2019, 2018 and 2017, respectively. On January 29, 2020, the Board of Directors of the Company declared a quarterly cash dividend of $0.48 per share, payable on March 5, 2020 to stockholders of record as of February 20, 2020.

***Capital Resources***

The Company expends capital to support its operating and strategic plans. Such expenditures include strategic acquisitions, investments to maintain capital assets, develop new products or improve existing products, and to enhance capacity or productivity. Many of the associated projects have long lead-times and require commitments in advance of actual spending.

***Share Repurchase Program***

On May 2, 2018, the Company announced that the Company's Board of Directors had authorized the repurchase of up to 1,000,000 shares of the Company's common stock under a program for the period May 1, 2018 to April 30, 2019 (the "2018 program"). On May 1, 2019, the Company announced that the Company's Board of Directors had authorized a new program to repurchase up to 1,000,000 shares of the Company's common stock for the period May 1, 2019 to April 30, 2020 (the "2019 program"). As of April 30, 2019, 528,112 shares remained available for repurchases under the 2018 program. During the fiscal year ended December 28, 2019, the Company repurchased 579,916 shares of its common stock totaling $95.0 million. There were 500,000 shares remaining available for purchase under the 2019 program as of December 28, 2019.

### Contractual Obligations and Commitments

The following table summarizes outstanding contractual obligations and commitments as of December 28, 2019:

| | Payments Due By Period | | | | |
|---|---|---|---|---|---|
| **(in thousands)** | **Total** | **Less than 1 Year** | **1 to 3 Years** | **3 to 5 Years** | **Greater than 5 Years** |
| Long-term debt[(a)] | $ 682,827 | $ 10,000 | $ 162,619 | $ 129,808 | $ 380,400 |
| Interest payments[(b)] | 114,695 | 18,114 | 33,998 | 23,858 | 38,725 |
| Operating lease payments[(c)] | 27,028 | 8,207 | 11,680 | 6,683 | 458 |
| Income Tax Obligation[(d)] | 26,754 | 3,000 | 5,273 | 11,534 | 6,947 |
| Purchase obligations[(e)] | 22,773 | 19,377 | 947 | 942 | 1,507 |
| Total | $ 874,077 | $ 58,698 | $ 214,517 | $ 172,825 | $ 428,037 |

(a) Excludes offsetting issuance costs of $3.7 million. Euro denominated debt amounts are converted based on the Euro to U.S. Dollar spot rate at year end. For more information see Note 9, *Debt,* of the Notes to Consolidated Financial Statements.

(b) Amounts represent estimated contractual interest payments on outstanding debt. Rates in effect as of December 28, 2019 are used for variable rate debt. For more information see Note 9, *Debt,* of the Notes to Consolidated Financial Statements.

(c) For more information see Note 7, *Lease Commitments,* of the Notes to Consolidated Financial Statements.

(d) The Income Tax Obligation represents the remaining amounts payable regarding the 2017 Littelfuse Toll Charge. The Company has elected to pay the 2017 Littelfuse Toll Charge over the eight-year period prescribed by the Tax Act. For more information see Note 14, *Income Taxes,* of the Notes to Consolidated Financial Statements.

(e) Purchase obligations include purchase commitments and commitments for capital expenditures not recognized in the Company's Consolidated Balance Sheets.

In addition to the above contractual obligations and commitments, the Company had the following obligations at December 28, 2019:

The Company has Company-sponsored defined benefit pension plans covering employees at various non-U.S. subsidiaries including the U.K., Germany, the Philippines, China, Japan, Mexico, Italy and France. At December 28, 2019, the Company had a net unfunded status of $38.4 million. The Company expects to make approximately $2.3 million of contributions to the plans in 2020. For additional information, see Note 11, *Benefit Plans*, of the Notes to Consolidated Financial Statements.

The Company has a non-qualified Supplemental Retirement and Savings Plan which provides additional retirement benefits for certain management employees and named executive officers by allowing participants to defer a portion of their annual compensation. As of December 28, 2019, there was $10.5 million of accrued compensation benefits included in *Other long-term liabilities*. For additional information, see Note 11, *Benefit Plans*, of the Notes to Consolidated Financial Statements.

As of December 28, 2019, the Company recognized various accruals related to employee compensation including its annual incentive program that are expected to be paid in 2020.

Due to the uncertainty with respect to the cash outflows, the preceding table excludes unrecognized tax benefits of $16.7 million. The Company does not expect to make significant payments of these liabilities within the next year. For additional information, see Note 14, *Income Taxes*, of the Notes to Consolidated Financial Statements.

### Off-Balance Sheet Arrangements

As of December 28, 2019, the Company did not have any off-balance sheet arrangements, as defined under SEC rules. Specifically, the Company was not liable for guarantees of indebtedness owed by third parties, the Company was not directly liable for the debt of any unconsolidated entity and the Company did not have any retained or contingent interest in assets. The Company does 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.

### Recent Accounting Pronouncements

Recently issued accounting standards and their estimated effect on the Company's Consolidated Financial Statements are described in Note 1, *Summary of Significant Accounting Policies and Other Information*, of the Notes to Consolidated Financial Statements.

## ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK.

The Company is exposed to market risk from changes in interest rates, foreign exchange rates and commodity prices.

***Interest Rates Risk***

The Company had $145.0 million in debt outstanding at December 28, 2019 related to the unsecured revolving credit facility and term loan. With variable interest rates, the Company is subject to future interest rate fluctuations in relation to these borrowings which could potentially have a negative impact on cash flows of the Company. A prospective increase of 100 basis points in the interest rate applicable to the Company's outstanding borrowings under its credit facility would result in an increase of approximately $1.5 million in annual interest expense. The Company is not party to any currency exchange or interest rate protection agreements as of December 28, 2019.

***Foreign Exchange Rate Risk***

The majority of the company's operations consist of manufacturing and sales activities in foreign countries. The Company has operations in China, Germany, Mexico, Philippines, United Kingdom, Japan, Lithuania, Netherlands, Portugal, Singapore, South Korea, Spain, and the U.S. During 2019, sales to customers outside the U.S. were approximately 71% of total net sales. During 2018, sales to customers outside the U.S. were approximately 70% of total net sales. Substantially all sales in Europe are denominated in euros and substantially all sales in the Asia-Pacific region are denominated in U.S. dollars, Chinese renminbi, Japanese yen, or Korean won.

The company's foreign exchange exposures result primarily from inter-company loans, external borrowings, sale of products in foreign currencies, foreign currency denominated purchases, employee-related and other costs of running operations in foreign countries. The company's most significant foreign currency exposures are to the euro, the Chinese renminbi, Mexican peso, and Philippine peso. Changes in foreign exchange rates could affect the company's sales, costs, balance sheet values and earnings.

At December 28, 2019, the net value of the Company's assets with exposure to foreign currency risk was approximately $147 million, with the largest exposure being a Japanese yen denominated inter-company loan with a Euro functional currency subsidiary. The reduction in earnings from a hypothetical instantaneous 10% adverse change in quoted foreign currency spot rates applied to foreign currency sensitive asset instruments would be $15 million at December 28, 2019. At December 28, 2019, the net value of the Company's liabilities with exposure to foreign currency risk was $369 million, with the largest exposure being U.S. Dollar denominated inter-company loans with a Euro functional currency subsidiary. The reduction in earnings from a hypothetical instantaneous 10% adverse change in quoted foreign currency spot rates applied to foreign currency sensitive liability instruments would be $37 million at December 28, 2019. As a result of the mix in currencies impacting the hypothetical 10% changes, the movements in some instruments would offset movements in other instruments reducing the hypothetical exposure to the Company.

***Commodity Price Risk***

The Company uses various metals in the manufacturing of its products, including copper, zinc, tin, gold, and silver. Prices of these commodities can rise and result in materially higher costs of producing our products. The Company believes it has adequate primary and secondary sources of supply for each of our key materials and that, in periods of rising prices, the Company expects to recover a majority of the increased cost in the form of higher selling prices. However, recoveries typically lag the effect of cost increases due to the nature of our markets.

The cost of oil has fluctuated dramatically over the past several years. Consequently, there is a risk that a return to high prices for oil and electricity in 2020 could have a significant impact on the Company's transportation and utility expenses. While the Company is exposed to significant changes in certain commodity prices and foreign currency exchange rates, the Company actively monitors these exposures and may take various actions from time to time to mitigate any negative impacts of these exposures.

## ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA.

**Index** **Page**

## Report of Independent Registered Public Accounting Firm

**Board of Directors and Shareholders**

**Littelfuse, Inc.**

**Opinion on the financial statements**

We have audited the accompanying consolidated balance sheets of Littelfuse, Inc. (a Delaware corporation) and subsidiaries (the "Company") as of December 28, 2019 and December 29, 2018, the related consolidated statements of net income, comprehensive income, equity, and cash flows for each of the three years in the period ended December 28, 2019, 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 28, 2019 and December 29, 2018, and the results of its operations and its cash flows for each of the three years in the period ended December 28, 2019, 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 28, 2019, 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 21, 2020, expressed an unqualified opinion.

**Change in accounting principle**

As discussed in Note 1 to the consolidated financial statements, the Company has changed its method of accounting for operating leases as of December 30, 2018 due to the adoption of ASU 2016-02, *Leases* (Topic 842).

**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 matter**

The critical audit matter communicated below is a matter arising from the current period audit of the financial statements that was communicated or required to be communicated to the audit committee and that: (1) relates 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 matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

*Goodwill Impairment Analysis*

The Company's consolidated goodwill balance was $820.6 million as of December 28, 2019. As described in Note 1 to the consolidated financial statements, the Company evaluates goodwill for impairment at the reporting unit level annually and performed quantitative goodwill impairment assessment for each of its seven reporting units. The quantitative impairment assessment involves the comparison of the fair value of a reporting unit to its carrying amount. The Company used a weighting of the income and market approaches to determine the fair value of the reporting unit.

We identified the goodwill impairment analysis as a critical audit matter for certain reporting units because management's quantitative goodwill impairment test involved a high degree of auditor judgment due to the significant estimation required to determine the fair value of the reporting unit. In particular, the fair value estimate was sensitive to significant assumptions, such as forecasted revenues, operating income margins, long-term discount rate, perpetual growth rate, and estimated valuation multiples.

Our audit procedures related to the goodwill impairment analysis of certain reporting units included the following, among others. We tested the design and operating effectiveness of key controls over the Company's goodwill impairment assessment process including review of the valuation model and significant assumptions used. We tested the significant assumptions discussed above by assessing the reasonableness of management's forecasts compared to current results and forecasted industry trends. We performed sensitivity analyses of certain assumptions to evaluate changes in the fair value that would result from changes in the assumptions. With the assistance of our valuation specialists, we evaluated the selection of the long-term discount rate and perpetual growth rate, including testing the underlying source information and the mathematical accuracy of the calculations by developing a range of independent estimates and comparing those to the rates selected by management. We also involved our valuation specialists to evaluate the market approach, including evaluating the reasonableness of estimated valuation multiples.

/s/ GRANT THORNTON LLP

We have served as the Company's auditor since 2014.

Southfield, Michigan
February 21, 2020

## Report of Independent Registered Public Accounting Firm

**Board of Directors and Shareholders**

**Littelfuse, Inc.**

**Opinion on internal control over financial reporting**

We have audited the internal control over financial reporting of Littelfuse, Inc. (a Delaware corporation) and subsidiaries (the "Company") as of December 28, 2019, 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 28, 2019, 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 28, 2019, and our report dated February 21, 2020 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 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.

**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

Southfield, Michigan
February 21, 2020

## LITTELFUSE, INC.
## CONSOLIDATED BALANCE SHEETS

| (in thousands, except share and per share data) | December 28, 2019 | December 29, 2018 |
|---|---|---|
| **ASSETS** | | |
| Current assets: | | |
| Cash and cash equivalents | $ 531,139 | $ 489,733 |
| Short-term investments | 44 | 34 |
| Trade receivables, less allowances of $42,043 and $36,038 at December 28, 2019 and December 29, 2018, respectively | 202,309 | 232,892 |
| Inventories | 237,507 | 258,228 |
| Prepaid income taxes and income taxes receivable | 4,831 | 2,339 |
| Prepaid expenses and other current assets | 28,564 | 49,291 |
| Total current assets | 1,004,394 | 1,032,517 |
| Net property, plant, and equipment | 344,617 | 339,894 |
| Intangible assets, net of amortization | 321,247 | 361,474 |
| Goodwill | 820,589 | 826,715 |
| Investments | 24,099 | 25,405 |
| Deferred income taxes | 8,069 | 7,330 |
| Rights of use lease assets, net | 21,918 | — |
| Other assets | 14,965 | 20,971 |
| Total assets | $ 2,559,898 | $ 2,614,306 |
| **LIABILITIES AND EQUITY** | | |
| Current liabilities: | | |
| Accounts payable | $ 117,320 | $ 126,323 |
| Accrued liabilities | 84,120 | 138,405 |
| Accrued income taxes | 14,122 | 20,547 |
| Current portion of long-term debt | 10,000 | 10,000 |
| Total current liabilities | 225,562 | 295,275 |
| Long-term debt, less current portion | 669,158 | 684,730 |
| Deferred income taxes | 49,763 | 51,853 |
| Accrued post-retirement benefits | 38,198 | 31,874 |
| Non-current operating lease liabilities | 17,166 | — |
| Other long-term liabilities | 64,037 | 72,232 |
| Shareholders' equity: | | |
| Common stock, par value $0.01 per share: 34,000,000 shares authorized; shares issued, 25,855,203 and 25,641,959 in 2019 and 2018, respectively | 256 | 254 |
| Treasury stock, at cost: 1,473,901 and 868,045 shares, respectively | (216,447) | (116,454) |
| Additional paid-in capital | 867,996 | 835,828 |
| Accumulated other comprehensive loss | (106,823) | (97,924) |
| Retained earnings | 950,901 | 856,507 |
| Littelfuse, Inc. shareholders' equity | 1,495,883 | 1,478,211 |
| Non-controlling interest | 131 | 131 |
| Total equity | 1,496,014 | 1,478,342 |
| Total liabilities and equity | $ 2,559,898 | $ 2,614,306 |

See accompanying Notes to Consolidated Financial Statements.

## LITTELFUSE, INC.
## CONSOLIDATED STATEMENTS OF NET INCOME

| (in thousands, except per share data) | Fiscal Year Ended December 28, 2019 | December 29, 2018 | December 30, 2017 |
|---|---|---|---|
| Net sales | $ 1,503,873 | $ 1,718,468 | $ 1,221,534 |
| Cost of sales | 962,424 | 1,065,927 | 715,001 |
| Gross profit | 541,449 | 652,541 | 506,533 |
| | | | |
| Selling, general, and administrative expenses | 228,093 | 288,001 | 212,833 |
| Research and development expenses | 80,539 | 87,301 | 50,489 |
| Amortization of intangibles | 40,026 | 52,190 | 24,700 |
| Total operating expenses | 348,658 | 427,492 | 288,022 |
| Operating income | 192,791 | 225,049 | 218,511 |
| | | | |
| Interest expense | 22,266 | 22,569 | 13,380 |
| Foreign exchange loss (gain) | 5,224 | (863) | 2,376 |
| Other income, net | (583) | (1,599) | (1,282) |
| Income before income taxes | 165,884 | 204,942 | 204,037 |
| Income taxes | 26,802 | 40,377 | 84,518 |
| Net income | $ 139,082 | $ 164,565 | $ 119,519 |
| | | | |
| Income per share: | | | |
| Basic | $ 5.66 | $ 6.62 | $ 5.27 |
| Diluted | $ 5.60 | $ 6.52 | $ 5.21 |
| | | | |
| Weighted average shares and equivalent shares outstanding: | | | |
| Basic | 24,576 | 24,870 | 22,687 |
| Diluted | 24,818 | 25,235 | 22,931 |

See accompanying Notes to Consolidated Financial Statements.

**LITTELFUSE, INC.**
**CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME**

| | Year Ended | | |
|---|---|---|---|
| **(in thousands)** | **December 28, 2019** | **December 29, 2018** | **December 30, 2017** |
| Net income | $ 139,082 | $ 164,565 | $ 119,519 |
| Other comprehensive income (loss): | | | |
| Pension and postemployment adjustments, net of tax | (8,087) | 877 | 1,147 |
| Unrealized loss on investments | — | — | (974) |
| Foreign currency translation adjustments | (812) | (25,338) | 10,738 |
| Comprehensive income | $ 130,183 | $ 140,104 | $ 130,430 |

See accompanying Notes to Consolidated Financial Statements.

# LITTELFUSE, INC.
# CONSOLIDATED STATEMENTS OF CASH FLOWS

| (in thousands) | Year Ended December 28, 2019 | Year Ended December 29, 2018 | Year Ended December 30, 2017 |
|---|---|---|---|
| **OPERATING ACTIVITIES** | | | |
| Net income | $ 139,082 | $ 164,565 | $ 119,519 |
| Adjustments to reconcile net income to net cash provided by operating activities: | | | |
| Depreciation | 52,477 | 51,003 | 38,311 |
| Amortization of intangibles | 40,026 | 52,190 | 24,700 |
| Impairment charges | 322 | 2,218 | — |
| Deferred revenue | (318) | 3,965 | — |
| Non-cash inventory charges | — | 36,927 | 1,607 |
| Stock-based compensation | 19,046 | 27,431 | 16,315 |
| Loss (gain) on investments and other assets | 4,854 | (670) | — |
| Deferred income taxes | (1,147) | (4,679) | 17,063 |
| Other | 6,638 | 620 | 6,048 |
| Changes in operating assets and liabilities: | | | |
| Trade receivables | 28,497 | (3,539) | (11,087) |
| Inventories | 22,094 | (33,971) | (20,180) |
| Accounts payable | (22,574) | 13,708 | 6,494 |
| Accrued liabilities and income taxes | (54,242) | 29,329 | 50,626 |
| Prepaid expenses and other assets | 10,573 | (7,269) | 19,754 |
| Net cash provided by operating activities | 245,328 | 331,828 | 269,170 |
| **INVESTING ACTIVITIES** | | | |
| Acquisitions of businesses, net of cash acquired | (775) | (318,474) | (38,512) |
| Proceeds from sales and maturities of short-term investments | — | 1,407 | 3,739 |
| Decrease in entrusted loan | — | — | 3,599 |
| Purchases of property, plant, and equipment | (61,895) | (74,753) | (65,925) |
| Proceeds from sale of property, plant, and equipment | 6,213 | 9,572 | 962 |
| Net cash used in investing activities | (56,457) | (382,248) | (96,137) |
| **FINANCING ACTIVITIES** | | | |
| Proceeds of revolving credit facility | — | 60,000 | 15,000 |
| Proceeds of term loan | — | 75,000 | 9,375 |
| Proceeds from senior notes payable | — | 175,000 | 125,000 |
| Payments of term loan | (10,000) | (42,500) | (7,188) |
| Payments of revolving credit facility | — | (60,000) | (127,500) |
| Net proceeds (payments) related to stock-based award activities | 7,800 | 18,857 | (2,373) |
| Payments of entrusted loan | — | — | (3,599) |
| Cash dividends paid | (44,689) | (39,993) | (31,770) |
| Purchases of common stock | (99,387) | (63,564) | — |
| Other | — | (903) | (1,626) |
| Net cash (used in) provided by financing activities | (146,276) | 121,897 | (24,681) |
| Effect of exchange rate changes on cash and cash equivalents | (1,189) | (11,420) | 6,200 |
| Increase in cash and cash equivalents | 41,406 | 60,057 | 154,552 |
| Cash and cash equivalents at beginning of year | 489,733 | 429,676 | 275,124 |
| Cash and cash equivalents at end of year | $ 531,139 | $ 489,733 | $ 429,676 |
| Supplementary Cash Flow Information | | | |
| Cash paid during the period for interest | $ 21,240 | $ 18,462 | $ 10,569 |
| Cash paid during the period for income taxes, net of refunds | $ 40,518 | $ 41,904 | $ 18,088 |
| Capital expenditures, not yet paid | $ 11,110 | $ — | $ — |

See accompanying Notes to Consolidated Financial Statements.

## LITTELFUSE, INC.
## CONSOLIDATED STATEMENTS OF EQUITY

| (in thousands, except share and per share data) | Littelfuse, Inc. Shareholders' Equity | | | | | | |
|---|---|---|---|---|---|---|---|
| | Common Stock | Addl. Paid in Capital | Treasury Stock | Accum. Other Comp. Inc. (Loss) | Retained Earnings | Non-controlling Interest | Total |
| Balance at December 31, 2016 | $ 228 | $291,258 | $ (36,510) | $ (74,579) | $634,391 | $ 143 | $ 814,931 |
| Net income | — | — | — | — | 119,519 | — | 119,519 |
| Other comprehensive income (loss), net of tax | | | | 10,911 | | | 10,911 |
| Stock-based compensation | — | 16,315 | — | — | — | — | 16,315 |
| Non-controlling interest | — | — | — | — | — | (6) | (6) |
| Withheld 30,459 shares on restricted share units for withholding taxes | — | — | (4,784) | — | — | — | (4,784) |
| Stock options exercised | 1 | 2,439 | — | — | — | — | 2,440 |
| Cash dividends paid ($1.40 per share) | — | — | — | — | (31,770) | — | (31,770) |
| Balance at December 30, 2017 | $ 229 | $310,012 | $ (41,294) | $ (63,668) | $722,140 | $ 137 | $ 927,556 |
| Net income | — | — | — | — | 164,565 | — | 164,565 |
| Other comprehensive income (loss), net of tax | | | | (24,461) | | | (24,461) |
| Cumulative effect adjustment | — | — | — | (9,795) | 9,795 | — | — |
| Stock-based compensation | — | 27,431 | — | — | — | — | 27,431 |
| Non-controlling interest | — | — | — | — | — | (6) | (6) |
| Withheld 36,482 shares on restricted share units for withholding taxes | — | — | (7,252) | — | — | — | (7,252) |
| Stock options exercised | 4 | 26,105 | — | — | — | — | 26,109 |
| Issuance of common stock | 21 | 472,280 | | | | | 472,301 |
| Repurchases of common stock | — | — | (67,908) | — | — | — | (67,908) |
| Cash dividends paid ($1.60 per share) | — | — | — | — | (39,993) | — | (39,993) |
| Balance at December 29, 2018 | $ 254 | $835,828 | $(116,454) | $ (97,924) | $856,507 | $ 131 | $1,478,342 |
| Net income | — | — | — | — | 139,082 | — | 139,082 |
| Other comprehensive income (loss), net of tax | | | | (8,899) | | | (8,899) |
| Stock-based compensation | — | 19,046 | — | — | — | — | 19,046 |
| Withheld 25,940 shares on restricted share units for withholding taxes | — | — | (4,957) | — | — | — | (4,957) |
| Stock options exercised | 2 | 13,122 | — | — | — | — | 13,124 |
| Repurchases of common stock | — | — | (95,036) | — | — | — | (95,036) |
| Cash dividends paid ($1.82 per share) | — | — | — | — | (44,688) | — | (44,688) |
| Balance at December 28, 2019 | $ 256 | $867,996 | $(216,447) | $(106,823) | $950,901 | $ 131 | $1,496,014 |

See accompanying Notes to Consolidated Financial Statements.

## 1. Summary of Significant Accounting Policies and Other Information

### *Nature of Operations*

Littelfuse, Inc. and subsidiaries (the "Company") is a global manufacturer of leading technologies in circuit protection, power control and sensing. The company's products are found in automotive and commercial vehicles, industrial applications, data and telecommunications, medical devices, consumer electronics and appliances. With its broad product portfolio of fuses, semiconductors, polymers, ceramics, relays and sensors, and extensive global infrastructure, the Company's worldwide associates partner with its customers to design, manufacture and deliver innovative, high-quality solutions for a safer, greener and increasingly connected world.

### *Fiscal Year*

References herein to "2019", "fiscal 2019" or "fiscal year 2019" refer to the fiscal year ended December 28, 2019. References herein to "2018", "fiscal 2018" or "fiscal year 2018" refer to the fiscal year ended December 29, 2018. References herein to "2017", "fiscal 2017" or "fiscal year 2017" refer to the fiscal year ended December 30, 2017. The Company operates on a 52-53 week fiscal year (4-4-5 basis) ending on the Saturday closest to December 31.

### *Basis of Presentation*

The Consolidated Financial Statements include the accounts of Littelfuse, Inc. and its subsidiaries. All significant intercompany accounts and transactions have been eliminated. The Company's Consolidated Financial Statements were prepared in accordance with generally accepted accounting principles in the United States of America and include the assets, liabilities, sales and expenses of all wholly-owned subsidiaries and majority-owned subsidiaries over which the Company exercises control.

### *Use of Estimates*

The process of preparing financial statements in conformity with generally accepted accounting principles in the United States of America requires management to make estimates and assumptions that affect the amounts of assets and liabilities at the date of the Consolidated Financial Statements, and the reported amounts of revenues and expenses and the accompanying notes. The Company evaluates and updates its assumptions and estimates on an ongoing basis and may employ outside experts to assist in its evaluation, as considered necessary. Actual results could differ from those estimates.

### *Cash Equivalents*

All highly liquid investments, with an original maturity of three months or less when purchased, are considered to be cash equivalents.

### *Short-Term and Long-Term Investments*

As of December 28, 2019, the Company has an investment in Polytronics Technology Corporation Ltd. ("Polytronics"). The Company's Polytronics shares held at the end of fiscal 2019 and 2018 represent approximately 7.2% of total Polytronics shares outstanding. The Polytronics investment is carried at fair value. The fair value of the Polytronics investment was €11.6 million (approximately $12.8 million) at December 28, 2019 and €8.9 million (approximately $10.2 million) at December 29, 2018.

As a result of the Company's acquisition of IXYS, the Company has equity ownerships in various investments that are accounted for under the equity method. The Company owns 45% of the outstanding equity of Powersem GmbH, a module manufacturer based in Germany, approximately 19% of the outstanding equity of EB Tech Ltd., a company with expertise in radiation technology based in South Korea, and approximately 24% of the outstanding common shares of Automated Technology, Inc., a supplier located in the Philippines that provides assembly and test services. All equity-level investments are less than majority owned. The Company recognized $0.6 million in losses and $0.7 million in gains from its equity method investments for the fiscal years ended December 28, 2019 and December 29, 2018, respectively. The balance of equity method investments was $11.1 million and $11.6 million as of the fiscal years ended December 28, 2019 and December 29, 2018, respectively. See Note 18, *Related Party Transactions,* for further discussion.

The balance of the Company's investments accounted for under the cost method was $0.4 million and $7.9 million for the fiscal years ended December 28, 2019 and December 29, 2018, respectively. During the twelve months ended December 28, 2019, the Company recorded impairment charges of $7.3 million in *Other income, net* in the Consolidated Statements of Net Income to adjust these certain investments to their estimated fair value of $0.4 million. See Note 10, *Fair Value of Assets and Liabilities,* for further discussion.

The Company has investments related to its non-qualified Supplemental Retirement and Savings Plan. The Company maintains accounts for participants through which participants make investment elections. The investment securities are subject to the claims of the Company's creditors. The investment securities are all mutual funds. The investment securities are measured at net asset value. As of December 28, 2019 and December 29, 2018, the investment securities balance was $10.5 million and $9.1 million, respectively, related to the plan and are included in *Other assets* on the Consolidated Balance Sheets.

***Trade Receivables***

The Company performs credit evaluations of customers' financial condition and generally does not require collateral. Credit losses are provided for in the financial statements based upon specific knowledge of a customer's inability to meet its financial obligations to the Company. Historically, credit losses have consistently been within management's expectations and have not been a material amount. A receivable is considered past due if payments have not been received within agreed upon invoice terms. Write-offs are recorded at the time a customer receivable is deemed uncollectible.

The Company also maintains allowances against trade receivables for the settlement of rebates and sales discounts to customers. These allowances are based upon specific customer sales and sales discounts as well as actual historical experience.

***Inventories***

Inventories are stated at the lower of cost or net realizable value, which approximates current replacement cost. Cost is principally determined using the first-in, first-out method. The Company maintains excess and obsolete reserves against inventory to reduce the carrying value to the expected net realizable value. These reserves are based upon a combination of factors including historical sales volume, market conditions, lower of cost or market analysis and expected realizable value of the inventory.

***Property, Plant, and Equipment***

Land, buildings, and equipment are carried at cost. Depreciation is calculated using the straight-line method with useful lives of 21 years for buildings, three to ten years for equipment, seven years for furniture and fixtures, five years for tooling and three years for computer equipment. Leasehold improvements are depreciated over the lesser of their useful life or the lease term. Maintenance and repair costs are charged to expense as incurred. Major overhauls that extend the useful lives of existing assets are capitalized.

***Goodwill***

The Company annually tests goodwill for impairment on the first day of its fiscal fourth quarter, or more frequently if an event occurs or circumstances change that would more likely than not reduce the fair value of a reporting unit below its carrying value.

The Company compares each reporting unit's fair value, estimated based on comparable company market valuations and expected future discounted cash flows to be generated by the reporting unit, to its carrying value. The results of the goodwill impairment test as of September 30, 2019 indicated that the estimated fair values for each of the seven reporting units exceeded their respective carrying values. As of the most recent annual test conducted on September 30, 2019, the Company noted that the excess of fair value over the carrying value, was 217%, 42%, 137%, 213%, 40%, 89%, and 268% for its reporting units; Electronics-Passive Products and Sensors, Electronics-Semiconductor, Passenger Car Products, Commercial Vehicle Products, Automotive Sensors, Relays, and Power Fuse, respectively. Relatively small changes in the Company's key assumptions would not have resulted in any reporting units failing the goodwill impairment test. See Note 5, *Goodwill and Other Intangible Assets,* for additional information.

The Company also performs an interim review for indicators of impairment each quarter to assess whether an interim impairment review is required for any reporting unit. As part of its interim reviews, management analyzes potential changes in the value of individual reporting units based on each reporting unit's operating results for the period compared to expected results as of the prior year's annual impairment test. In addition, management considers how other key assumptions, including discount rates and expected long-term growth rates, used in the last annual impairment test, could be impacted by changes in market conditions and economic events. Based on the interim assessments as of December 28, 2019, management concluded that no events or changes in circumstances indicated that it was more likely than not that the fair value for any reporting unit had declined below its carrying value.

***Long-Lived Assets***

Customer relationships, trademarks and tradenames are amortized using the straight-line method over estimated useful lives that have a range of 5 to 20 years. Patents, licenses and software are amortized using the straight-line method or an accelerated method over estimated useful lives that have a range of 5 to 17 years. The distribution networks are amortized on either a straight-line or accelerated basis over estimated useful lives that have a range of 4 to 10 years. Land use rights are amortized using the straight-line method over 50 years which is the term of the land use rights.

The Company assesses potential impairments to its long-lived assets if events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. An impaired asset is written down to its estimated fair value based upon the most recent information available. Estimated fair market value is generally measured by discounting estimated future cash flows. Long-lived assets, other than goodwill and other intangible assets, that are held for sale are recorded at the lower of carrying value or the fair market value less the estimated cost to sell.

***Environmental Liabilities***

Environmental liabilities are accrued based on engineering studies estimating the cost of remediating sites. Expenses related to on-going maintenance of environmental sites are expensed as incurred. If actual or estimated probable future losses exceed the Company's recorded liability for such claims, the Company would record additional charges during the period in which the actual loss or change in estimate occurred.

***Pension and Other Post-retirement Benefits***

The Company records annual income and expense amounts relating to its pension and post-retirement benefits plans based on calculations which include various actuarial assumptions including discount rates, expected long-term rates of return and compensation increases. The Company reviews its actuarial assumptions on an annual basis as of the fiscal year-end balance sheet date (or more frequently if a significant event requiring remeasurement occurs) and modifies the assumption based on current rates and trends when it is appropriate to do so. The effects of modifications are recognized immediately on the Consolidated Balance Sheets, but are generally amortized into operating earnings over future periods, with the deferred amount recorded in accumulated other comprehensive income (loss). The Company believes that the assumptions utilized in recording its obligations under its plans are reasonable based on its experience, market conditions and input from its actuaries and investment advisors.

***Revenue Recognition***

*Adoption*

On December 31, 2017, the Company adopted new guidance on revenue from contracts with customers using the modified retrospective method. The adoption did not have a significant impact on the Company's consolidated financial statements.

*Revenue Disaggregation*

The following table disaggregates the Company's revenue by primary business units for the fiscal years ended December 28, 2019 and December 29, 2018:

| | Fiscal Year Ended December 28, 2019 | | | |
|---|---|---|---|---|
| **(in thousands)** | **Electronics Segment** | **Automotive Segment** | **Industrial Segment** | **Total** |
| Electronics – Semiconductor | $ 563,572 | $ — | $ — | $ 563,572 |
| Electronics – Passive Products and Sensors | 397,508 | — | — | 397,508 |
| Passenger Car Products | — | 218,560 | — | 218,560 |
| Commercial Vehicle Products | — | 111,972 | — | 111,972 |
| Automotive Sensors | — | 98,001 | — | 98,001 |
| Industrial Products | — | — | 114,260 | 114,260 |
| Total | $ 961,080 | $ 428,533 | $ 114,260 | $ 1,503,873 |

| | Fiscal Year Ended December 29, 2018 | | | |
|---|---|---|---|---|
| (in thousands) | Electronics Segment | Automotive Segment | Industrial Segment | Total |
| Electronics – Semiconductor | $ 648,967 | $ — | $ — | $ 648,967 |
| Electronics – Passive Products and Sensors | 475,329 | — | — | 475,329 |
| Passenger Car Products | — | 240,501 | — | 240,501 |
| Commercial Vehicle Products | — | 121,562 | — | 121,562 |
| Automotive Sensors | — | 117,728 | — | 117,728 |
| Industrial Products | — | — | 114,381 | 114,381 |
| Total | $ 1,124,296 | $ 479,791 | $ 114,381 | $ 1,718,468 |

See Note 16, *Segment Information,* for net sales by segment and countries.

The Company recognizes revenue on product sales in the period in which the Company satisfies its performance obligation and control of the product is transferred to the customer. The Company's sales arrangements with customers are predominately short term in nature and generally provide for transfer of control at the time of shipment as this is the point at which title and risk of loss of the product transfers to the customer. At the end of each period, for those shipments where title to the products and the risk of loss and rewards of ownership do not transfer until the product has been received by the customer, the Company adjusts revenues and cost of sales for the delay between the time that the products are shipped and when they are received by the customer. The amount of revenue recorded reflects the consideration to which the Company expects to be entitled in exchange for goods and may include adjustments for customer allowance, rebates and price adjustments. The Company's distribution channels are primarily through direct sales and independent third-party distributors.

The Company has elected the practical expedient under Accounting Standards Codification ("ASC") 340-40-25-4 to expense commissions when incurred as the amortization period of the commission asset the Company would have otherwise recognized is less than one year.

***Revenue and Billing***

The Company generally accepts orders from customers through receipt of purchase orders or electronic data interchange based on written sales agreements and purchasing contracts. Contract pricing and selling agreement terms are based on market factors, costs, and competition. Pricing is often negotiated as an adjustment (premium or discount) from the Company's published price lists. The customer is invoiced when the Company's products are shipped to them in accordance with the terms of the sales agreement. As the Company's standard payment terms are less than one year, the Company has elected the practical expedient under ASC 606-10-32-18 to not assess whether a contract has a significant financing component. The Company also elected the practical expedient provided in ASC 606-10-25-18B to treat all product shipping and handling activities as fulfillment activities, and therefore recognize the gross revenue associated with the contract, inclusive of any shipping and handling revenue. This is similar to the Company's prior practice and therefore the effect of the new guidance is immaterial.

***Ship and Debit Program***

Some of the terms of the Company's sales agreements and normal business conditions provide customers (distributors) the ability to receive price adjustments on products previously shipped and invoiced. This practice is common in the industry and is referred to as a "ship and debit" program. This program allows the distributor to debit the Company for the difference between the distributors' contracted price and a lower price for specific transactions. Under certain circumstances (usually in a competitive situation or large volume opportunity), a distributor will request authorization for pricing allowances to reduce its price. When the Company approves such a reduction, the distributor is authorized to "debit" its account for the difference between the contracted price and the lower approved price. The Company establishes reserves for this program based on historic activity, electronic distributor inventory levels and actual authorizations for the debit and recognizes these debits as a reduction of revenue.

***Return to Stock***

The Company has a return to stock policy whereby certain customers, with prior authorization from the Company's management, can return previously purchased goods for full or partial credit. The Company establishes an estimated allowance for these returns based on historic activity. Sales revenue and cost of sales are reduced to anticipate estimated returns.

***Volume Rebates***

The Company offers volume-based sales incentives to certain customers to encourage greater product sales. If customers achieve their specific quarterly or annual sales targets, they are entitled to rebates. The Company estimates the projected amount of rebates that will be achieved by the customer and recognizes this estimated cost as a reduction to revenue as products are sold.

***Allowance for Doubtful Accounts***

The Company evaluates the collectability of its trade receivables based on a combination of factors. The Company regularly analyzes its significant customer accounts and, when the Company becomes aware of a specific customer's inability to meet its financial obligations, the Company records a specific reserve for bad debt to reduce the related receivable to the amount the Company reasonably believes is collectible. The Company also records allowances for all other customers based on a variety of factors including the length of time the receivables are past due, the financial health of the customer, macroeconomic considerations and past experience. Historically, the allowance for doubtful accounts has been adequate to cover bad debts. If circumstances related to specific customers change, the estimates of the recoverability of receivables could be further adjusted.

***Advertising Costs***

The Company expenses advertising costs as incurred, which amounted to $2.7 million, $2.8 million, and $2.9 million in fiscal years 2019, 2018 and 2017, respectively, and are included as a component of selling, general, and administrative expenses.

***Shipping and Handling Fees and Costs***

Amounts billed to customers related to shipping and handling is classified as revenue. Costs incurred for shipping and handling of $11.0 million, $12.3 million, and $10.9 million in fiscal years 2019, 2018, and 2017, respectively, are classified in selling, general, and administrative expenses.

***Foreign Currency Translation / Remeasurement***

The Company's foreign subsidiaries use the local currency or the U.S. dollar as their functional currency, as appropriate. Assets and liabilities are translated using exchange rates at the balance sheet date, and revenues and expenses are translated at weighted average rates. The amount of foreign currency gain or loss from remeasurement recognized in the income statement was a loss of $5.2 million in fiscal year 2019, a gain of $0.9 million in fiscal year 2018, and a loss of $2.4 million in fiscal year 2017. Adjustments from the translation process are recognized in "Shareholders' equity" as a component of "Accumulated other comprehensive income/ (loss)."

***Stock-Based Compensation***

The Company recognizes compensation expense for the cost of awards of equity compensation using a fair value method. Benefits of tax deductions in excess of recognized compensation expense are reported as operating cash flows. See Note 12, *Stock-Based Compensation*, for additional information on stock-based compensation.

***Coal Mining Liability***

Included in other long-term liabilities is an accrual related to former coal mining operations at Littelfuse GmbH (formerly known as Heinrich Industries, AG) for the amounts of €0.6 million ($0.7 million) and €1.1 million ($1.3 million) at December 28, 2019 and December 29, 2018, respectively. Management, in conjunction with an independent third-party, performs an annual evaluation of the former coal mining operations in order to develop an estimate of the probable future obligations in regard to remediating the dangers (such as a shaft collapse) of abandoned coal mine shafts in the former coal mining operations. Management accrues for costs associated with such remediation efforts based on management's best estimate when such costs are probable and reasonably able to be estimated. The ultimate determination can only be done after respective investigations because the concrete conditions are mostly unknown at this time.

***Other Income, Net***

Other income, net generally consists of interest income, royalties, change in fair value of available-for-sale securities, pension non-service costs and other non-operating expense (income).

***Income Taxes***

The Company accounts for income taxes using the liability method. Deferred taxes are recognized for the future effects of temporary differences between financial and income tax reporting using enacted tax rates in effect for the years in which the differences are expected to reverse. The Company recognizes deferred taxes for temporary differences, operating loss carryforwards, and tax credit and other tax attribute carryforwards (excluding carryforwards where usage has been determined to be remote). Deferred tax assets are reduced by a valuation allowance if it is more likely than not that some portion, or all, of the deferred tax assets will not be realized. U.S. state and non-U.S. income taxes are provided on the portion of non-U.S. income that is expected to be remitted to the U.S. and be taxable (and non-U.S. income taxes are provided on the portion of non-U.S. income that is expected to be remitted to an upper-tier non-U.S. entity). Deferred tax assets and liabilities are adjusted for the effects of changes in tax laws and rates on the date of enactment.

Deferred U.S. income taxes and non-U.S. taxes are not provided on the excess of the investment value for financial reporting over the tax basis of investments in those non-U.S. subsidiaries for which such excess is considered to be permanently reinvested in those operations. Management regularly evaluates whether non-U.S. earnings are expected to be permanently reinvested. This evaluation requires judgment about the future operating and liquidity needs of the Company and its non-U.S. subsidiaries. Changes in economic and business conditions, non-U.S. or U.S. tax laws, or the Company's financial situation could result in changes to these judgments and the need to record additional tax liabilities.

The Company recognizes the tax benefit from an uncertain tax position only if it is more likely than not that the tax position will be sustained on examination by the taxing authorities, based on the technical merits of the position. The tax benefits recognized in the financial statements from such a position are measured based on the largest benefit that has a greater than 50% likelihood of being realized upon ultimate settlement.

On December 22, 2017, the U.S. enacted legislation commonly referred to as the Tax Cuts and Jobs Act (the "Tax Act"). Among other things, the Tax Act reduces the U.S. corporate federal income tax rate from 35% to 21%, adds base broadening provisions which limit deductions and address excessive international tax planning, imposes a one-time tax (the "Toll Charge") on accumulated earnings of certain non-U.S. subsidiaries and enables repatriation of earnings of non-U.S. subsidiaries free of U.S. federal income tax. Other than the Toll Charge (which, except for the IXYS impact, was applicable to the Company for 2017), the provisions are generally applicable to the Company in 2018 and beyond.

In accordance with the guidance provided in SEC Staff Accounting Bulletin ("SAB") No. 118, in the fourth quarter of 2017 the Company recorded a charge of $47.0 million as a provisional reasonable estimate of the impact of the Tax Act, including $49.0 million for the Toll Charge net of $2.0 million for other net tax benefits. In the fourth quarter of 2018, within the measurement period outlined in SAB No. 118, the Company finalized its estimates of the impact of the Tax Act as of December 30, 2017 and recorded a charge of $3.2 million, including $2.3 million for the Toll Charge and $0.9 million for the net impact of other items. In addition, the Company recorded $7.0 million for the Toll Charge associated with IXYS as part of the IXYS acquisition purchase price allocation. This was reflected in the opening balance sheet as an increase to goodwill and other long-term liabilities.

Although certain administrative guidance has been issued, including final and proposed regulations, the appropriate application of many provisions of the Tax Act remain uncertain. The Company used its best judgment as to the application of these provisions in determining its final estimates of the impact of the Tax Act as of December 30, 2017, the Toll Charge associated with the IXYS acquisition as well as the Company's income tax expense for the fiscal years ended December 28, 2019 and December 29, 2018. Adjustments to income tax expense may be necessary in future periods if provisions of the Tax Act, and their interaction with other provisions of the U.S. Internal Revenue Code, are interpreted differently than interpretations made by the Company, whether through issuance of additional administrative guidance, or through further review of the Tax Act by the Company and its advisors.

The Company has elected to pay the 2017 Littelfuse Toll Charge over the eight-year period prescribed by the Tax Act. The long-term portion of this Toll Charge which remains payable as of December 28, 2019, totaling $23.8 million, is included in *Other long-term liabilities,* and the anticipated 2020 annual installment payment of $3.0 million is included in *Accrued income taxes*, on the Consolidated Balance Sheet as of December 28, 2019. The Company did not elect to pay the 2018 IXYS Toll Charge over the eight year period provided by the Tax Act and therefore there is no long-term portion of this Toll Charge which remains payable as of December 28, 2019.

One of the base broadening provisions of the Tax Act is commonly referred to as the "GILTI" provisions. In accordance with guidance issued by the FASB staff, the Company has adopted an accounting policy to treat any GILTI inclusions as a period cost if and when incurred. Thus, for the fiscal years ended December 28, 2019 and December 29, 2018, deferred taxes were computed without consideration of the possible future impact of the GILTI provisions, and any current year impact was recorded as a part of the current portion of income tax expense.

***Fair Value Measurements***

Certain assets and liabilities are required to be recorded at fair value on a recurring basis. Fair value is determined based on the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants. The Company records the fair value of its available-for-sale securities and pension plan assets on a recurring basis. Assets measured at fair value on a nonrecurring basis include long-lived assets held and used, long-lived assets held for sale, goodwill and other intangible assets. The fair value of cash and cash equivalents, accounts receivable, short-term debt and accounts payable approximate their carrying values. The three-tier value hierarchy, which prioritizes valuation methodologies based on the reliability of the inputs, is:

**Level 1** – Valuations based on quoted prices for identical assets and liabilities in active markets.

**Level 2** – Valuations based on observable inputs other than quoted prices included in Level 1, such as quoted prices for similar assets and liabilities in active markets, quoted prices for identical or similar assets and liabilities in markets that are not active, or other inputs that are observable or can be corroborated by observable market data.

**Level 3** – Valuations based on unobservable inputs reflecting the Company’s own assumptions, consistent with reasonably available assumptions made by other market participants.

***Recently Adopted Accounting Standards***

In February 2016, the Financial Accounting Standards Board (“FASB”) issued Accounting Standards Update (“ASU”) No. 2016-02, "Leases" (Topic 842), ("ASC 842"). This ASU requires lessees to recognize, on the balance sheet, assets and liabilities for the rights and obligations created by leases of greater than twelve months.

The Company adopted the standard on December 30, 2018 using the alternative modified retrospective transition method provided in ASU No. 2018-11, "Leases (Topic 842): Target Improvements." Under this method, the Company recorded a cumulative-effect adjustment as of December 30, 2018 and did not record any retrospective adjustments to comparative periods to reflect the adoption of ASC 842. The new standard provides a number of optional practical expedients in transition. The Company has elected the ‘package of practical expedients’ which permits us not to reassess under the new standard our prior conclusions about lease identification, lease classification and initial direct costs. The Company has not elected the use-of-hindsight. Adoption of ASC 842 resulted in the recognition of operating lease right-of-use assets ("ROU") net of deferred rent of $26.1 million and lease liabilities of $29.4 million, as of December 30, 2018 for operating leases on its Consolidated Balance Sheets, with no impact to the Company's Consolidated Statements of Net Income and Consolidated Statements of Cash Flow. See Note 7, *Lease Commitments,* for further discussion.

In February 2018, the FASB issued ASU No. 2018-02 “Income Statement—Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income,” which permits the reclassification of tax effects stranded in accumulated other comprehensive income to retained earnings as a result of the Tax Act. The standard also requires entities to disclose whether or not they elected to reclassify the tax effects related to the Tax Act as well as their policy for releasing income tax effects from accumulated other comprehensive income. The standard allows the option of applying either a retrospective adoption, meaning the standard is applied to all periods in which the effect of the Tax Act is recognized, or applying the amendments in the period of adoption, meaning an adjustment is made to shareholder’s equity as of the beginning of the reporting period. The Company adopted the new standard on December 30, 2018. The adoption of this guidance did not have a material effect on the Company's Consolidated Financial Statements.

In January 2018, the FASB released guidance on the accounting for the GILTI provisions of the 2017 U.S. Tax Act. The GILTI provisions impose a tax on foreign income in excess of a deemed return on tangible assets of foreign corporations. The guidance indicates that either accounting for deferred taxes related to GILTI inclusions or treating any taxes on GILTI inclusions as period cost are both acceptable methods subject to an accounting policy election. The Company has adopted an accounting policy to treat any GILTI inclusions as a period cost if and when incurred. Thus, for the year ended December 29, 2018, deferred taxes were computed without consideration of the possible future impact of the GILTI provisions, and any current year impact was recorded as a part of the current portion of income tax expense.

In March 2017, the FASB issued ASU No. 2017-07 "Compensation-Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Post-Retirement Benefit Cost," which changed the presentation of net periodic pension and post-retirement benefit cost (net benefit cost) within the consolidated Statements of Net Income. Under the previous guidance, net benefit cost was reported as an employee cost within operating income. The amendment required the bifurcation of net benefit cost, with the service cost component to be presented with other employee compensation costs in operating income while the other components will be reported separately outside of income from operations. ASU No. 2017-07 was effective for the first quarter of 2018 with the Company adopting the new standard on December 31, 2017.

In January 2016, the FASB issued ASU No. 2016-01, "Financial Instruments-Recognition and Measurement of Financial Assets and Financial Liabilities" which addressed certain aspects of the recognition, measurement, presentation and disclosure of financial instruments. The ASU requires the Company to recognize any changes in the fair value of certain equity investments in net income. Previously these changes were recognized in other comprehensive income ("OCI"). The Company adopted the new standard on December 31, 2017, on a modified retrospective basis, recognizing the cumulative effect as a $9.8 million increase to retained earnings. As a result of the adoption of the new standard and change in fair value of our equity investments, for the fiscal year ended December 29, 2018, the Company recognized an unrealized loss of $0.7 million in *Other income, net* in the Consolidated Statements of Net Income.

In May 2014, the FASB issued ASU No. 2014-09, "Revenue from Contracts with Customers" (Topic 606) which supersedes the revenue recognition requirements in ASC 605, "Revenue Recognition." This ASU provides a single comprehensive model for entities to use in accounting for revenue arising from contracts with customers and will supersede most current revenue recognition guidance. The guidance permits two implementation approaches, one requiring retrospective application of the new standard with restatement of prior years and one requiring prospective application of the new standard with disclosure of results under old standards. The Company adopted the new standard on December 31, 2017 using the modified retrospective method, however, no adjustment to retained earnings was needed. The new guidance did not have a material effect on the Company's Consolidated Statements of Net Income. See the *Revenue Recognition* section above for further discussion.

In October 2016, the FASB issued ASU No. 2016-16, "Income Taxes" (Topic 740). This ASU update requires entities to recognize the income tax consequences of many intercompany asset transfers at the transaction date. The seller and buyer will immediately recognize the current and deferred income tax consequences of an intercompany transfer of an asset other than inventory. The tax consequences were previously deferred. The Company adopted the new standard on December 31, 2017 and it did not have a material impact.

***Recently Issued Accounting Standards***

In June 2016, the FASB issued ASU 2016- 13, "Financial Instruments- Credit Losses (Topic 326), Measurement of Credit Losses on Financial Instruments." The standard modifies the measurement approach for credit losses on financial instruments, including trade receivables, from an incurred loss method to a current expected credit loss method ("CECL"). The standard requires the measurement of expected credit losses to be based on relevant information, including historical experience, current conditions and a forecast that is supportable. The standard is effective for fiscal years beginning after December 15, 2019, including interim periods within those fiscal years; early adoption is permitted. The standard must be adopted by applying a cumulative adjustment to retained earnings. The Company anticipates adopting the standard in the first quarter of 2020, although it does not expect a material impact to the Company's Consolidated Financial Statements.

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." ASU 2018-13 modified the disclosure requirements in Topic 820, "Fair Value Measurement," based on the FASB Concepts Statement, "Conceptual Framework for Financial Reporting - Chapter 8: Notes to Financial Statements," including consideration of costs and benefits. The guidance is effective for fiscal years beginning after December 15, 2019 and for interim periods within those fiscal years, with early adoption permitted. The company is currently evaluating the potential effects of this guidance on its Consolidated Financial Statements.

In August 2018, the FASB issued ASU No. 2018-14 "Disclosure Framework - Changes to the Disclosure Requirements for Defined Benefit Plans," which amends ASC 715-20, Compensation - Retirement Benefits - Defined Benefit Plans - General. The amended guidance modifies the disclosure requirements for employers that sponsor defined benefit pension or other post-retirement plans by removing and adding certain disclosures for these plans. The eliminated disclosures include (a) the amounts in OCI expected to be recognized in net periodic benefit costs over the next fiscal year, and (b) the effects of a one percentage point change in assumed health care cost trend rates on the net periodic benefit costs and the benefit obligation for post-retirement health care benefits. Additional disclosures include descriptions of significant gains and losses affecting the benefit obligation for the period.

This guidance will be effective for financial statements issued for fiscal years ending after December 15, 2020. The adoption of this guidance will modify our disclosures but will not have a material effect on the Company's Consolidated Financial Statements.

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 (a consensus of the FASB Emerging Issues Task Force).” ASU 2018-15 aligns the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software (and hosting arrangements that include an internal-use software license). The guidance is effective for fiscal years beginning after December 15, 2019 and for interim periods within those fiscal years, with early adoption permitted. The Company is currently evaluating this guidance on its Consolidated Financial Statements.

In December 2019, the FASB issued ASU No. 2019-12, "Income Taxes (Topic 740) - Simplifying the Accounting for Income Taxes" as part of its initiative to reduce complexity in the accounting standards. The guidance is effective for fiscal years beginning after December 15, 2021 with early adoption permitted. The Company is currently evaluating this guidance on its Consolidated Financial Statements, The Company does not expect material effect from the adoption of this guidance on the Company's Consolidated Financial Statements.

## 2. Acquisitions

The Company accounts for acquisitions using the acquisition method in accordance with ASC 805, “Business Combinations,” in which assets acquired and liabilities assumed are recorded at fair value as of the date of acquisition. The operating results of the acquired business are included in the Company’s Consolidated Financial Statements from the date of the acquisition.

*IXYS Corporation*

On January 17, 2018, the Company acquired IXYS Corporation (“IXYS”), a global pioneer in the power semiconductor and integrated circuit markets with a focus on medium to high voltage power semiconductors across the industrial, communications, consumer and medical markets. IXYS has a broad customer base, serving more than 3,500 customers through its direct sales force and global distribution partners. The acquisition of IXYS is expected to accelerate the Company’s growth across the power control market driven by IXYS’s extensive power semiconductor portfolio and technology expertise. With IXYS, the Company will be able to diversify and expand its presence within industrial electronics markets, leveraging the strong IXYS industrial OEM customer base. The Company also expects to increase long-term penetration of its power semiconductor portfolio in automotive markets, expanding its global content per vehicle.

Upon completion of the acquisition, at IXYS stockholders’ election and subject to proration, each share of IXYS common stock, par value $0.01 per share, owned immediately prior to the effective time were canceled and extinguished and automatically converted into the right to receive: (i) $23.00 in cash (subject to applicable withholding tax), without interest (referred to as the cash consideration), or (ii) 0.1265 of a share of common stock, par value $0.01 per share, of Littelfuse (referred to as the stock consideration). IXYS stockholders received cash in lieu of any fractional shares of Littelfuse common stock that the IXYS stockholders would otherwise have been entitled to receive. Additionally, each outstanding option to purchase shares of IXYS common stock granted under an IXYS equity plan were assumed by Littelfuse and converted into an option to acquire (i) a number of shares of Littelfuse common stock equal to the number of shares of IXYS common stock subject to such option immediately prior to the effective time multiplied by 0.1265, rounded down to the nearest whole share, with (ii) an exercise price per share of Littelfuse common stock equal to the exercise price of such IXYS stock option immediately prior to the effective time divided by 0.1265, rounded up to the nearest whole cent.

Based on the $207.5 per share opening price of Littelfuse common stock on January 17, 2018, the consideration IXYS stockholders received in exchange of their IXYS common stock in the acquisition had a value of $814.8 million comprised of $380.6 million of cash and $434.2 million of Littelfuse stock. In addition to the consideration transferred related to IXYS common stock, the value of consideration transferred, and included in the purchase price, related to IXYS stock options that were converted to Littelfuse stock options, or cash settled, had a value of $41.7 million. As a result, total consideration was valued at $856.5 million.

The total purchase price of $856.5 million has been allocated to assets acquired and liabilities assumed, as of the completion of the acquisition, based on estimated fair values. The following table summarizes the purchase price allocation of the fair value of assets acquired and liabilities assumed in the IXYS acquisition:

| (in thousands) | Purchase Price Allocation |
|---|---|
| Total purchase consideration: | |
| Cash, net of cash acquired | 302,865 |
| Cash settled stock options | 3,622 |
| Littelfuse stock | 434,192 |
| Converted stock options | 38,109 |
| Total purchase consideration | 778,788 |
| Allocation of consideration to assets acquired and liabilities assumed: | |
| Current assets, net | 155,930 |
| Property, plant, and equipment | 77,442 |
| Intangible assets | 212,720 |
| Goodwill | 382,360 |
| Other non-current assets | 28,706 |
| Other non-current liabilities | (78,370) |
| | 778,788 |

Approximately $49.1 million of net receivables was included in IXYS's current assets, All IXYS goodwill, other assets and liabilities were recorded in the Electronics segment and primarily reflected in the Americas and European geographic areas. The goodwill resulting from this acquisition consists largely of the Company's expected future product sales and synergies from combining IXYS's products and technology with the Company's existing electronics product portfolio. Goodwill resulting from the IXYS acquisition is not expected to be deductible for tax purposes. The Company recorded $7.0 million for the Toll Charge associated with IXYS as part of the IXYS acquisition purchase price allocation (this reflects a reduction of $1.0 million recorded in the fourth quarter of 2018 and $2.0 million recorded in the third quarter of 2018 as a consequence of revisions to the Company's original estimates. For additional information, see Note 14, *Income Taxes*. As a result of the Company completing its fair value analysis, in the fourth quarter of 2018, the company recorded a reduction of $2.6 million in certain investments held by IXYS.

Included in the Company's Consolidated Statements of Net Income for the fiscal year ended December 29, 2018 are net sales of approximately $378.2 million, and loss before income taxes of $22.2 million, since the January 17, 2018 acquisition of IXYS. The Company recognized approximately $11.9 million of stock compensation expense related to IXYS stock options converted to Littelfuse stock options during the fiscal year ended December 29, 2018, of which $4.5 million was recognized immediately as it related to prior service periods.

As required by purchase accounting rules, the Company recorded a $36.9 million step-up of inventory to its fair value as of the acquisition date based on the preliminary valuation. The step-up was fully amortized as a non-cash charge to cost of goods sold during the first and second quarters of 2018, as the acquired inventory was sold, and reflected as other non-segment costs.

During the fiscal year ended December 29, 2018, the Company incurred approximately $11.0 million of legal and professional fees related to this acquisition which were primarily recognized as *selling, general, and administrative expenses*. These costs were reflected as other non-segment costs.

**2017 *Acquisitions***

*U.S. Sensor*

On July 7, 2017, the Company acquired the assets of U.S. Sensor Corporation ("U.S. Sensor"). The acquisition purchase price of $24.3 million, net of the finalization of an income tax gross up which was settled in the fourth quarter of 2017, was funded with available cash. The acquired business expands the Company's existing sensor portfolio in several key electronics and industrial end markets. U.S. Sensor manufactures a variety of high quality negative temperature coefficient thermistors as well as thermistor probes and assemblies. Product lines also include thin film platinum resistance temperature detectors ("RTDs") and RTD assemblies.

The following table summarizes the purchase price allocation of the fair value of assets acquired and liabilities assumed in the U.S. Sensor acquisition:

| (in thousands) | Purchase Price Allocation |
|---|---|
| Total purchase consideration: | |
| Cash | $ 24,340 |
| Allocation of consideration to assets acquired and liabilities assumed: | |
| Current assets, net | $ 4,635 |
| Patented and unpatented technologies | 1,090 |
| Trademarks and tradenames | 200 |
| Non-compete agreement | 50 |
| Customer relationships | 2,830 |
| Goodwill | 16,075 |
| Current liabilities | (540) |
| | $ 24,340 |

Included in U.S. Sensor's current assets, net was approximately $1.5 million of receivables. All U.S. Sensor goodwill, other assets and liabilities were recorded in the Electronics segment and reflected in the U.S. geographic area. The goodwill resulting from this acquisition consists largely of the Company's expected future product sales and synergies from combining U.S. Sensor's products and technology with the Company's existing electronics product portfolio. Goodwill for the above acquisition is expected to be deductible for tax purposes.

As required by purchase accounting rules, the Company recorded a $1.6 million step-up of inventory to its fair value as of the acquisition date based on the preliminary valuation. The step-up was amortized as a non-cash charge to cost of goods sold during the third quarter of 2017, as the acquired inventory was sold, and reflected as other non-segment costs.

*Monolith*

In December 2015, the Company invested $3.5 million in the preferred stock of Monolith Semiconductor Inc. ("Monolith"), a U.S. start-up Company developing silicon carbide technology, which represented approximately 12% of the common stock of Monolith on an as-converted basis. The Company accounted for its investment in Monolith under the cost method with any changes in value recorded in other comprehensive income. The value of the Monolith investment was $3.5 million at December 31, 2016.

On February 28, 2017, pursuant to a Securities Purchase Agreement between the Company and the stockholders of Monolith ("Securities Purchase Agreement") and conditioned on Monolith achieving a product development milestone and other provisions, the Company acquired 62% of the outstanding common stock of Monolith for $15.0 million. The Securities Purchase Agreement includes provisions whereby the Company will acquire the remaining outstanding stock of Monolith ("non-controlling interest") at a time or times based on Monolith meeting certain technical and sales targets. During the first quarter of 2018, Monolith met the next set of technical and sales targets. As a result, and pursuant to the Securities Purchase Agreement, in April 2018 the Company acquired an additional 19% of the outstanding common stock of Monolith for $5.0 million, of which $4.0 million was paid to the stockholders of Monolith. On October 5, 2018, the Company acquired the remaining 19% outstanding common stock for $5.0 million.

The additional investment, in the first quarter of 2017, resulted in the Company gaining control of Monolith and was accounted for as a step-acquisition with the fair value of the original investment immediately before the acquisition estimated to be approximately $3.5 million. As the fair value of the investment immediately prior to the transaction equaled the carrying value, there was no impact on the Company's Consolidated Statements of Net Income. As the Securities Purchase Agreement includes an obligation of the Company to mandatorily redeem the non-controlling interest for cash, the fair value of the non-controlling interest was recognized as a liability on the Company's Consolidated Balance Sheets. The original investment of $3.5 million, additional cash consideration of $14.2 million (net of cash acquired), and the non-cash consideration of the fair value of the commitment to purchase the non-controlling interest of $9.0 million resulted in a purchase price of $26.7 million. Changes in the fair value of the non-controlling interest are recognized in the Company's Consolidated Statements of Net Income.

Commencing March 1, 2017, Monolith was reflected as a consolidated subsidiary within the Company's Consolidated Financial Statements. Had the acquisition occurred as of January 1, 2017, the impact on the Company's consolidated Statements of Net Income would not have been material.

The following table summarizes the purchase price allocation of the fair value of assets acquired and liabilities assumed in the Monolith acquisition:

| (in thousands) | Purchase Price Allocation |
|---|---|
| Total purchase consideration: | |
| Original investment | $ 3,500 |
| Cash, net of cash acquired | 14,172 |
| Non-cash, fair value of commitment to purchase non-controlling interest | 9,000 |
| Total purchase consideration | $ 26,672 |
| Allocation of consideration to assets acquired and liabilities assumed: | |
| Current assets, net | $ 891 |
| Property, plant, and equipment | 789 |
| Patented and unpatented technologies | 6,720 |
| Non-compete agreement | 140 |
| Goodwill | 20,641 |
| Current liabilities | (639) |
| Other non-current liabilities | (1,870) |
| | $ 26,672 |

Included in Monolith's current assets, net was approximately $0.7 million of receivables. All Monolith goodwill, other assets and liabilities were recorded in the Electronics segment and reflected in the U.S. geographic area. The goodwill resulting from this acquisition consists largely of the Company's expected future product sales and synergies from combining Monolith's products and technology with the Company's existing electronics product portfolio. Goodwill for the above acquisition is not expected to be deductible for tax purposes.

*Pro Forma Results*

The following table summarizes, on an unaudited pro forma basis, the combined results of operations of the Company and IXYS as though the acquisition had occurred as of January 1, 2017. The Company has not included pro forma results of operations for U.S. Sensor or Monolith as these results were not material to the Company. The pro forma amounts presented are not necessarily indicative of either the actual consolidated results had the IXYS acquisition occurred as of January 1, 2017 or of future consolidated operating results.

| | For the Fiscal Year Ended | |
|---|---|---|
| (in thousands, except per share amounts) | December 29, 2018 | December 30, 2017 |
| Net sales | $ 1,735,181 | $ 1,564,956 |
| Income before income taxes | 272,724 | 142,150 |
| Net income | 215,228 | 75,604 |
| Net income per share — basic | 8.61 | 3.05 |
| Net income per share — diluted | 8.53 | 3.00 |

Pro forma results presented above primarily reflect the following adjustments:

| | For the Fiscal Year Ended | |
|---|---|---|
| **(in thousands)** | **December 29, 2018** | **December 30, 2017** |
| Amortization[(a)] | $ 12,009 | $ (25,203) |
| Depreciation | — | 556 |
| Transaction costs[(b)] | 9,976 | (9,976) |
| Amortization of inventory step-up[(c)] | 36,927 | (36,927) |
| Stock compensation[(d)] | 5,845 | (6,635) |
| Interest expense[(e)] | — | (10,326) |
| Income tax impact of above items | (15,446) | 29,336 |

(a) The amortization adjustment for the twelve months ended December 29, 2018 primarily reflects the reduction of amortization expense in the period related to the Order backlog intangible asset. The Order backlog has a useful life of twelve months and is fully amortized in the fiscal 2017 pro forma results. The amortization adjustment for the twelve months ended December 30, 2017 reflects incremental amortization resulting for the measurement of intangibles at their fair values.

(b) The transaction cost adjustments reflect the reversal of certain bank and attorney fees from the twelve months ended December 29, 2018 and recognition of those fees during the twelve months ended December 30, 2017.

(c) The amortization of inventory step-up adjustment reflects the reversal of the amount recognized during the twelve months ended December 29, 2018 and the recognition of the full amortization during the twelve months ended December 30, 2017. The inventory step-up was amortized over five months as the inventory was sold.

(d) The stock compensation adjustment reflects the reversal of the portion of stock compensation for IXYS stock options that were converted to Littelfuse stock options and expensed immediately during the twelve months ended December 29, 2018. The adjustment for the twelve months ended December 30, 2017 reflect the incremental stock compensation for the converted stock options.

(e) The interest expense adjustment reflects incremental interest expense related to the financing of the transaction.

For the fiscal year ended December 28, 2019, the Company recorded $2.7 million of acquisition-related expenses associated with contemplated acquisitions within *Selling, general and administrative expenses* in the Consolidated Statements of Net Income.

### 3. Inventories

The components of inventories at December 28, 2019 and December 29, 2018 are as follows:

| **(in thousands)** | **2019** | **2018** |
|---|---|---|
| Raw materials | $ 76,732 | $ 76,060 |
| Work in process | 84,561 | 97,645 |
| Finished goods | 110,388 | 117,207 |
| Inventory reserves | (34,174) | (32,684) |
| Total | $ 237,507 | $ 258,228 |

**4. Property, Plant, and Equipment**

The components of net property, plant, and equipment at December 28, 2019 and December 29, 2018 are as follows:

| (in thousands) | 2019 | 2018 |
|---|---|---|
| Land | $ 24,758 | $ 25,630 |
| Building | 108,501 | 114,636 |
| Equipment | 631,273 | 583,043 |
| Accumulated depreciation and amortization | (419,915) | (383,415) |
| Total | $ 344,617 | $ 339,894 |

The Company recorded depreciation expense of $52.5 million, $51.0 million, and $38.3 million for the fiscal years ended December 28, 2019, December 29, 2018, and December 30, 2017, respectively.

**5. Goodwill and Other Intangible Assets**

The amounts for goodwill and changes in the carrying value by segment are as follows:

| (in thousands) | Electronics | Automotive | Industrial | Total |
|---|---|---|---|---|
| As of December 30, 2017 | $ 278,959 | $ 135,829 | $ 38,626 | $ 453,414 |
| Additions[(a)] | 382,903 | — | — | 382,903 |
| Foreign currency translation adjustments | (5,823) | (3,497) | (282) | (9,602) |
| As of December 29, 2018 | $ 656,039 | $ 132,332 | $ 38,344 | $ 826,715 |
| Foreign currency translation adjustments | (5,243) | (1,011) | 128 | (6,126) |
| As of December 28, 2019 | $ 650,796 | $ 131,321 | $ 38,472 | $ 820,589 |

(a) The 2018 additions resulted primarily from the acquisition of IXYS.

The components of intangible assets at December 28, 2019 and December 29, 2018 are as follows:

| | As of December 28, 2019 | | |
|---|---|---|---|
| (in thousands) | Gross Carrying Value | Accumulated Amortization | Net Book Value |
| Land use rights | $ 9,649 | $ 1,730 | $ 7,919 |
| Patents, licenses and software | $ 131,164 | $ 78,828 | $ 52,336 |
| Distribution network | 43,239 | 36,163 | 7,076 |
| Customer relationships, trademarks, and tradenames | 360,534 | 106,618 | 253,916 |
| Total | $ 544,586 | $ 223,339 | $ 321,247 |

| | As of December 29, 2018 | | |
|---|---|---|---|
| (in thousands) | Gross Carrying Value | Accumulated Amortization | Net Book Value |
| Land use rights | $ 6,792 | $ 1,168 | $ 5,624 |
| Patents, licenses and software | $ 132,621 | $ 68,263 | $ 64,358 |
| Distribution network | 43,876 | 34,564 | 9,312 |
| Customer relationships, trademarks, and tradenames | 374,246 | 92,066 | 282,180 |
| Total | $ 557,535 | $ 196,061 | $ 361,474 |

During the year ended December 29, 2018, the Company recorded additions to other intangible assets of $212.7 million, for acquisitions during 2018, the components of which were as follows:

| | 2018 | | |
|---|---|---|---|
| **(in thousands, except weighted average useful life)** | **Weighted Average Useful Life (Years)** | | **Amount** |
| Patents, licenses and software | 8.0 | $ | 51,500 |
| Customer relationships, trademarks, and tradenames | 17.2 | | 148,800 |
| Order backlog | 1.0 | | 12,420 |
| Total | | $ | 212,720 |

For intangible assets with definite lives, the Company recorded amortization expense of $40.0 million, $52.2 million, and $24.7 million in 2019, 2018, and 2017, respectively.

Estimated annual amortization expense related to intangible assets with definite lives at December 28, 2019 is as follows:

| **(in thousands)** | | **Amount** |
|---|---|---|
| 2020 | $ | 39,660 |
| 2021 | | 37,865 |
| 2022 | | 36,724 |
| 2023 | | 32,372 |
| 2024 | | 29,273 |
| 2025 and thereafter | | 145,353 |
| Total | $ | 321,247 |

## 6. Accrued Liabilities

The components of accrued liabilities at December 28, 2019 and December 29, 2018 are as follows:

| **(in thousands)** | | **2019** | | **2018** |
|---|---|---|---|---|
| Employee-related liabilities | $ | 40,774 | $ | 60,640 |
| Operating lease liability | | 7,259 | | — |
| Interest | | 5,058 | | 5,137 |
| Professional services | | 3,986 | | 6,169 |
| Restructuring liabilities | | 2,679 | | 3,887 |
| Other non-income taxes | | 1,940 | | 21,523 |
| Accrued share repurchases | | — | | 4,349 |
| Other | | 22,424 | | 36,700 |
| Total | $ | 84,120 | $ | 138,405 |

Employee-related liabilities consist primarily of payroll, sales commission, bonus, employee benefit accruals and workers' compensation. Bonus accruals include amounts earned pursuant to the Company's primary employee incentive compensation plans. Other accrued liabilities include miscellaneous operating accruals and other client-related liabilities.

**7. Lease Commitments**

The Company leases office and production space under various non-cancellable operating leases that expire no later than 2025. Certain real estate leases include one or more options to renew. The exercise of lease renewal options is at the Company's sole discretion. Options to extend the lease are included in the lease term when it is reasonably certain the Company will exercise the option. The Company also has production equipment, office equipment and vehicles under operating leases. The depreciable life of assets and leasehold improvements are limited by the expected lease term, unless there is a transfer of title or purchase option that is reasonably certain of exercise. Certain leases include rental payments adjusted periodically for inflation. The lease agreements do not contain any material residual value guarantee or material restrictive covenants.

The Company does not have a published credit rating because it has no publicly traded debt; therefore, the Company is generating its incremental borrowing rate (IBR), using a synthetic credit rating model that compares its credit quality to other rated companies based on certain financial metrics and ratios. The reference rate will be based on the yield curve of companies with similar credit quality based on the metrics and adjusted for currency in regions where we have significant operations.

All leases with an initial term of 12 months or less that do not include an option to extend or purchase the underlying asset that the Company is reasonably certain to exercise (“short-term leases”) are not recorded on the Consolidated Balance Sheets. Short-term lease expenses are recognized on a straight-line basis over the lease term.

The following table presents the classification of ROU assets and lease liabilities as of December 28, 2019:

| **Leases (in thousands)** | Consolidated Balance Sheet Classification | | December 28, 2019 |
|---|---|---|---|
| Assets | | | |
| Operating ROU assets | Right of use lease assets, net | $ | 21,918 |
| Liabilities | | | |
| Current operating lease liabilities | Accrued liabilities | $ | 7,259 |
| Non-current operating lease liabilities | Non-current operating lease liabilities | | 17,166 |
| Total lease liabilities | | $ | 24,425 |

The following table represents the lease costs for 2019:

| **Leases cost (in thousands)** | Consolidated Statements of Net Income Classification | | Fiscal Year Ended December 28, 2019 |
|---|---|---|---|
| Short-term lease expenses | Cost of sales, SG&A expenses | $ | 562 |
| Variable lease expenses | Cost of sales, SG&A expenses | | 916 |
| Operating lease rent expenses | Cost of sales, SG&A expenses | | 8,664 |
| Total operating lease costs | Cost of sales, SG&A expenses | $ | 10,142 |

The Company leases certain office and warehouse space as well as certain machinery and equipment under non-cancellable operating leases. Rent expense under these leases was $10.1 million, $9.6 million, and $11.6 million in 2019, 2018, and 2017, respectively.

| **Maturity of Lease Liabilities as of December 28, 2019 (in thousands)** | **Operating leases** |
|---|---|
| 2020 | $8,207 |
| 2021 | 6,383 |
| 2022 | 5,297 |
| 2023 | 3,518 |
| 2024 | 3,165 |
| 2025 and thereafter | 458 |
| Total lease payments | $27,028 |
| Present value of lease liabilities | 24,425 |

| **Operating Lease Term and Discount Rate** | Fiscal Year Ended December 28, 2019 |
|---|---|
| Weighted-average remaining lease term (years) | 4.05 |
| Weighted-average discount rate | 5.11% |

| **Other Information (in thousands)** | | Fiscal Year Ended December 28, 2019 |
|---|---|---|
| Cash paid for amounts included in the measurement of lease liabilities | | |
| Operating cash flow payments for operating leases | $ | (8,936) |
| Leased assets obtained in exchange for operating lease liabilities | | 3,962 |

Under ASC 840, future minimum payments for all non-cancellable operating leases with initial terms of one year or more at December 29, 2018 are as follows:

| **(in thousands)** | Fiscal Year Ended December 29, 2018 |
|---|---|
| 2019 | 9,133 |
| 2020 | 7,590 |
| 2021 | 5,574 |
| 2022 | 4,590 |
| 2023 | 2,946 |
| 2024 and thereafter | 2,774 |
| Total | $32,607 |

## 8. Restructuring, Impairment and Other Charges

The Company recorded restructuring, impairment and other charges for fiscal years 2019, 2018, and 2017 as follows:

| | **Fiscal Year Ended December 28, 2019** | | | |
|---|---|---|---|---|
| **(in thousands)** | **Electronics** | **Automotive** | **Industrial** | **Total** |
| Employee terminations | $ 5,313 | $ 4,251 | $ 795 | $ 10,359 |
| Other restructuring charges | 188 | 1,714 | 450 | 2,352 |
| Total restructuring charges | 5,501 | 5,965 | 1,245 | 12,711 |
| Impairment | — | 322 | — | 322 |
| Total | $ 5,501 | $ 6,287 | $ 1,245 | $ 13,033 |

| | **Fiscal Year Ended December 29, 2018** | | | |
|---|---|---|---|---|
| **(in thousands)** | **Electronics** | **Automotive** | **Industrial** | **Total** |
| Employee terminations | $ 8,742 | $ 634 | $ 127 | $ 9,503 |
| Other restructuring charges | 670 | 192 | — | 862 |
| Total restructuring charges | 9,412 | 826 | 127 | 10,365 |
| Impairment | — | 88 | 2,130 | 2,218 |
| Total | $ 9,412 | $ 914 | $ 2,257 | $ 12,583 |

| | Fiscal Year Ended December 30, 2017 | | | |
|---|---|---|---|---|
| (in thousands) | Electronics | Automotive | Industrial | Total |
| Employee terminations | $ 1,244 | $ 371 | $ 378 | $ 1,993 |
| Other restructuring charges | 234 | — | — | 234 |
| Total restructuring charges | 1,478 | 371 | 378 | 2,227 |

***2019***

For the year ended December 28, 2019, the Company recorded total restructuring charges of $12.7 million for employee termination costs and other restructuring charges. These charges primarily related to the reorganization of operations and selling, general and administrative functions as well as the integration of IXYS within the Electronics segment and the reorganization of operations in the automotive sensors and commercial vehicle products businesses within the Automotive segment.

In April 2019, we announced the closure of a European manufacturing facility in the automotive sensors business within the Automotive segment. The Company recorded $1.7 million of employee termination costs and $1.4 million of other restructuring and impairment charges associated with this plant closure.

***2018***

For the year ended December 29, 2018, the Company recorded total restructuring charges of $10.4 million for employee termination costs and other restructuring charges related to lease termination and facility closure. These charges primarily related to the integration of IXYS and the reorganization of the IXYS Radio Pulse business within the Electronics segment and the reorganization of operations in the Commercial Vehicle Products business within the Automotive segment.

For the year ended December 29, 2018, the Company recorded impairment charges of $2.2 million primarily related to the impairment of a building and a trade name associated with the exit of the Custom business within the Industrial segment.

***2017***

For the year ended December 30, 2017, the Company recorded total restructuring charges of $2.2 million for employee termination costs and other restructuring charges. The Company recorded $2.0 million for employee termination costs primarily related to the reorganization of selling, general, and administrative functions within the Electronics segments as well as the reorganization of certain operations.

The restructuring reserves as of December 28, 2019 and December 29, 2018 are $2.7 million and $3.9 million, respectively. The restructuring reserves are included within accrued liabilities. Payments associated with employee terminations reflected in the above table were substantially completed by December 28, 2019. The Company anticipates that the remaining payments associated with employee terminations will be completed in fiscal 2020.

## 9. Debt

The carrying amounts of debt at December 28, 2019 and December 29, 2018 are as follows:

| (in thousands) | 2019 | 2018 |
|---|---|---|
| Term Loan | $ 145,000 | $ 155,000 |
| Euro Senior Notes, Series A due 2023 | 129,808 | 133,417 |
| Euro Senior Notes, Series B due 2028 | 105,400 | 108,330 |
| U.S. Senior Notes, Series A due 2022 | 25,000 | 25,000 |
| U.S. Senior Notes, Series B due 2027 | 100,000 | 100,000 |
| U.S. Senior Notes, Series A due 2025 | 50,000 | 50,000 |
| U.S. Senior Notes, Series B due 2030 | 125,000 | 125,000 |
| Other | 2,619 | 2,619 |
| Unamortized debt issuance costs | (3,669) | (4,636) |
| Total debt | 679,158 | 694,730 |
| Less: Current maturities | (10,000) | (10,000) |
| Total long-term debt | $ 669,158 | $ 684,730 |

*Revolving Credit Facility / Term Loan*

On March 4, 2016, the Company entered into a five-year credit agreement ("Credit Agreement") with a group of lenders for up to $700.0 million. The Credit Agreement consisted of an unsecured revolving credit facility ("Revolving Credit Facility") of $575.0 million and an unsecured term loan credit facility ("Term Loan") of up to $125.0 million. In addition, the Company had the ability, from time to time, to increase the size of the Revolving Credit Facility and the Term Loan by up to an additional $150.0 million, in the aggregate, in each case in minimum increments of $25.0 million, subject to certain conditions and the agreement of participating lenders.

On October 13, 2017, the Company amended the Credit Agreement to increase the Revolving Credit Facility from $575.0 million to $700.0 million and increase the Term Loan from $125.0 million to $200.0 million and to extend the expiration date from March 4, 2021 to October 13, 2022. The Credit Agreement also includes the option for the Company to increase the size of the Revolving Credit Facility and the Term Loan by up to an additional $300.0 million, in the aggregate, subject to the satisfaction of certain conditions set forth in the Credit Agreement. Term Loans may be made in up to two advances. The first advance of $125.0 million occurred on October 13, 2017 and the second advance of $75.0 million occurred on January 16, 2018. For the Term Loan, the Company is required to make quarterly principal payments of 1.25% of the original term loan ($2.5 million quarterly) through maturity, with the remaining balance due on October 13, 2022. The Company paid $10.0 million of principal payments on the Term Loan for the fiscal year ended December 28, 2019.

Outstanding borrowings under the Credit Agreement bear interest, at the Company's option, at either LIBOR fixed for interest periods of one, two, three or six-month periods plus 1.00% to 2.00%, or at the bank's Base Rate, as defined, plus 0.00% to 1.00%, based upon the Company's Consolidated Leverage Ratio, as defined. The Company is also required to pay commitment fees on unused portions of the credit agreement ranging from 0.15% to 0.25%, based on the Consolidated Leverage Ratio, as defined in the agreement. The credit agreement includes representations, covenants and events of default that are customary for financing transactions of this nature. The effective interest rate on outstanding borrowings under the credit facility was 3.20% at December 28, 2019.

As of December 28, 2019, the Company had no amounts outstanding in letters of credit and had available $353.4 million of borrowing capacity under the Revolving Credit Facility. At December 28, 2019, the Company was in compliance with all covenants under the Credit Agreement.

*Senior Notes*

On December 8, 2016, the Company entered into a Note Purchase Agreement, pursuant to which the Company issued and sold €212 million aggregate principal amount of senior notes in two series. The funding date for the Euro denominated senior notes occurred on December 8, 2016 for €117 million in aggregate amount of 1.14% Senior Notes, Series A, due December 8, 2023 ("Euro Senior Notes, Series A due 2023"), and €95 million in aggregate amount of 1.83% Senior Notes, Series B due December 8, 2028 ("Euro Senior Notes, Series B due 2028") (together, the "Euro Senior Notes"). Interest on the Euro Senior Notes is payable semiannually on June 8 and December 8, commencing June 8, 2017.

On December 8, 2016, the Company entered into a Note Purchase Agreement, pursuant to which the Company issued and sold $125 million aggregate principal amount of senior notes in two series. On February 15, 2017, $25 million in aggregate principal amount of 3.03% Senior Notes, Series A, due February 15, 2022 ("U.S. Senior Notes, Series A due 2022"), and $100 million in aggregate principal amount of 3.74% Senior Notes, Series B, due February 15, 2027 ("U.S. Senior Notes, Series B due 2027") (together, the "U.S. Senior Notes due 2022 and 2027") were funded. Interest on the U.S. Senior Notes due 2022 and 2027 is payable semiannually on February 15 and August 15, commencing August 15, 2017.

On November 15, 2017, the Company entered into a Note Purchase Agreement pursuant to which the Company issued and sold $175 million in aggregate principal amount of senior notes in two series. On January 16, 2018, $50 million aggregate principal amount of 3.48% Senior Notes, Series A, due February 15, 2025 ("U.S. Senior Notes, Series A due 2025") and $125 million in aggregate principal amount of 3.78% Senior Notes, Series B, due February 15, 2030 ("U.S. Senior Notes, Series B due 2030") (together, the "U.S. Senior Notes due 2025 and 2030" and with the Euro Senior Notes and the U.S. Senior Notes 2022 and 2027, the "Senior Notes") were funded. Interest on the U.S. Senior Notes due 2025 and 2030 will be payable on February 15 and August 15, commencing on August 15, 2018.

The Senior Notes have not been registered under the Securities Act, or applicable state securities laws. The Senior Notes are general unsecured senior obligations and rank equal in right of payment with all existing and future unsecured unsubordinated indebtedness of the Company.

The Senior Notes are subject to certain customary covenants, including limitations on the Company's ability, with certain exceptions, to engage in mergers, consolidations, asset sales and transactions with affiliates, to engage in any business that would substantially change the general business of the Company, and to incur liens. In addition, the Company is required to satisfy certain financial covenants and tests relating to, among other matters, interest coverage and leverage. At December 28, 2019, the Company was in compliance with all covenants under the Senior Notes.

The Company may redeem the Senior Notes upon the satisfaction of certain conditions and the payment of a make-whole amount to noteholders, and are required to offer to repurchase the Senior Notes at par following certain events, including a change of control.

Interest paid on all Company debt was approximately $21.2 million, $18.5 million, and $10.6 million in fiscal year ended 2019, 2018, and 2017, respectively.

*Debt Issuance Costs*

The Company paid debt issuance costs of $0.9 million in relation to the $175 million Note Purchase Agreement that was entered on November 15, 2017. The Company incurred debt issuance costs of $1.6 million in relation to the 2017 amendment to the Credit Agreement which, along with the remaining balance of debt issuance costs of the previous credit facility, are being amortized over the life of the Credit Agreement. The Company incurred aggregate debt issuance costs of $1.8 million in relation to the Senior Notes issued previously which are being amortized over the respective lives of the Series A and B notes.

*Debt Maturities*

Scheduled maturities of the Company's long-term debt for each of the five years succeeding December 28, 2019 and thereafter are summarized as follows:

| **(in thousands)** | **Scheduled Maturities** |
|---|---|
| 2020 | $ 10,000 |
| 2021 | 10,000 |
| 2022 | 152,619 |
| 2023 | 129,808 |
| 2024 | — |
| 2025 and thereafter | 380,400 |
| | $ 682,827 |

**10. Fair Value of Assets and Liabilities**

For assets and liabilities measured at fair value on a recurring and nonrecurring basis, a three-level hierarchy of measurements based upon observable and unobservable inputs is used to arrive at fair value. Observable inputs are developed based on market data obtained from independent sources, while unobservable inputs reflect the Company's assumptions about valuation based on the best information available in the circumstances. Depending on the inputs, the Company classifies each fair value measurement as follows:

> **Level 1**—Valuations based on unadjusted quoted prices for identical assets or liabilities in active markets;
>
> **Level 2**—Valuations based upon quoted prices for similar instruments, prices for identical or similar instruments in markets that are not active, or model-derived valuations, all of whose significant inputs are observable, and
>
> **Level 3**—Valuations based upon one or more significant unobservable inputs.

Following is a description of the valuation methodologies used for instruments measured at fair value and their classification in the valuation hierarchy.

*Cash Equivalents*

Cash equivalents primarily consist of money market funds, which are held with an institution with sound credit rating and are highly liquid. The Company classified cash equivalents as Level 1 and are valued at cost, which approximates fair value.

*Investments in Equity Securities*

Investments in equity securities listed on a national market or exchange are valued at the last sales price and classified within Level 1 of the valuation hierarchy. Such securities are further detailed in Note 1, *Summary of Significant Accounting Policies and Other Information*.

The Company has certain convertible debt and convertible preferred stock investments that are accounted for under the cost method reflected in *Investments* and *Other assets* in the Consolidated Balance Sheets. During the fiscal year ended December 28, 2019, the Company recorded impairment charges of $7.3 million in *Other Expense (income), net* in the Consolidated Statements of Net Income to adjust these certain investments to their estimated fair value of $0.4 million. The fair value of these investments are measured on a nonrecurring basis and determined to be Level 3 under the fair value hierarchy. The Company's accounting and finance management determines the valuation policies and procedures for Level 3 fair value measurements and is responsible for the development and determination of unobservable inputs.

*Defined Benefit Plan Assets / Non-qualified Supplemental Retirement and Savings Plan Investments*

See Note 11, *Benefit Plans,* for description of valuation methodologies and investment balances for defined benefit plan assets and investments related to the Company's Non-Qualified Supplemental Retirement and Savings Plan.

There were no changes during 2019 to the Company's valuation techniques used to measure asset and liability fair values on a recurring basis. On October 30, 2019, the Company entered a foreign currency exchange forward contract to mitigate the currency fluctuation risk between the Chinese renminbi and U.S dollar. The foreign currency contract was not designated as a hedge instrument and was marked to market on a monthly basis. The loss of $0.2 million associated with the change in fair values of the foreign currency exchange forward contract was recognized in *Other income*, net in the Consolidated Statements of Net Income along with a $0.2 million liability recorded in *Accrued Liabilities* on the Consolidated Balance Sheets. The notional value of the forward contracts at December 28, 2019 was $16.0 million and expires on May 5, 2020. The Company does not use derivative financial instruments for trading or speculative purposes. The fair values of the foreign currency forward contract was determined to be Level 2 under the fair value hierarchy and is valued using market exchange rates. As of December 29, 2018, the Company held no non-financial assets or liabilities that are required to be measured at fair value on a recurring basis.

The following table presents assets measured at fair value by classification within the fair value hierarchy as of December 28, 2019:

| | Fair Value Measurements Using | | | |
|---|---|---|---|---|
| (in thousands) | Quoted Prices in Active Markets for Identical Assets (Level 1) | Significant Other Observable Inputs (Level 2) | Significant Unobservable Inputs (Level 3) | Total |
| Cash Equivalents | $ 118,999 | $ — | $ — | $ 118,999 |
| Investments in equity securities | 12,969 | — | — | 12,969 |
| Mutual funds | 10,464 | — | — | 10,464 |

The following table presents assets measured at fair value by classification within the fair value hierarchy as of December 29, 2018:

| | Fair Value Measurements Using | | | |
|---|---|---|---|---|
| (in thousands) | Quoted Prices in Active Markets for Identical Assets (Level 1) | Significant Other Observable Inputs (Level 2) | Significant Unobservable Inputs (Level 3) | Total |
| Investments in equity securities | $ 10,312 | $ — | $ — | $ 10,312 |
| Mutual funds | 9,112 | — | — | 9,112 |

In addition to the methods and assumptions used for the financial instruments recorded at fair value as discussed above, the following methods and assumptions are used to estimate the fair value of other financial instruments that are not marked to market on a recurring basis. The Company's other financial instruments include cash and cash equivalents, short-term investments, trade receivables and its long-term debt. Due to their short-term maturity, the carrying amounts of cash and cash equivalents, short-term investments and trade receivables approximate their fair values. The Company's revolving and term loan debt facilities' fair values approximate book value at December 28, 2019 and December 29, 2018, as the rates on these borrowings are variable in nature.

The carrying value and estimated fair values of the Company's Euro Senior Notes, Series A and Series B and USD Senior Notes, Series A and Series B, as of December 28, 2019 and December 29, 2018 were as follows:

| | December 28, 2019 | | December 29, 2018 | |
|---|---|---|---|---|
| (in thousands) | Carrying Value | Estimated Fair Value | Carrying Value | Estimated Fair Value |
| Euro Senior Notes, Series A due 2023 | $ 129,808 | $ 131,710 | $ 133,417 | $ 130,888 |
| Euro Senior Notes, Series B due 2028 | 105,400 | 110,336 | 108,330 | 103,774 |
| USD Senior Notes, Series A due 2022 | 25,000 | 25,054 | 25,000 | 24,115 |
| USD Senior Notes, Series B due 2027 | 100,000 | 102,548 | 100,000 | 94,458 |
| USD Senior Notes, Series A due 2025 | 50,000 | 50,775 | 50,000 | 47,434 |
| USD Senior Notes, Series B due 2030 | 125,000 | 127,701 | 125,000 | 114,731 |

**11. Benefit Plans**

The Company has Company-sponsored defined benefit pension plans covering employees in the United Kingdom ("U.K."), Germany, the Philippines, China, Japan, Mexico, Italy and France. The amount of the retirement benefits provided under the plans is based on years of service and final average pay.

*IXYS Acquisition*

During 2018, as a result of the IXYS acquisition, pension liabilities were assumed by the Company in Germany, Philippines, and U.K.

Benefit plan related information is as follows for the years 2019 and 2018:

| **(in thousands)** | **2019** | **2018** |
|---|---|---|
| Change in benefit obligation: | | |
| Benefit obligation at beginning of year | $ 102,833 | $ 67,268 |
| Service cost | 2,040 | 2,266 |
| Interest cost | 3,169 | 3,104 |
| Net actuarial gain/(loss) | 11,286 | (7,321) |
| Benefits paid from the trust | (3,323) | (2,479) |
| Benefits paid directly by the Company | (1,540) | (1,802) |
| Settlements | (1,924) | (1,291) |
| Acquisitions | — | 48,358 |
| Effect of exchange rate movements | 1,735 | (6,918) |
| Plan amendment and other | 2,645 | 1,648 |
| Benefit obligation at end of year | $ 116,921 | $ 102,833 |
| | | |
| Change in plan assets at fair value: | | |
| Fair value of plan assets at beginning of year | $ 70,676 | $ 48,123 |
| Actual return on plan assets | 8,222 | (2,847) |
| Employer contributions | 2,233 | 2,341 |
| Benefits paid | (3,323) | (2,479) |
| Settlements | (1,072) | (1,291) |
| Acquisitions | — | 31,954 |
| Effect of exchange rate movements | 1,766 | (5,125) |
| Fair value of plan assets at end of year | 78,502 | 70,676 |
| Net amount unfunded status | $ (38,419) | $ (32,157) |

Amounts recognized in the Consolidated Balance Sheets as of December 28, 2019 and December 29, 2018 consist of the following:

| **(in thousands)** | **2019** | **2018** |
|---|---|---|
| Amounts recognized in the Consolidated Balance Sheets consist of: | | |
| Noncurrent assets | $ 885 | $ 811 |
| Current benefit liability | (1,106) | (1,094) |
| Noncurrent benefit liability | (38,198) | (31,874) |
| Net liability recognized | $ (38,419) | $ (32,157) |

The amounts included in accumulated other comprehensive loss in the Consolidated Balance Sheets, excluding tax effects, that have not yet been recognized as components of net periodic benefit costs as of December 28, 2019 and December 29, 2018 were as following:

| (in thousands) | 2019 | 2018 |
|---|---|---|
| Net actuarial loss | $ 15,635 | $ 9,777 |
| Prior service cost | 4,273 | 1,607 |
| Total | $ 19,908 | $ 11,384 |

The estimated net actuarial loss and prior service cost which will be amortized from accumulated other comprehensive income (loss) into benefit cost in 2020 is approximately $0.4 million and $0.2 million, respectively.

The pre-tax amounts recognized in other comprehensive income (loss) in 2019 as components of net periodic benefit costs were as follows:

| (in thousands) | 2019 |
|---|---|
| Amortization of: | |
| Prior service cost | $ 80 |
| Net actuarial loss | 163 |
| Amount arising during the period: | |
| Prior service cost | (2,645) |
| Net actuarial loss | (6,251) |
| Settlement loss | 260 |
| Foreign currency adjustments | (131) |
| Total | $ (8,524) |

The components of net periodic benefits costs for the fiscal years 2019, 2018, and 2017 are as follows:

| (in thousands) | 2019 | 2018 | 2017 |
|---|---|---|---|
| Components of net periodic benefit cost: | | | |
| Service cost | $ 2,040 | $ 2,266 | $ 2,037 |
| Interest cost | 3,169 | 3,104 | 1,887 |
| Expected return on plan assets | (3,187) | (3,222) | (1,990) |
| Amortization of prior service and net actuarial loss | 243 | 291 | 337 |
| Net periodic benefit cost | 2,265 | 2,439 | 2,271 |
| Settlement loss / curtailment (gain) | 260 | 238 | (25) |
| Total expense for the year | $ 2,525 | $ 2,677 | $ 2,246 |

Weighted average assumptions used to determine net periodic benefit cost for the fiscal years 2019, 2018, and 2017 are as follows:

| | 2019 | 2018 | 2017 |
|---|---|---|---|
| Discount rate | 3.1% | 2.8% | 3.0% |
| Expected return on plan assets | 4.5% | 4.2% | 4.5% |
| Compensation increase rate | 4.6% | 5.0% | 4.5% |

The accumulated benefit obligation for the foreign plans was $111.3 million and $99.6 million at December 28, 2019 and December 29, 2018, respectively.

The following table provides a summary of under-funded or unfunded pension benefit plans with projected benefit obligations in excess of plan assets as of December 28, 2019 and December 29, 2018:

| (in thousands) | 2019 | 2018 |
|---|---|---|
| Projected benefit obligation | $ 81,362 | $ 70,579 |
| Fair value of plan assets | 42,058 | 37,611 |

The following table provides a summary of under-funded or unfunded pension benefit plans with accumulated benefit obligations in excess of plan assets as of December 28, 2019 and December 29, 2018:

| (in thousands) | 2019 | 2018 |
|---|---|---|
| Accumulated benefit obligation | $ 75,744 | $ 66,049 |
| Fair value of plan assets | 42,058 | 36,003 |

Weighted average assumptions used to determine benefit obligations as of December 28, 2019, December 29, 2018 and December 30, 2017 are as follows:

| | 2019 | 2018 | 2017 |
|---|---|---|---|
| Discount rate | 2.3% | 3.1% | 3.1% |
| Compensation increase rate | 4.7% | 4.6% | 5.0% |

Expected benefit payments to be paid to participants for the fiscal year ending are as follows:

| (in thousands) | Expected Benefit Payments |
|---|---|
| 2020 | $ 4,511 |
| 2021 | 4,726 |
| 2022 | 4,624 |
| 2023 | 4,900 |
| 2024 | 4,910 |
| 2025-2029 and thereafter | 29,364 |

The Company expects to make approximately $2.3 million of contributions to the plans in 2020.

The Company also sponsors certain post-employment plans in foreign countries and other statutory benefit plans. For the fiscal year ended December 28, 2019, December 29, 2018, and December 30, 2017, the Company recorded $1.4 million, $1.8 million, $1.1 million expense, respectively, in *Cost of Sales* and *Other expense (income), net* within the Consolidated Statements of Net Income. As of December 28, 2019 and December 29, 2018, the Company reported benefit liabilities of $2.8 million and $2.7 million for these plans, of which $0.9 million and $1.1 million was recorded in *Accrued liabilities* and $1.9 million and $1.6 million was recorded in *Other long-term liabilities* on the Consolidated Balance Sheets, respectively. For fiscal year ended December 28, 2019, the pre-tax amounts recognized in other comprehensive income (loss) as components of net periodic benefit costs for these plans were $0.6 million.

*Defined Benefit Plan Assets*

Based upon analysis of the target asset allocation and historical returns by type of investment, the Company has assumed that the expected long-term rate of return will be 4.5% on plan assets. Assets are invested to maximize long-term return taking into consideration timing of settlement of the retirement liabilities and liquidity needs for benefits payments. Pension plan assets were invested as follows, and were not materially different from the target asset allocation:

| | Asset Allocation | |
|---|---|---|
| | 2019 | 2018 |
| Equity securities | 27% | 30% |
| Debt securities | 72% | 66% |
| Cash and cash equivalents, and other | 1% | 4% |
| | 100% | 100% |

The Company segregated its plan assets by the following major categories and level for determining their fair value as of December 28, 2019 and December 29, 2018. All plan assets that are valued using the net asset value per share ("NAV") practical expedient have not been included within the fair value hierarchy but are separately disclosed.

*Cash and cash equivalents* – Carrying value approximates fair value. As such, these assets were classified as Level 1. The Company also invests in certain short-term investments which are valued using the amortized cost method and at NAV.

*Equity* – The values of individual equity securities were based on quoted prices in active markets. As such, these assets are classified as Level 1. Additionally, the Company invests in certain equity funds that are valued at calculated NAV.

*Fixed income* – Fixed income securities are typically priced based on a last trade basis and are exchange-traded. Accordingly, the Company classified fixed income securities as Level 1. The Company also invests in certain fixed income funds which are valued at NAV.

*Insurance Contracts and other* – This category includes insurance contracts that are valued by the re-insurer with the valuation inputs being not highly observable or traded on an open market. Accordingly, insurance contracts was categorized as Level 3. Additionally, this category includes other assets and liabilities including futures or swaps valued at NAV.

For any Level 2 and Level 3 plan assets, management reviews significant investments on a periodic basis including investigation of unusual fluctuations in price or returns and obtaining an understanding of the pricing methodology to assess the reliability of third-party pricing estimates.

The valuation methodologies described above may generate a fair value calculation that may not be indicative of net realizable value or future fair values. While the Company believes the valuation methodologies used are appropriate, the use of different methodologies or assumptions in calculating fair value could result in different amounts. The Company invests in various assets in which valuation is determined by NAV. The Company believes that the NAV is representative of fair value at the reporting date, as there are no significant restrictions on redemption of these investments or other reasons to indicate that the investment would be redeemed at an amount different than the NAV.

The following table presents the Company's pension plan assets measured at fair value by classification within the fair value hierarchy as of December 28, 2019:

| | Fair Value Measurements Using | | | | |
|---|---|---|---|---|---|
| **(in thousands)** | **Level 1** | **Level 2** | **Level 3** | **NAV** | **Total** |
| Equities | $ 1,796 | $ — | $ — | $ 19,139 | $ 20,935 |
| Fixed income | 4,535 | — | — | 51,711 | 56,246 |
| Insurance contracts and other | — | — | 609 | 147 | 756 |
| Cash and cash equivalents | 387 | — | — | 178 | 565 |
| Total pension plan assets | $ 6,718 | $ — | $ 609 | $ 71,175 | $ 78,502 |

The following table presents the Company's pension plan assets measured at fair value by classification within the fair value hierarchy as of December 29, 2018:

| | Fair Value Measurements Using | | | | |
|---|---|---|---|---|---|
| **(in thousands)** | **Level 1** | **Level 2** | **Level 3** | **NAV** | **Total** |
| Equities | $ 1,361 | $ — | $ — | $ 19,527 | $ 20,888 |
| Fixed income | 3,336 | — | — | 43,134 | 46,470 |
| Insurance contracts and other | — | — | 632 | 1,161 | 1,793 |
| Cash and cash equivalents | 702 | — | — | 823 | 1,525 |
| Total pension plan assets | $ 5,399 | $ — | $ 632 | $ 64,645 | $ 70,676 |

*Defined Contribution Plan*

The Company also maintains a 401(k) savings plan covering substantially all U.S. employees. The Company matches 100% of the employee's annual contributions for the first 4% of the employee's eligible compensation. The Company may provide an additional discretionary match to participants and made discretionary matches of 2% of the employee's eligible compensation for each of the fiscal year ended December 28, 2019, December 29, 2018 and December 30, 2017. Employees are immediately vested in their contributions plus actual earnings thereon, as well as the Company contributions. Company matching contributions amounted to $5.6 million, $4.5 million, and $3.5 million in 2019, 2018, and 2017, respectively.

*Non-qualified Supplemental Retirement and Savings Plan*

The Company has a non-qualified Supplemental Retirement and Savings Plan which provides additional retirement benefits for certain management employees and named executive officers by allowing participants to defer a portion of their annual compensation. The Company maintains accounts for participants through which participants make investment elections. The investments are subject to the claims of the Company's creditors and the Company is responsible for the payment of all benefits under the plan from its general assets. As of December 28, 2019, there was $10.5 million of marketable securities related to the plan included in *Other assets* and $10.5 million of accrued compensation benefits included in *Other long-term liabilities*. The marketable securities are classified as Level 1 under the fair value hierarchy as they are maintained in mutual funds with readily determinable fair value. The Company made matching contributions to the plan of $0.4 million in 2019.

## 12. Stock-Based Compensation

*Equity Plans*: The Company has equity-based compensation plans authorizing the granting of stock options, restricted shares, restricted share units, and other stock rights to employees and directors. As of December 28, 2019, there were 1.2 million shares available for issuance of future awards under the Company's equity-based compensation plans.

Stock options generally vest over a three, four or five-year period and are exercisable over either a seven or ten-year period commencing from the date of the grant. Restricted shares and share units granted by the Company generally vest over three to four years. Stock options and restricted share units may have accelerated vesting upon meeting certain qualified conditions.

Upon completion of the IXYS acquisition, IXYS outstanding options were assumed by the Company and converted into options of 499,027 shares. The Company recognized approximately $11.9 million of stock compensation expense related to IXYS stock options converted to Littelfuse stock options during the fiscal year ended December 29, 2018, of which $4.5 million was recognized immediately as it related to prior service periods. See Note 2, *Acquisitions and Dispositions*, for further discussion.

The following table provides a reconciliation of outstanding stock options for the fiscal year ended December 28, 2019.

| | Shares Under Option | Weighted Average Price | Weighted Average Remaining Contract Life (Years) | Aggregate Intrinsic Value (000's) |
|---|---|---|---|---|
| Outstanding December 29, 2018 | 669,356 | $ 116.29 | | |
| Granted | 76,742 | 199.24 | | |
| Exercised | (134,982) | 97.22 | | |
| Forfeited | (10,651) | 108.23 | | |
| Outstanding December 28, 2019 | 600,465 | 131.32 | 4.6 | $ 37,048 |
| Exercisable December 28, 2019 | 413,109 | 111.65 | 4.0 | 33,215 |

The following table provides a reconciliation of non-vested restricted share and share unit awards ("RSU") for the fiscal year ended December 28, 2019.

| | Shares | Weighted Average Grant-Date Fair Value |
|---|---|---|
| Nonvested December 29, 2018 | 160,794 | $ 164.61 |
| Granted | 70,225 | 195.71 |
| Vested | (84,990) | 154.38 |
| Forfeited | (11,893) | 181.70 |
| Nonvested December 28, 2019 | 134,136 | 185.86 |

The total intrinsic value of options exercised during 2019, 2018, and 2017 was $12.5 million, $38.3 million, and $2.2 million, respectively. The total fair value of the vested RSU shares was $15.5 million, $20.8 million, and $15.0 million for 2019, 2018, and 2017, respectively. The total amount of share-based liabilities paid was $0.9 million, $1.1 million and $0.9 million for 2019, 2018, and 2017, respectively.

The Company recognizes compensation cost of all share-based awards as an expense on a straight-line basis over the vesting period of the awards. At December 28, 2019, the unrecognized compensation cost for options and restricted shares was $17.4 million before tax, and will be recognized over a weighted average period of 1.8 years. Compensation cost included as a component of cost of sales, research and development and selling, general, and administrative expenses for all equity compensation plans discussed above was $19.9 million, $28.2 million, and $17.3 million for 2019, 2018, and 2017, respectively. The total related income tax benefit recognized in the Consolidated Statements of Net Income was $3.3 million, $6.0 million and $6.0 million for 2019, 2018, and 2017, respectively.

The Company uses the Black-Scholes option valuation model to determine the fair value of stock option awards granted. The weighted average fair value of and related assumptions for options granted are as follows:

| | 2019 | 2018 | 2017 |
|---|---|---|---|
| Weighted average fair value of options granted | $47.63 | $45.19 | $30.77 |
| Assumptions: | | | |
| Risk-free interest rate | 2.33% | 2.79% | 1.79% |
| Expected dividend yield | 0.86% | 0.77% | 0.86% |
| Expected stock price volatility | 27.0% | 25.0% | 23.0% |
| Expected life of options (years) | 4.4 | 4.4 | 4.4 |

Expected volatilities are based on the historical volatility of the Company's stock price. The expected life of options is based on historical data for options granted by the Company. The risk-free rates are based on yields available at the time of grant on U.S. Treasury bonds with maturities consistent with the expected life assumption. Historical nonvested forfeiture information is the basis for the forfeiture rate assumptions.

The fair value of RSU is determined based on the Company's stock price on the grant date reduced by the present value of expected dividends through the vesting period.

*Preferred Stock*: The Board of Directors may authorize the issuance of preferred stock from time to time in one or more series with such designations, preferences, qualifications, limitations, restrictions, and optional or other special rights as the Board may fix by resolution.

*Share Repurchase Program*

On May 2, 2018, the Company announced that the Company's Board of Directors had authorized the repurchase of up to 1,000,000 shares of the Company's common stock under a program for the period May 1, 2018 to April 30, 2019 ("2018 program"). On May 1, 2019, the Company announced that the Company's Board of Directors had authorized a new program to repurchase up to 1,000,000 shares of the Company's common stock for the period May 1, 2019 to April 30, 2020 ("2019 program"). During the fiscal year 2019, the Company repurchased 579,916 shares of its common stock totaling $95.0 million. During the fiscal year 2018, the Company repurchased 391,972 shares of its common stock totaling $67.9 million.

## 13. Other Comprehensive Income (Loss)

Changes in other comprehensive income (loss) by component for fiscal years 2019, 2018, and 2017 were as follows:

| | Fiscal Year Ended | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | December 28, 2019 | | | December 29, 2018 | | | December 30, 2017 | | |
| (in thousands) | Pre-tax | Tax | Net of tax | Pre-tax | Tax | Net of tax | Pre-tax | Tax | Net of tax |
| Defined benefit pension plan and other adjustments | $ (9,149) | $1,062 | $ (8,087) | $ 924 | $ 47 | $ 877 | $ 1,532 | $ 385 | $ 1,147 |
| Unrealized loss on investments | — | — | — | — | — | — | (974) | — | (974) |
| Foreign currency translation adjustments | (1,476) | 664 | (812) | (25,338) | — | (25,338) | 10,738 | — | 10,738 |
| Total change in other comprehensive (loss) income | $ (10,625) | $1,726 | $ (8,899) | $ (24,414) | $ 47 | $ (24,461) | $ 11,296 | $ 385 | $ 10,911 |

*Accumulated Other Comprehensive Income (Loss) (“AOCI”)*: The following table sets forth the changes in the components of AOCI by component for fiscal years 2019, 2018, and 2017:

| (in thousands) | Pension and postretirement liability and reclassification adjustments | Gain (loss) on investments | Foreign currency translation adjustments | Accumulated other comprehensive income (loss) |
|---|---|---|---|---|
| Balance at December 31, 2016 | $ (11,983) | $ 10,769 | $ (73,365) | $ (74,579) |
| 2017 activity | 1,147 | (974) | 10,738 | 10,911 |
| Balance at December 30, 2017 | (10,836) | 9,795 | (62,627) | (63,668) |
| Cumulative effect adjustment [a] | $ — | $ (9,795) | $ — | $ (9,795) |
| 2018 activity | 877 | — | (25,338) | (24,461) |
| Balance at December 29, 2018 | (9,959) | — | (87,965) | (97,924) |
| 2019 activity | (8,087) | — | (812) | (8,899) |
| Balance at December 28, 2019 | (18,046) | — | (88,777) | (106,823) |

(a) The Company adopted ASU 2016-01 on December 31, 2017 on a modified retrospective basis, recognizing the cumulative effect as a $9.8 million increase to retained earnings. See Note 1, *Summary of Significant Accounting Policies and Other Information*, for further discussion.

Amounts reclassified from accumulated other comprehensive income (loss) to earnings for fiscal years 2019, 2018, and 2017 were as follows:

| | Fiscal Year Ended | | |
|---|---|---|---|
| (in thousands) | December 28, 2019 | December 29, 2018 | December 30, 2017 |
| Pension and postemployment and other plans: | | | |
| Amortization of prior service, net actuarial loss, and other | $ 372 | $ 291 | $ 337 |
| Settlement loss/curtailment (gain) | 260 | 238 | (25) |
| Total | $ 632 | $ 529 | $ 312 |

The Company recognizes the amortization of prior service costs and settlement loss and curtailment gain in *other income, net* within the Consolidated Statements of Net Income.

## 14. Income Taxes

On December 22, 2017, the U.S. enacted legislation referred to as the "Tax Act". Among other things, the Tax Act reduces the U.S. corporate federal income tax rate from 35% to 21%, adds base broadening provisions which limit deductions and address excessive international tax planning, imposes a Toll Charge on accumulated earnings of certain non-U.S. subsidiaries and enables repatriation of earnings of non-U.S. subsidiaries free of U.S. federal income tax. Other than the Toll Charge (which, except for the IXYS impact, was applicable to the Company for 2017), the provisions are generally applicable to the Company in 2018 and beyond.

In accordance with the guidance provided in SEC SAB No. 118, in the fourth quarter of 2017 the Company recorded a charge of $47.0 million as a provisional reasonable estimate of the impact of the Tax Act, including $49.0 million for the Toll Charge net of $2.0 million for other net tax benefits. In the fourth quarter of 2018, within the measurement period outlined in SAB No. 118, the Company finalized its estimates of the impact of the Tax Act as of December 30, 2017 and recorded a charge of $3.2 million, including $2.3 million for the Toll Charge and $0.9 million for the net impact of other items. In addition, the Company recorded $7.0 million for the Toll Charge associated with IXYS as part of the IXYS acquisition purchase price allocation. This was reflected in the opening balance sheet as an increase to goodwill and other long-term liabilities.

Although certain administrative guidance has been issued, including final and proposed regulations, the appropriate application of many provisions of the Tax Act remain uncertain. The Company used its best judgment as to the application of these provisions in determining its final estimates of the impact of the Tax Act as of December 30, 2017, the Toll Charge associated with the IXYS acquisition as well as the Company’s income tax expense for the fiscal years ended December 28, 2019 and December 29, 2018. Adjustments to income tax expense may be necessary in future periods if provisions of the Tax Act, and their interaction with other provisions of the U.S. Internal Revenue Code, are interpreted differently than interpretations made by the Company, whether through issuance of additional administrative guidance, or through further review of the Tax Act by the Company and its advisors.

The Company has elected to pay the 2017 Littelfuse Toll Charge over the eight-year period prescribed by the Tax Act. The long-term portion of this Toll Charge which remains payable as of December 28, 2019, totaling $23.8 million, is recorded in *Other long-term liabilities,* and the anticipated 2020 annual installment payment of $3.0 million is included in *Accrued income taxes*, on the Consolidated Balance Sheet as of December 28, 2019. The Company did not elect to pay the 2018 IXYS Toll Charge over the eight year period provided by the Tax Act and therefore there is no long-term portion of this Toll Charge which remains payable as of December 28, 2019.

One of the base broadening provisions of the Tax Act is commonly referred to as the “GILTI” provisions. In accordance with guidance issued by the FASB staff, the Company has adopted an accounting policy to treat any GILTI inclusions as a period cost if and when incurred. Thus, for the fiscal years ended December 28, 2019 and December 29, 2018, deferred taxes were computed without consideration of the possible future impact of the GILTI provisions, and any current year impact was recorded as a part of the current portion of income tax expense.

Domestic and foreign income (loss) before income taxes is as follows:

| **(in thousands)** | **2019** | **2018** | **2017** |
|---|---|---|---|
| Domestic | $ (11,970) | $ (49,995) | $ (20,496) |
| Foreign | 177,854 | 254,937 | 224,533 |
| Income before income taxes | $ 165,884 | $ 204,942 | $ 204,037 |

Federal, state and foreign income tax expense (benefit) consists of the following:

| (in thousands) | 2019 | 2018 | 2017 |
|---|---|---|---|
| Current: | | | |
| Federal | $ (3,495) | $ (3,193) | $ 34,060 |
| State | 834 | 119 | 450 |
| Foreign | 30,610 | 48,130 | 32,945 |
| Subtotal | 27,949 | 45,056 | 67,455 |
| Deferred: | | | |
| Federal and State | 1,839 | (3,896) | 16,562 |
| Foreign | (2,986) | (783) | 501 |
| Subtotal | (1,147) | (4,679) | 17,063 |
| Provision for income taxes | $ 26,802 | $ 40,377 | $ 84,518 |

The current federal tax benefit for 2019 includes a benefit of $3.3 million from the recognition of previously unrecognized tax benefits (and the reversal of the related accrued interest) due to a lapse in the statute of limitations.

The current federal tax benefit for 2018 includes the benefit of current year losses (which served to partially offset the amount of the IXYS Toll Charge that would otherwise have been payable).

The current federal and state income tax expense for 2017 includes the preliminary estimate of $49 million for the Toll Charge as discussed above, partially offset by 13.0 million of foreign tax credits.

A reconciliation between income taxes computed on income before income taxes at the federal statutory rate and the provision for income taxes is provided below:

| (in thousands) | 2019 | 2018 | 2017 |
|---|---|---|---|
| Tax expense at statutory rate of 21% (35% for 2017) | $ 34,836 | $ 43,038 | $ 71,413 |
| Non-U.S. income tax rate differential | (22,457) | (20,472) | (47,077) |
| Non-U.S. losses and expenses with no tax benefit | 6,570 | 3,107 | — |
| Net impact associated with the GILTI tax provisions | 6,469 | 5,075 | — |
| Tax on unremitted earnings | 2,136 | 4,660 | 12,202 |
| Certain changes in unrecognized tax benefits and related accrued interest | (1,468) | 208 | 914 |
| State and local taxes, net of federal tax benefit | 1,080 | (1,238) | 292 |
| Nondeductible professional fees | 195 | 1,001 | 1,240 |
| 2017 Toll Charge (and 2018 adjustment) | — | 2,278 | 49,000 |
| Provisional Tax Act impact other than Toll Charge (and 2018 adjustment) | — | 966 | (1,962) |
| Other, net | (559) | 1,754 | (1,504) |
| Provision for income taxes | $ 26,802 | $ 40,377 | $ 84,518 |

Deferred income taxes are provided for the tax effects of temporary differences between the financial reporting bases and the tax bases of the company's assets and liabilities. Significant components of the company's deferred tax assets and liabilities at December 28, 2019 and December 29, 2018, are as follows:

| (in thousands) | 2019 | 2018 |
|---|---|---|
| Deferred tax assets: | | |
| Accrued expenses and reserves | $ 28,294 | $ 34,113 |
| Domestic and non-U.S. net operating loss carryforwards | 10,511 | 8,613 |
| Non-U.S. interest expense carryforwards | 5,324 | 885 |
| U.S. research credit carryforwards | 2,581 | 1,245 |
| Capitalized expenses | 2,400 | — |
| U.S. foreign tax credit carryforwards | 1,320 | 1,506 |
| Other | 1,261 | 1,000 |
| Gross deferred tax assets | 51,691 | 47,362 |
| Less: Valuation allowance | (5,957) | (4,794) |
| Total deferred tax assets | 45,734 | 42,568 |
| | | |
| Deferred tax liabilities: | | |
| Excess of book basis over the tax basis of assets | 74,460 | 74,410 |
| Tax on unremitted earnings | 12,968 | 12,681 |
| Total deferred tax liabilities | 87,428 | 87,091 |
| Net deferred tax liabilities | $ 41,694 | $ 44,523 |

The deferred tax asset valuation allowance is related to certain net operating loss and non-U.S. interest expense carryforwards which are not expected to be realized. The remaining net operating loss and non-U.S. interest expense carryforwards either have no expiration date or are expected to be utilized prior to expiration (which begin expiring in 2021). No deferred tax asset nor valuation allowance has been recorded for certain U.S. and non-U.S. net operating loss carryforwards for which the possibility of usage has been determined to be remote.

The Company paid income taxes of $47.6 million, $46.2 million, and $31.8 million in 2019, 2018, and 2017, respectively, and received income tax refunds of $7.1 million, $4.3 million, and 13.7 million in 2019, 2018, and 2017, respectively.

Deferred income taxes are not provided on the excess of the investment value for financial reporting over the tax basis of investments in those non-U.S. subsidiaries for which such excess is considered to be permanently reinvested in those operations. The Company believes the determination of the amount of such deferred income taxes is impractical as it would depend upon income tax laws and circumstances at the time of the hypothetical distributions or dispositions. As of December 28, 2019, unremitted earnings of the Company's non-U.S. subsidiaries was approximately $776 million. A distribution of such earnings will generally not be subject to U.S. federal income tax. The Company recognized deferred tax liabilities of $13.0 million ($12.6 million for non-U.S. taxes net of related U.S. foreign tax credits, and $0.4 million for U.S. state taxes) as of December 28, 2019 and $12.7 million ($12.5 million for non-U.S. taxes net of related U.S. foreign tax credits, and $0.2 million for U.S. state taxes) as of December 29, 2018, related to taxes on certain non-U.S. earnings which are not considered to be permanently reinvested. Some of these non-U.S. taxes will provide a U.S. federal income tax benefit as a foreign tax credit, and the amounts as of December 28, 2019 and December 29, 2018 are net of such benefit (some of which, in respect of the year ended December 29, 2018, was recorded as part of finalizing the provisional reasonable estimate of the impact of the Tax Act).

The Company has three subsidiaries in China which benefit from lowered income tax rates due to "tax holidays" which apply for three-year periods, subject to extension. The tax holiday for two of these subsidiaries expired at the end of 2019 (one will seek an extension and the tax holiday benefits for the other was not material). The tax holiday for the third subsidiary will expire at the end of 2020 and the Company plans to seek an extension. Such tax holidays contributed $4.2 million in tax benefits, or $0.17 per diluted share, during 2019. Future year tax benefits will depend upon the Company's ability to obtain extensions, and the level of income earned by the two applicable subsidiaries.

A reconciliation of the beginning and ending amount of unrecognized tax benefits as of December 28, 2019, December 29, 2018, and December 30, 2017 is as follows:

| **(in thousands)** | **Unrecognized Tax Benefits** |
|---|---|
| Balance at December 30, 2017 | $ 7,660 |
| Additions for tax positions taken in the current year | 2,929 |
| Additions for tax positions related to the pre-acquisition periods of acquired subsidiaries | 9,394 |
| Decreases due to a lapse in the statute of limitations | (1,257) |
| Other | (467) |
| Balance at December 29, 2018 | 18,259 |
| Additions for tax positions taken in the current year | 1,305 |
| Decreases due to a lapse in the statute of limitations | (2,758) |
| Other | (85) |
| Balance at December 28, 2019 | 16,721 |

The company recognizes accrued interest and penalties associated with uncertain tax positions as part of income tax expense. The company recognized such interest expense of $1.3 million (net of a $0.6 million decrease due to a lapse in the statute of limitations), $1.5 million (net of a $0.3 million decrease due to a lapse in the statute of limitations), and $0.9 million in 2019, 2018, and 2017, respectively. Accrued interest for such matters included in *Other long-term liabilities* within the Consolidated Balance Sheets was $7.2 million and $5.9 million as of December 28, 2019 and December 29, 2018, respectively.

The amount of unrecognized tax benefits included in *Other long-term liabilities* within the Consolidated Balance Sheets was $16.7 million and $18.3 million as of December 28, 2019 and December 29, 2018, respectively. The December 28, 2019 total represents the net amount of tax benefits that, if recognized, would favorably affect the effective income tax rate in future periods. Of this amount, approximately $0.1 million may be recognized in 2020 based upon the possible lapse in the statute of limitations. None of the positions included in unrecognized tax benefits are related to tax positions for which the ultimate deductibility is highly certain, but for which there is uncertainty about the timing of such deductibility.

The U.S. federal statute of limitations remains open for the Company for the 2016 tax year and later years, although the Company has been audited for the 2016 tax year and the audit concluded in 2018 with no significant adjustments. The U.S. federal statute of limitations remains open for IXYS pre-acquisition tax periods ending March 31, 2017 and January 17, 2018. Non-U.S. and U.S. state statutes of limitations generally range from three to seven years, although certain jurisdictions do not have a statute expiration. Non-U.S. tax examinations occur from time to time, including examinations currently in process in Italy, Canada, and Hong Kong. The company does not expect to recognize a significant amount of additional tax expense as a result of concluding these examinations.

**15. Earnings Per Share**

The following table sets forth the computation of basic and diluted earnings per share:

| (in thousands, except per share amounts) | 2019 | 2018 | 2017 |
|---|---|---|---|
| **Numerator:** | | | |
| Net income as reported | $ 139,082 | $ 164,565 | $ 119,519 |
| | | | |
| **Denominator:** | | | |
| Weighted average shares outstanding | | | |
| Basic | 24,576 | 24,870 | 22,687 |
| Effect of dilutive securities | 242 | 365 | 244 |
| Diluted | 24,818 | 25,235 | 22,931 |
| | | | |
| **Earnings Per Share:** | | | |
| Basic earnings per share | $ 5.66 | $ 6.62 | $ 5.27 |
| Diluted earnings per share | $ 5.60 | $ 6.52 | $ 5.21 |

Potential shares of common stock attributable to stock options excluded from the earnings per share calculation because their effect would be anti-dilutive were 129,658, 42,305, and 37,443 shares in 2019, 2018, and 2017, respectively.

On January 17, 2018, the Company acquired IXYS through a combination of cash, Littelfuse common stock, and the value of converted, or cash settled IXYS equity awards. The Company issued approximately 2.1 million shares of Littelfuse common stock and converted IXYS equity awards into approximately 0.5 million Littelfuse equity awards.

During the fiscal year 2019, the Company repurchased 579,916 shares of its common stock totaling $95.0 million. During the fiscal year 2018, the Company repurchased 391,972 shares of its common stock totaling $67.9 million. See Note 12 *Stock-Based Compensation* for further discussion.

**16. Segment Information**

The Company and its subsidiaries design, manufacture and sell components and modules for circuit protection, power control and sensing throughout the world. The Company reports its operations by the following segments: Electronics, Automotive, and Industrial. An operating segment is defined as a component of an enterprise that engages in business activities from which it may earn revenues and incur expenses, and about which separate financial information is regularly evaluated by the Chief Operating Decision Maker ("CODM") in deciding how to allocate resources. The CODM is the Company's President and Chief Executive Officer ("CEO"). The CODM allocates resources to and assesses the performance of each operating segment using information about its revenue and operating income (loss) before interest and taxes, but does not evaluate the operating segments using discrete balance sheet information.

Sales, marketing, and research and development expenses are charged directly into each operating segment. Purchasing, logistics, customer service, finance, information technology, and human resources are shared functions that are allocated back to the three operating segments. The Company does not report inter-segment revenue because the operating segments do not record it. Certain expenses, determined by the CODM to be strategic in nature and not directly related to segments current results, are not allocated but identified as "Other". Additionally, the Company does not allocate interest and other income, interest expense, or taxes to operating segments. These costs are not allocated to the segments, as management excludes such costs when assessing the performance of the segments. Although the CODM uses operating income (loss) to evaluate the segments, operating costs included in one segment may benefit other segments. Except as discussed above, the accounting policies for segment reporting are the same as for the Company as a whole.

- *Electronics Segment*: Consists of one of the broadest product offerings in the industry, including fuses and fuse accessories, positive temperature coefficient ("PTC") resettable fuses, polymer electrostatic discharge ("ESD") suppressors, varistors, reed switch based magnetic sensing, gas discharge tubes; semiconductor products such as discrete transient voltage suppressor ("TVS") diodes, TVS diode arrays, protection and switching thyristors, metal-oxide-semiconductor field-effect transistors ("MOSFETs") and silicon carbide diodes; and insulated gate bipolar transistors ("IGBT") technologies.

The segment covers a broad range of end markets, including industrial and automotive electronics, electric vehicle and related infrastructure, data and telecommunications, medical devices, alternative energy, consumer electronics and white goods.

- *Automotive Segment:* Consists of a wide range of circuit protection, power control and sensing technologies for global original equipment manufacturers ("OEMs"), Tier-I suppliers and parts distributors in passenger car, heavy duty truck, off-road vehicles, material handling, agricultural, construction and other commercial vehicle end markets. Passenger car fuse products include fuses and fuse accessories for internal combustion engine vehicles and hybrid and electric vehicles including blade fuses, battery cable protectors, resettable fuses, high-current fuses, and high-voltage fuses. Commercial vehicle products include fuses, switches, relays, and power distribution modules for the commercial vehicle industry. Automotive sensor products include a wide range of automotive and commercial vehicle products designed to monitor the passenger compartment occupants, safety and environment as well as the vehicle's powertrain.

- *Industrial Segment:* Consists of power fuses, protection relays and controls and other circuit protection products for use in various industrial applications such as oil, gas, mining, alternative energy, electric vehicle infrastructure, non-residential construction, HVAC systems, elevators and other industrial equipment.

The Company has provided this segment information for all comparable prior periods. Segment information is summarized as follows:

| **(in thousands)** | **2019** | **2018** | **2017** |
|---|---|---|---|
| Net sales | | | |
| Electronics | $ 961,080 | $ 1,124,296 | $ 661,928 |
| Automotive | 428,533 | 479,791 | 453,227 |
| Industrial | 114,260 | 114,381 | 106,379 |
| Total net sales | $ 1,503,873 | $ 1,718,468 | $ 1,221,534 |
| | | | |
| Depreciation and amortization | | | |
| Electronics | $ 60,345 | $ 61,779 | $ 35,215 |
| Automotive | 27,922 | 23,333 | 22,459 |
| Industrial | 4,236 | 5,661 | 5,337 |
| Other | — | 12,420 | — |
| Total depreciation and amortization | $ 92,503 | $ 103,193 | $ 63,011 |
| | | | |
| Operating income (loss) | | | |
| Electronics | $ 145,594 | $ 241,426 | $ 155,880 |
| Automotive | 46,719 | 54,982 | 62,571 |
| Industrial | 22,407 | 17,335 | 10,334 |
| Other[a] | (21,929) | (88,694) | (10,274) |
| Total operating income | 192,791 | 225,049 | 218,511 |
| Interest expense | 22,266 | 22,569 | 13,380 |
| Foreign exchange (gain) loss | 5,224 | (863) | 2,376 |
| Other income, net | (583) | (1,599) | (1,282) |
| Income before income taxes | $ 165,884 | $ 204,942 | $ 204,037 |

(a) Included in "Other" Operating income (loss) for 2019 is $8.9 million of acquisition-related and integration charges related to the IXYS acquisition and other contemplated acquisitions. In addition, there were $13.0 million of restructuring charges primarily related to employee termination costs. See Note 8, *Restructuring, Impairment and Other Charges,* for further discussion.

Included in "Other" Operating income (loss) for 2018 is $88.7 million of charges primarily related to the IXYS acquisition, which include $36.9 million of purchase accounting inventory step-up charges, $18.7 million in acquisition-related and integration costs primarily related to legal, accounting and other expenses, $12.4 million in backlog amortization costs, $8.3 million of employee termination costs, impairment and other restructuring charges, and $4.5 million in stock compensation expense recognized immediately upon close for converted IXYS options related to prior service periods and $2.1 million change in control expense related to IXYS. In addition, there were $5.8 million of employee termination costs, impairment and other restructuring charges and acquisition-related expenses for other contemplated acquisitions which included $2.2 million of impairment charges primarily related to the impairment of a building and a trade name associated with the exit of the Custom business within the Industrial segment.

Included in "Other" Operating income (loss) for 2017 are costs related to acquisition and integration costs associated with the Company's completed and pending acquisitions in 2017 ($8.0 million in *Cost of sales* ("COS") and *Selling, general, and administrative expenses* ("SG&A"), and charges related to restructuring and production transfers in the Company's Asia operations ($2.2 million in SG&A).

The Company's net sales, long-lived assets and additions to long-lived assets by country for the fiscal years ended 2019, 2018, and 2017 are as follows:

| **(in thousands)** | **2019** | **2018** | **2017** |
|---|---|---|---|
| Net sales | | | |
| United States | $ 440,461 | $ 511,544 | $ 383,025 |
| China | 416,385 | 468,174 | 321,111 |
| Other countries[(a)] | 647,027 | 738,750 | 517,398 |
| Total net sales | $ 1,503,873 | $ 1,718,468 | $ 1,221,534 |
| | | | |
| Long-lived assets | | | |
| United States | $ 58,081 | $ 58,691 | $ 23,490 |
| China | 88,306 | 95,806 | 86,866 |
| Mexico | 73,096 | 70,495 | 62,510 |
| Germany | 36,025 | 36,548 | 1,082 |
| Philippines | 51,738 | 32,459 | 31,129 |
| Other countries | 37,371 | 45,895 | 45,500 |
| Total long-lived assets | $ 344,617 | $ 339,894 | $ 250,577 |
| | | | |
| Additions to long-lived assets | | | |
| United States | $ 5,864 | $ 5,567 | $ 3,518 |
| China | 10,400 | 29,286 | 32,775 |
| Mexico | 13,827 | 18,723 | 19,395 |
| Germany | 4,017 | 5,208 | 93 |
| Philippines | 22,944 | 7,605 | 2,979 |
| Other countries | 9,314 | 8,364 | 7,165 |
| Total additions to long-lived assets | $ 66,366 | $ 74,753 | $ 65,925 |

(a) Each country included in other countries are less than 10% of net sales.

For the year ended December 28, 2019, approximately 71% of the Company's net sales were to customers outside the United States (exports and foreign operations), including approximately 28% to China. For the year ended December 29, 2018, approximately 70% of the Company's net sales were to customers outside the U.S. (exports and foreign operations), including approximately 27% to China. For the year ended December 30, 2017, approximately 69% of the Company's net sales were to customers outside the U.S. (exports and foreign operations), including approximately 26% to China. Sales to Arrow Electronics, Inc., which were included in the Electronics, Automotive, and Industrial segments, were 10.7%, 10.7%, and 10.6% of consolidated net sales in 2019, 2018, and 2017 respectively. No other single customer accounted for more than 10% of net sales during the last three years.

**17. Selected Quarterly Financial Data (Unaudited)**

The quarterly periods for 2019 are for the 13-weeks ended December 28, 2019, September 28, 2019, June 29, 2019, and March 30, 2019, respectively. The quarterly periods for 2018 are for the 13-weeks ended December 29, 2018, September 29, 2018, June 30, 2018, and March 31, 2018, respectively.

**(in thousands, except per share data)**

| | 2019 | | | | 2018 | | | |
|---|---|---|---|---|---|---|---|---|
| | 4Q[(a)] | 3Q[(b)] | 2Q[(c)] | 1Q[(d)] | 4Q[(e)] | 3Q[(f)] | 2Q[(g)] | 1Q[(h)] |
| Net sales | $ 338,523 | $ 361,971 | $ 397,879 | $ 405,500 | $ 402,281 | $ 439,191 | $ 459,183 | $ 417,813 |
| Gross profit | 113,467 | 130,946 | 141,808 | 155,228 | 154,337 | 179,594 | 168,987 | 149,623 |
| Operating income | 32,317 | 47,167 | 52,634 | 60,673 | 51,628 | 76,228 | 59,622 | 37,571 |
| Net income | 22,654 | 35,647 | 43,792 | 36,989 | 32,665 | 53,546 | 42,326 | 36,029 |
| Net income per share | | | | | | | | |
| Basic | $ 0.93 | $ 1.46 | $ 1.77 | $ 1.50 | $ 1.31 | $ 2.13 | $ 1.69 | $ 1.48 |
| Diluted | $ 0.92 | $ 1.44 | $ 1.75 | $ 1.48 | $ 1.29 | $ 2.10 | $ 1.67 | $ 1.45 |

(a) In the fourth quarter of 2019, the Company recorded $1.9 million in acquisition-related and integration costs and $2.1 million in restructuring, impairment and other costs, and $4.2 million impairment charges related to certain other investments, partially offset by a $3.3 million benefit for previously unrecognized tax benefits in respect of which the statute of limitation has expired.

(b) In the third quarter of 2019, the Company recorded $3.2 million in acquisition-related and integration costs and $2.5 million in restructuring and impairment charge

(c) In the second quarter of 2019, the Company recorded $5.7 million in restructuring and impairment charges, $1.5 million in acquisition-related and integration costs, and $0.4 million costs primarily related to a sale of building and $0.2 million impairment charges related to a certain other investment.

(d) In the first quarter of 2019, the Company recorded $2.8 million impairment charges to certain other investments, $2.6 million loss on the disposal of a business, $2.7 million in restructuring costs, $2.4 million in acquisition-related and integration costs, and $0.3 million gain primarily related to the final payments for the acquisition of Monolith

(e) In the fourth quarter of 2018, the Company recorded an estimated one-time tax charge of $3.2 million related to the finalization of 2017 provisional reasonable estimate in connection with the Tax Act, partially offset by a $1.5 million benefit for previously unrecognized tax benefits in respect of which the statute of limitation has expired, $3.7 million in backlog amortization expense from the IXYS acquisition, $3.2 million in acquisition-related and integration costs and $2.4 million in restructuring, impairment and other costs.

(f) In the third quarter of 2018, the Company recorded $5.2 million in restructuring and impairment charges, $3.1 million in backlog amortization expense from the IXYS acquisition and $2.9 million in acquisition-related and integration costs

(g) In the second quarter of 2018, the Company recorded $19.0 million for purchase accounting inventory adjustments associated with the acquisition of IXYS, $4.2 million in restructuring and impairment charges, $3.1 million in backlog amortization expense from the IXYS acquisition $2.4 million in acquisition-related and integration costs.

(h) In the first quarter of 2018, the Company recorded $17.9 million for purchase accounting inventory adjustments associated with the acquisition of IXYS, $11.7 million in acquisition-related and integration costs, $4.5 million of stock compensation expense recognized immediately upon close for converted IXYS options related to prior services periods, $2.5 million in backlog amortization expense,$2.1 million expense related to change in control and $0.8 million in restructuring costs.

## 18. Related Party Transactions

As a result of the Company's acquisition of IXYS, the Company has equity ownerships in various investments that are accounted for under the equity method. The following is a description of the investments and related party transactions.

**Powersem GmbH:** The Company owns 45% of the outstanding equity of Powersem GmbH ("Powersem"), a module manufacturer based in Germany.

**EB-Tech Co., Ltd.:** The Company owns approximately 19% of the outstanding equity of EB-Tech Co., Ltd. ("EB Tech"), a company with expertise in radiation technology based in South Korea.

**Automated Technology (Phil), Inc.**: The Company owns approximately 24% of the outstanding common shares of Automated Technology (Phil), Inc. ("ATEC"), a supplier located in the Philippines that provides assembly and test services. One member of the Company's Board of Directors serves on the Board of Directors of ATEC.

| | Fiscal Year Ended | | | | | |
|---|---|---|---|---|---|---|
| | December 28, 2019 | | | December 29, 2018 | | |
| (in millions) | Powersem | EB Tech | ATEC | Powersem | EB Tech | ATEC |
| Sales to related party | $ 0.6 | $ — | $ — | $ 0.7 | $ — | $ — |
| Purchase material/service from related party | 3.2 | 0.4 | 7.9 | 4.5 | 0.5 | 9.9 |
| Account Receivable balance | — | — | — | 0.1 | — | — |
| Account Payable balance | $ 0.2 | $ — | $ 0.1 | $ 0.2 | $ 0.1 | $ 0.5 |

Additionally, the Company has certain cost method investments in VTOOL Ltd. and Securepush Ltd. with a total book value of $0.4 million as of December 28, 2019 where one member of the Company's Board of Directors is currently an investor and a director of VTOOL Ltd. and Securepush Ltd.

On April 26, 2019, the Company sold its subsidiary Microwave Technology, LLC. ("MWT") resulting in a loss on disposal of $2.6 million reflected in *Other income (expense), net* in the Consolidated Statements of Net Income. The operations of MWT were included in the Electronics segment. One member of the Company's Board of Directors is an owner of a company that purchased MWT.

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

None.

## ITEM 9A. CONTROLS AND PROCEDURES.

### Evaluation of Disclosure Controls and Procedures

The Company maintains disclosure controls and procedures that are designed to ensure that information required to be disclosed in its reports filed under the Securities Exchange Act of 1934, as amended, is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms and that such information is accumulated and communicated to management, including the Company's Chief Executive Officer and Chief Financial Officer, as appropriate, to allow for timely decisions regarding required disclosure. In designing and evaluating the disclosure controls and procedures, the Company 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 the Company is required to apply its judgment in evaluating the cost-benefit relationship of possible controls and procedures.

As required by SEC Rule 15d-15(b), the Company carried out an evaluation, under the supervision and with the participation of its management, including the Chief Executive Officer and Chief Financial Officer, of the effectiveness of the design and operation of its disclosure controls and procedures pursuant to SEC Rule 13a-15 as of the end of the period covered by this report. Based on the foregoing, the Company's Chief Executive Officer and Chief Financial Officer concluded that the Company's disclosure controls and procedures were effective as of December 28, 2019.

### Management's Report on Internal Control over Financial Reporting

Section 404 of the Sarbanes-Oxley Act of 2002 requires management to include in this Annual Report on Form 10-K a report on management's assessment of the effectiveness of the Company's internal control over financial reporting, as well as an attestation report from the Company's independent registered public accounting firm on the effectiveness of the Company's internal control over financial reporting. Management is responsible for establishing and maintaining adequate internal control over financial reporting as such term is defined in Exchange Act Rule 13a-15(f) and 15d-15(f). The Company's internal control system was designed to provide reasonable assurance to its management and the Board of Directors regarding the preparation and fair presentation of published financial statements.

All internal control systems, no matter how well designed, have inherent limitations. Therefore, even those systems determined effective can provide only reasonable assurance with respect to financial statement preparation and presentation. A material weakness is a deficiency, or a combination of deficiencies, in the internal control over financial reporting such that there is a reasonable possibility that a material misstatement of the annual or interim financial statement will not be prevented or detected on a timely basis.

The Company's management, including the its Principal Executive Officer and Principal Financial Officer, assessed the effectiveness of the Company's internal control over financial reporting as of December 28, 2019, based upon the updated framework in Internal Control — Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO") in 1992 and updated in May 2013. Based on this assessment, the Company's management concluded that, as of December 28, 2019, the Company's internal control over financial reporting was effective.

### Changes in Internal Control over Financial Reporting

There has been no change in the Company's internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) that occurred during the 12 months or fiscal quarter ended December 28, 2019, that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting.

## ITEM 9B. OTHER INFORMATION.

None.

## PART III

### ITEM 10. DIRECTORS, EXECUTIVE OFFICERS, AND CORPORATE GOVERNANCE.

Except as set forth below, the information required by this item will be contained in the Company's Proxy Statement related to our 2020 Annual Meeting of Stockholders (the "proxy statement") and is incorporated herein by reference.

Information concerning directors and nominees for director is set forth in the section titled "Proposal No. 1 Election of Directors" in the Company's proxy statement and is incorporated herein by reference.

Information concerning the Company's Audit Committee and Audit Committee financial expert is set forth in the sections titled "Board Committees" and "Director Independence; Financial Experts" in the Company's proxy statement and is incorporated herein by reference.

Information concerning the procedures by which security holders may recommend nominees to the Company's Board of Directors is set forth in the section titled "Director Nomination" in the Company's proxy statement and is incorporated herein by reference.

Information concerning compliance with Section 16 of the Securities Exchange Act of 1934 is set forth in the section titled "Delinquent Section 16(a) Reports" in the Company's proxy statement and is incorporated herein by reference.

Information regarding the Executive Officers of the Company can be found in Part I of this Annual Report on Form 10-K under the caption "Information about our Executive Officers."

**Code of Ethics**

The company has adopted a Code of Conduct (Code of Ethics) that applies to all of the Company's employees including the Company's Principal Executive Officer, Principal Financial Officer, Principal Accounting Officer and persons performing similar functions. It has posted the text of the Code of Conduct on its website at http://investor.littelfuse.com/governance and intends to disclose on such website any amendments to, or waivers from the Code of Conduct. The company's website is not incorporated by reference into this Annual Report.

### ITEM 11. EXECUTIVE COMPENSATION.

Information concerning compensation of the Company's executive officers and directors for the fiscal year ended December 28, 2019, is set forth in the sections titled "Compensation Discussion & Analysis," "Compensation Tables," "Compensation Committee Report," "CEO Pay Ratio," "Potential Payments Upon Termination or Change in Control" and "Director Compensation" in the Company's proxy statement and is incorporated herein by reference, except the section titled "Compensation Committee Report" is hereby "furnished" and not "filed" with this Annual Report on Form 10-K.

Information concerning compensation committee interlocks is set forth in the section titled "Compensation Committee Interlocks and Insider Participation" in the Company's proxy statement and is incorporated herein by reference.

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

Information concerning the security ownership of certain beneficial owners, the Company's directors and executive officers as of February 27, 2020, is set forth in the section titled "Ownership of Littelfuse, Inc. Common Stock" in the Company's proxy statement and is incorporated herein by reference.

Information concerning the Company's equity compensation plans are set forth in the section titled "Compensation Plan Information" in the Company's proxy statement and is incorporated herein by reference.

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

Information concerning the independence of the Company's directors, certain relationships and related transactions during 2019 and the Company's policies with respect to such transactions is set forth in the sections titled "Director Independence; Financial Experts", "Related Person Transaction Policy" and "Related Party Transactions" in the Company's proxy statement and is incorporated herein by reference.

## ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES.

Information concerning principal accountant fees and services is set forth in the section titled "Audit Related Matters" in the Company's proxy statement and is incorporated herein by reference.

## PART IV

### ITEM 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULES.

(a) Financial Statements and Schedules



All other schedules for which provision is made in the applicable accounting regulations of the Securities and Exchange Commission are not required under the related instructions or are inapplicable and, therefore, have been omitted.



### Item 16. FORM 10-K SUMMARY

None.

## SCHEDULE II

## VALUATION AND QUALIFYING ACCOUNTS AND RESERVES

| Description | Balance at Beginning of Year | Charged to Costs and Expenses (a) | Deductions (b) | Other (c) | Balance at End of Year |
|---|---|---|---|---|---|
| **(in thousands)** | | | | | |
| Fiscal year ended December 28, 2019 | | | | | |
| Allowance for losses on accounts receivable | $ 1,062 | $ 410 | $ (172) | $ 10 | $ 1,310 |
| Reserves for sales discounts and allowances | $ 34,976 | $ 133,434 | $ (127,330) | $ (347) | $ 40,733 |
| | | | | | |
| Fiscal year ended December 29, 2018 | | | | | |
| Allowance for losses on accounts receivable | $ 1,172 | $ 319 | $ (557) | $ 128 | $ 1,062 |
| Reserves for sales discounts and allowances | $ 26,344 | $ 124,638 | $ (118,438) | $ 2,432 | $ 34,976 |
| | | | | | |
| Fiscal year ended December 30, 2017 | | | | | |
| Allowance for losses on accounts receivable | $ 2,079 | $ 3,068 | $ (4,070) | $ 95 | $ 1,172 |
| Reserves for sales discounts and allowances | $ 23,825 | $ 106,781 | $ (104,941) | $ 679 | $ 26,344 |

(a) Includes provision for doubtful accounts, sales returns and sales discounts granted to customers.
(b) Represents uncollectible accounts written off, net of recoveries and credits issued to customers.
(c) Represents business acquisitions and foreign currency translation adjustments.

## 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.

Littelfuse, Inc.

By: /s/ David W. Heinzmann

David W. Heinzmann,
President and Chief Executive Officer

Date: February 21, 2020

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant on February 21, 2020 and in the capacities indicated.

| | |
|---|---|
| /s/ Gordon Hunter<br>Gordon Hunter | Chairman of the Board of Directors |
| /s/ David W. Heinzmann<br>David W. Heinzmann | Director, President and Chief Executive Officer<br>(Principal Executive Officer) |
| /s/ Kristina A. Cerniglia<br>Kristina A. Cerniglia | Director |
| /s/ Tzau-Jin Chung<br>Tzau-Jin Chung | Director |
| /s/ Cary T. Fu<br>Cary T. Fu | Director |
| /s/ Anthony Grillo<br>Anthony Grillo | Director |
| /s/ John E. Major<br>John E. Major | Director |
| /s/ William P. Noglows<br>William P. Noglows | Director |
| Maria Green | Director |
| Nathan Zommer | Director |
| /s/ Meenal A. Sethna<br>Meenal A. Sethna | Executive Vice President and Chief Financial Officer<br>(Principal Financial Officer) |
| /s/ Jeffrey G. Gorski<br>Jeffrey G. Gorski | Corporate Controller and Chief Accounting Officer<br>(Principal Accounting Officer) |

## EXHIBIT INDEX

The following documents listed below that have been previously filed with the SEC (1934 Act File No. 0-20388) are incorporated herein by reference:

| | | Incorporated by Reference Herein | | | |
|---|---|---|---|---|---|
| Exhibit No. | Description | Form | Exhibit | Filing Date | File No. |
| 2.1 | Agreement and Plan of Merger, dated August 25, 2017, as amended by Amendment No. 1, dated December 4, 2017, by and among IXYS Corporation, Littelfuse, Inc., Iron Merger Co., Inc., and IXYS Merger Co., LLC. | S-4/A | Annex A | 12/11/2017 | 333-22114 |
| 3.1 | Certificate of Incorporation dated November 25, 1991, as amended April 25, 1997. | 10-K | 3.1 | 2/27/2017 | 0-20388 |
| 3.2 | Certificate of Designations of Series A Preferred Stock. | 8-K | 4.2 | 12/1/1995 | 0-20388 |
| 3.3 | Bylaws, as amended and restated January 24, 2019. | 8-K | 3.1 | 1/25/2019 | 0-20388 |
| 4.1* | Description of Securities of Littelfuse, Inc. | | | | |
| 10.1 | Form of Stock Option Award Agreement under the Littelfuse, Inc. Outside Directors' Equity Plan.++ | 8-K | 99.3 | 5/1/2008 | 0-20388 |
| 10.2 | Form of Restricted Stock Unit Award Agreement under the Littelfuse, Inc. Outside Directors' Equity Plan.++ | 8-K | 99.4 | 5/1/2008 | 0-20388 |
| 10.3 | Amended and Restated, Littelfuse, Inc. Deferred Compensation Plan for Non-Employee Directors.++ | 10-K | 10.4 | 2/27/2008 | 0-20388 |
| 10.4 | Form of Stock Option Award Agreement under the Littelfuse, Inc. Equity Incentive Compensation Plan .++ | 8-K | 10.2 | 4/28/2009 | 0-20388 |
| 10.5 | Littelfuse, Inc. Long-Term Incentive Plan, effective February 3, 2010.++ | 8-K | 10.1 | 5/5/2010 | 0-20388 |
| 10.6 | Form of Restricted Stock Unit Award Agreement (Outside Director) under the Littelfuse, Inc. Long-Term Incentive Plan.++ | S-8 | 4.4 | 5/19/2010 | 0-20388 |
| 10.7 | Form of Stock Option Award Agreement under the Littelfuse, Inc. Long-Term Incentive Plan.++ | S-8 | 4.6 | 5/19/2010 | 0-20388 |
| 10.8 | First Amendment to the Littelfuse, Inc. Long-Term Incentive Plan, effective July 27, 2012.++ | 10-K | 10.36 | 2/27/2013 | 0-20388 |
| 10.9 | Littelfuse, Inc. Annual Incentive Plan, effective January 1, 2014. ++ | DEF14 A | A | 3/17/2014 | 0-20388 |
| 10.10 | Form of Restricted Stock Unit Award Agreement (Executive) under the Littelfuse, Inc. Long-Term Incentive Plan.++ | 10-Q | 10.2 | 7/31/2015 | 0-20388 |
| 10.11 | Form of Restricted Stock Unit Award Agreement (Tier II Management) under the Littelfuse, Inc. Long-Term Incentive Plan.++ | 10-Q | 10.3 | 7/31/2015 | 0-20388 |
| 10.12 | Credit Agreement, dated as of March 4, 2016 among Littelfuse, Inc. and Certain Subsidiaries as borrowers, Guarantors party thereto, Bank of America, N.A. as Agent, Swing Line Lender and L/C Issuer and JPMorgan Chase Bank, N.A. as Syndication Agent, BMO Harris Bank, N.A., PNC Bank, National Association and Wells Fargo Bank, National Association as Co-Documentation Agents, Merrill, Lynch, Pierce, Fenner & Smith Incorporated, as Sole Bookrunner and Joint Lead Arranger and JPMorgan Chase Bank, N.A., as Joint Lead Arranger. | 8-K | 10.1 | 3/10/2016 | 0-20388 |
| 10.13 | Form of Stock Option Award Agreement (Executive) under the Littelfuse, Inc. Long-Term Incentive Plan. ++ | 10-Q | 10.3 | 5/6/2016 | 0-20388 |
| 10.14 | Form of Stock Option Award Agreement (Outside Director – 2016 Grant) under the Littelfuse, Inc. Long-Term Incentive Plan. ++ | 10-Q | 10.4 | 5/6/2016 | 0-20388 |
| 10.15 | Form of Restricted Stock Unit Award Agreement (Executive) under the Littelfuse, Inc. Long-Term Incentive Plan. ++ | 10-Q | 10.5 | 5/6/2016 | 0-20388 |

| | | Incorporated by Reference Herein | | | |
|---|---|---|---|---|---|
| Exhibit No. | Description | Form | Exhibit | Filing Date | File No. |
| 10.16 | Form of Restricted Stock Unit Award Agreement (Tier II Management) under the Littelfuse, Inc. Long-Term Incentive Plan. ++ | 10-Q | 10.6 | 5/6/2016 | 0-20388 |
| 10.17 | Form of Restricted Stock Unit Award Agreement (Outside Director – 2016 Grant) under the Littelfuse, Inc. Long-Term Incentive Plan. ++ | 10-Q | 10.7 | 5/6/2016 | 0-20388 |
| 10.18 | Form of Restricted Stock Unit Award Agreement (Executive) under the Littelfuse Inc. Long-Term Incentive Plan. ++ | 8-K | 10.1 | 7/26/2016 | 0-20388 |
| 10.19 | Letter Agreement entered into between Littelfuse, Inc. and David W. Heinzmann. Effective January 1, 2017. ++ | 8-K | 10.2 | 11/16/2016 | 0-20388 |
| 10.20 | Littelfuse, Inc. 3.03% Senior Note, Series A, due February 15, 2022, and 3.74% Senior Note, Series B, due February 15, 2027 Note Purchase Agreement. | 8-K | 10.1 | 12/9/2016 | 0-20388 |
| 10.21 | Littelfuse, Netherland C.V. 1.14% Senior Note, Series A, due December 8, 2023, and 1.83% Senior Note, Series B, due December 8, 2028 Note Purchase Agreement. | 8-K | 10.2 | 12/9/2016 | 0-20388 |
| 10.22 | Subsidiary Guaranty Agreement, dated December 8, 2016. | 8-K | 10.4 | 12/9/2016 | 0-20388 |
| 10.23 | Subsidiary Guaranty Agreement, dated as of February 15, 2017. | 8-K | 10.2 | 2/15/2017 | 0-20388 |
| 10.24 | Restated Littelfuse, Inc. Supplemental Retirement and Savings Plan, effective January 1, 2017. ++ | 10-K | 10.50 | 2/27/2017 | 0-20388 |
| 10.25 | Amended and Restated Littelfuse, Inc. 401(k) Retirement and Savings Plan, effective January 1, 2017.++ | 10-K | 10.51 | 2/27/2017 | 0-20388 |
| 10.26 | Amended and Restated Littelfuse, Inc. Long-Term Incentive Plan. ++ | 8-K | 10.1 | 5/1/2017 | 0-20388 |
| 10.27 | Form of 2017 Restricted Stock Unit Award Agreement. ++ | 8-K | 10.2 | 5/1/2017 | 0-20388 |
| 10.28 | Form of 2017 Stock Option Award Agreement. ++ | 8-K | 10.3 | 5/1/2017 | 0-20388 |
| 10.29 | Employment offer letter between Littelfuse, Inc. and Jeffrey Gorski, dated June 28, 2017. ++ | 8-K | 10.1 | 8/14/2017 | 0-20388 |
| 10.30 | Form of Change of Control Agreement (J. Gorski). ++ | 8-K | 10.2 | 8/14/2017 | 0-20388 |
| 10.31 | First Amendment to Credit Agreement, dated as of November 1, 2016, among Littelfuse, Inc., certain subsidiaries of the company, as designated borrowers, certain subsidiaries of the company, as guarantors, the lenders party thereto and Bank of America, N.A., as agent. | 8-K | 10.1 | 10/16/2017 | 0-20388 |
| 10.32 | Second Amendment to Credit Agreement, dated as of October 13. 2017, among Littelfuse, Inc., certain subsidiaries of the company, as designated borrowers, certain subsidiaries of the company, as guarantors, the lenders party thereto and Bank of America, N.A., as agent. | 8-K | 10.2 | 10/16/2017 | 0-20388 |
| 10.33 | Joinder Agreement, dated as of October 13, 2017, by and between Iron Merger Co., Inc. and Bank of America, N.A., as agent. | 8-K | 10.3 | 10/16/2017 | 0-20388 |
| 10.34 | Joinder Agreement, dated as of October 13, 2017, by and between IXYS Merger Co., LLC and Bank of America, N.A., as agent. | 8-K | 10.4 | 10/16/2017 | 0-20388 |
| 10.35 | U.S. Subsidiary Guarantor Supplement, dated as of October 13, 2017, made by Iron Merger Co., Inc. in favor of the note purchasers and the other holders. | 8-K | 10.5 | 10/16/2017 | 0-20388 |
| 10.36 | U.S. Subsidiary Guarantor Supplement, dated as of October 13, 2017, made by IXYS Merger Co., LLC in favor of the note purchasers and the other holders. | 8-K | 10.6 | 10/16/2017 | 0-20388 |
| 10.37 | Cross Border Subsidiary Guarantor Supplement, dated as of October 13, 2017, made by Iron Merger Co., Inc. in favor of the note purchasers and the other holders. | 8-K | 10.7 | 10/16/2017 | 0-20388 |

| | | Incorporated by Reference Herein | | | |
|---|---|---|---|---|---|
| Exhibit No. | Description | Form | Exhibit | Filing Date | File No. |
| 10.38 | Cross Border Subsidiary Guarantor Supplement, dated as of October 13, 2017, made by IXYS Merger Co., LLC in favor of the note purchasers and the other holders. | 8-K | 10.8 | 10/16/2017 | 0-20388 |
| 10.39 | Note Purchase Agreement, dated November 15, 2017, among Littelfuse, Inc. and note purchasers listed on the signature pages thereto. | 8-K | 10.1 | 11/15/2017 | 0-20388 |
| 10.40 | Form of 3.78% Senior Note, Series B, due February 15, 2030. | 8-K | 4.2 | 11/15/2017 | 0-20388 |
| 10.41 | Form of 3.48% Senior Note, Series A, due February 15, 2025, | 8-K | 4.1 | 11/15/2017 | 0-20388 |
| 10.42 | Subsidiary Guaranty Agreement, dated as of January 16, 2018, made by LFUS LLC, Littelfuse Commercial Vehicle, LLC, Iron Merger Co., Inc., IXYS Merger Co., LLC and SymCom, Inc. in favor of the note purchasers and the other holders. | 8-K | 10.2 | 1/18/2018 | 0-20388 |
| 10.43 | Littelfuse, Inc. Executive Severance Policy. ++ | 8-K | 10.4 | 1/18/2018 | 0-20388 |
| 10.44 | Form of Tier I Change of Control Agreement.++ | 8-K | 10.1 | 1/23/2018 | 0-20388 |
| 10.45 | First Amendment to Littelfuse Deferred Compensation Plan for Non-Employee Directors, effective as of January 1, 2008.++ | 10-K | 10.73 | 02/23/2018 | 0-20388 |
| 10.46 | Second Amendment to the Littelfuse Deferred Compensation Plan for Non-Employee Directors, effective as of October 25, 2013.++ | 10-K | 10.74 | 02/23/2018 | 0-20388 |
| 10.47 | First Amendment to the Littelfuse, Inc. 401(K) Retirement and Savings Plan, effective January 1, 2018.++ | 10-K | 10.75 | 02/23/2018 | 0-20388 |
| 10.48 | Altra In-Plan Roth Rollover Amendment to the Littelfuse, Inc. 401(K) Retirement and Savings Plan, effective as of February 1, 2018.++ | 10-K | 10.76 | 02/23/2018 | 0-20388 |
| 10.49 | Form of Indemnity Agreement between Nathan Zommer and IXYS Corporation. ++ | 10-K | 10.3 | 6/12/2008 | 000-26124 |
| 10.50 | IXYS Corporation 2009 Equity Incentive Plan++ | S-8 | 4.4 | 1/19/2018 | 333-221147 |
| 10.51 | IXYS Corporation 2011 Equity Incentive Plan++ | S-8 | 4.5 | 1/19/2018 | 333-221147 |
| 10.52 | IXYS Corporation 2013 Equity Incentive Plan++ | S-8 | 4.6 | 1/19/2018 | 333-221147 |
| 10.53 | IXYS Corporation 2016 Equity Incentive Plan++ | S-8 | 4.7 | 1/19/2018 | 333-221147 |
| 10.54 | Zilog, Inc. 2002 Omnibus Stock Incentive Plan++ | S-8 | 4.8 | 1/19/2018 | 333-221147 |
| 10.55 | Zilog, Inc. 2004 Omnibus Stock Incentive Plan++ | S-8 | 4.9 | 1/19/2018 | 333-221147 |
| 10.56 | Notice of Stock Option Grant and Agreement for the IXYS Corporation 2009 Equity Incentive Plan++ | 10-Q | 10.4 | 8/10/2009 | 000-26124 |
| 10.57 | Form of Nonqualified Stock Option Agreement for Stock Options pursuant to the Zilog, Inc. 2002 Omnibus Stock Incentive Plan++ | 10-K | 10.26 | 6/11/2010 | 000-26124 |
| 10.58 | Form of Nonqualified Stock Option Agreement for Stock Options pursuant to the Zilog, Inc. 2004 Omnibus Stock Incentive Plan++ | 10-K | 10.28 | 6/11/2010 | 000-26124 |
| 10.59 | Notice of Stock Option Grant and Agreement for IXYS Corporation 2011 Equity Incentive Plan++ | 10-Q | 10.2 | 8/5/2011 | 000-26124 |
| 10.60 | Notice of Stock Option Grant and Agreement for IXYS Corporation 2013 Equity Incentive Plan++ | 10-Q | 10.6 | 8/9/2013 | 000-26124 |
| 10.61 | Notice of Stock Option Grant and Agreement for IXYS Corporation 2016 Equity Incentive Plan++ | 10-Q | 10.1 | 11/3/2016 | 000-26124 |

| | | Incorporated by Reference Herein | | | |
|---|---|---|---|---|---|
| Exhibit No. | Description | Form | Exhibit | Filing Date | File No. |
| 10.62 | Joinder Agreement, dated as of March 14, 2018, by and between Clare Capital, Inc., Clare Components, Inc., Clare Electronics, Inc., Clare Instruments, Inc., Clare Services, Inc., Clare Technologies, Inc., Directed Energy, Inc., IXYS Buckeye, LLC, IXYS Integrated Circuits Division AV Inc., IXYS Integrated Circuits Divisions Inc., IXYS Long Beach, Inc., IXYS USA, Inc., Microwave Technology, Inc., Pele Technology, Inc., Reaction Technology Incorporation, Zilog, Inc., and Bank of America, N.A., as agent. | 10-Q | 10.1 | 05/02/2018 | 0-20388 |
| 10.63 | U.S. Subsidiary Guarantor Supplement, dated as of March 14, 2018, made by Clare Capital, Inc., Clare Components, Inc., Clare Electronics, Inc., Clare Instruments, Inc., Clare Services, Inc., Clare Technologies, Inc., Directed Energy, Inc., IXYS Buckeye, LLC, IXYS Integrated Circuits Division AV Inc., IXYS Integrated Circuits Divisions Inc., IXYS Long Beach, Inc., IXYS USA, Inc., Microwave Technology, Inc., Pele Technology, Inc., Reaction Technology Incorporation and Zilog, Inc. in favor of the note purchasers and the other holders. | 10-Q | 10.2 | 05/02/2018 | 0-20388 |
| 10.64 | Cross Border Subsidiary Guarantor Supplement, dated as of March 14, 2018, made by Clare Capital, Inc., Clare Components, Inc., Clare Electronics, Inc., Clare Instruments, Inc., Clare Services, Inc., Clare Technologies, Inc., Directed Energy, Inc., IXYS Buckeye, LLC, IXYS Integrated Circuits Division AV Inc., IXYS Integrated Circuits Divisions Inc., IXYS Long Beach, Inc., IXYS USA, Inc., Microwave Technology, Inc., Pele Technology, Inc., Reaction Technology Incorporation and Zilog, Inc. in favor of the note purchasers and the other holders. | 10-Q | 10.3 | 05/02/2018 | 0-20388 |
| 10.65 | Note Purchase Agreement Subsidiary Guarantor Supplement, dated as of March 14, 2018, made by Clare Capital, Inc., Clare Components, Inc., Clare Electronics, Inc., Clare Instruments, Inc., Clare Services, Inc., Clare Technologies, Inc., Directed Energy, Inc., IXYS Buckeye, LLC, IXYS Integrated Circuits Division AV Inc., IXYS Integrated Circuits Divisions Inc., IXYS Long Beach, Inc., IXYS USA, Inc., Microwave Technology, Inc., Pele Technology, Inc., Reaction Technology Incorporation and Zilog, Inc. in favor of the note purchasers and the other holders. | 10-Q | 10.4 | 05/02/2018 | 0-20388 |
| 10.66 | Consulting Agreement between Nathan Zommer and Littelfuse, Inc., effective August 1, 2018. ++ | 10-Q | 10.1 | 10/31/2018 | 0-20388 |
| 10.67 | Joinder Agreement, dated as of August 22, 2018, by and between Reaction Technology Epi, LLC and Reaction Tech RE, LLC and Bank of America, N.A., as agent. | 10-Q | 10.2 | 10/31/2018 | 0-20388 |
| 10.68 | U.S. Subsidiary Guarantor Supplement, dated as of August 22, 2018, made by Reaction Technology Epi, LLC and Reaction Tech RE, LLC in favor of the note purchasers and the other holders. | 10-Q | 10.3 | 10/31/2018 | 0-20388 |
| 10.69 | Cross Border Subsidiary Guarantor Supplement, dated as of August 22, 2018, made by Reaction Technology Epi, LLC and Reaction Tech RE, LLC in favor of the note purchasers and the other holders. | 10-Q | 10.4 | 10/31/2018 | 0-20388 |
| 10.70 | Note Purchase Agreement Subsidiary Guarantor Supplement, dated as of August 22, 2018, made by Reaction Technology Epi, LLC and Reaction Tech RE, LLC in favor of the note purchasers and the other holders. | 10-Q | 10.5 | 10/31/2018 | 0-20388 |
| 10.71 | Joinder Agreement, dated as of October 22, 2018, by and between each of (i) Littelfuse International Holding, LLC, (ii) Littelfuse Holding, LLC and (iii) Monolith Semiconductor Inc. and Bank of America, N.A., as agent. | 10-K | 10.103 | 02/22/2019 | 0-20388 |

| | | Incorporated by Reference Herein | | | |
|---|---|---|---|---|---|
| Exhibit No. | Description | Form | Exhibit | Filing Date | File No. |
| 10.72 | U.S. Subsidiary Guarantor Supplement, dated as of October 22, 2018, made by Littelfuse International Holding, LLC, Littelfuse Holding, LLC and Monolith Semiconductor, Inc. in favor of the note purchasers and the other holders. | 10-K | 10.104 | 02/22/2019 | 0-20388 |
| 10.73 | U.S. (November 2017) Subsidiary Guarantor Supplement, dated as of October 22, 2018, made by Littelfuse International Holding, LLC, Littelfuse Holding, LLC and Monolith Semiconductor, Inc. in favor of the note purchasers and the other holders. | 10-K | 10.105 | 02/22/2019 | 0-20388 |
| 10.74 | Cross Border Assumption Agreement, dated as of October 3, 2018, made by each of New Dutch B.V. and IXYS Dutch B.V. in favor of the note purchasers and the other holders. | 10-K | 10.106 | 02/22/2019 | 0-20388 |
| 10.75 | Cross Border Subsidiary Guarantor Supplement, dated as of October 22, 2018, made by Littelfuse International Holding, LLC, Littelfuse Holding, LLC and Monolith Semiconductor, Inc. in favor of the note purchasers and the other holders. | 10-K | 10.107 | 02/22/2019 | 0-20388 |
| 10.76 | Consulting Agreement Extension entered into between Littelfuse, Inc. and Dr. Nathan Zommer, dated July 25, 2019. ++ | 10-Q | 10.1 | 10/30/2019 | 0-20388 |
| 10.77* | Amended and Restated Employment Agreement entered into between Littelfuse Europe GmbH and Alexander Conrad, effective April 1, 2019. ++ | | | | |
| 10.78* | Summary of Non-Employee Director Compensation.++ | | | | |
| 21.1* | Subsidiaries. | | | | |
| 23.1* | Consent of Independent Registered Public Accounting Firm. | | | | |
| 31.1* | Certification of Chief Executive Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002. | | | | |
| 31.2* | Certification of Chief Financial Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002. | | | | |
| 32.1+++ | Certification of the Chief Executive Officer and Chief Financial Officer Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002. | | | | |
| 101.INS* | XBRL Instance Document. | | | | |
| 101.SCH* | XBRL Taxonomy Extension Schema Document. | | | | |
| 101.CAL * | XBRL Taxonomy Extension Calculation Linkbase Document. | | | | |
| 101.LAB * | XBRL Taxonomy Extension Label Linkbase Document. | | | | |
| 101.PRE* | XBRL Taxonomy Extension Presentation Linkbase Document. | | | | |
| 101.DEF* | XBRL Taxonomy Extension Definition Linkbase Document. | | | | |
| 104 | The cover page on this Annual Report on Form 10-K for the fiscal year ended December 28, 2019, formatted in Inline XBRL and contained in Exhibit 101. | | | | |

* Filed with this Report.
+ Exhibits and schedules omitted pursuant to Item 601(b)(2) of Regulation S-K. Littelfuse agrees to furnish a supplemental copy of an omitted exhibit or schedule to the SEC upon request.
++ Management contract or compensatory plan or arrangement.
+++ Furnished with this Report.

## EXECUTIVE OFFICERS

**DAVID W. HEINZMANN**
President and
Chief Executive Officer

**MEENAL A. SETHNA**
Executive Vice President and
Chief Financial Officer

**RYAN K. STAFFORD**
Executive Vice President,
Chief Legal and Human
Resources Officer and
Corporate Secretary

**MATTHEW J. COLE**
Senior Vice President,
Business Development and
Strategy

**ALEXANDER CONRAD**
Senior Vice President and
General Manager,
Passenger Vehicle
Business

**DEEPAK NAYAR**
Senior Vice President and
General Manager,
Electronics and Industrial
Business

**MICHAEL P. RUTZ**
Senior Vice President and
General Manager,
Semiconductor Products

## BOARD OF DIRECTORS

**KRISTINA A. CERNIGLIA**
Senior Vice President and
Chief Financial Officer
Hillenbrand, Inc.

**TZAU-JIN CHUNG**
Senior Partner
Core Industrial Partners, LLC

**CARY T. FU**
Co-Founder and
Retired Chairman
Benchmark Electronics, Inc.

**MARIA C. GREEN**
Retired Senior Vice President and
General Counsel
Ingersoll-Rand plc

**ANTHONY GRILLO**
Founder
Ascribe Opportunities Management, LLC

**DAVID W. HEINZMANN**
President and
Chief Executive Officer
Littelfuse, Inc.

**GORDON HUNTER**
Chairman of the Board
Retired President and Chief Executive Officer
Littelfuse, Inc.

**JOHN E. MAJOR**
President
MTSG

**WILLIAM P. NOGLOWS**
Chairman of the Board
Cabot Microelectronics Corporation

**DR. NATHAN ZOMMER**
Founder, former Chairman and
Chief Executive Officer
IXYS Corporation

## CORPORATE INFORMATION

**ANNUAL MEETING**
The Annual Meeting of Littelfuse, Inc. will be held at 9:00 a.m. Central Time on April 23, 2020, at the O'Hare Plaza First Floor Conference Center, 8745 West Higgins Road, Chicago, IL 60631. Proxy materials and a copy of this report will be mailed or made available via the Internet in advance of the meeting to all shareholders of record as of February 27, 2020.

**COMMON STOCK**
Littelfuse, Inc. common stock is traded on the NASDAQ® Global Select Market under the symbol LFUS.

**SHAREHOLDER INFORMATION**
In addition to annual reports to shareholders, copies of the Company's filings with the Securities and Exchange Commission are available on the Investor Relations section of our website at: investor.littelfuse.com.

**INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM**
Grant Thornton LLP
27777 Franklin Road
Suite 800
Southfield, MI 48034

**TRANSFER AGENT**
EQ Shareowner Services
1110 Centre Pointe Curve
Suite 101
Mendota Heights, MN 55110
1.800.468.9716

**LITTELFUSE WORLD HEADQUARTERS**
Littelfuse, Inc.
8755 West Higgins Road
Suite 500
Chicago, IL 60631
+1.773.628.1000

Littelfuse.com

Littelfuse®
Expertise Applied | Answers Delivered