

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549
FORM 10-K**

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended **March 31, 2018**

OR

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

Commission File Number: 0-12853

ELECTRO SCIENTIFIC INDUSTRIES, INC.

(Exact name of registrant as specified in its charter)

Oregon

(State or other jurisdiction of incorporation or organization)

93-0370304

(I.R.S. Employer Identification No.)

13900 N.W. Science Park Drive, Portland, Oregon

(Address of principal executive offices)

97229

(Zip Code)

Registrant's telephone number, including area code: 503-641-4141

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

Title of each class

Common Stock, without par value

Name of each exchange on which registered

The NASDAQ Stock Market LLC

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

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

Indicate by check mark if the Registrant is not required to file reports pursuant 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 and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the Registrant was required to submit and post such files). Yes No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405 of this chapter) is not contained herein, and will not be contained, to the best of Registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K, or any amendment to this Form 10-K.

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

Large accelerated filer 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 Act). Yes No

The aggregate market value of the voting and non-voting common equity held by non-affiliates, computed by reference to the last sales price of \$13.92 as reported by The NASDAQ Global Select Market, as of the last business day of the Registrant's most recently completed second fiscal quarter ended September 30, 2017 was \$402,636,055.

The number of shares outstanding of the Registrant's Common Stock as of June 4, 2018 was 34,104,459 shares.

Documents Incorporated by Reference

The Registrant has incorporated into Part III of this Annual Report on Form 10-K, by reference, portions of its Proxy Statement for its 2018 Annual Meeting of Shareholders. The Registrant intends to file the Proxy Statement not later than 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K.

ELECTRO SCIENTIFIC INDUSTRIES, INC.
2018 FORM 10-K ANNUAL REPORT
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PART I

Forward-looking Statements

The statements contained in this report that are not statements of historical fact, including without limitation statements containing the words “believes”, “expects”, “projects”, “anticipates”, “plan”, “continue”, “will”, “may” and similar words, constitute forward looking statements that are subject to a number of risks and uncertainties. Forward-looking statements include but are not limited to any statements regarding anticipated sales, expected shipments of backlog, our profitability in future periods, our expectations regarding customer processes and our products, our strategies and beliefs regarding the markets in which we compete or may compete and our product development plans to address these markets, the sufficiency of our financial resources to meet our working capital needs for at least the next 12 months, our expectations regarding taxes and tax adjustments, particularly with respect to the Tax Act, our expectations regarding various legal matters, our ability to rapidly increase our production capacity to accommodate demand, sources of our future revenue, the effect of new accounting standards on our financial results, our ability to leverage our corporate restructuring and continue our new functional structure, our expectations regarding goodwill, our expectations regarding our relationships with suppliers and customers, our expectations regarding trends in applications for laser processing, our expectations regarding production capabilities, our ability to maintain and expand our core technologies and product applications, our expectations regarding payment of cash dividends, and our expectations regarding cyclical trends. These forward-looking statements are based on information available to us on the date of this report and we undertake no obligation to update these forward-looking statements for any reason. Actual results may differ materially from those in the forward-looking statements. Risks and uncertainties that may affect the forward-looking statements include but are not limited to the items discussed in “Risk Factors” in this Annual Report on Form 10-K.

Item 1. Business

Fiscal Year

Our fiscal year consists of 52 or 53-week periods ended on the Saturday nearest March 31. Accordingly, our fiscal 2018 reporting period consisted of a 52-week period ending on March 31, 2018, our fiscal 2017 consisted of a 52-week period ending on April 1, 2017 and our fiscal 2016 reporting period consisted of a 53-week period ending on April 2, 2016. All references to years or quarters relate to fiscal years or fiscal quarters unless otherwise noted.

Overview of Business

Electro Scientific Industries, Inc. and its subsidiaries (ESI, we, our, or the Company) is a leading supplier of innovative laser-based microfabrication solutions for industries reliant on microtechnologies. ESI enables its customers to commercialize technology using precision laser processes. ESI's solutions produce the industry's highest quality and throughput, and we target the lowest total cost of ownership. Founded in 1944, ESI is headquartered in Portland, Oregon, with global operations and subsidiaries in Asia, Europe and North America.

Laser microfabrication is comprised of a set of precise micron-level processes, including drilling, scribing, dicing, singulation, cutting, ablating, trimming, and precision marking on multiple types of materials. These processes require application-specific laser systems that are able to meet our customers' exacting performance and productivity requirements. Our laser-based systems are utilized in the production of flexible and rigid printed circuit board (PCB), semiconductor devices, advanced semiconductor packaging, consumer electronics, electronic sensors, touch-panel glass, flat panel liquid crystal displays (LCDs), organic light emitting diode (OLEDs) displays, applications within the automotive, aerospace, medical and display end markets as well as other high-value components and devices to enable functionality, increase performance and improve production yields.

Additionally, we produce high-capacity test and inspection equipment that is critical to the quality control process during the production of multilayer ceramic capacitors (MLCCs). Our equipment ensures that each component meets the electrical and physical tolerances required to perform properly.

Between the fourth quarter of 2015 and the third quarter of 2017, the Company operated in two segments, Component Processing and Micromachining. In the fourth quarter of 2017, the Company reorganized into a functional structure and now operates and reports as a single segment. Within this single segment we sell products into a variety of end markets that may be grouped into four major categories: 1) PCB, 2) Semiconductor, 3) Component Test, and 4) Industrial Machining. PCB includes flexible circuits (Flex), high density interconnect (HDI), and packaging products targeting this market; Semiconductor includes all wafer-based products; Component Test includes our MLCC products and tooling; and Industrial Machining includes our machining and inspection tools that address a broader market including not just consumer electronics, but also automotive,

aerospace, medical, and display end markets. See Note 21: Product and Geographic Information, to our Consolidated Financial Statements for further discussion.

Industry Overview

The PCB, semiconductor and other microelectronics industries are driven by demand for improved functionality in increasingly smaller and smarter consumer devices such as smart phones, tablets, wearable technologies, personal computers, mobile computing devices, video game systems and high-definition televisions. In addition to the consumer markets, PCB, semiconductor and other advanced technologies are being used in a broadening set of industrial markets and applications, including automotive, aerospace, medical and display.

These dynamics in turn are driving the microelectronics supply base for faster, smaller, more complex, less expensive and higher-quality electronic devices and sub-components. To achieve these improvements, manufacturers increase circuit densities and shrink feature geometries while increasing the interconnect flexibility. These advances drive our customer base to innovate in terms of materials, manufacturing processes, and topologies.

For example, smaller semiconductor devices are driving the need to shrink the physical dimensions of the semiconductor packages. As the physical dimensions of the package shrink, the ability to physically and electrically connect these devices becomes more challenging. The PCB manufacturers are forced to utilize new techniques such as HDI circuit boards on which connections are made. These HDI circuits require smaller, more accurate, and precisely tapered or shaped holes, known as vias, to create connections between layers within the circuit board and to the interconnecting devices. We are seeing these trends in varying markets including mobile devices and the coming move to 5G, consumer electronics and the increasing use of internet-of-things devices, and self-driving automobiles which are requiring more complex flexible interconnect circuits. The continual trend toward smaller and smarter devices also requires the use of an increasing amount of flexible interconnect material to enable higher data flow among the internal components such as the processor, memory, display, antenna, and camera.

The rate of data flow among components within a device is expected to rise dramatically, in devices ranging from mobile devices to automobiles. In mobile devices and other wearable devices, we anticipate 5G network technologies will dramatically increase the network speed, and the rate in data flow within the devices. In the automobile industry, the trend toward self-driving cars is expected to have a similar effect on the data traffic from the sensors to the main processor to the display of the automobile. These trends indicate strong growth in the PCB interconnect market, which is ESL's primary target market.

In addition, new materials are being developed, such as aromatic polymers and low-k films, to help drive signal integrity improvements, temperature tolerance, and physical stability. We believe these materials may drive additional applications for laser processing, including scribing of next generation thin films.

Passive components, such as MLCCs, are also under the same pressure to improve performance while reducing size and are also becoming prevalent in new applications. Manufacturers must test MLCCs electrically and optically to characterize performance and ensure reliability. Automated equipment to test these MLCCs in the manufacturing environment, like our high capacitance tester, can test and sort up to one million parts per hour on parts with dimensions as small as 0.4 by 0.2 millimeters.

Our business also includes specialized microfabrication applications. Many materials that can be cut, drilled, marked or joined using a mechanical process can be microfabricated with greater precision and accuracy using a laser-based solution. As consumer electronics and industrial products or devices become more compact, traditional mechanical processes will not be able to meet the stringent specifications demanded by producers. We believe the capabilities of laser-based solutions for microfabrication will enable our customers to continue to move beyond the limitations of mechanical processes and generate incremental demand for our laser solutions.

Our Solutions

We believe our products address the needs of PCB, semiconductor, and other microelectronics and industrial manufacturers by providing them with laser-based tools that enable the precise features and high speed processing. These capabilities enable our tools to meet our customer's technology needs and yield a high return on their investment due to measurable production benefits such as lower cost of ownership, higher performance, greater reliability, and improved production yield compared to other mechanical or competitive solutions.

Our core competencies enable us to design, manufacture, and market a variety of integrated laser-based solutions for microfabrication applications in high-volume manufacturing environments. These core competencies include a deep understanding of:

- laser/material interaction;
- laser beam positioning;

- optics and illumination including image processing and optical character recognition;
- micron-level defect detection;
- high-speed motion control;
- small parts handling;
- proprietary laser technology including laser power control; and
- systems engineering.

We combine this expertise with manufacturing agility and a thorough understanding of our customers' process needs that enable us to respond rapidly to customer demand to develop and deliver integrated solutions and products that address multiple markets and applications.

Our customers manufacture components, interconnect/packaging devices, semiconductors, displays or other parts that serve a wide range of electronic applications. Our systems enable the manufacturing of these components and devices. The primary end-market applications for our customers are consumer electronics, including smart mobile devices such as smart phones and tablets, computers and semiconductors. These devices and applications are also utilized in a variety of other industries including automotive, aerospace, medical and display.

Our Strategy

Our strategy is to leverage our core competencies to be a cost of ownership leader in laser-based microfabrication for micro-technology industries, including PCB, semiconductor, microelectronics, and other industrial applications within the automotive, aerospace, medical and display markets. These core competencies, combined with an understanding of our customers' processes and the use of common platforms, enable us to address a broad range of laser-based applications and end markets within these industries. We intend to focus our efforts on businesses and applications where our differentiated capability enables us to be a market leader. The elements of our strategy are to (1) expand our addressable market by focusing on large, existing, near-adjacent applications in the growing laser-microfabrication market, (2) focus on areas where we can apply our differentiated capability, (3) leverage proprietary laser technology to create competitive advantage, (4) strengthen marketing capability and broaden customer focus, (5) develop and leverage flexible platforms and technology for cost of ownership and time to market advantage in new applications and (6) maintain a scalable business model that delivers positive earnings in down market cycles and leveraged earnings growth in up cycles.

Expand our addressable market by focusing on large, existing, near-adjacent applications in the growing laser microfabrication market

Growth and the increasing complexity and functionality in consumer electronics, smart phones, tablets, notebook computers and other smart devices is driving increased miniaturization and complexity of the underlying components and materials. These materials and components are being adopted in electronic devices, sensors, displays, and other technologies across many markets and industries. As a result, we believe there are many large, existing, near-adjacent opportunities for laser micromachining for both the devices themselves and components within them. Our strategy is to expand our addressable market in these near-adjacent applications where we can utilize our technology for a cost of ownership advantage for our customers. Our primary areas of focus are to defend and grow our presence in the flexible PCB and interconnect laser drilling markets and enter and grow our presence in the rigid high density interconnect PCB and interconnect laser drilling markets. Both of these markets require similar high speed, high precision laser drilling capabilities that leverage our core competencies. We also will continue to expand our capabilities in the semiconductor capital environment by providing industry leading tools that mark, trim and scribe wafers as required by the wafer fabrication process. We believe our growth will be driven by overall growth in the market for electronic and other industrial devices, expanding the applications and customers we address, and growing our share in these adjacent markets.

Focus on markets where we can apply our differentiated capability

Following the completion of our reorganization this year, we have refocused our strategy to concentrate our efforts on established markets where we can leverage our differentiated capability to provide high and differentiated value to our customers. As a result, we will focus our investments on applications where laser machining adds key technology enabling functionality rather than purely aesthetic value. These capabilities can be applied to a broad set of industries beyond consumer electronics including automotive, aerospace, medical and display. We believe this change is better aligned with our expertise and strengths and will use our unique and differentiated technology to achieve greater success that better aligns with our expertise and strengths and will help us better leverage our investments in resources and technology.

Leverage proprietary laser technology to create competitive advantage

ESI is a pioneer in laser-material interaction and has developed deep expertise in the use of multiple types of laser technology to develop customer solutions. We have invested in proprietary laser technology primarily through the acquisition of Eolite Systems. The acquisition of Eolite provides us access to high power ultraviolet (UV) nanosecond and low-cost picosecond fiber lasers with a unique, scalable architecture. These lasers address multiple micromachining applications within the PCB interconnect drilling and semiconductor fabrication process that provide us unique differentiation. We intend to continue to utilize these lasers internally to provide differentiated capability and lower cost of ownership. Our strategy is to expand the utilization of these technologies to enable differentiated capability within our systems at a lower cost when compared to available third party commercial lasers.

Strengthen marketing capability and broaden customer focus

The Company's close collaboration with key industry leading customers has enabled ESI to develop world-class technologies that meet the emerging needs of these demanding customers. Our strategy is to modify our approach to product development so we can meet needs across broader markets as opposed to a few key customers. We believe this new approach will enable our products to serve the needs of a far larger portion of the laser microfabrication market. Through our reorganization and enhanced focus on marketing and sales competencies, we believe we will continue to strengthen our market understanding that will enable the successful development of products that address broad market requirements.

Leverage flexible platforms and technology for cost of ownership and time to market advantage

Our key technological capabilities include laser-material interaction, laser beam positioning, optics and illumination, defect detection, high-speed motion control systems, small parts handling systems and systems integration. Our strategy is to incorporate these capabilities into a series of flexible platforms that have multiple common elements but are tailored to specific applications and to leverage our investment in these platforms to address multiple new applications and market opportunities. In addition, we believe that leveraging common platforms will increase efficiency in the Company through greater use of common parts, lower inventory requirements, shorter cycle times, and leveraged engineering investment across the Company.

Create scalable business model to deliver earnings in both strong and weak market cycles

Historically, our business has been highly cyclical and seasonal resulting in only short periods of profitability followed by periods of losses. As part of our reorganization in 2017 and 2018 we lowered our cost structure and our operating break-even point to improve overall profitability and increase consistency of earnings over time. As a result, we have closed multiple sites across the world, refocused and re-prioritized our investments, and reorganized the Company into a functional, streamlined structure. In addition, we made several changes to our executive management team. We believe these changes accomplished two things, (1) focused more resources on the most promising growth opportunities; and (2) lowered our fixed cost base, allowing us to generate positive earnings even in down market cycles and generate leveraged earnings during market upturns.

Our Products

Printed Circuit Board

Our PCB laser drilling products address multiple applications and materials on a broad set of substrates, panels, and continuous-feed reels primarily for the PCB and packaging industries. Our laser via drilling systems target electrical interconnect applications that require high accuracy and small via (hole) dimensions to create electrical connections between layers in flexible circuits, high-density circuit boards and interconnect packages. Our micro via drilling technology addresses the rapidly changing applications in interconnect packages, multichip modules and HDI circuit boards. Our UV laser processing systems employ state-of-the-art technology in lasers, optics and motion control. These products include single-beam and multi-beam systems that produce high-quality vias with the best-in-class placement accuracy for improved yield of packages and substrates.

These same technologies can be used to singulate individual PCBs (depaneling), rout copper openings on PCB material, precisely cut flexible circuit material, and mark individual packages or circuit boards.

Semiconductor

Our semiconductor manufacturing products address multiple applications that utilize laser energy to process materials on wafer-based substrates and semiconductor devices and packages. Applications include processing of silicon wafers, memory devices, mixed signal devices, hybrid circuits, sensors, and resistors.

The advent of 3D chip packaging technologies is driving the need for silicon wafers to become thinner in order to allow for stacking of wafers within the same packaging geometry. As wafers become thinner, they become more challenging to singulate into discrete chips using traditional mechanical saws. During 2016, we introduced the Ultrus™ platform that scribes next-generation thin film materials thereby increasing the manufacturing yields through increased control and quality of the singulation process. As 3D technologies are developed, we believe the use of advanced laser technology will become increasingly important to productivity and performance.

Our semiconductor manufacturing products also include industry-leading wafer marking equipment and wafer and circuit trim tools. Wafer marking equipment is used for serialization and wafer identification by manufacturers of semiconductor wafers within semiconductor factories. Wafer and circuit trim tools are laser systems that adjust the electrical performance of semiconductor devices or hybrid circuits by removing a precise amount of material from one or more circuit components. In addition, the Company continues to sell a limited number of memory yield improvement systems and related laser upgrades.

Component Test

Our component test products combine high-speed small parts handling technology with real-time control systems to provide highly automated, cost-effective inspection solutions for manufacturers of MLCCs and other passive components such as capacitor arrays, inductors, resistors, varistors and hybrid circuits. These components, produced in quantities of trillions of units per year, process analog, digital and high-frequency signals and are used extensively in nearly all electronic products. As an example, leading smartphones can have over 1,000 MLCCs while self-driving electric automobiles can have over 10,000 MLCCs. Our MLCC test systems employ high-speed handling and positioning techniques to precisely load, test and sort MLCCs based on their electrical energy storage capacity, or capacitance, and their electrical energy leakage, or dissipation factor. Our 35XX series is the most productive tester in the market today. Our latest Allegro™ model enables high-speed testing of the industry's smallest metric 0402 capacitors used primarily in advanced cell phone and tablet designs. We also produce consumable products such as carrier plates and termination belts for both our own and competitive testing products in the market, both of which are used to hold MLCCs during the manufacturing and testing process.

Industrial Machining

Industrial machining products are comprised of laser systems that are used primarily by manufacturers of end devices across multiple industries to drill, cut or mark features on a variety of materials, generally on the casing or external surface of the end device. In addition, industrial machining products tend to serve markets that require fewer features, less stringent design requirements, and lower cost.

We offer several platforms that enable customers to perform precision drilling, scribing, cutting, etching, routing or marking on many different types of materials and devices including glass, metal, plastic, paint and ceramics. We also offer laser products for integration into customers' tools or processes that are useful for applications such as thin film processing, glass processing, material trimming, precision drilling, and cutting of organic materials and metals.

During 2018, as part of our initiative to focus our efforts on our core applications, we divested our laser ablation products, which ablate material for identification and analysis applications, including forensics, mineral analysis and research.

Customers

Our top ten customers for 2018, 2017 and 2016 accounted for approximately 59%, 47% and 51% of total net sales, respectively. In 2018, two customers, Career Technology (Mfg.) Co., Ltd. and Top Unique Trading Co., Ltd., accounted for approximately 17% and 13% of total net sales, respectively. In 2017, two customers, Sumitomo Corporation and Zhen Ding Technologies, accounted for approximately 12% and 11% of total net sales, respectively. One customer, Apple Inc. and its affiliates, accounted for approximately 15% of total net sales in 2016. No other customer individually accounted for more than 10% of total net sales in 2018, 2017 or 2016.

Sales, Marketing and Service

We sell our products worldwide through direct sales and service offices, value-added resellers and independent representatives located around the world. ESI has direct sales and service personnel in Oregon, California and several other states; China, Japan, Korea, Singapore and Taiwan in Asia; and France, Germany and the United Kingdom in Europe. We serve select customers in Asia, the Americas, Europe and additional countries through manufacturers' representatives.

We have a substantial base of installed products in use by leading PCB, semiconductor, and microelectronics manufacturers. We emphasize strong working relationships with these customers to meet their needs for additional systems and to facilitate the successful development and sale of new products to these customers.

We provide a portfolio of service offerings including service contracts, time and material arrangements, and parts supply arrangements to support this installed base and the requirements of our customers' high-volume manufacturing environments throughout the product life. Much of the infrastructure supporting our service offerings is localized in our primary sales regions to enhance responsiveness to our customers. We generally employ service personnel wherever we have a significant installed base. We believe the integration between our systems and service offerings is a key differentiator for cost of ownership and overall product support.

Business Seasonality and Product Introductions

The Company has historically experienced higher net sales in the first half of the calendar year due in part to customers adding capacity in advance of seasonal holiday demand for electronic products. Additionally, new product introductions can significantly impact net sales, product costs and operating expenses. Neither historical seasonal patterns nor historical patterns of product introductions should be considered reliable indicators of the Company's future pattern of product introductions, future net sales or financial performance.

Backlog

Backlog consists of purchase orders for products and spare parts that we expect to ship within the next 12 months and service contracts for performance generally within the next 24 months. Backlog does not include deferred system revenue. Backlog was \$148.4 million at March 31, 2018 compared to \$69.5 million at April 1, 2017, representing an increase of 113% primarily as a result of favorable market conditions for our flexible circuit products. Our backlog is not necessarily indicative of sales for any specific future period, because of possible order cancellations or deferrals, shipping or acceptance delays, and backlog does not represent any assurance that we will realize a profit from filling the orders.

Research, Development and Technology

We believe that our ability to compete effectively and deliver customer solutions depends, in part, on our ability to maintain and expand our expertise in core technologies and product applications. Our primary core competencies and capabilities include:

- laser/material interaction;
- laser beam positioning;
- optics and illumination including image processing and optical character recognition;
- micron-level defect detection;
- high-speed motion control;
- small parts handling;
- proprietary laser technology including laser power control; and
- systems engineering.

We spend a considerable amount of our net sales proceeds to maintain and expand our expertise in core technologies and product applications. Our research and development expenditures for 2018, 2017 and 2016 were \$34.4 million (9% of net sales), \$31.7 million (20% of net sales) and \$32.4 million (18% of net sales), respectively. We primarily conduct our focused research and development efforts in Portland, Oregon.

Competition

Our markets are dynamic, cyclical and highly competitive. The principal competitive factors in our markets are total cost of ownership, product performance, ease of use, reliability, service, technical support, product roadmap, price, proprietary technology, manufacturing responsiveness and relationships with customers. We believe our products compete favorably with respect to these factors. Some of our competitors have greater financial, engineering and manufacturing resources and larger distribution networks than we do. Some of our customers or potential customers develop, or have the ability to develop, manufacturing equipment similar to our products. Competition in our markets may intensify and our technological advantages may be reduced or lost as a result of technological advances by competitors or customers or changes in electronic device processing technology.

Our PCB processing products primarily compete with laser systems provided by Via Mechanics, Ltd., EO Technics Co. Ltd., LPKF Laser & Electronics AG, Mitsubishi Electric Corporation, and Orbotech Ltd. Our semiconductor products primarily compete with InnoLas Systems GmbH and DISCO Corporation. Our component test products primarily compete with Laser Solutions, Inc., Quantel USA, Inc., HOYA Corporation, and Humo Laboratory Ltd., as well as component manufacturers that develop systems for internal use. Our industrial machining products primarily compete with laser systems provided by Han's Laser Technology Industry Group Co Ltd., HG Laser, and several Chinese and Korean companies who compete within their local markets; optical measuring machine providers such as Micro-Vu Corporation, OGP, and Werth, Inc.; and systems integrators such as GDO and IMS Technology Services.

Manufacturing and Supply

Our primary production facilities are located in Singapore; Portland, Oregon; and Klamath Falls, Oregon. Our leased Singapore facility is our primary systems manufacturing facility and manufactures the majority of our systems and lasers. The Portland facility primarily provides advanced manufacturing and prototype capability. The Klamath Falls facility manufactures component test consumable products.

We use qualified manufacturers to supply many components and sub-system modules for our systems. Our systems use high-performance computers, peripherals, lasers and other components from various suppliers. Some of the components we use are obtained from a single source or a limited group of suppliers. An interruption in the supply of a particular component would have a temporary adverse impact on us. We believe our supplier relationships are good.

Patents and Other Intellectual Property

We have a policy of seeking patents, when appropriate, on inventions relating to products and methods that are discovered or developed as part of our ongoing research, development and manufacturing activities. We owned 348 United States patents and 620 patents issued outside of the United States as of March 31, 2018. Additionally, as of March 31, 2018, we had 32 patent applications pending in the United States and 133 patent applications pending outside of the United States. Although our patents are important, we believe the competitiveness of our products also depends on the technical competence and innovation of our employees.

We rely on copyright protection for our proprietary software. We also rely upon trade secret protection for our confidential and proprietary information. Others may independently develop substantially equivalent proprietary information and techniques, and we may be unable to meaningfully protect our trade secrets.

Employees

As of March 31, 2018, we employed 655 people, of whom 615 were full-time ESI employees and 40 were temporary. Many of our employees are highly skilled, and our success will depend in part upon our ability to attract and retain such employees, who are in great demand. We have never had a work stoppage or strike, and no employees are represented by a labor union or covered by a collective bargaining agreement. We consider our employee relations to be good.

Environmental Compliance

Compliance with international, federal, state and local provisions that have been enacted or adopted related to the discharge of materials into the environment or otherwise relating to protection of the environment are not expected to have a material effect on our capital expenditures, earnings or ability to compete in the marketplace.

Where You Can Find More Information

We file annual, quarterly and current reports, proxy statements and other information with the Securities and Exchange Commission (SEC) under the Securities Exchange Act of 1934 as amended (Exchange Act). You can inspect and copy our reports, proxy statements and other information filed with the SEC at the SEC's Public Reference Room at 100 F Street, NE, Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the Public Reference Room. The SEC maintains an Internet site at www.sec.gov where you can obtain most of our SEC filings. We also make available, free of charge on our website at www.esi.com, our annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act as soon as reasonably practicable after they are filed electronically with the SEC. The information found on our website is not part of this Form 10-K. You can also obtain copies of these reports by contacting Investor Relations at (503) 641-4141.

Item 1A. Risk Factors

The following risks and uncertainties should be read carefully with the other information included in this Annual Report. If any of the risks described below occur, our business, financial condition, operating results and cash flows could be materially and adversely affected. The risks and uncertainties described below are not the only ones we face. Additional risks and uncertainties not presently known to us or that we currently deem immaterial also may impair our business operations and financial results. All references to years or quarters relate to fiscal years or fiscal quarters unless otherwise noted.

Risks Related to Our Competition and Customers

Substantial competition in markets in which we operate may result in price reductions, reduced profit margins and loss of market share.

We face substantial competition from established competitors throughout the world, some of which have greater financial, engineering, manufacturing and marketing resources than we do. Competitors with greater resources may better withstand periodic downturns, compete more effectively on the basis of price and technology, utilize better established sales channels and customer relationships, or more quickly enhance or develop new generations of products that compete with our products, in addition to other advantages. New companies may enter the markets in which we compete, or industry consolidation may occur, further increasing competition in those markets. We have also experienced new entrants to our markets offering aggressive price and payment terms in an attempt to gain market share. Some competitors, particularly in China, also develop low-cost products employing processes or technology developed by us. In addition, because we frequently price our products in U.S. dollars, a strong U.S. dollar can make our products less price-competitive outside of the United States to products priced in other currencies. We believe that to be competitive, we must continue to expend significant financial resources in order to invest in new product development and enhancements, among other things. We may not be able to compete successfully in the future and increased competition may result in price reductions, reduced profit margins and loss of market share.

Our future success depends on our ability to expand into new markets.

Our future success and growth plans depend in large part on our successful entry into new markets adjacent to our existing markets, such as high-density interconnect drilling, interconnect packaging, advanced wafer scribing, and other industrial and consumer electronics markets, including automotive, aerospace, medical and display. These markets are new to us and our success depends on our displacing entrenched competitors who are familiar with these markets and are known to customers. In many cases, we are attempting to enter or expand our presence in these new markets with newly introduced products that are not yet proven in the industry. In addition, in some cases we need to develop or expand our sales channels and customer relationships in order to execute on this strategy. We cannot provide assurance that we will succeed in gaining significant, or any, market share in these new markets. If we fail to successfully expand into these markets, we will have difficulty growing our business and may lose business to our competitors.

Volatility in our customers' industries and capital spending can have a direct and material impact on our business.

Our business depends upon the capital equipment expenditures of manufacturers of microelectronics, PCBs, semiconductors, computers, wireless communications and other electronic products. The capital equipment market for the production of those products has historically been characterized by cyclical variations in capital equipment demand. These sometimes sudden and severe cycles may result from a number of factors, including overall consumer and industrial spending and demand for electronic products that drive manufacturer production, as well as the manufacturer's capacity utilization, timing of new product introductions and demand for customers' products, inventory levels relative to demand and access to affordable capital. The timing, severity and duration of these market cycles are difficult to predict. As a result, our business can vary significantly from quarter to quarter or year to year, as evidenced, for example, by comparing 2018 to 2017.

Downturns particularly affect our profitability given the relative fixed cost structure of our business and the need to continually invest in product technology and support and service for our products. For example, in the first and second quarters of 2017, we experienced a significant decline in orders due to reduced demand from PCB manufacturers that significantly impacted our results in the second and third quarters.

Increased pressure on price may result in pricing concessions, extended payment terms and decreased margins.

We have experienced and continue to experience pricing pressure from both competitors and customers in the sale of our products. Pricing pressures typically have become more intense during cyclical downturns when competitors seek to maintain or increase market share, reduce inventory or introduce more technologically advanced or lower-cost products. In addition, we may agree to pricing concessions or extended payment terms with our customers in connection with expanding into new markets or gaining volume orders, or to improve our customer cost of ownership in highly competitive applications. Our business, financial condition, margins or results of operations may be materially and adversely affected by competitive pressure and price-based competition.

Because our revenues largely depend on few customers and certain end markets, we have a greater degree of risk if we lose one of those customers, if we fail to win on new product designs, or if end markets are negatively impacted.

We depend on a few significant customers for a large portion of our revenues, and certain of these customers may be suppliers to relatively few end manufacturers. In 2018, our top ten customers accounted for approximately 59% of total net sales and two customers, Career Technology (Mfg.) Co., Ltd. and Top Unique Trading Co., Ltd., accounted for approximately 17% and 13% of total net sales, respectively. These concentrations can vary significantly from quarter to quarter and materially impact revenues and results from operations. For example, in 2018, we had one quarter where our concentration with a single customer was 50% of net sales. We anticipate that sales of our products to a relatively small number of customers will continue to account for a significant portion of our revenues.

Consolidation between customers, changes in technologies or solutions used by customers, changes in products manufactured by customers or in end-user demand for those products, selection of suppliers other than us, customer bankruptcies or customer departures from their respective industries all may result in even fewer customers accounting for a high percentage of our revenue and reduced demand from any single major customer. A change in demand from end manufacturers, or the customers of our direct customers, may impact the demand we receive across multiple direct customers. Additionally, if the end manufacturers have significant share in their end markets, demand from ESI's customer base could be sensitive to, and be broadly impacted by, negative movements in those end markets. The level of sales to our top customers often depends on winning bids on new designs and features each product cycle, and there is no guarantee of future business based on past design wins.

None of our customers have any long-term obligation to continue to buy our products or services and may therefore delay, reduce or cease ordering our products or services at any time. The cancellation, reduction or deferral of purchases of our products by even a single customer could significantly reduce our revenues in any particular quarter. If we lose any of our significant customers, including as a result of any shipment delays due to heightened production levels, or suffer a material reduction in their purchase orders, revenue could decline and our business, financial condition and results of operations could be materially and adversely affected.

Because our revenues are largely based on the sale of a small quantity of product units, our operating results could fluctuate significantly from quarter to quarter.

We derive a substantial portion of our revenue from the sale of a relatively small quantity of products. Accordingly, our revenues, margins and other operating results could fluctuate significantly from quarter to quarter depending upon a variety of factors in addition to those described above, including:

- the timing of orders and terms or acceptance of product shipments by our customers;

- the mix of products and services that we sell in a given quarter;
- timing and market acceptance of our new product introductions; and
- delays or problems in the planned introduction of new products, or in the performance of any such products following delivery to customers.

As a result of these risks, we believe that quarter-to-quarter comparisons of our revenue and operating results may not be meaningful, and that these comparisons may not be an accurate indicator of our future performance.

Risks Related to Our Supply Chain and Production

Limitations on our ability to rapidly change our production capacity in a cost effective manner could result in lower gross margins during sudden downturns and an inability to meet demand in sudden upturns.

To meet rapid changes in demand, such as we have experienced recently, we must effectively manage our resources and production capacity. When upturns occur, it may be difficult to rapidly and effectively increase our manufacturing capacity, or may be unable to do so, or may have difficulty procuring sufficient materials to meet sudden increases in customer demand. This could result in shipping delays or the loss of business to our competitors and harm to our relationships with our customers, which may result in penalties or other costs to the Company. Conversely, during periods of decreasing demand for our products, we must be able to appropriately align our cost structure with prevailing market conditions and effectively manage our supply chain. Our ability to timely and effectively reduce our costs in response to rapid downturns is limited by the fixed nature of many of our expenses in the near term, by our need to continue investing in product technology and support and service our products, and by our need to have sufficient production capacity and supply available to respond to sudden increases in demand. This could result in unavoidable short-term costs or excessive inventory levels, including increased risk of inventory obsolescence. If we are not able to timely and cost effectively adapt to changes in our business environment, our business, financial condition or results of operations may be materially and adversely affected.

Our reliance on critical suppliers for key components could lead to production and service interruptions and shortages.

We use a wide range of components from numerous suppliers in the manufacturing of our products, including custom electronic, laser, optical and mechanical components. We generally do not have guaranteed supply arrangements with our suppliers. We seek to reduce the risk of production and service interruptions and shortages of key parts by selecting and qualifying alternative suppliers for key parts, monitoring the financial stability of key suppliers and maintaining appropriate inventories of key parts. However, some key parts are available only from a single supplier or a limited group of suppliers in the short term. In addition, some of the lasers we use in our products are difficult to manufacture, and as a result we may not receive an adequate supply of lasers in a timely fashion to fill orders. Operations at our suppliers' facilities are subject to disruption or discontinuation for a variety of reasons, including changes in business relationships, competition, financial difficulties, work stoppages, fire, natural disasters, customer prioritization, component end of life decisions or other causes. Any such disruption or discontinuation to our suppliers' operations could interrupt or reduce our manufacturing activities and delay delivery of our products, any or all of which could materially and adversely affect our results of operations. This risk is particularly acute when we rely on a single or a limited group of suppliers. In addition, during periods of increased demand for our products, there is a heightened risk that one or more of our suppliers may not meet our increased demand requirements, adversely affecting our ability to fulfill orders and win business with our customers.

Our product delivery schedules may cause us to incur significant expenses without offsetting revenues.

During our sales cycle, our customers generally evaluate, test and qualify our products before making a decision to purchase them. Before a potential customer purchases our products, we may incur significant expenses related to sales and marketing, product development and research and development prior to receiving a customer order that may be delayed or never get placed. We may incur these expenses without receiving revenues to offset such expenses soon thereafter or at all, which could materially and adversely affect our business, financial condition, or results of operations.

We may incur charges for excess or obsolete inventory as a result of having to forecast product demand without firm orders.

To effectively compete, we must deliver products on schedules required by our customers. Management forecasts demand, both in type and number of products, for us to timely meet customer delivery schedules. We use these forecasts to purchase inventory, some of which have exceptionally long lead times, in advance of our receiving firm customer orders. We also order materials based on our technology roadmap, which represents management's assessment of technology we will utilize in new product developments. Certain types of inventory, such as lasers and optical equipment, are particularly expensive and may only be used in the production of a single type of product. If actual demand is lower than forecast, we may have excessive working capital and slow-turning inventory. In addition, we may incur material charges for excess and obsolete inventory if we cannot sell the inventory. Also, if we alter our technology or product development strategy, we may have unusable inventory, which may also result in material accounting charges. For example, during 2018, we recorded approximately \$13.6 million of charges in cost of sales, primarily due to inventory write offs associated with discontinued products.

We may be unable to timely deliver certain products made by contract manufacturers.

We have arrangements with contract manufacturers to complete the manufacturing of certain of our product subcomponents. Any significant interruption in our contract manufacturers' ability to provide quality manufacturing services to us as a result of contractual disputes with us or another party, labor disruptions, financial difficulties, natural disasters, delay or interruption in the receipt of inventory, or other causes could result in reduced manufacturing quality or delayed deliveries for certain of our products, any or all of which could materially and adversely affect our business. Additionally, should a contract manufacturer no longer be able to perform for any reason or we need to add a contract manufacturer, it may require substantial time and resources, including the potential of incurring substantial cost, to replace or add the associated manufacturing capabilities, which could materially and adversely affect our business.

Increasing regulations or environmental requirements on our product components could negatively affect our ability to sell our products or source materials.

Many countries, including the United States, China and those in the European Union, have implemented directives that restrict the sale of new electrical and electronic equipment containing certain hazardous substances and require disclosures if certain metals used in products are not from a conflict-free source. The directives could restrict our ability to sell our products in certain countries and affect sourcing at competitive prices and availability in sufficient quantities of certain minerals used in the manufacture of our products. In addition, our reputation could suffer if we are required to disclose that metals in our products are not from conflict-free sources.

Risks Related to Our Organization

Our significant international trade subjects us to greater risks.

International shipments accounted for 95% of net shipments in 2018, with 90% of our net shipments to customers in Asia. We expect that international shipments will continue to represent a significant percentage of net sales in the future. In addition, we obtain supplies through an international supply chain. Our non-U.S. sales and purchases are subject to risks inherent in international trade, many of which are outside our control and include the following:

- periodic local or geographic economic downturns;
- price and currency exchange controls;
- fluctuation in the relative values of currencies;
- difficulty in repatriating money, whether as a result of tax laws or otherwise;
- difficulties protecting intellectual property;
- shipping delays and disruptions, including as a result of border controls;
- retaliatory trade practices, trade tensions, and changes in or inconsistency in application of trading policies, regulatory requirements, export control regulations, tariffs and other barriers, the termination or renegotiation of existing trade agreements; and

- difficulties in managing a global enterprise, including staffing, collecting accounts receivable, and managing suppliers, distributors and representatives.

Our success depends, in part, on hiring and retaining key personnel.

Our continued success depends in part upon the services of our key managerial, financial and technical personnel. The loss of key personnel, or our inability to attract, assimilate and retain qualified personnel, could result in the loss of customers, inhibit our ability to operate and grow our business and otherwise have a material adverse effect on our business and results of operations. We have previously had to, and may in the future have to, impose salary reductions on employees during economic downturns in an effort to maintain our financial position. On several occasions in recent years, executives and other employees have received limited or no annual bonuses due to our financial performance relative to the performance parameters in our annual bonus plans. These events may have an adverse effect on employee loyalty and may make it more difficult for us to attract and retain key personnel. Competition for qualified personnel in the industries and locations in which we compete for talent is intense, and we may not be successful in attracting and retaining qualified personnel. We may incur significant costs in our efforts to recruit and retain key personnel, which could affect our financial position and results of operations.

In February 2017, we announced a reorganization and restructuring, which resulted in site closures in Montreal, Canada, Napa and Sunnyvale, California, and reductions in headcount in all functions and geographies. Additionally, we have replaced key executives. These events may adversely disrupt operating activities, may negatively affect employee morale and loyalty, and may make it more difficult to retain or rehire key personnel.

Our business and reputation could be negatively impacted by cyber-attacks and other security breaches.

We electronically store sensitive data, including intellectual property, and our customers', suppliers' and business partners' proprietary business information, and our employees' personally identifiable information. The secure maintenance and transmission of this information is critical to our operations and business strategy. Despite our security measures, our information technology and infrastructure may be vulnerable to attacks by hackers or breached due to employee error, malfeasance or other actions. Further, the increasingly international, mobile-device, internet, and email-based environment in which we do business may subject the Company to new risks, such as email phishing attempts, or other activities designed to defraud the Company of funds or sensitive information, and may also provide multiple points of entry for cyber-attacks. Additionally, we rely on a number of third-party "cloud-based" providers of corporate infrastructure services relating to, among other things, human resources, electronic communication services and some financial functions, and we are therefore dependent on the security systems of these providers. Any breach or other unauthorized access to either our systems or our service-providers' systems through viruses, loggers, malfeasant code in data or software, or other means could expose us to information loss or disclosure of confidential information and could compromise our networks such that the information stored there could be accessed, publicly disclosed, lost or stolen. Any such access, disclosure or loss of information could result in legal claims or proceedings, liability under laws that protect the privacy of personal information, disrupt our operations, damage our reputation, or hurt our competitive position, which could adversely affect our business, financial position and results of operations.

Our implementation of an updated enterprise resource planning software may result in unintended consequences that could negatively impact our business.

We expect to upgrade our enterprise resource planning software and related systems that support our operating and financial functions. We may experience difficulties in connection with such upgrades, including loss or corruption of data, compatibility issues, decreases in productivity as our personnel implement and become familiar with the upgrades, higher than expected upgrade costs and other integration challenges or delays. If encountered, a significant problem with the system upgrades could negatively impact our business by disrupting our operations. In addition, a significant problem with the system upgrades, integration with other systems or ongoing management of our enterprise resource planning software and related systems could have an adverse effect on our ability to generate and interpret accurate management and financial reports and other information on a timely basis, which could adversely affect our business, financial position and results from operations

Our success could be negatively impacted if we fail to effectively control, oversee and direct foreign subsidiaries and our global footprint may result in a substantial amount of management effort, cost and uncertainty.

We are a global company operating in multiple jurisdictions. We have significant foreign operations and subsidiaries, including manufacturing facilities in Singapore and China, research and application development facilities in France, China and Korea, and sales and service offices in various countries to enhance responsiveness and access to customers local to these regions. In 2018, certain additional customer-facing operational resources were moved to countries in Asia, and changes were implemented to our supply chain in regions outside the U.S. Our global presence and any changes thereto may subject us to a variety of complexities and risks, many of which may divert a substantial amount of management's time. These risks include:

- exposure to local labor disputes, potential corruption, and noncompliance with labor laws and other laws governing employees;
- unpredictable costs, redundancy costs and cost overruns for developing facilities and acquiring equipment;
- challenges in building local management teams, technical personnel and other staff for functions that we have not previously conducted outside of the United States;
- technical obstacles such as poor production or process yield and loss of quality control during the ramp of a new facility;
- re-qualifications and other procedures that our customers may require;
- our ability to bring up local suppliers to meet our quality and cycle-time needs;
- rapidly changing business conditions that may require us to change or abandon plans before we fully implement them;
- complexity of managing our financial reporting and internal controls and procedures; and
- the ability to understand and comply with many different laws, infrastructures, ways of doing business, and surmount other challenges posed by distance and differences in language and culture.

If we are unable to manage these risks effectively, it could negatively affect our operating performance and our reputation. These and other factors could delay the continuing development, expansion and implementation of our strategy, as well as decrease our gross margins, delay shipments and deliveries, cause us to lose sales, require us to write off investments already made, damage our reputation and harm our business, financial condition and results of operations. For example, we announced restructuring plans in 2015 and 2017 that led to the impairment of leasehold improvements and other assets for several of our facilities, some of which were in international locations.

Our global operations expose us to a greater variety of natural disasters and political and social strife, each of which could directly impact our properties, operations and personnel.

Our business and operating results could be impacted, directly or indirectly, by natural disasters, outbreaks of infectious disease, military action, international conflicts, terrorist activities, civil unrest and associated political instability and policy changes. Many of our facilities, including our Portland, Oregon headquarters, are in areas with known earthquake risk. Some of these events or circumstances may also result in heightened security concerns with respect to domestic and international travel and commerce, including more frequent instances of shipping delays, which may further affect our business and operating results. In particular, recent and potential future tightening of immigration and travel controls may adversely affect the residence status of non-U.S. engineers and other key technical employees in our U.S. facilities, our ability to attract, hire and retain new non-U.S. employees in such facilities or our ability to bring our non-U.S. employees into the United States for business related activities.

Our acquisition activities could result in operational disruptions, integration difficulties and other complications.

We may acquire or make significant investments in other businesses with complementary products, services or technologies, such as our January 2015 acquisition of Wuhan Topwin Optoelectronics Technology Co., Ltd. (Topwin) and our August 2016 acquisition of Visicon Technologies, Inc. (Visicon). Acquisitions involve numerous risks, many of which are unpredictable and beyond our control, including:

- increased costs in connection with integration of personnel, operations, technologies and products of the acquired businesses;
- difficulties in implementation of our enterprise resource planning (ERP) system into the acquired company's operations;
- diversion of management's attention from other operational matters;
- the potential loss of key employees of the acquired company;
- lack of synergy or inability to realize expected synergies resulting from the acquisition;
- the inability to successfully enter new markets expected to result from the acquisition;

- acquired assets becoming impaired as a result of technological advancements or worse-than-expected performance by the acquired company;
- establishing satisfactory internal controls and accounting practices at the acquired company;
- difficulties implementing internal manufacturing processes at the acquired company;
- achieving our anticipated financial and operational performance for the acquired company or the performance of the combined company following the transaction;
- acquiring unanticipated liabilities; and
- potential litigations arising out of breach of contract terms.

The means by which we finance an acquisition may also significantly affect our business or the value of our common stock. If we issue common stock to pay for an acquisition, the ownership percentage of our existing shareholders will be diluted and the value of the shares held by our existing shareholders could decrease. If we use cash on hand to pay for an acquisition, the payment could significantly reduce the cash that would be available to fund our operations or to use for other purposes. If we borrow funds in connection with an acquisition, we would be required to use cash to service the debt and to comply with financial and other covenants, which may reduce our flexibility.

Risks Related to Technology

We may be unable to realize growth opportunities if we cannot strengthen our marketing and channel capabilities.

The laser microfabrication industry is comprised of broad sets of markets and applications and presents significant opportunities for growth. In order to access these growth opportunities, we are strengthening our approach from customer-centric to market-based. We have reorganized into a functional structure and expanded our marketing team to drive improved process and disciplines across the organization. We believe our ability to successfully access and compete in these broader markets partially depends on our successful development of new marketing capabilities, sales and distribution channel access and customer relationships. Our inability to do so would limit our growth opportunities and profitability. In addition, any new strategy may cause disruption and ultimately prove unsuccessful.

We may be unable to keep up with rapid technological changes in our markets, which could result in customers purchasing fewer of our products.

The markets for our products are characterized by rapid technological change and innovation, frequent new product introductions, changes in customer requirements and evolving industry standards. Our future performance will depend on the successful development, introduction and market acceptance of new and enhanced products that address technological changes and the requirements of current and potential customers. The development of new, technologically advanced products is a complex and uncertain process, requiring high levels of innovation and highly skilled engineering and development personnel, as well as the accurate anticipation of technological and market trends. We may not be able to identify, develop, manufacture, market or support new or enhanced products on a timely basis, if at all. If our competitors introduce new or enhanced products, or alternative technologies, our customers may defer, change or cancel orders for our existing products or cease purchasing our products altogether. Further, our new products may not gain timely market acceptance, and we may not be able to respond effectively to product announcements by competitors, technology changes or emerging industry standards. If we are unable to develop new or enhanced products to address customer requirements, technology changes or new industry standards on a timely basis, if our new or enhanced products are not accepted by the market, or if our customers adopt alternative technologies, our business, financial condition and results of operations may be adversely affected due to loss of market share or due to concentrations in impacted areas.

Our industry requires continued investment in research and development, and we may fail to optimally allocate our resources in this area.

The intense competition in our industry requires us to continue to invest in research and development. If we fail to invest sufficiently in research and development, our products could become obsolete or less attractive to our current and potential customers. Because of our need to maintain our research and development spending levels, our operating margins could be materially decreased if our net sales decline. In addition, our emphasis on research and development and technological innovation could cause our operating costs to increase in the future, and research and development expenses to increase as a percentage of total operating expenses and as a percentage of net sales. Conversely, if we have competing needs for our financial resources, we could spend less on research and development than we believe would be optimal for long-term competitiveness.

Because our products are highly complex, we may experience quality control issues that could result in decreased sales and harm our reputation.

Our products are highly complex, and our extensive product development, manufacturing and testing processes may not be adequate to detect all defects, errors, failures and quality issues that could impact customer satisfaction or result in claims against us. Our strategy to leverage proprietary laser technology to create competitive advantage may increase the probability and impact of these risks. As a result, we may have to replace certain components or provide remediation in response to the discovery of defects in products after they are shipped. The occurrence of any defects, errors, failures or quality issues could result in cancellation of orders, product returns, diversion of our resources, legal actions by our customers and other losses to us or to our customers. These occurrences could also result in the loss of, or delay in, market acceptance of our products, loss of sales and increased expenses and warranty costs.

Risks Related to Legal Matters

Our business depends on proprietary rights that may be difficult to protect, and the loss of any proprietary rights could affect our ability to compete effectively.

Our success depends significantly upon the protection of our proprietary rights. We attempt to protect our proprietary rights through patents, copyrights, trademarks, maintenance of trade secrets and other measures, including entering into confidentiality agreements. Although we incur substantial costs to obtain and maintain patents and to defend our intellectual property rights, we may be unsuccessful in protecting these rights. Additionally, our proprietary rights may not provide the competitive advantages we expect, or other parties may challenge, invalidate or circumvent these rights.

We rely upon the laws of the United States and foreign countries where we develop, manufacture or sell our products to protect our proprietary rights. However, our efforts to protect our intellectual property may be less effective in some foreign countries where intellectual property rights are not as well protected as in the United States. For example, the patent prosecution and enforcement system within China is less mature than the systems in other jurisdictions and therefore we may be limited in our ability to enforce our rights. This disadvantage would likely be compounded by the challenge of any enforcement attempts by us as a foreign entity seeking protection against a Chinese company infringing on our proprietary rights in China. If we fail to adequately protect our intellectual property abroad, it could be easier for our competitors to sell competing products in foreign countries, which could result in reduced sales and gross margins.

Our products may subject us to intellectual property infringement claims that could increase our costs and restrict our ability to do business.

Several of our competitors hold patents covering a variety of technologies, applications and methods of use similar to some of those used in our products. Competitors or others have asserted in the past, and may assert in the future, infringement claims against our customers or us with respect to current or future products or uses. These assertions may result in costly litigation, and if claims of infringement are asserted against our customers, those customers may seek indemnification from us for damages or expenses they incur.

If we become subject to infringement claims, we will evaluate our position and consider the available alternatives, which may include seeking licenses to use the technology in question. These licenses, however, may not be available on satisfactory terms or at all. If we are not able to negotiate the necessary licenses on commercially reasonable terms, or successfully defend our position, our financial condition and results of operations could be materially and adversely affected.

As a global company, we are subject to adverse fluctuations in our effective taxes due to tax audits, changes in tax law, certain preferential tax concessions, and other regulatory requirements.

Our tax liabilities may fluctuate from one period to the next because we operate in numerous tax jurisdictions with a broad range of income tax rates and regulations. Further, we are also periodically under audit by United States and foreign tax authorities and may have exposure to additional tax liabilities as a result. Although we believe our tax estimates are reasonable, the final outcome of tax audits and the impact of changes in tax laws or the interpretation of tax laws could result in a material effect on our financial results, tax positions or cash flows in the period or periods in which the determination is made. For example, in 2018 we recorded an expense of \$2.5 million for a value added tax and duty audit by the South Korean government.

We benefit from a tax incentive program in Singapore pursuant to which we paid no Singapore income tax with respect to our Singapore manufacturing operations. The incentive period ends June 30, 2021 and is conditioned on achieving certain business and investment levels. If we do not achieve these criteria, we may lose the incentive benefits.

We have tax losses and tax credits with remaining lives between 5 and 20 years. In the fourth quarter of 2018, we generated \$75.1 million of net income, which resulted in three years of cumulative income. This, combined with our backlog position at March 31, 2018 and our expected ability to utilize certain deferred tax assets and credits prior to their expiration, we believe provided sufficient positive evidence to release \$42.3 million of our valuation allowance as of March 31, 2018. A release of the valuation allowance resulted in the recognition of certain deferred tax assets and an income tax benefit for 2018.

The Tax Cuts and Jobs Act (the "Tax Act") was enacted into law in the U.S. on December 22, 2017. We have elected the Staff Accounting Bulletin No. 118 measurement period and will continue to evaluate the impact the new legislation will have on our consolidated financial condition, results of operations, and cash flows. While not limited to the following, we believe the following risks exist:

- Rule-making and additional technical guidance from the Department of Treasury, the FASB, and other relevant rule-making bodies continues to evolve and is likely to impact the treatment of the impact of the Tax Act.
- The Company's assessment remains ongoing; therefore, the final impact of the Tax Reform may differ due to changes in interpretations, assumptions and we are not able to fully quantify the impact on the Consolidated Financial Statements at this time.
- Reaction to the new regulations by states and international trading partners is not yet clear, and could have a material impact on our business and results of operations.

The change in statutory tax rates in the United States also impacts the gross values of the deferred tax assets and valuation allowance. The release of the valuation allowance and the future utilization of deferred tax assets are recognized at the new, lower rate.

Risks Related to Financial Matters

If we cannot meet our liquidity needs, we may not have sufficient working capital to continue our business operations.

We may require greater working capital to operate than similar size businesses in many other industries. At March 31, 2018, we had working capital of \$203.2 million, including \$123.9 million in cash, cash equivalents and short-term investments. Our operating cash flows were negative for most quarters between September 2013 and March 2017. Operating cash flows for 2018 were positive and we generated \$67.4 million of operating cash. If cash levels were to decline below our working capital requirements due to investment in inventories as a result of production, less favorable collections, or less favorable payment terms, or a combination of these circumstances, among others, we may need additional cash to sustain operations. In addition, many of our contracts to acquire inventory represent purchase commitments. As a result, if we experience lower than anticipated demand for our products we may not avoid the cost of purchasing the associated inventory.

While we have a credit facility in place, if we fail to meet the covenants in our credit facility or our lenders fail to fund, access to the facility may be limited or the facility may become unavailable altogether. Losses, such as those experienced in the second and third quarters of 2017, negatively impact our ability to maintain compliance with these covenants.

If we have a material decrease in available cash, or require additional cash for operations, and we do not have available credit or other funds and are unable to obtain financing on acceptable terms, or at all, our business and our ability to fully fund operations could be materially and adversely affected.

Our existing indebtedness may limit our business opportunities.

In the fourth quarter of 2017, we incurred \$14.0 million of long-term indebtedness in the form of secured mortgage. This indebtedness is secured by our headquarters in Portland, Oregon. We also have access to a credit facility under which we may borrow up to a maximum of \$30 million, subject to meeting certain availability requirements. Nothing was outstanding under this agreement and the full amount was available under the terms of the agreement as of March 31, 2018. This credit facility is secured by our non-real estate assets and we are required to comply with certain financial covenants under the debt agreements, including maintaining a certain level of earnings, a stated debt service coverage ratio and a specified level of certain types of liquid assets, as well as limiting our discretion to make capital expenditures or acquisitions. If we are unable to comply with the covenants in our debt agreements or make payments when due and the lender declares an event of default, any outstanding indebtedness would likely be immediately due and owing and the lenders could foreclose on the collateral securing the debt.

Unfavorable currency exchange rate fluctuations could reduce our net sales abroad or cause us to incur losses on our forward exchange contracts.

Unfavorable currency fluctuations could require us to increase prices to foreign customers, which could result in lower net sales by us to those customers. Alternatively, if we do not adjust the prices for our products in response to unfavorable currency fluctuations, we could be forced to sell our products at a lower margin or at a net loss. A weak dollar may lead to impairment of inventories if costs begin to exceed selling prices as translated to the functional currency. In addition, some of our foreign sales are denominated in the currency of the country in which these products are sold and that currency could be less valuable at the time of receipt as a result of exchange rate fluctuations. From time to time, we enter into forward exchange contracts to hedge the value of accounts receivable primarily denominated in euros and other currencies. However, our efforts may not be adequate to protect us against significant currency fluctuations and such efforts may expose us to additional exchange rate risks, which could adversely affect our results of operations.

An impairment of our investments could reduce our available liquidity.

Our investment portfolio is primarily comprised of commercial paper, corporate bonds, debt securities issued by U.S. governmental agencies and money market securities. These investments are intended to be highly liquid and low risk. If the markets for these securities deteriorated for any reason, including as a result of a downgrade in the credit rating of U.S. government securities, the liquidity and value of these investments could be negatively affected, which could result in impairment charges and a material impact to our financial condition and results of operations. In addition, if our investments become illiquid or materially decrease in value, we may not have access to sufficient cash to meet our working capital and liquidity needs.

An impairment of Goodwill, Intangible and Long-Lived Assets could negatively impact our consolidated earnings.

We held a total of \$5.2 million in acquired intangible assets, net of accumulated amortization, and \$2.6 million in goodwill at March 31, 2018. As with the impairment recognized in the fourth quarter of 2017, events may occur or circumstances change such that the carrying value is not recoverable or it becomes more likely than not that the fair value of long-lived assets is reduced below the carrying value of the reporting unit, which could result in a further write-down of the fair-value of our assets. For example, the performance of our Topwin reporting unit did not meet expectations and, as a result, an impairment of goodwill and intangibles associated with that reporting unit was triggered in 2017, impacting consolidated earnings.

In addition, certain of our long-lived assets such as leasehold improvements, machinery, equipment, and loan and demo assets may experience impairment as a result of events such as the closure of sites, introduction of new products, decisions to exit certain products or markets, and changes in technology. We depreciate long-lived assets and amortize intangible assets at levels we believe are adequate; however, an impairment of these assets could have a material adverse impact on our business, financial condition and results of operations. For example, due to the 2017 restructuring plan, \$3.0 million of non-current assets were impaired since the beginning of the plan through 2018 and included in operating expenses.

If we fail to maintain an effective system of internal controls, we may not be able to accurately report our financial results or prevent fraud and our stock price and our business may be adversely affected.

Effective internal controls are necessary for us to provide reliable financial reports and effectively prevent fraud. If we cannot provide reliable financial reports or prevent fraud, our operating results could be harmed.

Although we are committed to continue to improve our internal control processes and to diligently and vigorously review our internal control over financial reporting in order to ensure compliance with the requirements of Section 404 of the Sarbanes-Oxley Act of 2002, any control system, regardless of how well designed, operated and evaluated, can provide only reasonable, not absolute, assurance that its objectives will be met. Therefore, we cannot be certain that in the future any material weaknesses or significant deficiencies will be avoided. If such weaknesses or deficiencies occur, they could result in misstatements of our results of operations, restatements of our Consolidated Financial Statements, a decline in our stock price and investor confidence, or other material negative effects on our business, reputation, financial condition or liquidity.

We may have difficulty implementing new revenue recognition requirements, which could adversely affect our reported financial results or the timeliness thereof.

Although we have spent considerable time preparing to implement the new Accounting Standards Update (ASU) 2014-09, *Revenue from Contracts with Customers: Topic 606 (ASU 2014-09)*, we do not have extensive experience with the new requirements in practice. The SEC requires us to publish our financial results in short time frames, which could result in

our having difficulty implementing the new requirements as intended within the prescribed financial reporting periods. Untimely or inaccurate implementation of ASU 2014-09 could adversely affect our reported financial results. We provide no assurance that the anticipated effects of ASU No. 2014-09 contained in this Annual Report are accurate.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

Our executive and administrative headquarters, which houses our primary engineering and marketing functions, advanced manufacturing capability for new products, and manufacturing of select legacy products are located in a three-building complex with 197,838 square feet of space on 10.15 acres in Portland, Oregon. Additionally, our component test consumables are manufactured at a 53,000 square-foot plant on 31 acres in Klamath Falls, Oregon. We own all of the buildings located in Oregon. We believe the productive capacity of these facilities to be adequate and suitable for the requirements of our business for the foreseeable future.

Our primary system manufacturing facilities are located in leased facilities in Singapore. We lease approximately 35,216 square feet of facilities in Singapore where the majority of ESI systems are manufactured; this is an increase from 26,000 square feet in previous years. Additionally, we lease other office and facility space in various locations throughout the United States and various foreign countries.

We lease approximately 32,500 square feet of facilities in Chelmsford, Massachusetts. As a part of the Company's 2015 plan to streamline its manufacturing and development activities, the Company transitioned the manufacturing and development activities to other U.S. facilities during 2016 and accordingly this property is not being used.

Item 3. Legal Proceedings

In the ordinary course of business, the Company is involved in various legal matters, either asserted or unasserted. In the opinion of management, ultimate resolution of these matters will not have a material effect on the Company's consolidated financial position, results of operations or cash flows.

Item 4. Mine Safety Disclosures

Not Applicable.

PART II

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

Common Stock Prices and Dividends

Our common stock trades on the NASDAQ Global Select Market under the symbol ESIO. There were approximately 361 shareholders of record as of June 4, 2018, and on that date there were 34,104,459 common shares outstanding. The closing price on June 4, 2018 was \$19.74 per share.

The following table shows the highest and lowest intraday sales prices for our common stock as reported on the NASDAQ Global Select Market for the fiscal quarters indicated:

Fiscal 2018	High	Low
Quarter 1	\$9.20	\$6.17
Quarter 2	14.26	7.50
Quarter 3	27.72	13.65
Quarter 4	27.65	15.56

Fiscal 2017	High	Low
Quarter 1	\$7.56	\$5.72
Quarter 2	7.03	4.74
Quarter 3	6.57	4.50
Quarter 4	7.17	5.80

We have not paid any cash dividends on our common stock during the last three fiscal years. The Company currently intends to use earnings to invest in the growth of business, therefore we do not anticipate paying cash dividends in the foreseeable future.

Share Repurchase Program

In December 2011, the Board of Directors authorized a share repurchase program totaling \$20.0 million to acquire shares of our outstanding common stock. The repurchases are to be made at management's discretion in the open market or in privately negotiated transactions in compliance with applicable securities laws and other legal requirements and are subject to market conditions, share price and other factors.

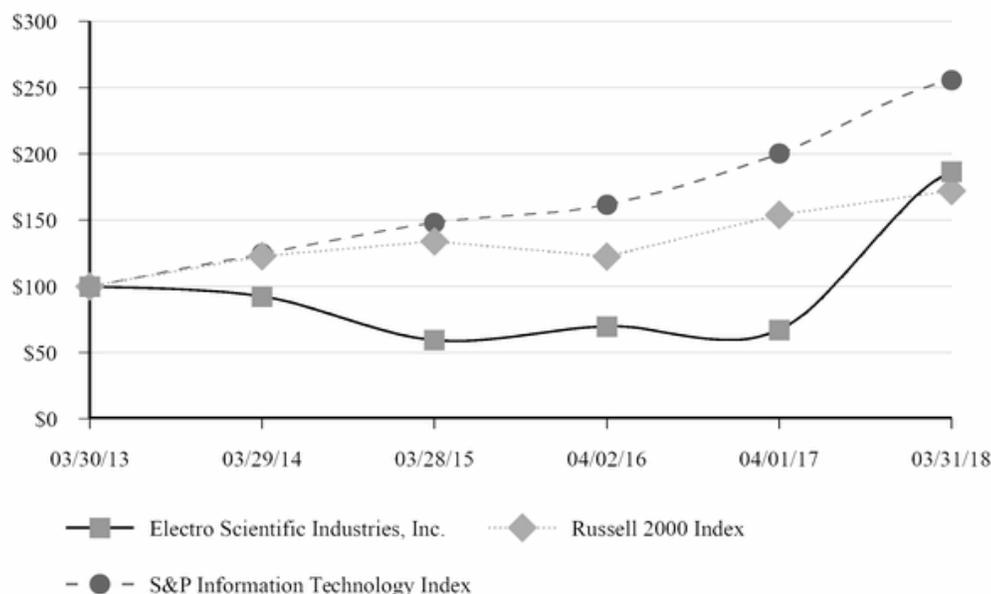
The Company did not repurchase any shares during 2018, 2017 or 2016. There is no fixed term for the repurchase program and \$18.3 million still remains for future repurchases.

Stock Performance Graph

The graph below compares the cumulative 60-month total return to holders of Electro Scientific Industries, Inc. common stock with the cumulative total returns of the S&P Information Technology Index, and Russell 2000 Index for the same period. The graph assumes that the value of the investment in ESI common stock and in each of the indices (including reinvestment of dividends) was \$100.00 on March 30, 2013 and tracks it through March 31, 2018.

Historical stock price performance should not be relied upon as indicative of future stock price performance.

COMPARISON OF 5 YEAR CUMULATIVE TOTAL RETURN* Among Electro Scientific Industries, Inc., Russell 2000 Index and the S&P Information Technology Index



*\$100 invested on 3/30/2013 in stock or 3/31/2013 in index, including reinvestment of dividends. Indexes calculated on month-end basis.

	Cumulative Total Return					March 31, 2018
	March 30, 2013	March 29, 2014	March 28, 2015	April 2, 2016	April 1, 2017	
Electro Scientific Industries, Inc.	100.00	92.35	59.46	69.79	67.28	186.58
Russell 2000 Index ¹	100.00	122.64	133.80	122.36	153.94	172.09
S&P Information Technology Index ²	100.00	124.56	147.97	161.67	200.23	255.64

1. Copyright © 2018 Russell Investments. All rights reserved.

2. Copyright © 2018 Standard and Poor's, a division of McGraw Hill Financial. All rights reserved.

Item 6. Selected Financial Data

(In thousands, except per share data)	2018 ⁽¹⁾	2017 ⁽²⁾	2016 ⁽³⁾	2015 ⁽⁴⁾	2014 ⁽⁵⁾
Statement of Operations Data					
Net sales	\$ 367,884	\$ 161,023	\$ 184,391	\$ 159,118	\$ 181,167
(Benefit from) provision for income taxes	(40,270)	(23)	(16)	234	(92)
Net income (loss)	116,223	(37,409)	(12,257)	(43,811)	(38,334)
Net income (loss) per share—basic	3.42	(1.15)	(0.39)	(1.43)	(1.28)
Net income (loss) per share—diluted	3.27	(1.15)	(0.39)	(1.43)	(1.28)
Cash dividends paid per outstanding common share ⁽⁶⁾	—	—	—	0.24	0.32
Balance Sheet Data					
Cash and cash equivalents, restricted cash, short-term investments and auction rate securities	\$ 125,006	\$ 63,475	\$ 57,665	\$ 57,606	\$ 106,905
Working capital	203,165	115,603	126,658	124,593	164,835
Net property, plant and equipment	22,025	21,619	24,543	25,858	27,930
Total assets	372,988	224,745	220,100	221,240	270,209
Shareholders' equity	266,358	144,531	170,031	177,321	222,881

1. Fiscal 2018 net income included restructuring and related impairment costs of \$17.5 million, primarily comprising non-cash charges due to inventory and long term asset write-offs. Fiscal 2018 also included \$4.6 million of share-based compensation expense and \$1.5 million of purchase accounting amortization. Benefit from income taxes was primarily a result of releasing our valuation allowance due to profitability in 2018. Long-term debt as of March 31, 2018 was \$12.8 million.
2. Fiscal 2017 net loss included restructuring and impairment costs of \$18.4 million, primarily comprising a non-cash goodwill impairment charge of \$7.4 million to write down the fair value of Topwin reporting unit goodwill, \$2.3 million for intangible write-off related to the Topwin acquisition and \$8.6 million for restructuring costs related to 2017 corporate restructuring actions. Restructuring charges primarily consisted of \$1.7 million of inventory write-off charges to cost of sales and \$6.9 million of operating expenses for employee severance, leasehold improvements write-off and other facility costs. Fiscal 2017 also included \$6.4 million of share-based compensation expense and, \$2.2 million of purchase accounting amortization, which included compensation expense related to the purchase of Topwin. Long-term debt as of April 1, 2017 was \$13.5 million.
3. Fiscal 2016 operating expenses included \$2.8 million for restructuring costs, which primarily consisted \$1.4 million each of employee severance costs and charges for asset write-off and related items. Fiscal 2016 cost of sales included \$ 1.4 million for inventory write-offs and \$0.4 million of intangible write-offs related to discontinued products. Fiscal 2016 also included \$4.2 million of charges for share-based compensation expense and \$2.4 million of charges for purchase accounting amortization, which included \$1.4 million for amortization of acquired intangible assets and \$1.0 million of compensation expense related to the purchase of Topwin.
4. Fiscal 2015 included non-cash goodwill impairment charge of \$7.9 million to write down the goodwill to its implied fair value as of March 28, 2015, \$3.0 million for restructuring costs for the Chelmsford facility closure, which primarily consisted of \$2.0 million for employee severance and related costs and \$1.0 million for inventory write-offs. Fiscal 2015 also included \$4.5 million of charges for share-based compensation expense, \$4.3 million for impairment of a minority investment, \$1.5 million for amortization of acquired intangible assets and a \$0.6 million gain on liquidation of a foreign subsidiary. The Company also paid \$9.0 million in cash for the Topwin acquisition during fiscal 2015.
5. Fiscal 2014 included \$1.1 million for restructuring costs, which primarily consisted of \$0.8 million charge towards obligations for our outgoing Chief Executive Officer and \$0.2 million of charges related to asset write-offs. Fiscal 2014 also included \$12.8 million of charges in cost of sales for inventory write-offs, \$9.7 million for impairment of a minority equity investment, \$6.1 million for share-based compensation expense, \$2.9 million for amortization of acquired intangible assets, including \$0.3 million of accelerated amortization, \$1.3 million for net gain on sale of property and equipment, \$0.6 million of accelerated depreciation on assets that will no longer be utilized and a \$0.5 million of gain on acquisition of a semiconductor systems business.
6. The Company paid cash dividends of \$7.3 million and \$9.6 million during 2015 and 2014, respectively. No cash dividends were paid during 2018, 2017 or 2016.

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

Overview of Business

Electro Scientific Industries, Inc. and its fully-owned subsidiaries (ESI, we, our, or the Company) is a leading supplier of innovative laser-based microfabrication solutions for industries reliant on microtechnologies. ESI enables its customers to commercialize technology using precision laser processes. ESI's solutions produce the industry's highest quality and throughput, and we target the lowest total cost of ownership. Founded in 1944, ESI is headquartered in Portland, Oregon, with global operations and subsidiaries in Asia, Europe and North America.

Laser microfabrication is comprised of a set of precise micron-level processes, including drilling, scribing, dicing, singulation, cutting, ablating, trimming, and precision marking on multiple types of materials. These processes require application-specific laser systems that are able to meet our customers' exacting performance and productivity requirements. Our laser-based systems are utilized in the production of flexible and rigid printed circuit board (PCB), semiconductor devices, advanced semiconductor packaging, consumer electronics, electronic sensors, touch-panel glass, flat panel liquid crystal displays (LCDs), organic light emitting diode (OLEDs) displays, applications within the automotive, aerospace, medical and display end markets as well as other high-value components and devices to enable functionality, increase performance and improve production yields.

Additionally, we produce high-capacity test and inspection equipment that is critical to the quality control process during the production of multilayer ceramic capacitors (MLCCs). Our equipment ensures that each component meets the electrical and physical tolerances required to perform properly.

Between the fourth quarter of 2015 and the third quarter of 2017, the Company operated in two segments, Component Processing and Micromachining. In the fourth quarter of 2017, the Company reorganized into a functional structure and now operates and reports as a single segment. Within this single segment we sell products into a variety of end markets that may be grouped into four major categories: 1) PCB, 2) Semiconductor, 3) Component Test, and 4) Industrial Machining. PCB includes flexible circuits (Flex), high density interconnect (HDI), and packaging products targeting this market; Semiconductor includes all wafer-based products; Component Test includes our MLCC products and tooling; and Industrial Machining includes our machining and inspection tools that address a broader market including not just consumer electronics, but also automotive, aerospace, medical, and display end markets. See Note 21: Product and Geographic Information, to our Consolidated Financial Statements for further discussion.

Overview of Financial Results

Our fiscal year consists of 52 or 53 week periods ending on the Saturday nearest March 31. Accordingly, our fiscal 2018 reporting period consisted of a 52-week period ending on March 31, 2018, our fiscal 2017 reporting period consisted of a 52-week period ending on April 1, 2017, and our fiscal 2016 reporting period consisted of a 53-week period ending on April 2, 2016. All references to years or quarters relate to fiscal years or fiscal quarters unless otherwise noted.

Fiscal year and fourth quarter highlights:

- 2018 bookings increased by \$267 million, or 144%, and fourth quarter bookings increased by \$30 million, or 36%, from the respective periods in 2017, primarily on higher demand for our PCB laser drilling products and to a lesser extent our Semiconductor, and Component Test products. Of note was demand for our flex circuit drilling products, which nearly tripled in 2018 due to new applications, new materials, and higher flex content in consumer electronics devices.
- 2018 revenues grew by \$207 million, or 128%, and fourth quarter revenues grew by \$63 million, or 127%, from the respective periods in 2017 on higher overall orders and our ability to rapidly increase our production capacity to accommodate the higher demand.
- 2018 gross profit grew by \$99 million, or 162%, primarily on higher revenues, partially offset by a \$8.6 million increase in cost of sales impairments associated with restructuring activities.
- 2018 gross margins rose to 43.7% from 38.2% in 2017, primarily on higher revenues.
- 2018 operating expenses declined \$14.2 million from 2017, primarily due to lower headcount that resulted from our restructuring activities plus reduced restructuring and impairment charges.
- 2018 earnings per diluted share of \$3.27 compared to a loss of \$1.15 per share in 2017.
- 2018 operating cash generation of \$67.4 million, compared to operating cash use of \$0.8 million in 2017.
- We completed a significant restructuring initiated in the fourth quarter of 2017, which included headcount reductions, site closures, product life cycle accelerations, and business divestitures. The restructuring successfully lowered our fixed cost base and enables us to focus our efforts and resources on the most promising revenue opportunities.
- We ended 2018 with backlog of \$148.4 million.

In 2018, our business was significantly impacted by a sizeable increase in capacity purchases from our flex manufacturing customers, plus a strong market environment for our Semiconductor and Component Test solutions. Our flex business levels began strong early in the year and increased dramatically in the second half. This pattern ran counter to the historical seasonal pattern in our flex business that normally experiences a demand slowdown in our second and third quarters. The increased demand for our products was driven by new designs, technologies, materials, and applications in consumer electronics, which resulted in a dramatic increase in demand for flexible circuit boards by device manufacturers. We also saw incremental demand for our Ultras™ wafer scribing solution, which was introduced in 2016 and was qualified for high-volume production at multiple semiconductor manufacturers in 2017.

In the fourth quarter of 2017, we recorded an \$18.4 million in charges related to the restructuring activities and other impairments. During 2018, we recorded an additional \$17.5 million in restructuring charges related to inventory impairments, severance, and fixed asset write-offs.

Results of Operations

The following table presents results of operations data as a percentage of net sales for the years ended March 31, 2018, April 1, 2017 and April 2, 2016:

	2018	2017	2016
Net sales:	100.0 %	100.0 %	100.0 %
Cost of sales:	56.3	61.8	60.6
Gross profit	43.7	38.2	39.4
Selling, general and administration	12.6	33.0	27.1
Research, development and engineering	9.4	19.7	17.6
Restructuring costs	1.1	4.3	1.5
Impairment of goodwill	—	4.6	—
Operating income (loss)	20.6	(23.4)	(6.8)
Interest and other income, net	—	0.2	0.1
Income (loss) before income taxes	20.6	(23.2)	(6.7)
(Benefit from) provision for income taxes	(11.0)	0.1	0.1
Net income (loss)	31.6 %	(23.2)%	(6.6)%

Fiscal Year Ended March 31, 2018 Compared to Fiscal Year Ended April 1, 2017

Net Sales

The following table presents net sales information by the four major product categories addressed by the Company's single segment:

(In thousands, except percentages)	2018		2017	
	Net Sales	% of Net Sales	Net Sales	% of Net Sales
Printed Circuit Board	\$ 256,430	69.7%	\$ 88,771	55.1%
Component Test	32,790	8.9	22,381	13.9
Semiconductor	55,171	15.0	29,557	18.4
Industrial Machining	23,493	6.4	20,314	12.6
Net Sales	\$ 367,884	100.0%	\$ 161,023	100.0%

Net sales for 2018 increased \$206.9 million, or 128.5%, over net sales in 2017.

PCB sales for 2018 increased \$167.7 million, or 188.9%, compared to 2017. This was primarily driven by increases in flex via drilling system sales that benefited from new applications, technologies, materials and higher flex circuit content in select high-end consumer electronics products.

Sales of products into the component test markets for 2018 increased \$10.4 million, or 46.5%, compared to 2017, primarily driven by increased demand throughout the year due to stronger capacity buying to serve the consumer electronics and automotive markets.

Sales of products serving semiconductor applications for 2018 increased \$25.6 million, or 86.7%, compared to 2017. This increase was broad-based, as revenue increased in our wafer mark, wafer trim, circuit trim, and legacy memory repair product categories. Service revenue serving the semiconductor applications also increased. Lastly, sales of the Ultrus™ wafer scribing tool also generated incremental revenue over 2017.

Sales of products into industrial machining (IM) applications for 2018 increased \$3.2 million, or 15.6%, compared to 2017. This was primarily due to higher sales of our Gamet™ micromachining system.

The following table presents net sales information by geographic region:

(In thousands, except percentages)	2018		2017	
	Net Sales	% of Net Sales	Net Sales	% of Net Sales
Asia	\$ 332,499	90.4%	\$ 134,394	83.5%
Americas	19,241	5.2	16,378	10.2
Europe	16,144	4.4	10,251	6.4
Net Sales	\$ 367,884	100.0%	\$ 161,023	100.0%

In 2018, net sales to Asia increased by \$198.1 million compared to 2017 due to higher demand across our product portfolio, principally flex via drilling. The highest growth rate within Asia was seen in Korea, followed by Taiwan.

Net sales to Americas increased by \$2.9 million over 2017, primarily due to higher sales into semiconductor applications, including incremental sales of the Ultrus™ wafer scribing system.

Europe sales increased by \$5.9 million compared to 2017, primarily due to increased revenue from semiconductor applications, including trim and legacy memory repair.

Gross Profit

(In thousands, except percentages)	2018		2017	
	Gross Profit	% of Sales	Gross Profit	% of Sales
Gross Profit	\$ 160,830	43.7%	\$ 61,466	38.2%

Gross profit was \$160.8 million in 2018 compared to \$61.5 million in 2017. Overall gross profit increased primarily due to higher net sales and production volumes, as well as a 2.3 million reduction in intangible impairment charges. These were partially offset by the impact of 10.9 million in increased inventory and other asset write-offs in 2018, as compared to 2017.

Gross margin increased to 43.7% in 2018 compared to 38.2% in 2017. The increase in gross margin was primarily due to favorable absorption of fixed costs due to higher production volume, partially offset by higher impairment charges related to restructuring activities.

Operating Expenses

(In thousands, except percentages)	2018		2017	
	Expense	% of Net Sales	Expense	% of Net Sales
Selling, general and administration	\$ 46,624	12.6%	\$ 52,698	33.0%
Research, development and engineering	34,411	9.4	31,719	19.7
Impairment of goodwill	—	—	7,445	4.6
Restructuring costs	3,935	1.1	6,935	4.3
Acquisition and integration costs	—	—	366	0.2
Operating expenses	\$ 84,970	23.1%	\$ 99,163	61.6%

Selling, general and administration

Selling, general and administration (SG&A) expenses primarily consist of labor and other employee-related expenses, including share-based compensation expense, travel expenses, professional fees, sales commissions and facilities costs. SG&A expenses for 2018 decreased by \$6.1 million or 11.5% compared to 2017. The decrease is comprised primarily of a \$3.3 million decrease in net labor expenses due to lower headcount and approximately \$2.0 million of lower facilities-related expenses due to site closures. These decreases were partially offset by higher variable expenses associated with higher sales volume.

Research, Development and Engineering

Research, development and engineering (RD&E) expenses are primarily comprised of labor and other employee-related expenses, professional fees, project materials, equipment and facilities costs. RD&E expenses for 2018 increased \$2.7 million compared to 2017. This increase was primarily driven by higher variable labor costs related to improved financial performance.

Impairment of goodwill

The annual review of goodwill for 2018 was performed with no impairment indicated.

In 2017, all of the goodwill related to the Topwin reporting unit was determined to be impaired. The impairment of goodwill was driven primarily by historical and projected financial performance lower than expectations and results of comparable companies, indicating a decline in value of the reporting unit. The value of the reporting unit was further negatively impacted by the re-evaluation of our product portfolio in connection with the 2017 restructuring plan. This review resulted in the Company prioritizing away from some of the lower-cost systems that we planned for manufacturing at Topwin.

Restructuring Costs

2018

In the fourth quarter of 2017, we initiated a restructuring plan to improve business effectiveness, streamline operations and achieve a stated target cost level for the Company as a whole. Restructuring costs included in operating expenses for 2018 were \$3.9 million primarily consisting of \$1.7 million of fixed asset write-offs, \$1.3 million of severance and related benefits charges and \$0.6 million of facility lease obligations. See Note 22: Restructuring and Cost Management Plans for further discussion.

2017

Restructuring costs of \$6.9 million incurred in 2017 consisted of \$6.3 million in charges for the 2017 restructuring event described above and \$0.6 million related to previously announced plans for Chelmsford and Beijing site closures. The changes in workforce upon implementing the new functional organization structure resulted in \$3.7 million of employee severance and related benefits. Our product-related decisions in the fourth quarter of 2017 and execution of site closures resulted in \$1.4 million in asset write-offs and \$0.9 million of expense related to lease obligations. See Note 22: Restructuring and Cost Management Plans for further discussion.

Non-operating Income, net

(In thousands, except percentages)	2018		2017	
	Interest and Other Income, net	% of Net Sales	Interest and Other Income, net	% of Net Sales
Interest and other income, net	\$ 93	—%	\$ 265	0.2%
Total non-operating income	\$ 93	—%	\$ 265	0.2%

Interest and Other Income, net

Interest and other income, net, consists of interest income and expense, market gains and losses on assets held in employees' deferred compensation accounts, realized and unrealized foreign exchange gains and losses, bank charges, investment management fees, and other miscellaneous non-operating items. Interest and other income, net, was \$0.1 million in 2018 compared to \$0.3 million in 2017. The 2018 amounts primarily consisted of \$1.2 million of interest income and \$0.9 million of gain on sale of assets. 2018 expense primarily consisted of \$0.8 million of interest paid on our facility mortgage, a \$0.7 million customs tax assessment, and \$0.4 million of foreign exchange losses. The 2017 amounts primarily consisted of \$0.4 million of interest income partially offset by \$0.1 million of interest expense and other charges.

Income Taxes

(In thousands, except percentages)	2018		2017	
	Income Tax Benefit	Effective Tax Rate	Income Tax Benefit	Effective Tax Rate
Benefit from income taxes	\$ (40,270)	(53.0)%	\$ (23)	0.1%

On December 22, 2017, the United States enacted tax reform legislation through the Tax Cuts and Jobs Act (the Tax Act). Impacts of the new tax legislation on our financial statements included the reduction of the corporate tax rate from 35% to 21% - decreasing the Company's overall deferred tax assets and reduced the overall valuation allowance, the recognition of a \$935 thousand discrete benefit related to the Alternative Minimum Tax (AMT) credits becoming refundable and the associated release of the valuation allowance against those credits, and a one-time transition tax on the deemed repatriation of post-1986 undistributed foreign subsidiaries' earnings. The taxable income arising from this deemed repatriation was fully offset by the utilization of net operating loss carryforwards and other tax credits resulting in no net impact to tax expense.

The income tax benefit for 2018 was \$40.3 million on pretax income of \$76.0 million, an effective tax rate of (53.0)%. For 2017, the income tax benefit was \$23 thousand on a pretax loss of \$37.4 million resulting in an effective rate of 0.1%. The primary factors leading to the increase in tax benefit relative to 2017 was the release of the valuation allowance generating a tax benefit of \$42.3 million, partially offset by an increase in foreign profits, resulting in a total tax benefit of \$40.3 million. Going forward we expect the effective tax rate to be around 15%, with the reduction from the statutory rate primarily resulting from beneficial rates on foreign-derived intangible income, the Singapore tax incentive program, and the impact of ongoing RD&E activities resulting in research and development tax credits. The actual effective tax rate may differ from these expectations due to multiple unforeseen circumstances, including but not limited to ongoing rule-making and interpretations related to the Tax Act.

Fiscal Year Ended April 1, 2017 Compared to Fiscal Year Ended April 2, 2016

Net Sales

In the fourth quarter of 2017, the Company transitioned from a multiple reportable segment structure to a single reportable segment. The following table presents net sales information by the four major product categories addressed by the Company's single segment:

(In thousands, except percentages)	2017		2016	
	Net Sales	% of Net Sales	Net Sales	% of Net Sales
Printed Circuit Board	\$ 88,771	55.1%	\$ 94,121	51.0%
Component Test	22,381	13.9	19,901	10.8
Semiconductor	29,557	18.4	38,262	20.8
Industrial Machining	20,314	12.6	32,107	17.4
Net Sales	\$ 161,023	100.0%	\$ 184,391	100.0%

Net sales for 2017 decreased \$23.4 million or 12.7% from net sales for 2016.

PCB sales for 2017 decreased \$5.4 million or 5.7% compared to 2016. This was primarily driven by decreases in flex via drilling system sales impacted by seasonality in the first half of the year and lower service sales.

Sales of products into the component test markets for 2017 increased \$2.5 million or 12.5% compared to 2016, primarily driven by increased demand in the second half of the year due to stronger consumer electronics capacity buying.

Sales of products into semiconductor applications for 2017 decreased \$8.7 million or 22.8% compared to 2016. This decrease was primarily driven by lower sales of legacy memory repair systems in 2017 compared to relatively strong demand in 2016 and a related decrease in service and laser spare sales, partially offset by increased laser sales into the LCD repair market.

Sales of products into industrial machining (IM) applications for 2017 decreased \$11.8 million or 36.7% compared to 2016. This was primarily due to a \$15 million decrease in sales of micromachining systems due to the project oriented nature of these markets and recent design wins have been modest in size compared to some sizable design wins in 2016. This decrease was partially offset by incremental system sales related to our Visicon acquisition and increased sales of lasers used in industrial machining applications.

The following table presents net sales information by geographic region:

(In thousands, except percentages)	2017		2016	
	Net Sales	% of Net Sales	Net Sales	% of Net Sales
Asia	\$ 134,394	83.5%	\$ 152,259	82.6%
Americas	16,378	10.2	21,206	11.5
Europe	10,251	6.4	10,926	5.9
Net Sales	\$ 161,023	100.0%	\$ 184,391	100.0%

In 2017, net sales to Asia decreased by \$17.9 million compared to 2016 primarily due to lower industrial machining system sales and lower service sales. These were partially offset by an increase in MLCC test systems and flex via drilling sales into China and Southeast Asia.

Net sales to Americas decreased by \$4.8 million primarily due to lower flex via drilling sales compared to 2016.

Europe sales remained flat, with semiconductor, flex via drilling and service as the major sources of sales.

Gross Profit

(In thousands, except percentages)	2017		2016	
	Gross Profit	% of Sales	Gross Profit	% of Sales
Gross Profit	\$ 61,466	38.2%	\$ 72,703	39.4%

Gross profit was \$61.5 million in 2017 compared to \$72.7 million in 2016. Overall gross profit decreased primarily due to lower net sales and production volumes, and higher inventory write-off and intangible impairment charges.

Gross margin decreased to 38.2% in 2017 compared to 39.4% in 2016. The decrease in gross margin was primarily due to unfavorable absorption of fixed costs due to lower production volume and impairments of inventory and intangibles associated with Topwin. These decreases were partially offset by favorable mix with a higher proportion of relatively higher margin legacy memory repair products in 2016 and lower warranty costs.

Operating Expenses

(In thousands, except percentages)	2017		2016	
	Expense	% of Net Sales	Expense	% of Net Sales
Selling, general and administration	\$ 52,698	33.0%	\$ 49,753	27.1%
Research, development and engineering	31,719	19.7	32,400	17.6
Impairment of goodwill	7,445	4.6	—	—
Restructuring costs	6,935	4.3	2,824	1.5
Acquisition and integration costs	366	0.2	194	0.1
Operating expenses	\$ 99,163	61.6%	\$ 85,171	46.2%

Selling, general and administration

Selling, general and administration (SG&A) expenses primarily consist of labor and other employee-related expenses including share-based compensation expense, travel expenses, professional fees, sales commissions and facilities costs. SG&A expenses for 2017 increased \$2.9 million compared to 2016. This increase is comprised primarily of a \$2.2 million increase in share based compensation expense and approximately \$2.0 million increase in labor costs due to operating expenses related to the Visicon acquisition. The increase in share-based compensation expense was primarily due to higher overall grants in 2017, primarily relating to the CEO transition and changes in the executive team, compounded by higher grant date fair value in 2017 compared to 2016. These increases were partially offset by a \$1.2 million decrease in consulting and travel expenses stemming from tighter management of discretionary spending.

Research, Development and Engineering

Research, development and engineering (RD&E) expenses are primarily comprised of labor and other employee-related expenses, professional fees, project materials, equipment and facilities costs. RD&E expenses for 2017 decreased \$0.7 million compared to 2016. This decrease was primarily driven by a \$1.2 million decrease in product material spending and consulting costs, as some of the new product platforms moved to production in 2017. Offsetting these decreases was a \$0.4 million increase in labor and related costs due to the Visicon acquisition.

Impairment of goodwill

In 2017 all of the goodwill related to the Topwin reporting unit was determined to be impaired. The impairment of goodwill was driven primarily by historical and projected financial performance lower than expectations and results of comparable companies, indicating a decline in value of the reporting unit. The value of the reporting unit was further negatively impacted by the re-evaluation of our product portfolio in connection with recently announced restructuring plans. This review resulted in the Company prioritizing away from some of the lower-cost systems that we planned for manufacturing at Topwin.

Restructuring Costs

2017

In the fourth quarter of 2017, we initiated a restructuring plan to improve business effectiveness and streamline operations and to achieve a stated target profit level for the Company as a whole. As a part of the restructuring plan, the management team has been reorganized from a business unit to a functional structure; we closed facilities in Montreal, Canada; Napa, California; and Sunnyvale, California; we discontinued certain products; and we made select reductions in headcount across the Company. Actions under this plan are largely completed.

Restructuring costs of \$6.9 million incurred in 2017 consisted of \$6.3 million in charges for the restructuring event described above and \$0.6 million related to previously announced plans for Chelmsford and Beijing site closures. The changes in workforce upon implementing the new functional organization structure resulted in \$3.7 million of employee severance and related benefits. Our product-related decisions in the fourth quarter of 2017 and execution of site closures resulted in \$1.4 million in asset write-offs and \$0.9 million of expense related to lease obligations. See Note 22: Restructuring and Cost Management Plans for further discussion.

2016

Restructuring costs for 2016 were \$2.8 million, primarily related to the Chelmsford facility closure. In 2015, as a part of our plan to streamline manufacturing and development activities, the Company initiated a restructuring plan to close our assembly plant and development center located in Chelmsford, Massachusetts. Restructuring costs incurred in 2016 primarily related to \$1.7 million of employee severance and related benefits, and \$1.1 million of charges related to asset write-offs and net remaining lease obligations due to the closure of the Chelmsford, Massachusetts manufacturing plant in the third quarter of 2016. Accrued expenses related to the lease obligations will be carried until the end of the lease term in December 2019.

Non-operating Income, net

(In thousands, except percentages)	2017		2016	
	Interest and Other Income, net	% of Net Sales	Interest and Other Income, net	% of Net Sales
Interest and other income, net	\$ 265	0.2%	\$ 195	0.1%
Total non-operating income	\$ 265	0.2%	\$ 195	0.1%

Interest and Other Income, net

Interest and other income, net, consists of interest income and expense, market gains and losses on assets held in employees' deferred compensation accounts, realized and unrealized foreign exchange gains and losses, bank charges, investment management fees, and other miscellaneous non-operating items. Interest and other income, net, was \$0.3 million in 2017 compared to \$0.2 million in 2016. This change was primarily attributable to a \$0.2 million increase from settlement of Topwin acquisition escrow in 2017.

Income Taxes

(In thousands, except percentages)	2017		2016	
	Income Tax Benefit	Effective Tax Rate	Income Tax Benefit	Effective Tax Rate
(Benefit from) Provision for income taxes	\$ (23)	0.1%	\$ (16)	0.1%

The benefit from income taxes for 2017 was \$23 thousand on a pretax loss of \$37.4 million, an effective tax rate of 0.1%. For 2016, the benefit from income taxes was \$16 thousand on a pretax loss of \$12.3 million, an effective rate of 0.1%. The provision for income taxes is lower than the statutory rate primarily due to pre-tax losses and the valuation allowance currently maintained against net deferred tax assets. The majority of the income tax paid relates to foreign jurisdictions offset by recognition of previously unrecognized tax benefits due to expiration of status of limitation and finalization of tax examinations in 2017. Our effective tax rate is subject to fluctuation based upon the mix of income and relative tax rates between jurisdictions, and the occurrence and timing of numerous discrete events such as changes in tax laws or their interpretations, extensions or expirations of research and experimentation credits, closure of tax years subject to examination, finalization of income tax returns, the relationship of fixed deductions to overall changes in estimated and actual pretax income or loss and the tax jurisdictions where income or loss is generated.

Financial Condition and Liquidity

At March 31, 2018, our principal sources of liquidity were cash and cash equivalents of \$76.8 million, short-term investments of \$47.1 million, current accounts receivable of approximately \$63.0 million and up to \$30.0 million from our credit facility (see Note 16: Revolving Credit Facility), for a total of \$217.0 million, as compared to \$132.9 million at April 1, 2017. Principal sources of liquidity at April 1, 2017 consisted of cash and cash equivalents of \$56.6 million, short-term investments of \$5.7 million and accounts receivable of approximately \$40.5 million, in addition to amounts available under our credit facility.

At March 31, 2018, we had a current ratio of 3.49 with long-term debt outstanding of \$12.8 million (see Note 15: Long-term Debt). Working capital of \$203.2 million increased \$87.6 million compared to the April 1, 2017 balance of \$115.6 million. Working capital as of April 2, 2016 was \$126.7 million. Increase in working capital was primarily due to improved business levels that drove income and increased our cash, cash equivalents, and investments position.

For the year ended March 31, 2018, net cash used in investing activities was \$47.4 million, primarily due to \$40.4 million of net purchases of short-term investments. The Company expects to incur, in the next two years, approximately \$6.0 million in capital expenditures related to an upgrade of our enterprise resource planning software. For the year ended March 31, 2018, net cash used in financing activities was \$1.1 million related primarily to payments of withholding taxes, net of issuances on employee stock plans.

The Company has a loan agreement with First Technology Federal Credit Union that provides for a ten-year term loan with a principal amount of \$14 million and with an interest rate fixed at 4.75% per annum, which will come due January 1, 2027. The Company is required to maintain certain deposits with the Lender through March 31, 2019, at which point the restriction will be removed as long as the Company is in compliance with certain minimum covenants. At March 31, 2018, restricted cash associated with this requirement was \$1.1 million. See Note 15: Long-term Debt for further information.

The Company is also party to a loan and security agreement (Credit Facility) with Silicon Valley Bank (SVB) that provides for a senior secured asset-based revolving facility with availability up to \$30 million, including a \$15 million sublimit for letters of credit. The Credit Facility expires March 20, 2019. If we fail to meet the covenants in our credit facility or our lenders fail to fund, access to the facility may be limited or the facility may become unavailable altogether. At March 31, 2018, the Company had no amounts outstanding under the Credit Facility, was in compliance with all covenants, and was not in default under the Credit Facility. See Note 16: Revolving Credit Facility for further information.

We believe that our existing cash, cash equivalents, short-term investments and our available credit facility are adequate to fund our operations, contractual and debt obligations for at least the next 12 months.

Unrecognized tax benefits due to the uncertainty with respect to the timing of future cash flows were \$14.3 million as of March 31, 2018. We are unable to make reasonably reliable estimates of the period of cash settlement with the respective taxing authorities and the total amounts of income tax payable and the timing of such tax payments may depend on the resolution of current and future tax examinations which cannot be reasonably estimated.

Contractual Obligations

The table below presents our estimates of future payments for contractual obligations. The actual payments may differ from these estimates due to changes in our business needs, cancellation provisions, and other factors. We cannot provide certainty regarding the timing of the payment schedule or the amounts of payments.

The following table summarizes our contractual obligations as of March 31, 2018, by the fiscal year in which they are due:

(In thousands)	Total	2019	2020	2021	2022	2023	Thereafter
Purchase commitments	\$ 84,250	\$ 76,354	\$ 7,468	\$ 428	\$ —	\$ —	\$ —
Operating leases	7,783	2,504	2,080	1,513	902	199	585
Debt payments (interest and principal)	20,440	1,086	1,086	1,086	1,086	1,086	15,010
	<u>\$ 112,473</u>	<u>\$ 79,944</u>	<u>\$ 10,634</u>	<u>\$ 3,027</u>	<u>\$ 1,988</u>	<u>\$ 1,285</u>	<u>\$ 15,595</u>

Critical Accounting Policies and Estimates

The preparation of our financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses. Our estimates are based on historical experience and on various assumptions that we believe to be reasonable under the circumstances. These estimates form the basis for judgments about the carrying values of assets and liabilities that are not readily apparent from other sources.

Our critical accounting policies and estimates include the following:

- Revenue recognition;
- Inventory valuation;
- Share-based compensation;
- Income taxes including the valuation of deferred tax assets; and
- Valuation of long-lived assets.

Revenue Recognition

We recognize revenue when persuasive evidence of an arrangement exists, delivery has occurred or the services have been rendered, the sales price is fixed or determinable and collection of the related receivable is reasonably assured. Title and risk of loss generally pass to the customer at the time of delivery of the product to a common carrier. Revenue is recognized upon such delivery, provided that fulfillment of acceptance criteria can be demonstrated prior to shipment. Where the acceptance criteria cannot be demonstrated prior to shipment, or in the case of substantially new products, revenue is deferred until acceptance has been received. This assessment is based, in part, upon the track record of acceptance for our products, and this track record could be impacted by configuration or reliability changes. To the extent a track record of acceptance is not deemed to exist, the timing of revenue recognition could be impacted. For multiple element arrangements, the relative fair values of any undelivered elements are deferred until the elements are delivered and acceptance criteria are met. Revenues are recorded net of taxes collected which are required to be submitted to government authorities. Installation services are not essential to the functionality of the delivered equipment and installation revenue is deferred until installation is complete. Historically, neither the costs of installation accrued nor the fair value of installation service revenue deferred has been material.

Revenues associated with sales to customers under local contracts in Japan are recognized upon title transfer, which generally occurs upon customer acceptance. Revenues related to spare parts and consumable sales are generally recognized upon shipment. Revenues related to maintenance and service contracts are generally recognized ratably over the duration of the contracts.

Beginning in the first quarter of 2019, the Company will adopt Accounting Standards Update (ASU) 2014-09, *Revenue from Contracts with Customers: Topic 606 (ASU 2014-09)*, which supersedes nearly all existing revenue recognition guidance under U.S. Generally Accepted Accounting Principles (GAAP). Our policies for revenue recognition will be modified concurrent with that adoption, in compliance with the new standard. While we do expect changes to policies, we do not expect the new standard to have a material impact on the amount or timing of revenues related to system sales or service contracts, the Company's primary revenue streams.

Inventory Valuation

We regularly evaluate the carrying value of inventory based on a combination of factors including, but not limited to, the following: product maturity, forecasted sales or usage, historical usage rates, estimated service period, product end-of-life dates, estimated current and future market values, service inventory requirements and new product introductions. Finished goods are carried at the lower of cost or net realizable value. Purchasing requirements and alternative uses for the inventory are explored within these processes to mitigate inventory exposure. Inventory materials with quantities in excess of forecasted usage are reviewed quarterly for obsolescence. Obsolescence write-downs are typically caused by strategic decisions to exit or alter product lines, engineering change orders or product life cycle changes. If circumstances related to our inventories change, our estimates of the value of inventory could materially change.

Research and development product costs are generally expensed as incurred. Engineering materials that are expected to be sold to a customer for value are generally classified as raw materials inventory.

Share-Based Compensation

Our share-based compensation consists of stock-settled stock appreciation rights (SARs), stock options, restricted stock unit awards with a service condition (time-based RSUs), restricted stock unit awards with a performance condition (performance-based RSUs), restricted stock unit awards with a market performance condition (market-based RSUs) and an employee stock purchase plan.

The fair value of SARs and stock issued under the employee stock purchase plan is determined using the Black-Scholes model to estimate the fair value of awards on the date of grant. SARs grant the right to receive shares of the Company's stock equivalent to the increase in stock value of a specified number of shares over a specified period of time, divided by the stock price at the time of exercise. The fair value of time-based RSUs and performance-based RSUs are measured on the grant date based on the market value of the Company's common stock. The market-based RSUs must achieve the total shareholder return (TSR) measures in order for the awards to vest, and the grant date fair value of the awards is calculated using a Monte Carlo simulation model.

The use of the Black-Scholes and Monte Carlo simulation models to estimate the fair value of stock option, SAR and market-based RSU awards requires us to make assumptions regarding the risk-free interest rate, expected dividend yield, expected term and expected volatility over the expected term of the award. The assumptions used in calculating the fair value of share-based payment awards represent management's best estimates based on our historical data, but these estimates involve inherent uncertainties and the recognition of expense could be materially different in the future.

Except performance-based RSUs, we recognize compensation expense for all share-based compensation awards, net of estimated forfeitures, on a straight-line basis over the requisite service period of the award. Expense for performance-based RSUs is recognized based on the probability of achievement of the performance criteria as of the reporting date. Depending on the measures used in the performance award, the determination of achievement may be judgmental and could change from period to period depending on the assessment of probability of achievement, impacting the recognition of expense. The compensation cost for market-based RSUs is recognized over the related service period, even if the market condition is never satisfied. Compensation expense is only recognized on awards that are estimated to ultimately vest. Therefore, based on historical forfeiture rates and patterns, the estimated future forfeitures are factored into the compensation expense to be recognized over the vesting period. We update our forfeiture estimates at least annually and recognize any changes to accumulated compensation expense in the period of change. If actual forfeitures differ significantly from our estimates, our results of operations could be materially impacted.

Income Taxes

We are subject to income taxes in the United States and in numerous foreign jurisdictions and, in the ordinary course of business, there are transactions and calculations where the ultimate tax determination is uncertain. We report a liability for unrecognized tax benefits resulting from uncertain tax positions taken or expected to be taken in a tax return. We recognize interest and penalties, if any, related to the unrecognized tax benefits in income tax expense.

When management determines that it is more likely than not that a deferred tax asset will not be fully realized, a valuation allowance is established to reduce deferred tax assets to the amount expected to be realized. Historically we had valuation allowances in place against specific deferred tax assets that we did not expect to utilize based on a history of cumulative losses in certain jurisdictions and the potential expiration of certain federal and state tax attributes. The decision to establish a valuation allowance generally entails judgments regarding future taxable income and, to the extent the actual experience differs from those estimations, tax expense and the value of net deferred items may be significantly impacted. In the fourth quarter of 2018, we generated \$75.1 million of net income, which resulted in three years of cumulative income. This, combined with our backlog position at March 31, 2018 and our expected ability to utilize certain deferred tax assets and credits prior to their expiration, provides sufficient positive evidence to release \$42.3 million of our valuation allowance as of March 31, 2018. The valuation allowance against our net deferred tax assets and attributes was \$18.5 million and \$103.3 million at March 31, 2018 and April 1, 2017, respectively.

Valuation of Long-Lived Assets, Excluding Goodwill

The assumptions and estimates used to determine fair value and remaining useful lives of our intangible and other long-lived assets are complex and subjective. They can be affected by various factors, including external factors such as industry and economic trends, and internal factors such as changes in our business strategy, factory utilization and forecasts for specific product lines.

Identified Intangible Assets, Excluding Goodwill

We assess the recoverability of purchased finite-lived intangible assets whenever events or changes in circumstances indicate that an impairment may exist. Recoverability of finite-lived intangible assets is measured by comparing the carrying amount of the asset to the future undiscounted cash flows that the asset is expected to generate. If we determine that an individual asset is impaired, the amount of any impairment is measured as the difference between the carrying value and the fair value of the impaired asset. This determination is sensitive to multiple assumptions, and to the extent actual results vary from our estimates, the value of recorded assets may be negatively impacted.

Property, Plant and Equipment & Other Noncurrent Finite-Lived Assets

Property, plant and equipment and other non-current assets with finite lives are reviewed for impairment whenever events or circumstances indicate that the carrying amount of assets may not be recoverable. We evaluate recoverability of assets to be held and used by comparing the carrying amount of an asset to estimated future net undiscounted cash flows to be generated by the asset, which is a significant estimate. If this test indicates the asset may be impaired, the fair value is determined and an impairment is recognized in the amount by which the carrying amount of the assets exceeds the fair value.

Item 7A. Quantitative and Qualitative Disclosures about Market Risk

The primary objectives of our investment activities are to preserve principal and maintain liquidity to meet operating needs. To achieve these objectives, we maintain an investment portfolio of cash, cash equivalents, and investments in a variety of securities, including commercial paper, corporate bonds and U.S. government agency notes.

Interest Rate Risk

Our investment securities are subject to interest rate risk and will decline in value if interest rates increase. The majority of these securities are classified as available-for-sale securities; therefore, the impact on fair value of interest rate changes is reflected as a separate component of shareholders' equity. Due to the short-term maturity of our investment portfolio, an immediate 10% change in interest rates would not have a material effect on the fair value of our invested assets.

Investment Risk

Our marketable securities are classified as available-for-sale securities measured at fair value. The market value of our investments is influenced by market risks, liquidity risk and the credit worthiness of underlying issuers of our investments. We strive to minimize the investment risk by investing in high quality securities and by utilizing experienced and high credit quality financial institutions to manage the investment portfolio.

Foreign Currency Exchange Rate Risk

The Company's net investment exposure in foreign subsidiaries, translated into U.S. dollars using the period-end exchange rates at March 31, 2018 and April 1, 2017, was approximately \$61.4 million and \$56.4 million, respectively. The potential loss in fair value resulting from a hypothetical 10% adverse change in foreign exchange rates would be approximately \$6.1 million and \$5.6 million at March 31, 2018 and April 1, 2017, respectively. Foreign exchange rate gains or losses on foreign investments as of March 31, 2018 were reflected as a cumulative translation adjustment, net of tax, and do not affect the Company's results of operations. The table below summarizes our net investments by geographic area:

(In thousands)	Bought (Sold)	
	2018	2017
Asia	\$ 58,517	\$ 55,500
Europe	7,932	6,133
Americas (excluding United States)	(5,024)	(5,256)
	<u>\$ 61,425</u>	<u>\$ 56,377</u>

We purchase derivative financial instruments on a limited basis and do not use them for trading purposes. We do, however, use derivatives to manage well-defined foreign currency risks. We enter into forward exchange contracts to hedge the value of material non-functional currency monetary asset and liability balances. In general, these contracts have a duration of approximately one month and the counterparties are large, highly rated banks; therefore, the Company believes that the risk of loss as a result of nonperformance by the banks is minimal. The net effect of an immediate 10% change in exchange rates on the forward exchange contracts and the underlying hedged positions would not be material to our financial position or the results of our operations.

The table below summarizes, by currency, the notional amounts of our forward exchange contracts in U.S. dollars as of March 31, 2018 and April 1, 2017. The "bought" amounts represent the net U.S. dollar equivalents of commitments to purchase foreign currencies, and the "sold" amounts represent the net U.S. dollar equivalents of commitments to sell foreign currencies. The foreign currency amounts have been translated into a U.S. dollar equivalent value using the exchange rates at the reporting date.

(In thousands)	Bought (Sold)	
	2018	2017
Japanese Yen	\$ 5,456	\$ 1,352
Euro	6,613	7,568
New Taiwan Dollar	(1,546)	(686)
Korean Won	(218)	32
British Pound	(3,031)	(1,992)
Chinese Renminbi	2,665	995
Singapore Dollar	659	74
	<u>\$ 10,598</u>	<u>\$ 7,343</u>

Item 8. Financial Statements and Supplementary Data

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Shareholders and the Board of Directors of Electro Scientific Industries, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Electro Scientific Industries, Inc. and subsidiaries (the "Company") as of March 31, 2018 and April 1, 2017, the related consolidated statements of operations, comprehensive income (loss), shareholders' equity, and cash flows, for each of the three years in the period ended March 31, 2018, and the related notes (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 March 31, 2018 and April 1, 2017, and the results of its operations and its cash flows for each of the three years in the period ended March 31, 2018, in conformity with accounting principles generally accepted in the United States of America.

We have also 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 March 31, 2018, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated June 8, 2018, expressed an unqualified opinion on the Company's internal control over financial reporting.

Basis for Opinion

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

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

/s/ Deloitte & Touche LLP

Portland, Oregon
June 8, 2018

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

ELECTRO SCIENTIFIC INDUSTRIES, INC. AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS
As of March 31, 2018 and April 1, 2017

(In thousands)	2018	2017
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 76,792	\$ 56,642
Short-term investments	47,121	5,743
Trade receivables, net of allowances of \$832 and \$603	63,044	40,494
Inventories, net	87,686	58,942
Shipped systems pending acceptance	4,734	5,713
Other current assets	5,493	6,180
Total current assets	284,870	173,714
Non-current assets:		
Property, plant and equipment (PP&E), net of accumulated depreciation of \$83,159 and \$112,075	22,025	21,619
Deferred income taxes, net	43,518	890
Goodwill	2,626	3,027
Acquired intangible assets, net of accumulated amortization of \$22,766 and \$21,994	5,169	6,564
Other assets	14,780	18,931
Total assets	\$ 372,988	\$ 224,745
LIABILITIES AND SHAREHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	\$ 37,354	\$ 21,213
Accrued liabilities	34,533	22,186
Deferred revenue	9,818	14,712
Total current liabilities	81,705	58,111
Non-current liabilities:		
Long-term debt	12,766	13,489
Income taxes payable	1,901	1,036
Other liabilities	10,258	7,578
Total liabilities	106,630	80,214
Commitments and contingencies (Note 17)		
Shareholders' equity:		
Preferred stock, without par value; 1,000 shares authorized; no shares issued	—	—
Common stock, without par value; 100,000 shares authorized; 34,387 and 33,260 issued and outstanding	210,995	207,152
Retained earnings (accumulated deficit)	54,816	(61,407)
Accumulated other comprehensive income (loss)	547	(1,214)
Total shareholders' equity	266,358	144,531
Total liabilities and shareholders' equity	\$ 372,988	\$ 224,745

See Accompanying Notes to Consolidated Financial Statements

ELECTRO SCIENTIFIC INDUSTRIES, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF OPERATIONS
For the years ended March 31, 2018, April 1, 2017 and April 2, 2016

(In thousands, except per share amounts)	2018	2017	2016
Net sales:			
Systems	\$ 325,349	\$ 125,098	\$ 142,957
Services	42,535	35,925	41,434
Total net sales	367,884	161,023	184,391
Cost of sales:			
Systems	185,354	81,350	89,169
Services	21,700	18,207	22,519
Total cost of sales	207,054	99,557	111,688
Gross profit	160,830	61,466	72,703
Operating expenses:			
Selling, general and administration	46,624	52,698	49,753
Research, development and engineering	34,411	31,719	32,400
Restructuring costs	3,935	6,935	2,824
Acquisition and integration costs	—	366	194
Impairment of goodwill	—	7,445	—
Net operating expenses	84,970	99,163	85,171
Operating income (loss)	75,860	(37,697)	(12,468)
Non-operating income:			
Interest and other income, net	93	265	195
Total non-operating income	93	265	195
Income (loss) before income taxes	75,953	(37,432)	(12,273)
Benefit from income taxes	(40,270)	(23)	(16)
Net income (loss)	\$ 116,223	\$ (37,409)	\$ (12,257)
Net income (loss) per share—basic	\$ 3.42	\$ (1.15)	\$ (0.39)
Net income (loss) per share—diluted	\$ 3.27	\$ (1.15)	\$ (0.39)
Weighted average number of shares—basic	33,967	32,551	31,411
Weighted average number of shares—diluted	35,571	32,551	31,411

See Accompanying Notes to Consolidated Financial Statements

ELECTRO SCIENTIFIC INDUSTRIES, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)
For the years ended March 31, 2018, April 1, 2017 and April 2, 2016

(In thousands)	2018	2017	2016
Net income (loss)	\$ 116,223	\$ (37,409)	\$ (12,257)
Other comprehensive income (loss):			
Foreign currency translation adjustment, net of taxes of \$339, \$0 and \$0	1,832	(348)	(922)
Accumulated other comprehensive income (loss) related to benefit plan obligation, net of taxes of \$58, (\$74) and (\$21)	(61)	135	(4)
Net unrealized (loss) gain on available-for-sale securities, net of taxes of \$25, \$0 and \$1	(10)	(6)	3
Other comprehensive income (loss)	1,761	(219)	(923)
Comprehensive income (loss)	<u>\$ 117,984</u>	<u>\$ (37,628)</u>	<u>\$ (13,180)</u>

See Accompanying Notes to Consolidated Financial Statements

ELECTRO SCIENTIFIC INDUSTRIES, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF SHAREHOLDERS' EQUITY
For the years ended March 31, 2018, April 1, 2017 and April 2, 2016

(In thousands)	Common Stock		Retained Earnings (Accumulated Deficit)	Accumulated Other Comprehensive Income (Loss)	Total Shareholders' Equity
	Shares	Amount			
Balance at March 28, 2015	30,704	\$ 189,134	\$ (11,741)	\$ (72)	\$ 177,321
Employee stock plans	909	5,827	—	—	5,827
Business acquisition (Note 26)	—	63	—	—	63
Net loss	—	—	(12,257)	—	(12,257)
Other comprehensive loss	—	—	—	(923)	(923)
Balance at April 2, 2016	31,613	195,024	(23,998)	(995)	170,031
Employee stock plans	1,647	7,652	—	—	7,652
Business acquisition (Note 26)	—	4,476	—	—	4,476
Net loss	—	—	(37,409)	—	(37,409)
Other comprehensive loss	—	—	—	(219)	(219)
Balance at April 1, 2017	33,260	207,152	(61,407)	(1,214)	144,531
Employee stock plans	1,127	4,104	—	—	4,104
Business acquisition (Note 26)	—	(261)	—	—	(261)
Net income	—	—	116,223	—	116,223
Other comprehensive income	—	—	—	1,761	1,761
Balance at March 31, 2018	34,387	\$ 210,995	\$ 54,816	\$ 547	\$ 266,358

See Accompanying Notes to Consolidated Financial Statements

ELECTRO SCIENTIFIC INDUSTRIES, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS
For the years ended March 31, 2018, April 1, 2017 and April 2, 2016

(In thousands)	2018	2017	2016
CASH FLOWS FROM OPERATING ACTIVITIES			
Net income (loss)	\$ 116,223	\$ (37,409)	\$ (12,257)
Adjustments to reconcile net income (loss) to net cash provided by (used in) operating activities:			
Depreciation and amortization	7,817	7,566	7,343
Amortization of acquired intangible assets	1,373	1,530	1,376
Share-based compensation expense	4,802	7,095	5,103
Provision for (recovery of) doubtful accounts	731	(429)	329
Impairment of PP&E and other long-term assets due to restructuring	5,610	—	—
Loss on sale of PP&E, net	197	1,323	862
Gain on sale of laser ablation assets	(917)	—	—
Impairment of acquired intangibles	—	2,349	—
Impairment of inventory	8,248	2,440	—
Impairment of goodwill	—	7,445	—
Increase in deferred income taxes	(42,251)	(254)	(877)
Changes in operating accounts, net of acquisitions:			
(Increase) decrease in trade receivables, net	(22,415)	2,571	2,984
(Increase) decrease in inventories	(37,241)	(6,252)	(7,303)
Decrease (increase) in shipped systems pending acceptance	979	(4,532)	1,631
Decrease (increase) in other current assets	1,249	(755)	1,154
Increase in accounts payable and accrued liabilities	27,917	8,141	9,048
(Decrease) increase in deferred revenue	(4,894)	8,338	(4,691)
Net cash provided by (used in) operating activities	67,428	(833)	4,702
CASH FLOWS FROM INVESTING ACTIVITIES			
Purchase of investments	(73,044)	(464,893)	(380,841)
Proceeds from sales and maturities of investments	32,666	473,842	369,700
Purchase of PP&E	(4,848)	(4,039)	(3,693)
Proceeds from sale of PP&E	37	7	232
Proceeds from sale of laser ablation assets	2,999	—	—
Decrease (increase) in other assets	(5,163)	(293)	790
Cash paid for business acquisitions, net of cash acquired	—	(2,010)	—
Net cash (used in) provided by investing activities	(47,353)	2,614	(13,812)
CASH FLOWS FROM FINANCING ACTIVITIES			
Proceeds from issuance of common stock	3,463	1,398	1,362
Net proceeds of long-term debt	—	13,683	—
Repayment of long-term debt	(434)	(77)	—
Payment of withholding taxes on stock-based compensation	(4,161)	(839)	(638)
Share repurchases	—	—	—
Net cash (used in) provided by financing activities	(1,132)	14,165	724
Effect of exchange rate changes on cash	1,210	(627)	(195)
NET CHANGE IN CASH, CASH EQUIVALENTS AND RESTRICTED CASH	20,153	15,319	(8,581)
CASH, CASH EQUIVALENTS AND RESTRICTED CASH AT BEGINNING OF PERIOD	57,732	42,413	50,994
CASH, CASH EQUIVALENTS AND RESTRICTED CASH AT END OF PERIOD	\$ 77,885	\$ 57,732	\$ 42,413
SUPPLEMENTAL CASH FLOW INFORMATION			
Cash paid for interest	\$ (652)	\$ (121)	\$ (57)
Cash paid for income taxes	(1,198)	(530)	(806)
Income tax refunds received	132	123	140
Net (decrease) increase in PP&E and other assets related to transfers to/from inventory	(1,039)	5,985	3,866
Non-cash additions to PP&E	1,899	40	766

See Accompanying Notes to Consolidated Financial Statements

ELECTRO SCIENTIFIC INDUSTRIES, INC.
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1. The Company

Electro Scientific Industries, Inc. and its wholly-owned subsidiaries (ESI or the Company) is a leading supplier of innovative laser-based microfabrication solutions for industries reliant on microtechnologies. ESI enables its customers to commercialize technology using precision laser processes. Founded in 1944, ESI is headquartered in Portland, Oregon, with global operations and subsidiaries in Asia, Europe and North America.

2. Summary of Significant Accounting Policies

Basis of Presentation

The accompanying Consolidated Financial Statements include the accounts of Electro Scientific Industries, Inc. and its subsidiaries. All intercompany accounts and transactions have been eliminated.

The Company's fiscal year consists of 52 or 53 week periods ending on the Saturday nearest March 31. Accordingly, the fiscal 2018 reporting period consisted of a 52-week period ending on March 31, 2018, the fiscal 2017 reporting period consisted of a 52-week period ending on April 1, 2017 and the fiscal 2016 reporting period consisted of a 53-week period ending on April 2, 2016. All references to years or quarters relate to fiscal years or fiscal quarters unless otherwise noted.

Estimates

The preparation of Consolidated Financial Statements in conformity with accounting principles generally accepted in the United States (GAAP) requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of commitments and contingencies at the date of the financial statements and the reported amounts of revenues and expenses during the reporting periods. Actual results may differ from those estimates.

Management believes that the estimates used are reasonable. Estimates made by management include: revenue recognition; inventory valuation; valuation of investments; accrued restructuring costs; share-based compensation; income taxes, including the valuation of deferred tax assets; valuation of long-lived assets, including intangibles; goodwill and acquisition accounting.

Risks and Uncertainties

The Company uses financial instruments that potentially subject it to concentrations of credit risk. Such instruments include cash equivalents, available-for-sale marketable securities, trade receivables and financial instruments used in hedging activities. The Company primarily invests cash in money market funds, commercial paper, highly rated corporate bonds, certificates of deposit and readily marketable securities. Investments are placed with high credit quality financial institutions and the credit exposure from any one institution or instrument is minimized. See Note 4: Fair Value Measurements for further discussion on these investments.

The Company sells a significant portion of its products to a small number of large printed circuit board (PCB), semiconductor and microelectronics manufacturers. The Company's top ten customers for 2018, 2017 and 2016 accounted for approximately 59%, 47% and 51% of total net sales, respectively. In 2018, two customers, Career Technology (Mfg.) Co. Ltd. and Top Unique Trading Co. LTD., accounted for approximately 17% and 13% of net sales, respectively. In 2017, two customers, Sumitomo Corporation and Zhen Ding Technologies, accounted for approximately 12% and 11% of net sales, respectively. One customer, Apple Inc. and its affiliates, accounted for approximately 15% of net sales in 2016. No other customer individually accounted for more than 10% of total net sales in 2018, 2017 or 2016.

The Company uses qualified manufacturers to supply many components and sub-system modules of its products. The systems that the Company manufactures use high-performance computers, peripherals, lasers and other components from various suppliers. The Company obtains some of the components from a single source or a limited group of suppliers. An interruption in the supply of a particular component may have a temporary adverse impact on the Company's operating results.

The Company's operations involve a number of other risks and uncertainties including but not limited to those relating to the cyclical and seasonality of the microelectronics and semiconductor markets, the effect of general economic conditions, rapid changes in technology and international operations.

Cash Equivalents and Investments

All highly liquid investments with a maturity of 90 days or less at the date of purchase are considered to be cash equivalents. Short-term investments reflect marketable securities that have maturities of less than one year or are subject to immediate pre-payment or call provisions. These securities consist primarily of marketable debt securities and are classified as "available-for-sale securities" and recorded at fair market value. Unrealized gains and losses on investments are recorded as a component of accumulated other comprehensive income (loss). To determine whether any existing impairment is other-than-temporary and requires recognition of an impairment loss in the results of operations, the Company evaluates its marketable securities based on the nature of the investments and the Company's intent and ability to hold the securities until the securities are no longer in an unrealized loss position.

Restricted Cash

Cash and cash equivalents that are restricted as to withdrawal or use under the terms of certain long-term contractual agreements are recorded in Other non-current assets on the Company's Consolidated Balance Sheets. The following table provides a reconciliation of cash, cash equivalents, and restricted cash as shown in the statement of cash flows:

(In thousands)	2018	2017
Cash and cash equivalents	\$ 76,792	\$ 56,642
Restricted cash included in other long-term assets	1,093	1,090
Total cash, cash equivalents and restricted cash shown in the statement of cash flows	\$ 77,885	\$ 57,732

Accounts Receivable and Allowance for Doubtful Accounts

Trade receivables are stated at the amount the Company expects to collect and generally do not bear interest. Credit limits are established by reviewing the financial history and stability of each customer. Where appropriate, the Company obtains credit rating reports and financial statements of the customer to establish or modify credit limits. On certain foreign sales, letters of credit are obtained. The collectability of trade receivable balances is regularly evaluated based on a combination of factors such as customer reputation and credit-worthiness, past transaction history with the customer, current economic and industry trends, among other factors. If it is determined or expected that a customer will be unable to fully meet its financial obligation, such as in the case of a bankruptcy filing or other material events impacting its business, a specific allowance for bad debt is recorded to reduce the related receivable to the amount expected to be recovered.

Accrued Restructuring Costs

The Company has engaged, and may continue to engage, in restructuring actions, which require it to make estimates in certain areas including expenses for severance and other employee separation costs. Because the Company has a history of paying severance benefits, expenses associated with exit or disposal activities are recognized when probable and estimable. Should the actual amounts differ from the Company's estimates, the amount of the restructuring charges could be materially impacted. See Note 22: Restructuring and Cost Management Plans for further discussion.

Inventories

Inventories are principally valued at standard costs, which approximate the lower of cost or net realizable value on a first-in, first-out basis. Costs utilized for inventory valuation purposes include material, labor and manufacturing overhead. The Company regularly evaluates the carrying value of inventory based on a combination of factors including, but not limited to, the following: product maturity, forecasted sales or usage, historical usage rates, estimated service period, product end-of-life dates, estimated current and future market values, service inventory requirements and new product introductions. Purchasing requirements and alternative uses for the inventory are explored within these processes to mitigate inventory exposure. Inventory materials with quantities in excess of forecasted usage are reviewed quarterly for obsolescence. Obsolescence write-downs are typically caused by strategic decisions to exit or alter product lines, engineering change orders or product life cycle changes. If circumstances related to the Company's inventories change, its estimate of the value of inventory could materially change.

Research and development product costs are generally expensed as incurred. Engineering materials that are expected to be sold to a customer for value are generally classified as raw materials inventory.

Shipped Systems Pending Acceptance

Shipped systems pending acceptance relate to systems that have been ordered and shipped to the customer, but where revenue has been deferred in accordance with the Company's revenue recognition policy. Shipped systems pending acceptance are recognized as cost of sales once all criteria for revenue recognition have been met and revenue is recorded. Shipped systems pending acceptance are valued at standard costs, which approximate the lower of cost (first-in, first-out) or net realizable value. Costs utilized in the valuation of shipped systems pending acceptance include material, labor and manufacturing overhead and exclude costs of installation.

Property, Plant and Equipment

Property, plant and equipment are stated at cost less accumulated depreciation and amortization. Depreciation and amortization are recognized using the straight-line basis over the estimated useful lives of the assets. Expenditures for maintenance, repairs and minor improvements are expensed as incurred. Major improvements and additions are capitalized. When assets are sold or retired in the normal course of business, the cost and related accumulated depreciation and amortization are removed from the accounts and the resulting gain or loss is included as a component of operating expenses.

Long-Lived Assets

Long-lived assets, principally property, plant and equipment and identifiable long-lived intangibles, are reviewed for impairment whenever events or circumstances indicate that the carrying amount of the assets may not be recoverable. The Company evaluates the recoverability of assets to be held and used by comparing the carrying amount of an asset or asset group to estimated future net undiscounted cash flows generated by the asset. If such assets are considered to be impaired, the impairment recognized is measured as the amount by which the carrying amount of the assets exceeds the fair value of the assets.

The Company's purchased patents are amortized over their estimated useful lives, generally nine to seventeen years.

Other purchased intangible assets with finite useful lives are carried at cost less accumulated amortization. Amortization expense is recognized on a straight-line basis over the estimated useful lives of the intangible assets, which range from one to ten years.

Acquisition Accounting

The fair value of the consideration exchanged in an acquisition is allocated to tangible assets and identifiable intangible assets acquired and liabilities assumed at acquisition date fair value. Goodwill is measured as the excess of the consideration transferred over the net fair value of identifiable assets acquired and liabilities assumed. The accounting for an acquisition involves a considerable amount of judgment and estimation. Cost, income, market or a combination of approaches may be used to establish the fair value of consideration exchanged, assets acquired and liabilities assumed, depending on the nature of those items. The valuation approach is determined in accordance with generally accepted valuation methods or other generally accepted methods. Key areas of estimation and judgment may include the selection of valuation approaches, identification and selection of comparable companies or transactions, projections of future performance, cost of capital, market characteristics, cost structure, impacts of synergies, and estimates of terminal value, among other factors.

While the Company uses best estimates and assumptions as part of the purchase price allocation process to estimate the value of assets acquired and liabilities assumed, estimates are inherently uncertain and subject to refinement. During the measurement period, which may be up to one year from the acquisition date, the Company may record adjustments to the assets acquired and liabilities assumed, with a corresponding offset to goodwill, to the extent that adjustments are identified to the preliminary purchase price allocation. Upon conclusion of the measurement period, or final determination of the value of the assets acquired and liabilities assumed, whichever comes first, any subsequent adjustments are recorded to results from operations. See Note 26: Business Acquisitions for further discussion of purchase accounting, valuation methodology and assumptions.

Goodwill

The Company tests goodwill for impairment annually or more frequently if an event occurs or circumstances would indicate that it is more likely than not the fair value of the reporting unit is less than the carrying value. The date of the annual test of goodwill is the first day of the fourth quarter. The carrying value of the reporting unit is determined based on an allocation of the Company's assets and liabilities to the reporting unit using reasonable assumptions. An impairment is recorded in the period identified in the amount by which the carrying value of reporting unit exceeds the fair value of the reporting unit, up to the amount of goodwill recorded.

Other Assets

Other assets include customer loans, consignment, demonstration (demo) and training equipment, long-term deposits, and non-current accounts receivable.

Customer loans, consignment, demo and training equipment are recorded at the lower of standard costs or estimated market values.

Fair Value of Financial Instruments

The carrying amounts of financial instruments, including cash equivalents, accounts receivable, accounts payable, accrued liabilities and income taxes payable approximate fair value because of the nature of the underlying transactions and short-term maturities involved. Current and non-current marketable securities are recorded at fair value which is defined under FASB ASC Topic 820 "Fair Value Measurements and Disclosures" (ASC Topic 820). ASC Topic 820 establishes a three-tier fair value hierarchy, which prioritizes the inputs used in measuring fair value. These tiers include the following:

- *Level 1*, defined as observable inputs such as quoted prices in active markets for identical assets or liabilities;
- *Level 2*, defined as inputs that are observable either directly or indirectly such as quoted prices for similar assets or liabilities in active markets, quoted prices for identical or similar assets or liabilities in markets that are not active and other inputs that can be corroborated by observable market data; and
- *Level 3*, defined as unobservable inputs in which little or no market data exists, therefore requiring an entity to develop its own assumptions.

See Note 4: Fair Value Measurements for further discussion and disclosure of fair value on the Company's financial assets and investments.

Derivative Financial Instruments

The Company's primary objective for holding derivative financial instruments is to manage currency risk. The Company's accounting policies for these instruments are based on whether they meet the Company's criteria for designation as hedging transactions, either as cash flow or fair value hedges. A hedge of the exposure to variability in the cash flows of an asset or a liability, or of a forecasted transaction, is referred to as a cash flow hedge. A hedge of the exposure to changes in fair value of an asset or a liability, or of an unrecognized firm commitment, is referred to as a fair value hedge. The criteria for designating a derivative as a hedge include the instrument's effectiveness in risk reduction and, in most cases, a one-to-one matching of the derivative instrument to its underlying transaction. The Company enters into foreign currency exchange contracts as cashflow hedges to offset the earnings impact relating to the variability in exchange rates on certain short-term monetary assets and liabilities denominated in non-functional currencies. The Company does not designate these foreign currency contracts as hedges. The change in fair value of these derivative instruments not designated as hedging instruments is reported each period in other income (expense), net, in the Consolidated Statements of Operations.

Revenue Recognition

The Company recognizes revenue when persuasive evidence of an arrangement exists, delivery has occurred or the services have been rendered, the sales price is fixed or determinable and collection of the related receivable is reasonably assured. Title and risk of loss generally pass to the customer at the time of delivery of the product to a common carrier. Revenue is recognized upon such delivery, provided that fulfillment of acceptance criteria can be demonstrated prior to shipment. Where the acceptance criteria cannot be demonstrated prior to shipment, as in the case of substantially new products, revenue is deferred until acceptance has been received. For multiple element arrangements, the relative fair value of any undelivered elements is deferred until the elements are delivered and acceptance criteria, if any, are met. Revenues are recorded net of taxes collected which are required to be submitted to government authorities. Installation services are not essential to the functionality of the delivered equipment and installation revenue is deferred as a separate deliverable until installation is complete. Neither accrued installation costs nor the fair value of installation service revenue deferred has been material.

Revenues associated with sales to customers under local contracts in Japan are generally recognized upon title transfer, which occurs upon customer acceptance. Revenues related to spare parts and consumable sales are generally recognized upon shipment. Revenues related to maintenance and service contracts are generally recognized ratably over the duration of the contracts.

Product Warranty

The Company evaluates obligations related to product warranties quarterly. A standard warranty is provided on most of the Company's products over a specified period of time, generally 12 to 24 months, at no additional cost to its customers. Warranty charges are comprised of costs to service the warranty, including labor to repair the system and replacement parts for defective items, as well as other costs incidental to the repairs. Warranty charges are recorded net of any cost recoveries resulting from either successful repair of damaged parts or from warranties offered by the Company's suppliers for defective components. Using historical data, the Company estimates average warranty cost per system or part type and records the provision for such charges as an element of cost of sales upon recognition of the related revenue. Additionally, the overall warranty accrual balance is separately analyzed using the remaining warranty periods outstanding on systems and items under warranty, and any resulting changes in estimates are recorded as an adjustment to cost of sales. If circumstances change, or if a significant change in warranty-related incidents occurs, the impact of the change in the warranty accrual could be material. Accrued product warranty is included on the Consolidated Balance Sheets as a component of accrued liabilities.

Research and Development

Research and development costs, which include labor and related employee expenses, patent maintenance fees, project materials costs, development tool placement and installation costs, project subcontractors, depreciation of engineering equipment, building costs and other administration expenses, are generally expensed as incurred. Engineering materials that are expected to provide future value are included in inventories.

Income Taxes

The Company accounts for income taxes under the asset and liability method. Under this method, deferred income taxes are recognized for the future tax consequences attributable to temporary differences between the financial statement and tax balances of existing assets and liabilities. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those assets and liabilities are expected to be recovered or settled. The effect on deferred taxes resulting from a change in tax rates is recognized in income in the period that includes the enactment date. When management determines that it is not more likely than not that a deferred tax asset will be fully realized, a valuation allowance is established to reduce deferred tax assets to the amount expected to be realized.

Comprehensive Income (Loss)

Comprehensive income (loss) includes net income (loss) and other comprehensive income (loss), which includes charges or credits to equity that are not the result of transactions with shareholders. Comprehensive income (loss) comprised primarily of cumulative foreign currency translation adjustments, benefit plan obligations and unrealized gains and losses on securities available for sale. The cumulative translation adjustment included in accumulated other comprehensive income (loss) at March 31, 2018 and April 1, 2017 was \$0.6 million and \$(1.2) million, respectively.

Earnings Per Share

Basic earnings per share (EPS) is computed by dividing income available to common stockholders by the weighted average number of shares outstanding during the period. Diluted EPS also considers common stock equivalents, such as stock options, stock-settled stock appreciation rights (SARs), employee stock purchase plan (ESPP) shares and restricted stock units, to the extent that they are not antidilutive.

Share-Based Compensation

The Company recognizes expense related to the fair value of SARs and ESPP using the Black-Scholes model to estimate the fair value of awards on the date of grant. The fair value of time-based and performance-based restricted stock units (RSUs) are measured on the grant date based on the market value of the Company's common stock. The market-based RSUs must achieve the total shareholder return (TSR) measures in order for the awards to vest, and the grant date fair value of the awards is calculated using a Monte Carlo simulation model.

Except performance-based RSUs, the Company recognizes compensation expense for all share-based compensation awards, net of estimated forfeitures, on a straight-line basis over the requisite service period of the award. Expense for performance-based RSUs is recognized based on the probability of achievement of the performance criteria. The compensation cost for market-based RSUs is recognized on a straight-line basis over the related service period, even if the market condition is never satisfied.

Segment Reporting

The Company complies with ASC Topic 280 *Segment Reporting* (ASC Topic 280). ASC Topic 280, which is based on a management approach to segment reporting, establishes requirements to report selected segment information quarterly and to report annually entity-wide disclosures about products, major customers and the geographies in which the entity holds material assets and reports revenue. An operating segment is defined as a component that engages in business activities whose operating results are reviewed by the chief operating decision maker and for which discrete financial information is available. Based on the provisions of ASC Topic 280, the Company has determined that it operates in a single segment. There is no difference between the accounting policies used for the segment compared to those used on a consolidated basis.

Employee Benefit Plans

The Company has an employee savings plan under the provisions of Section 401(k) of the Internal Revenue Code. During 2018, 2017 and 2016, contributions to the plan by the Company were \$0.7 million, \$0.8 million and \$0.7 million, respectively.

The Company has defined benefit retirement plans at certain of its foreign subsidiaries. The Company accounts for these plans based on the provisions of ASC Topic 715, *Compensation-Retirement Benefits*. These plans are immaterial to the financial statements of the Company taken as a whole.

3. Recent Accounting Pronouncements

Adopted accounting pronouncements:

In March 2016, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) 2016-09, *Compensation – Stock Compensation – Improvements to Employee Share-Based Payment Accounting*. ASU 2016-09 simplifies the accounting for several aspects of the accounting for share-based payment transactions, including the income tax consequences, classification of awards as either equity or liabilities, classification on the statement of cash flows, and the accounting for forfeitures. ASU 2016-09 was effective for the Company as of April 2, 2017, the beginning of fiscal 2018. ASU 2016-09 was adopted in the first quarter of 2018 and at the time it increased diluted weighted average shares outstanding by approximately 40 thousand shares due to the change in recognition of excess tax benefits in the calculation. The ASU is expected to increase the volatility of the Company's diluted shares outstanding on a go-forward basis.

In July 2015, the FASB issued ASU 2015-11, *Simplifying the Measurement of Inventory*. ASU 2015-11 simplifies the measurement of inventory by requiring companies to measure inventory at the lower of cost and net realizable value rather than measuring at the lower of cost or market where the market value was determined based off of three different measures. ASU 2015-11 was effective for the Company as of April 2, 2017, the beginning of fiscal 2018. Adopting ASU 2015-11 has not had a material effect on the Company's inventory valuation.

Recently issued accounting pronouncements not yet adopted

In February 2018, the FASB issued ASU 2018-03, *Technical Corrections and Improvements to Financial Instruments—Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities*, which made six targeted amendments to ASU 2016-01, *Financial Instruments - Overall (Subtopic 825-10) Recognition and Measurement of Financial Assets and Financial Liabilities*. These amendments mostly affect the accounting for equity investments, financial liabilities under the fair value option, and the presentation and disclosure requirements for financial instruments. Public business entities with annual periods beginning between December 15, 2017, and June 15, 2018, are not required to adopt these amendments until the interim period beginning after June 15, 2018, and public business entities with fiscal years beginning between June 15, 2018, and December 15, 2018, are not required to adopt these amendments before adopting the amendments in Update 2016-01. ASU 2018-03 would be applicable for the Company's second quarter of fiscal 2019 ending September 29, 2018. The Company does not expect the adoption of ASU 2018-03 to have a material effect on its financial position, results of operations or cash flows.

In February 2018, the FASB issued ASU 2018-02, *Income Statement—Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income*, in response the enactment of the Tax Cuts and Jobs Act and the subsequent questions and concerns of stakeholders regarding how to apply the changes to the income tax effects of deferred tax assets and liabilities sitting in accumulated other comprehensive income. The guidance eliminates the resulting stranded tax effects and improves the usefulness of the information reported to users of the financial statements. ASU 2018-02 is effective for annual periods beginning after December 15, 2018, and interim periods within those annual periods, which would be the Company's fiscal year ending March 28, 2020. Early adoption is permitted, including adoption in any interim period, for public business entities for reporting periods for which financial statements have not yet been issued. The Company expects the adoption of ASU 2018-02 to not have a material effect on its financial position, results of operations or cash flows.

In August 2017, the FASB issued ASU 2017-12, *Derivatives and Hedging (Topic 815): Targeted Improvements to Accounting for Hedging Activities*, in order to (i) improve disclosures related to an entity's risk management activities through better transparency and understandability and (ii) simplify and reduce the complexity of hedge accounting by preparers. ASU 2017-12 is effective for annual periods beginning after December 15, 2018, and interim periods within those annual periods, which would be the Company's fiscal year ending March 28, 2020. Early adoption is permitted, including adoption in any interim period, for public business entities for reporting periods for which financial statements have not yet been issued. While the Company does not expect the adoption of ASU 2017-12 to have a material effect on its business, the Company is still evaluating any potential impact that adoption of ASU 2017-12 may have on its financial position, results of operations or cash flows.

In May 2017, the FASB issued ASU 2017-09, *Compensation—Stock Compensation (Topic 718): Scope of Modification Accounting*, which amends the scope of modification accounting surrounding share-based payment arrangements as issued in ASU 2016-09 by providing guidance on the various types of changes which would trigger modification accounting for share-based payment awards, specifically an entity would not apply modification accounting under ASC 718 if the fair value, vesting conditions, and classification of the awards are the same immediately before and after the modification. ASU 2017-09 is effective for annual periods beginning after December 15, 2017, and interim periods within those annual periods, which would be the Company's fiscal year ending March 30, 2019. The adoption of ASU 2017-09 will not have a material effect on the Company's financial position, results of operations or cash flows.

In March 2017, the FASB issued ASU 2017-07, *Compensation—Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost*, which requires companies to disaggregate the current-service-cost component from other components of net benefit cost and provides specific guidance for presentation in the income statement. ASU 2017-07 is effective for annual periods beginning after December 15, 2017, and interim periods within those annual periods, which would be the Company's fiscal year ending March 30, 2019. Early adoption is permitted as of the beginning of an annual period for which financial statements (interim or annual) have not been issued or made available for issuance. The adoption of ASU 2017-07 will not have a material effect on the Company's financial position, results of operations or cash flows.

In May 2014, the FASB issued ASU 2014-09, *Revenue from Contracts with Customers: Topic 606 (ASU 2014-09)*, to supersede nearly all existing revenue recognition guidance under GAAP. The core principle of ASU 2014-09 is to recognize revenues when promised goods or services are transferred to customers in an amount that reflects the consideration that is expected to be received for those goods or services. The FASB has continued to issue ASU topics to further clarify ASU 2014-09. These have included ASU 2016-08, ASU 2016-10, ASU 2016-12, and ASU 2016-20. The new standards are effective for the Company's fiscal year ending March 30, 2019, beginning with the first quarter of that fiscal year.

The new standard permits adoption by using either (i) a full retrospective approach for all periods presented in the period of adoption or (ii) a modified retrospective approach with the cumulative effect of initially applying the new standard recognized at the date of initial application and providing certain additional disclosures. The Company has elected the modified retrospective approach as its transition method. The Company developed an implementation plan and assigned cross-functional internal resources to perform a comprehensive assessment of the new standard and its impact on the financial statements of the Company. This assessment is largely complete and included identification, consideration, and quantification of the impact of the new standard on the Company's financial statements, accounting policies, processes, control environment and systems. The outcome of this evaluation will be the implementation of supporting processes and systems that enable timely and accurate reporting under the new standard.

The Company believes that, based on its assessment, the new standard is likely to result in an immaterial change to the amount or timing of revenue recognition related to system sales or service contracts, the Company's major revenue streams. This assessment is based on the Company's analysis of actual historical revenue transactions and current customer contracts under the new guidance and presumes certain conclusions as it relates to accounting policies under the new standard and the Company's current contracts. Final quantification of the impact is ongoing and will be impacted by the specific contracts in place as of the date of transition, but the primary expected changes are described here. There may be some impact related to the allocation of value and timing of recognition in situations where service contracts, which the Company expects to be recognized over time, are sold together with systems that are primarily recognized at a point in time. Further, the treatment of contract assets and liabilities under the new standard is expected to result in the netting of certain items that have been historically presented gross on the Consolidated Balance Sheets, specifically shipped systems pending acceptance and deferred revenues. Lastly, in connection with the adoption of the standard, there is a requirement to capitalize certain costs, which for the Company primarily comprises commission expenses for sales representatives. Any such costs required to be capitalized would amortize over the period of performance for the underlying contracts. The Company is still evaluating the impact of capitalizing costs to execute a contract. However, the potential impact related to these costs would stem from commissions on service contracts with a duration approximating or exceeding one year. The impact related to contracts with a duration over one year is not expected to be significant, and the Company expects to elect the practical expedient under the new standard for costs with a duration less than one year and expense those items as incurred.

The Company believes that certain aspects of the new guidance will require significant judgment, including identification of relevant performance obligations and quantification and allocation of the consideration to which the entity expects to be entitled in exchange for those goods or services. Due to the complexity of certain of the Company's contracts and the possibility that contractual arrangements could change, the actual revenue recognition treatment required under the new standard for these arrangements may be dependent on contract-specific terms and may vary from the Company's expectations. The Company currently expects that necessary operational changes will be implemented upon adoption. The new standard will increase the Company's revenue related disclosures, primarily by expanding disclosure of the Company's policies, significant estimates, and performance obligations.

In October 2016, the FASB issued ASU 2016-16, *Income Taxes (Topic 740): Intra-Entity Transfers of Assets Other Than Inventory*, to improve and simplify the accounting for the income tax consequences of intra-entity transfers of assets other than inventory, requiring companies to recognize income tax consequences upon the transfer of the asset to a third party. ASU 2016-16 is effective for the Company's fiscal year ending March 30, 2019. While the Company does not expect the adoption of ASU 2016-16 to have a material effect on its business, the Company is still evaluating any potential impact that adoption of ASU 2016-16 may have on its financial position, results of operations or cash flows.

In February 2016, the FASB issued ASU 2016-02, *Leases*. ASU 2016-02 increases transparency and comparability among organizations by recognizing lease assets and lease liabilities on the balance sheet and requires disclosing key information about leasing arrangements. ASU 2016-02 is effective for annual periods beginning after December 15, 2018 and interim periods within those annual periods, which would be the Company's fiscal year ending March 28, 2020. The Company is still evaluating any potential impact that adoption of ASU 2016-02 may have on its financial position, results of operations or cash flows.

4. Fair Value Measurements

Financial Assets Measured at Fair Value

The Company's fair value hierarchy for its financial assets measured at fair value on a recurring basis as of March 31, 2018 and April 1, 2017 was as follows (in thousands):

March 31, 2018	Level 1	Level 2	Level 3	Total
Cash equivalents:				
Money market securities	\$ 41,752	\$ —	\$ —	\$ 41,752
U.S. treasury fund	2,500	—	—	2,500
Commercial paper	—	3,498	—	3,498
Corporate bonds	—	1,999	—	1,999
Total cash equivalents	\$ 44,252	\$ 5,497	\$ —	\$ 49,749
Short term investments - available for sale:				
U.S. treasury fund	\$ 10,458	\$ —	\$ —	\$ 10,458
Commercial paper	—	25,913	—	25,913
Corporate bonds	—	10,750	—	10,750
Total short-term investments - available for sale	\$ 10,458	\$ 36,663	\$ —	\$ 47,121
Forward purchase or sale contracts:				
Japanese Yen	\$ —	\$ (23)	\$ —	\$ (23)

New Taiwan Dollar	—	3	—	3
Korean Won	—	(12)	—	(12)
Euro	—	7	—	7
British Pound	—	49	—	49
Chinese Renminbi	—	(29)	—	(29)
Singapore Dollar	—	(1)	—	(1)
Total forward contracts	<u>\$ —</u>	<u>\$ (6)</u>	<u>\$ —</u>	<u>\$ (6)</u>

Deferred compensation plan assets:*

Mutual funds and exchange traded funds	\$ 1,841	\$ —	\$ —	\$ 1,841
Money market securities	207	—	—	207
Total deferred compensation plan assets	<u>\$ 2,048</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 2,048</u>

*These investments represent assets held in trust for ESI's deferred compensation plan

<u>April 1, 2017</u>	<u>Level 1</u>	<u>Level 2</u>	<u>Level 3</u>	<u>Total</u>
Cash equivalents:				
Money market securities	\$ 22,395	\$ —	\$ —	\$ 22,395
Commercial paper	—	4,945	—	4,945
Total cash equivalents	<u>\$ 22,395</u>	<u>\$ 4,945</u>	<u>\$ —</u>	<u>\$ 27,340</u>
Short term investments - available for sale:				
Commercial paper	\$ —	\$ 5,743	\$ —	\$ 5,743
Total short-term investments - available for sale	<u>\$ —</u>	<u>\$ 5,743</u>	<u>\$ —</u>	<u>\$ 5,743</u>
Forward purchase or sale contracts:				
Japanese Yen	\$ —	\$ 9	\$ —	\$ 9
New Taiwan Dollar	—	20	—	20
Korean Won	—	39	—	39
Euro	—	(96)	—	(96)
Chinese Renminbi	—	(5)	—	(5)
Singapore Dollar	—	(1)	—	(1)
Total forward contracts	<u>\$ —</u>	<u>\$ (18)</u>	<u>\$ —</u>	<u>\$ (18)</u>
Deferred compensation plan assets:*				
Mutual funds and exchange traded funds	\$ 845	\$ —	\$ —	\$ 845
Money market securities	2,213	—	—	2,213
Total deferred compensation plan assets	<u>\$ 3,058</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 3,058</u>

*These investments represent assets held in trust for ESI's deferred compensation plan

For Level 1 assets, the Company utilized quoted prices in active markets for identical assets.

For Level 2 assets, exclusive of forward contracts, the Company utilized quoted prices in active markets for similar assets. For forward contracts, spot prices at March 31, 2018 and April 1, 2017 were utilized to calculate fair values.

During 2018 and 2017, there were no transfers between Level 1, 2 or 3 assets.

Investments

The Company's investments, including the investments classified as cash equivalents, at March 31, 2018 and April 1, 2017 were as follows (in thousands):

March 31, 2018	Cost	Unrealized		Fair Value
		Gain	Loss	
Available-for-sale securities (current):				
U.S. treasury fund	\$ 12,975	\$ —	\$ (17)	\$ 12,958
Commercial paper	29,411	—	—	29,411
Corporate bonds	12,768	—	(19)	12,749
Total investments (current)	\$ 55,154	\$ —	\$ (36)	\$ 55,118
Available-for-sale securities (non-current):				
Mutual funds, exchange traded funds and money market securities*	\$ 1,881	\$ 167	\$ —	\$ 2,048
Total investments (non-current)	\$ 1,881	\$ 167	\$ —	\$ 2,048
April 1, 2017	Cost	Unrealized		Fair Value
		Gain	Loss	
Available-for-sale securities (current):				
Commercial paper	\$ 10,688	\$ —	\$ —	\$ 10,688
Total investments (current)	\$ 10,688	\$ —	\$ —	\$ 10,688
Available-for-sale securities (non-current):				
Mutual funds, exchange traded funds and money market securities*	\$ 2,974	\$ 84	\$ —	\$ 3,058
Total investments (non-current)	\$ 2,974	\$ 84	\$ —	\$ 3,058

*These investments represent assets held in trust for ESI's deferred compensation plan

For purposes of determining gross realized gains and losses and reclassification out of accumulated other comprehensive income (loss), the cost of securities sold is based on specific identification. Net unrealized holding gains and losses on current available-for-sale securities included in accumulated other comprehensive income (loss) were insignificant as of March 31, 2018 and April 1, 2017.

5. Derivative Financial Instruments

The Company enters into derivative financial instruments on a limited basis and does not use them for trading purposes. It does, however, use derivatives in the form of forward exchange contracts to manage well-defined foreign currency risks. The Company enters into economic hedges of material non-functional currency monetary asset and liability balances. Foreign exchange contract gains and losses are recognized at the end of each fiscal period in the Company's results of operations. Such gains and losses are typically offset by the corresponding changes to the related underlying hedged item. Cash flows from derivative financial instruments are classified in the same category as the cash flows from the items hedged.

At March 31, 2018 and April 1, 2017, the Company had net forward exchange contracts to purchase foreign currencies totaling \$10.6 million and \$7.3 million, respectively. In general, these contracts have a duration of approximately one month and the counterparties are large, highly rated banks; therefore, the Company believes that the risk of loss as a result of nonperformance by the banks is minimal.

The table below summarizes, by currency, the notional amounts of forward exchange contracts in U.S. dollars as of March 31, 2018 and April 1, 2017. The “bought” amounts represent the net U.S. dollar equivalents of commitments to purchase foreign currencies, and the “sold” amounts represent the net U.S. dollar equivalents of commitments to sell foreign currencies. The foreign currency amounts have been translated into a U.S. dollar equivalent value using the exchange rates as of March 31, 2018 and April 1, 2017.

(In thousands)	Bought (Sold)	
	2018	2017
Japanese Yen	\$ 5,456	\$ 1,352
Euro	6,613	7,568
New Taiwan Dollar	(1,546)	(686)
Korean Won	(218)	32
British Pound	(3,031)	(1,992)
Chinese Renminbi	2,665	995
Singapore Dollar	659	74
	<u>\$ 10,598</u>	<u>\$ 7,343</u>

6. Trade Receivables, net

Trade accounts receivable at March 31, 2018 and April 1, 2017 consisted of the following:

(In thousands)	2018	2017
Current trade accounts receivable, net	\$ 63,044	\$ 40,494
Non-current trade accounts receivable	—	489
	<u>\$ 63,044</u>	<u>\$ 40,983</u>

Non-current trade accounts receivable are included in Other assets in the Consolidated Balance Sheets.

7. Inventories

The components of inventories at March 31, 2018 and April 1, 2017 were as follows:

(In thousands)	2018	2017
Raw materials and purchased parts	\$ 52,591	\$ 41,383
Work-in-process	18,634	13,829
Finished goods	16,461	3,730
	<u>\$ 87,686</u>	<u>\$ 58,942</u>

In 2018, 2017 and 2016, the Company recorded charges to cost of sales for inventory write-offs associated with discontinued products of \$8.2 million, \$1.7 million and \$1.4 million, respectively. The 2018 write-offs primarily relate to the restructuring which began in the fourth quarter of 2017 and continued into 2018. Additionally, in 2017, \$0.9 million of inventory write-off was recorded for flood damaged inventory at the Company's Wuhan manufacturing facility.

See Note 22: Restructuring and Cost Management Plans for further discussion on discontinued product costs.

8. Property, Plant and Equipment

Property, plant and equipment as of March 31, 2018 and April 1, 2017 consisted of the following:

<u>(In thousands)</u>	<u>Weighted Average Useful Life (in years)</u>	<u>2018</u>	<u>2017</u>
Land	n/a	\$ 2,152	\$ 2,152
Buildings and improvements	18	38,467	36,204
Machinery and equipment	5	41,889	59,099
Computer equipment and software	5	22,676	36,239
		<u>105,184</u>	<u>133,694</u>
Less accumulated depreciation		(83,159)	(112,075)
		<u>\$ 22,025</u>	<u>\$ 21,619</u>

Depreciation expense totaled \$5.9 million, \$6.9 million and \$6.8 million in 2018, 2017 and 2016, respectively. For the year ended March 31, 2018, the Company performed a review for impairment based on certain triggering events. As a result of this review, no impairments of property, plant and equipment were identified.

Additionally, in 2018 the Company recorded impairment charges of \$1.7 million associated with completion of the 2017 restructuring plan in 2018. See Note 22: Restructuring and Cost Management Plans for further discussion.

9. Goodwill

The Company had approximately \$2.6 million and \$3.0 million of goodwill as of March 31, 2018 and April 1, 2017, respectively. The entire balance was associated with the 2017 acquisition of Visicon (See Note 26: Business Acquisitions for further discussion). Purchase accounting was not finalized for the Visicon acquisition as of April 1, 2017. During 2018, purchase accounting was completed and goodwill was adjusted down by \$401 thousand. Changes in these balances are shown below:

<u>(In thousands)</u>	<u>2018</u>	<u>2017</u>
Goodwill, beginning	\$ 3,027	\$ 7,445
Purchase accounting adjustment - Visicon acquisition	(401)	—
Recognized goodwill - Visicon acquisition (provisional)	—	3,027
Impaired goodwill - Topwin reporting unit	—	(7,445)
Goodwill, ending	<u>\$ 2,626</u>	<u>\$ 3,027</u>

The Company tests goodwill for impairment annually or more frequently if an event occurs or circumstances would indicate that it is more likely than not the fair value of the reporting unit is less than the carrying value. The date of the annual test of goodwill is the first day of the fourth quarter. Accordingly, the Company performed a quantitative test for impairment of the recorded goodwill as of December 31, 2018 and January 1, 2017 for 2018 and 2017, respectively.

As a result of the 2017 test, the estimated fair value of the reporting unit associated with the Topwin acquisition was determined to be less than the carrying value of the reporting unit, indicating a full impairment and hence the Company recognized an impairment loss of \$7.4 million. The 2017 loss from impairment of goodwill was recorded as a component of operating expenses in a separate line on the Consolidated Statements of Operations.

The fair value of the goodwill was determined using generally accepted valuation approaches. These approaches included a discounted cash flow model, a guideline transaction approach, and a guideline public company market multiples approach, each weighted according to the relevance of each approach. In supporting these valuations, management used assumptions based on the best information available.

The 2018 test did not indicate impairment. The primary assumption used in determining that the single reporting unit was not impaired, was the increase in the Company's stock price which provided significant headroom before an impairment would be indicated.

10. Acquired Intangible Assets

Acquired intangible assets as of March 31, 2018 and April 1, 2017 consisted of the following:

<u>(In thousands, except years)</u>	Weighted Average Useful Life (In years)	2018	2017
Developed technology	7.5	\$ 18,646	\$ 18,646
Customer relationships	5.3	3,914	3,914
Customer backlog	1.0	1,270	1,270
Trade name and trademarks	3.8	793	793
Fair value of below-market lease (non-current portion)	3.8	310	310
Change of control agreements and non-compete agreements	2.1	160	160
Patents	12.7	2,842	3,465
		27,935	28,558
Less accumulated amortization		(22,766)	(21,994)
		<u>\$ 5,169</u>	<u>\$ 6,564</u>

Amortization expense for acquired intangible assets has been recorded in the Consolidated Statements of Operations as follows:

<u>(In thousands)</u>	2018	2017	2016
Cost of sales	\$ 977	\$ 1,133	\$ 1,140
Selling, general and administration	208	209	36
Research, development and engineering	188	188	200
	<u>\$ 1,373</u>	<u>\$ 1,530</u>	<u>\$ 1,376</u>

The estimated amortization expense for acquired intangible assets in future years is as follows (in thousands):

<u>Year</u>	<u>Amortization</u>
2019	\$ 1,427
2020	1,404
2021	1,245
2022	695
2023	298
Future years	100
	<u>\$ 5,169</u>

11. Other Assets

Other assets consisted of the following as of March 31, 2018 and April 1, 2017:

<u>(In thousands)</u>	2018	2017
Demo and leased equipment, net	\$ 6,746	\$ 11,011
Long term deposits	3,232	2,872
Long term restricted cash	1,093	1,090
Other non-current assets	3,709	3,958
	<u>\$ 14,780</u>	<u>\$ 18,931</u>

Depreciation expense for demo equipment totaled \$1.8 million in 2018, \$0.4 million in 2017 and \$0.5 million 2016. Included in Other non-current assets are long-term investments, vendor prepayments and other similar items.

12. Accrued Liabilities

Accrued liabilities (current) consisted of the following at March 31, 2018 and April 1, 2017:

<u>(In thousands)</u>	<u>2018</u>	<u>2017</u>
Payroll-related liabilities	\$ 15,879	\$ 6,335
Restructuring and cost management amounts payable	429	4,996
Product warranty accrual	4,646	3,394
Purchase order commitments and receipts	2,978	2,522
Customer deposits	2,214	1,242
Professional fees payable	778	734
Current portion, long-term debt	421	434
Other current liabilities	7,188	2,529
	<u>\$ 34,533</u>	<u>\$ 22,186</u>

Included in other liabilities above are accrued amounts for value-added taxes, income taxes, commissions payable to external representatives, freight and other similar items.

13. Product Warranty

The following is a reconciliation of the changes in the aggregate product warranty accrual for 2018, 2017 and 2016:

<u>(In thousands)</u>	<u>2018</u>	<u>2017</u>	<u>2016</u>
Product warranty accrual, beginning	\$ 5,474	\$ 5,734	\$ 3,342
Warranty charges incurred, net	(11,247)	(8,297)	(7,781)
Provision for warranty charges	15,993	8,037	10,173
Product warranty accrual, ending	<u>\$ 10,220</u>	<u>\$ 5,474</u>	<u>\$ 5,734</u>

Net warranty charges incurred include labor charges and costs of replacement parts for system repairs under warranty. These costs are recorded net of any estimated cost recoveries resulting from either successful repair of damaged parts or from warranties offered by the Company's suppliers for defective components. The provision for warranty charges reflects the estimate of future anticipated net warranty costs to be incurred for all products under warranty at fiscal year-end and is recorded to cost of sales. Of the total of \$10.2 million and \$5.5 million in product warranty accrual at March 31, 2018 and April 1, 2017, \$5.6 million and \$2.1 million were non-current and were included in Other liabilities on the Consolidated Balance Sheets.

14. Deferred Revenue

The following is a reconciliation of the changes in deferred revenue for 2018, 2017 and 2016:

<u>(In thousands)</u>	<u>2018</u>	<u>2017</u>	<u>2016</u>
Deferred revenue, beginning	\$ 15,397	\$ 7,685	\$ 12,376
Revenue deferred	82,394	43,379	58,416
Revenue recognized	(87,277)	(35,667)	(63,107)
Deferred revenue, ending	<u>\$ 10,514</u>	<u>\$ 15,397</u>	<u>\$ 7,685</u>

Of the total of \$10.5 million, \$15.4 million, and \$7.7 million in deferred revenue at March 31, 2018, April 1, 2017 and April 2, 2016, \$0.7 million, \$0.7 million and \$1.3 million is non-current and is included in Other liabilities on the Consolidated Balance Sheets.

15. Long-term Debt

On January 9, 2017, ESI Leasing, LLC (ESI Leasing), a wholly owned subsidiary of the Company, entered into a loan agreement (Loan Agreement) with First Technology Federal Credit Union (Lender). The Loan Agreement provides for a term loan from the Lender to ESI Leasing in the principal amount of \$14 million (Loan). The interest rate of the Loan is fixed at 4.75% per annum, except that it may be increased if certain covenants under the Loan Agreement are not satisfied and after and during the continuation of an "Event of Default" as defined in the Loan Agreement. The Loan amortizes over a period of approximately 20 years, but the maturity date of the loan is January 1, 2027, meaning that, if ESI Leasing does not prepay or refinance the Loan, a significant portion of the principal of the Loan will become due on January 1, 2027. ESI Leasing pays

monthly principal and interest payments on the Loan totaling \$1.1 million annually through the maturity of the loan. The Company unconditionally guarantees the Loan. The Company is required to maintain certain deposits with the Lender through March 31, 2019, at which point the restriction will be removed as long as the Company is in compliance with certain minimum covenants.

The principal maturities for each of the upcoming twelve-month periods ending on March 31 are as follows:

<u>(In thousands)</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>
Principal maturities	\$ 455	\$ 475	\$ 500	\$ 524	\$ 550

Total debt currently outstanding on the Loan Agreement at the end of fiscal 2018 was:

<u>(In thousands)</u>	<u>2018</u>	<u>2017</u>
Total debt outstanding	\$ 13,187	\$ 13,923
Less: Current portion, long-term debt	(421)	(434)
Long-term debt	<u>\$ 12,766</u>	<u>\$ 13,489</u>

The unamortized deferred debt issuance costs related to the above long-term debt were \$302 thousand and \$337 thousand as of March 31, 2018 and April 1, 2017, respectively.

16. Revolving Credit Facility

The Company is party to a loan and security agreement (Credit Facility) with Silicon Valley Bank, which was initially entered into on March 20, 2015 and amended on July 12, 2016. The Credit Facility provides for a senior secured asset-based revolving facility with availability up to \$30 million, including a \$15 million sublimit for letters of credit. The Credit Facility expires March 20, 2019. At March 31, 2018, the Company had no amounts outstanding under the Credit Facility, was in compliance with all covenants, and was not in default under the Credit Facility. The commitment fee on the amount of unused credit was 0.3 percent. If the Company fails to meet the covenants in its Credit Facility or its lenders fail to fund, access to the facility may be limited or the facility may become unavailable altogether.

17. Commitments and Contingencies

The aggregate minimum commitment obligation under operating leases beyond March 31, 2018 was as follows (in thousands):

<u>Year</u>	<u>Operating Leases</u>
2019	\$ 2,504
2020	2,080
2021	1,513
2022	902
2023	199
Thereafter	585
	<u>\$ 7,783</u>

The Company leases certain equipment, automobiles, manufacturing and office space under operating leases, which are non-cancelable and expire on various dates through the first quarter of 2027. Rental expense for all operating leases was \$2.4 million, \$2.6 million and \$2.5 million in 2018, 2017 and 2016, respectively. The operating lease amounts include the

contractual facility lease obligations at the Company's Singapore; Bordeaux, France; Shanghai, China; and Dongtan, Korea sites.

The Company routinely enters into inventory purchase contracts which require purchase commitments. As a result, if the Company experiences lower than anticipated demand for its products, in many cases it would not be able to avoid the cost of purchasing the associated inventory, which could negatively impact its results of operations and liquidity. The Company had purchase commitments of \$84.3 million at March 31, 2018, up significantly from previous years primarily due to increased production levels. Of these commitments, \$7.9 million represent long term purchase contracts.

18. Shareholders' Equity

Share Repurchase Program

In December 2011, the Board of Directors authorized a share repurchase program totaling \$20.0 million to acquire shares of the Company's outstanding common stock. The repurchases are to be made at management's discretion in the open market or in privately negotiated transactions in compliance with applicable securities laws and other legal requirements and are subject to market conditions, share price and other factors.

The Company did not repurchase any shares during 2018, 2017 or 2016. There is no fixed completion date for the repurchase program.

19. Accumulated Other Comprehensive Income (Loss)

The following is a reconciliation of the changes in accumulated other comprehensive income (AOCI):

	Foreign currency translation adjustment	Accumulated other comprehensive income related to benefit plan obligation	Net unrealized loss on available-for-sale securities	Total
Balance at April 2, 2016	\$ (894)	\$ (90)	\$ (11)	\$ (995)
Other comprehensive (loss) income before reclassifications and taxes	(348)	209	(6)	(145)
Amounts reclassified from AOCI	—	—	—	—
Tax effect	—	(74)	—	(74)
Other Comprehensive (loss) income	(348)	135	(6)	(219)
Balance at April 1, 2017	\$ (1,242)	\$ 45	\$ (17)	\$ (1,214)
Other comprehensive income (loss) before reclassifications and taxes	1,493	(119)	(35)	1,339
Amounts reclassified from AOCI	—	—	—	—
Tax effect	339	58	25	422
Other Comprehensive income (loss)	1,832	(61)	(10)	1,761
Balance at March 31, 2018	\$ 590	\$ (16)	\$ (27)	\$ 547

20. Share-based Compensation

The Company's employee share-based compensation plans consist of its 2004 Stock Incentive Plan (the 2004 Plan) and the ESPP. The 2004 plan, as amended, has been approved to reserve a total of 4,750,000 shares of common stock for issuance to employees and directors of the Company. It allows for grants of stock options, stock appreciation rights; stock bonuses; RSUs including time-based, performance-based, and market-based RSU awards; and dividend equivalents. The ESPP, as approved, reserves 5,400,000 shares of common stock for issuance to participating employees.

Eligible employees may elect to contribute up to 15 percent of their base wage and commissions during each pay period. As of the second quarter of 2018, new offerings are for six month periods with a maximum of 1,000 shares per purchase date with each new offering beginning on February 15 or August 15 of each year. At the end of each offering period, the purchase price is determined and the accumulated funds are used to automatically purchase shares of common stock. The purchase price per share is equal to 85 percent of the lower of the fair market value of the common stock on (a) the first day of the offering period or (b) the date of purchase. Previously, employees could purchase up to a maximum of 500 shares per purchase date and the ESPP provided for separate overlapping twenty-four month offerings starting every three months. The Company has a small minority of employees still purchasing under the three month offering period plan.

SARs grant the right to receive shares of the Company's stock equivalent to the increase in stock value of a specified number of shares over a specified period of time, divided by the stock price at the time of exercise. RSU's grant the right to receive a set number of shares on the vest date, assuming all criteria have been met and continued service through the vest date. Time-based RSU's vest solely based on continued service through the vest date. Performance-based RSU's are earned based on specifically stated performance criteria in the grant agreement. Market-based RSUs must achieve the TSR measures based on

the Company's stock performance relative to a stated index. See Note 2: Summary of Significant Accounting Policies for further discussion concerning the Company's policies for recognizing compensation expense for these awards.

Share-based compensation expense was included in the Company's Consolidated Statements of Operations as follows:

(In thousands)	2018	2017	2016
Cost of sales	\$ 277	\$ 503	\$ 445
Selling, general and administration	3,657	5,197	3,004
Research, development and engineering	679	737	783
Share-based compensation expense	<u>\$ 4,613</u>	<u>\$ 6,437</u>	<u>\$ 4,232</u>

The total amount of net cash used related to stock plan awards in 2018 was \$0.7 million, in 2017 and 2016 net cash received was \$0.5 million and \$0.7 million. All stock plan awards are settled with newly issued shares.

No share-based compensation costs were capitalized during 2018, 2017 or 2016. As of March 31, 2018, the Company had \$7.4 million of total unrecognized share-based compensation costs, net of estimated forfeitures, which are expected to be recognized over a weighted average period of 2.1 years.

Valuation Assumptions

The Black-Scholes pricing model is utilized to determine the fair value of SARs granted and ESPP issued. No SARs were granted in 2018 and 2017.

The following weighted average assumptions were used in calculating the grant date fair value of SARs during the periods presented:

	2018	2017	2016
Risk-free interest rate	—%	—%	1.94%
Expected lives	0.0 years	0.0 years	7.4 years
Expected volatility	—%	—%	47%

The following weighted average assumptions were used to estimate the fair value of ESPP shares issued in the periods presented:

	2018	2017	2016
Risk-free interest rate	1.37%	0.68%	0.34%
Expected lives	0.6 years	1.1 years	1.1 years
Expected volatility	55%	45%	35%

The risk-free interest rates used are based on the U.S. Treasury yields over the expected terms. The fair value of time-based RSUs and performance-based RSUs are measured on the grant date based on the market value of the Company's common stock. The market-based RSUs must achieve the TSR measures in order for the awards to vest, and the grant date fair value of the awards is calculated using a Monte Carlo simulation model. The assumptions used in the Monte Carlo simulation includes the risk free rate, expected divided yield, expected term, and possible future stock prices over the performance period based on historical stock and market prices.

At March 31, 2018, the Company had 6,767,223 shares of its common stock reserved for issuance under all of the above plans combined. Of those shares, 1,606,815 are subject to issuance under currently outstanding stock options, SARs and stock awards and 5,160,408 shares, including 999,091 shares available for issuance under the ESPP, are available for future grants. In addition to standard forfeitures, 817 thousand shares were returned to the pool of shares available for issuance due to SAR exercises.

The total fair value of stock option and SAR awards granted and vested during the period, restricted stock unit awards granted and vested during the period, the intrinsic value of stock options and SARs exercised during the period and the total grant date fair value were:

<u>(In thousands, except per share data)</u>	<u>2018</u>	<u>2017</u>	<u>2016</u>
Stock-Option and SAR Awards:			
Grant date fair value per share	\$ —	\$ —	\$ 2.89
Total fair value of options and SARs granted	—	—	1,350
Total fair value of options and SARs vested	755	820	336
Total intrinsic value of options and SARs exercised	6,641	17	1
Restricted Stock Unit Awards:			
Grant date fair value per share	10.59	6.71	5.52
Total fair value of awards granted	7,084	11,382	4,072
Total fair value of awards vested	4,945	3,693	4,324
Employee Stock Purchase Plan:			
Grant date fair value per share	2.14	1.40	1.22
Total grant date fair value	613	473	394

Share-Based Payment Award Activity

Information with respect to stock option and SAR activity was as follows:

	Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term (In years)	Aggregate Intrinsic Value (In thousands)
Outstanding at March 28, 2015	2,229,046	\$ 12.52		
Granted	467,000	5.63		
Exercised	(2,500)	6.71		
Expired or forfeited	(537,946)	16.53		
Outstanding at April 2, 2016	2,155,600	\$ 10.03	5.35	\$ 904
Granted	—	—		
Exercised	(22,500)	6.23		
Expired or forfeited	(191,097)	19.20		
Outstanding at April 1, 2017	1,942,003	\$ 9.17	4.82	\$ 634
Granted	—	—		
Exercised	(1,280,478)	8.17		
Expired or forfeited	(548,000)	11.92		
Outstanding at March 31, 2018	113,525	\$ 7.26	4.17	\$ 1,371
Vested and expected to vest at March 31, 2018	113,140	\$ 7.26	4.16	\$ 1,365
Exercisable at March 31, 2018	89,525	\$ 7.64	3.42	\$ 1,046

Information with respect to time-based restricted stock unit awards activity was as follows:

	Shares	Weighted Average Grant Date Fair Value	Weighted Average Remaining Contractual Term (In years)	Aggregate Intrinsic Value (In thousands)
Outstanding at March 28, 2015	835,841	\$ 8.90		
Awarded	737,200	5.52		
Vested	(360,349)	11.75		
Forfeited	(130,888)	7.66		
Outstanding at April 2, 2016	1,081,804	\$ 6.77	1.93	\$ 7,781
Awarded	1,051,445	6.63		
Vested	(483,239)	7.64		
Forfeited	(42,093)	6.67		
Outstanding at April 1, 2017	1,607,917	\$ 6.41	2.04	\$ 11,168
Awarded	446,400	9.81		
Vested	(757,462)	6.53		
Forfeited	(396,830)	6.83		
Outstanding at March 31, 2018	900,025	\$ 7.82	2.39	\$ 17,397

Information with respect to performance-based and market-based restricted stock unit awards activity was as follows:

	Shares	Weighted Average Grant Date Fair Value	Weighted Average Remaining Contractual Term (In years)	Aggregate Intrinsic Value (In thousands)
Outstanding at March 28, 2015	593,704	\$ 7.88		
Awarded	—	—		
Vested ⁽¹⁾	(5,592)	14.64		
Forfeited	(187,125)	10.84		
Outstanding at April 2, 2016	400,987	\$ 6.93	1.00	\$ 2,928
Awarded	643,565	6.85		
Vested ⁽¹⁾	—	—		
Forfeited	(400,987)	6.93		
Outstanding at April 1, 2017	643,565	\$ 6.85	2.43	\$ 4,409
Awarded	222,400	12.17		
Vested ⁽¹⁾	—	—		
Forfeited	(272,700)	7.27		
Outstanding at March 31, 2018	593,265	\$ 8.76	1.78	\$ 11,468

(1) Zero performance-based or market-based shares were earned in 2017 and 2016. Based on 2018 performance, the Company believes 182,671 market-based shares and zero performance-based shares were earned.

21. Product and Geographic Information

Operating segments are defined as components of an enterprise about which separate financial information is available and evaluated regularly by the chief operating decision maker (CODM) in deciding how to allocate resources and in assessing performance. The Company's CODM is its Chief Executive Officer (CEO).

The Company and its consolidated subsidiaries operate in a single segment, defined as a manufacturer of high-technology microfabrication and related equipment. This segment sells products into a variety of end markets that are grouped into four major categories for the purpose of providing an understanding of the principal end markets for the products manufactured by the Company, specifically: 1) Printed Circuit Board (PCB), 2) Component Test, 3) Semiconductor, and 4) Industrial Machining.

The following table presents net sales information by the four major product categories addressed by the Company's single segment:

(In thousands)	2018	2017	2016
Printed Circuit Board	\$ 256,430	\$ 88,771	\$ 94,121
Component Test	32,790	22,381	19,901
Semiconductor	55,171	29,557	38,262
Industrial Machining	23,493	20,314	32,107
	\$ 367,884	\$ 161,023	\$ 184,391

Net sales by geographic area, based on the location of the end user, were as follows:

<u>(In thousands)</u>	<u>2018</u>	<u>2017</u>	<u>2016</u>
Asia	\$ 332,499	\$ 134,394	\$ 152,259
Americas	19,241	16,378	21,206
Europe	16,144	10,251	10,926
	<u>\$ 367,884</u>	<u>\$ 161,023</u>	<u>\$ 184,391</u>

Long-lived assets; exclusive of investments, restricted cash and deferred taxes; by geographic area were as follows:

<u>(In thousands)</u>	<u>2018</u>	<u>2017</u>
Americas	\$ 22,057	\$ 32,234
Asia	13,811	8,111
Europe	5,591	5,648
	<u>\$ 41,459</u>	<u>\$ 45,993</u>

22. Restructuring and Cost Management Plans

2017 Corporate Restructuring:

In the fourth quarter of 2017, the Company initiated a restructuring plan to improve business effectiveness and streamline operations to achieve a stated target profit level for the Company as a whole. As a part of the restructuring plan, the management team was reorganized from a business unit to a functional structure; the Company closed facilities in Montreal, Canada; Napa, California; and Sunnyvale, California; the Company discontinued certain products; and the Company made select reductions in headcount across the Company. Actions under this plan were completed as of the end of the third fiscal quarter of 2018.

Total expenses related to the plan were \$17.1 million in 2018 and \$7.6 million in the fourth quarter of 2017. Included in the 2018 expenses are approximately \$13.3 million of charges impacting gross margins, all incurred in the first and second quarters of 2018, primarily related to impairment of other assets and inventory stemming from the product portfolio program reviews which resulted in discontinuing certain products. Operating expense charges included \$2.3 million of facilities and fixed assets charges related to streamlining facilities and discontinued products and \$1.3 million of employee severance and related costs. Product portfolio reviews related to the restructuring plan were completed as of the end of the third quarter of 2018. The impacts of the decisions made in the portfolio reviews involve the use of certain estimates. Actual results could differ from those estimates and result in additional charges.

The following table presents the total expected restructuring costs as of March 31, 2018 (in thousands):

	Total Expected Costs for the Plan	Costs Recognized from Inception of the Plan Through the Year Ended March 31, 2018	Remaining Costs to be Recognized Subsequent to March 31, 2018
Employee severance and related personnel costs	\$ 4,925	\$ 4,925	\$ —
Site closure costs	1,516	1,516	—
Current asset impairments and other gross profit charges ⁽¹⁾	14,947	14,947	—
Non-current asset impairments	3,033	3,033	—
Other Costs	239	239	—
Total	<u>\$ 24,660</u>	<u>\$ 24,660</u>	<u>\$ —</u>

(1) Current asset impairments include inventory charges recorded in cost of sales.

The following table presents the amounts payable related to the 2017 Corporate Restructuring (in thousands):

	Employee severance and related personnel costs	Site closure costs	Current asset impairments and other gross profit charges ⁽¹⁾	Non-current asset impairments	Other Costs	Total
Balance as of April 2, 2016	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —
Costs incurred	3,588	888	1,669	1,376	66	7,587
Cash payments	(341)	—	—	—	(66)	(407)
Non-cash items	—	—	(1,669)	(1,376)	—	(3,045)
Balance as of April 1, 2017	<u>\$ 3,247</u>	<u>\$ 888</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 4,135</u>
Costs incurred	1,337	627	13,278	1,657	175	17,074
Cash (payments) receipts	(4,445)	(1,515)	(2,402)	32	(175)	(8,505)
Non-cash items	—	—	(10,876)	(1,689)	—	(12,565)
Balance as of March 31, 2018	<u>\$ 139</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 139</u>

(1) Asset and facilities costs include inventory charges recorded in cost of sales.

Other restructuring plans:

The Company's previously disclosed restructuring plans are largely complete. Net restructuring costs related to these plans were \$0.4 million in 2018 and \$0.4 million in 2017. The amounts payable of \$0.3 million at March 31, 2018 are expected to be future cash outflows, primarily relating to facility costs to be paid through the end of calendar 2018. The Company does not expect to incur additional expenses related to these plans.

The following table presents the amounts related to restructuring and costs payable (in thousands):

Restructuring & cost management amounts payable as of March 28, 2015	\$ 1,997
Cash payments and other adjustments	(4,064)
Costs incurred	2,824
Restructuring & cost management amounts payable as of April 2, 2016	757
Cash payments and other adjustments	(297)
Costs incurred	401
Restructuring & cost management amounts payable as of April 1, 2017	861
Cash payments and other adjustments	(980)
Costs incurred	409
Restructuring & cost management amounts payable as of March 31, 2018	<u>\$ 290</u>

Overall restructuring reserve:

As of March 31, 2018 and April 1, 2017, the amount of unpaid restructuring costs included in accrued liabilities on the Consolidated Balance Sheets were \$0.4 million and \$5.0 million, respectively. Included in the payable balance are amounts for severance and employee benefits, asset retirement obligation and net lease commitments.

23. Income Taxes

The Tax Cuts and Jobs Act (the “Tax Act”) was enacted into law in the U.S. on December 22, 2017. The Tax Act includes various changes to the tax law, including a permanent reduction in the U.S. corporate income tax rate. The Company recognized the estimated effects of the changes in the tax rate and laws resulting from the Tax Act during the fiscal year ended March 31, 2018.

The Tax Act reduces the federal corporate income tax rate from 35% to 21% effective January 1, 2018. The Company’s federal statutory rate for the fiscal year ending March 31, 2018 is approximately 31.5%, which is a blended rate based on the weighting of pre- and post-Tax Act rates.

Deferred tax assets and liabilities are remeasured at the new rates; however, given a valuation allowance against net deferred tax assets as of the effective date of the rate change, the expense arising from the re-measurement of deferred tax assets and liabilities is fully offset by an equivalent adjustment to the Company’s existing valuation allowance, resulting in no net impact to tax expense.

The Tax Act imposes a one-time transition tax on the deemed repatriation of post-1986 undistributed foreign subsidiaries’ earnings. Based on the information available as of March 31, 2018, the Company has recorded provisional amounts for undistributed foreign earnings of approximately \$38.8 million. The taxable income arising from this deemed repatriation was fully offset by the utilization of net operating loss carryforwards and other tax credits, offset by changes in the valuation allowance, resulting in no net impact to tax expense.

The 2017 tax reform legislation added section 250 to the Internal Revenue Code, effectively creating a new preferential tax rate for income derived by domestic corporations from serving foreign markets. The new deduction is described as a deduction for foreign-derived intangible income. This lower tax rate provides a new benefit for owning intangible property and conducting business operations in the United States.

The Tax Act also includes a base erosion and anti-abuse tax (BEAT), applicable to corporations with annual gross receipts of at least \$500 million for the prior 3-years, which requires U.S. multinationals making “excessive” deductible payments to their foreign affiliates to pay a 10 percent tax on their income without those deductions, after a one-year, 5 percent transition rate. The Company does not expect the BEAT provisions to apply until it meets the threshold. Further the Tax Act imposes a tax on global intangible low-taxed income (GILTI) on controlled foreign corporations’ aggregate net income over a 10% benchmark return on qualified business asset investment less interest expense. The Company has not evaluated the impacts of these provisions at this time nor has it elected whether to treat the impacts of GILTI as a period expense or as a deferred tax item.

The Securities and Exchange Commission Staff Accounting Bulletin No. 118 allows the use of provisional amounts if accounting for the income tax effects of the Act has not been completed when the Company’s financial statements are issued. This measurement period may extend no longer than one year. The Company continues to evaluate the impact the new legislation will have on its financial position, results of operations, and cash flows. Additional technical guidance from the Department of Treasury, the FASB, and other relevant rule-making bodies to continue to evolve, which is likely to impact the interpretation of various provisions of the Tax Act. Areas where changes may still occur include, but are not limited to, GILTI, and calculation of deemed repatriation.

Net deferred tax assets and liabilities at March 31, 2018 and April 1, 2017 consisted of the following:

<u>(In thousands)</u>	<u>2018</u>	<u>2017</u>
Deferred tax assets and liabilities:		
Inventory valuation and warranty costs	\$ 7,904	\$ 11,246
Receivables and other non-current assets	(49)	(274)
Payroll-related accruals	5,130	7,574
Intangible assets and investments	(272)	(382)
Accrued liabilities	2,322	3,006
Deferred revenue	821	3,478
Property, plant and equipment	3,142	5,029
Other comprehensive income	3	456
Tax loss and credit carryforwards, net of unrecognized tax benefits	43,201	73,805
Other (liabilities) assets	(185)	259
Total deferred tax assets	62,017	104,197
Valuation allowance	(18,499)	(103,315)
Net deferred tax assets	<u>\$ 43,518</u>	<u>\$ 882</u>

The Company had approximately \$57.4 million and \$84.7 million in tax assets resulting from federal, state and foreign net operating losses and tax credits as of March 31, 2018 and April 1, 2017, respectively as follows:

(In thousands)	2018	2017
Federal net operating losses	\$ 5,071	\$ 35,566
State net operating losses	1,868	3,679
Foreign operating losses and tax credits	17,826	12,504
Federal research credits	24,127	22,590
State research credits	5,438	4,409
Federal minimum tax credit	—	935
Federal capital losses	3,039	5,015
	<u>\$ 57,369</u>	<u>\$ 84,698</u>

The federal and state net operating losses expire on various dates through fiscal 2039. The majority of the foreign tax credits expire on various dates through fiscal 2029. The federal and most of the state research credits expire on various dates through fiscal 2039. Certain state research credits and the federal minimum tax credits are available indefinitely. The state net operating losses and credits are reflected net of their federal tax impact.

A valuation allowance is required if it is more likely than not that all or a part of a deferred tax asset will not be realized in the future. A valuation allowance of \$18.5 million and \$103.3 million existed as of March 31, 2018 and April 1, 2017, respectively. The \$84.8 million decrease in valuation allowance in 2018 was due to (1) the release of \$42.3 million of valuation allowance resulting from positive evidence of future utilization of existing deferred tax assets, including three years of cumulative pre-tax income; (2) the utilization of \$24.9 million of net operating losses in 2018; and (3) changes in the statutory tax rate caused by the Tax Act, which drove a further reduction in the allowance of \$17.6 million related to the revaluation of deferred tax assets at the new statutory rate. The remaining valuation allowance relates to assets that are expected to expire prior to utilization, primarily foreign and state-related tax credits, and expiring capital loss carryforwards.

The components of income before income taxes and the (benefit from) provision for income taxes, all from continuing operations, were as follows:

(In thousands)	2018	2017	2016
Income (loss) before income taxes:			
Domestic	\$ 61,539	\$ (32,646)	\$ (13,385)
Foreign	14,414	(4,786)	1,112
Total income (loss) before income taxes	<u>\$ 75,953</u>	<u>\$ (37,432)</u>	<u>\$ (12,273)</u>
Provision for (benefit from) income taxes:			
Current:			
U.S. federal and state	\$ (248)	\$ (379)	\$ 8
Foreign	2,614	557	916
Total current	<u>2,366</u>	<u>178</u>	<u>924</u>
Deferred:			
U.S. federal and state	(42,329)	—	—
Foreign	(307)	(201)	(940)
Total deferred	<u>(42,636)</u>	<u>(201)</u>	<u>(940)</u>
Total benefit from income taxes	<u>\$ (40,270)</u>	<u>\$ (23)</u>	<u>\$ (16)</u>

The portion of the tax benefit derived from stock-based compensation that is allocated as common stock was zero in 2018, 2017 and 2016.

A reconciliation of the Company's effective tax rate to the United States federal statutory income tax rate was as follows:

	2018	2017	2016
U.S. federal statutory income tax rate	31.5 %	35.0 %	35.0 %
State income taxes, net of federal benefit	3.7	(0.3)	(0.5)
Tax credits	(4.5)	4.2	17.1
Non-U.S. income taxed at different rates	(3.3)	(0.9)	14.3
Changes in unrecognized tax benefits	4.5	(0.3)	(4.1)
Change in valuation allowance	(111.2)	(25.0)	(51.8)
Stock compensation	(3.3)	(2.6)	(10.2)
Intangible write-off	—	(5.1)	—
Acquisitions	—	(5.9)	—
Change in Rate	22.5	—	—
Mandated Repatriation of Foreign Earnings	9.0	—	—
Other, net	(1.9)	1.0	0.3
Effective tax rate	<u>(53.0)%</u>	<u>0.1 %</u>	<u>0.1 %</u>

The Company operates globally but considers its significant tax jurisdictions to include Canada, China, France, Japan, Korea, Singapore, Taiwan, the United Kingdom and the United States. The Company currently benefits from a tax incentive program in Singapore pursuant to which it pays no Singapore income tax with respect to its manufacturing income. The incentive period ends on June 30, 2021.

The Company provides for income taxes on its foreign subsidiaries' taxable income based on the effective income tax rate in each respective jurisdiction. Prior to 2018, the Company provided for deferred taxes on the undistributed earnings of a subsidiary, except to the extent that the income is intended to be indefinitely reinvested or remitted in a tax-free liquidation. The Tax Act required a deemed repatriation of earnings at a reduced rate to transition from a worldwide to a territorial tax regime. The Company recognized \$19.5 million in taxable income as a result of the deemed dividend and reversed the deferred taxes on previously undistributed earnings. Prior to 2018, the foreign jurisdictions where the Company was permanently reinvested included Singapore and China (Wuhan Topwin Optoelectronics Technology Co., Ltd.). Due to the changes from the Tax Act, the Company no longer intends to permanently reinvest earnings.

As of March 31, 2018, the following tax years remained subject to examination by the major tax jurisdictions indicated:

<u>Major Jurisdictions</u>	<u>Open Tax Years</u>
Canada	2011 and forward
China	2008 and forward
France	2015 and forward
Japan	2011 and forward
Korea	2013 and forward
Singapore	2012 and forward
Taiwan	2013 and forward
United Kingdom	2014 and forward
United States	2004 and forward

A reconciliation of the beginning and ending amount of the consolidated liability for unrecognized income tax benefits for the years ended March 31, 2018, April 1, 2017 and April 2, 2016 was as follows:

<u>(In thousands)</u>	<u>2018</u>	<u>2017</u>	<u>2016</u>
Beginning unrecognized tax benefits balance	\$ 10,744	\$ 10,385	\$ 9,654
Gross increases for tax positions of prior years	2,909	62	731
Gross decreases for tax positions of prior years	(397)	(242)	—
Gross increases for tax positions for current year	1,060	539	—
Ending unrecognized tax benefits balance	<u>\$ 14,316</u>	<u>\$ 10,744</u>	<u>\$ 10,385</u>

The unrecognized tax benefits were presented as long-term income taxes payable on the Consolidated Balance Sheets or netted against deferred tax assets, where applicable. If recognized, the net impact to the effective tax rate associated with the unrecognized tax benefits would be \$0.1 million and zero as of March 31, 2018 and April 1, 2017, respectively. The Company records interest and penalties related to unrecognized tax benefits as tax expense. The interest and penalties were minimal in 2018, 2017 and 2016. The Company does not expect a decrease in unrecognized tax benefits within the next twelve months due to a lapse in statute of limitations. The Company also expects the annual increases to be consistent with prior years and does not anticipate any significant changes in unrecognized tax benefits in the next twelve months as the result of examinations.

24. Earnings (Loss) Per Share

The following was a reconciliation of weighted average shares outstanding used in the calculation of basic and diluted earnings (loss) per share for 2018, 2017 and 2016:

(In thousands, except per share data)	2018	2017	2016
Net income (loss)	\$ 116,223	\$ (37,409)	\$ (12,257)
Weighted average shares used for basic earnings per share	33,967	32,551	31,411
Incremental diluted shares	1,604	—	—
Weighted average shares used for diluted earnings per share	35,571	32,551	31,411
Net income (loss) per share:			
Basic	\$ 3.42	\$ (1.15)	\$ (0.39)
Diluted	\$ 3.27	\$ (1.15)	\$ (0.39)

Awards of options, SARs and unvested restricted stock units representing an additional 0.3 million, 2.0 million and 2.3 million shares of stock for 2018, 2017 and 2016, respectively, were not included in the calculation of diluted net earnings per share because their effect would have been antidilutive.

25. Quarterly Financial Information (Unaudited)

<u>(In thousands, except per share data)</u>	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
<i>Year Ended March 31, 2018</i>				
Net sales				
Systems	\$ 62,093	\$ 60,316	\$ 99,418	\$ 103,522
Services	10,591	10,651	11,422	9,871
Total net sales	72,684	70,967	110,840	113,393
Cost of sales:				
Systems	41,426	38,179	52,502	53,247
Services	4,838	6,256	5,182	5,424
Total cost of sales	46,264	44,435	57,684	58,671
Gross profit	26,420	26,532	53,156	54,722
Net income	2,902	4,260	33,973	75,088
Basic net income per share	0.09	0.13	0.99	2.19
Diluted net income per share	0.08	0.12	0.94	2.10
<i>Year Ended April 1, 2017</i>				
Net sales				
Systems	\$ 38,200	\$ 21,442	\$ 25,427	\$ 40,029
Service	9,468	8,216	8,352	9,889
Total net sales	47,668	29,658	33,779	49,918
Cost of sales:				
Systems	22,422	14,146	17,283	27,499
Service	4,438	4,532	5,048	4,189
Total cost of sales	26,860	18,678	22,331	31,688
Gross profit	20,808	10,980	11,448	18,230
Net loss	(118)	(9,675)	(9,693)	(17,923)
Basic net loss per share	—	(0.30)	(0.29)	(0.54)
Diluted net loss per share	—	(0.30)	(0.29)	(0.54)

The sum of the quarterly data presented in the table above for fiscal 2018 and 2017 may not equal annual results due to rounding.

- In the fourth quarter of 2018, net income included \$41.2 million favorable impact due to the release of tax valuation allowance (See Note 23: Income Taxes).
- In the first and second quarters of 2018, gross profit included \$13.3 million of charges for inventory and other asset write-offs related to restructuring activities (See Note 22: Restructuring and Cost Management Plans).
- In the fourth quarter of 2017, gross profit included \$2.3 million of charges for intangible write-off (See Note 12: Accrued Liabilities) and \$1.7 million of charges in inventory write-off related to discontinued products (See Note 22: Restructuring and Cost Management Plans).
- In the fourth quarter of 2017, net operating expenses included a non-cash goodwill impairment charge of \$7.4 million (See Note 9: Goodwill) and \$6.6 million of restructuring charges related to the Q4 2017 Corporate restructuring plan (See Note 22: Restructuring and Cost Management Plans).

26. Business Acquisitions

Fiscal 2017

On August 1, 2016, the Company acquired all of the outstanding shares of Visicon Technologies, Inc. (Visicon), a leading supplier of high-accuracy and high-throughput measurement and defect detection systems based in Napa, California. The consideration under the merger agreement is subject to adjustment for indebtedness, seller's transaction expenses, working capital and other items.

Based on closing working capital and other adjustments, the Company paid \$2.0 million in cash and issued 603,939 shares of ESI common stock, valued at approximately \$4.2 million. The value of the common stock was based on the closing price of stock on August 1, 2016. A portion of the shares issued in connection with the agreement were reserved in escrow to serve as a source of payment for any purchase price adjustments or indemnity claims by the Company. The shares issued as a part of this merger represented a non-cash investing activity of \$4.2 million.

The total purchase price of \$6.2 million, net of cash acquired, was allocated to the underlying assets acquired and liabilities assumed based on relative fair value, as shown in the following table:

(In thousands)

Accounts receivable	\$	391
Inventory		982
Prepaid expense and other current assets		116
Property, plant and equipment		737
Acquired intangibles		3,300
Goodwill		2,626
Other assets		26
Accounts payable and other accrued liabilities		(1,952)
Total purchase price, net of cash acquired	\$	<u>6,226</u>

The acquisition provided the Company with complementary defect detection technology for integrated verification of laser machining and an expanded presence in the medical device market, resulting in synergies with the Company's current consumer electronics customer base.

None of the goodwill was deductible for tax purposes. The acquired intangible assets consisted primarily of approximately \$2.1 million of developed technology. Identified intangible assets are expected to be amortized over their useful lives of one to six years.

The operating results of the acquired entity are included in the Company's results of operations since the date of acquisition. Pro forma financial information has not been provided for the acquisition of Visicon as it is not material to the Company's operations and financial position.

Fiscal 2015

The Company acquired all of the outstanding shares of Wuhan Topwin Optoelectronics Technology Co., Ltd. (Topwin), a Chinese manufacturer of laser-based systems. In connection with this acquisition, the Company issued 212,217 shares of ESI common stock with contingent and non-contingent considerations under the purchase agreement. The Company also issued an additional 145,442 shares and treated that as compensation to an ex-employee of the Company who was previously an owner of Topwin. The compensation expense was recognized over the service period and from acquisition through fiscal 2018, the Company has recognized \$1.7 million in share-based compensation expense related to this acquisition.

27. Legal Proceedings

In the ordinary course of business, the Company is involved in various legal matters, either asserted or unasserted. In the opinion of management, ultimate resolution of these matters will not have a material effect on the Company's consolidated financial position, results of operations or cash flows.

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

None.

Item 9A. Controls and Procedures

(a) Evaluation of Disclosure Controls and Procedures

We performed an evaluation of our disclosure controls and procedures, as defined in Exchange Act Rules 13a-15(e) and Rule 15d-15(e) in connection with preparation of this Annual Report on Form 10-K. This controls evaluation was performed under the supervision and with the participation of management, including our CEO and CFO. Disclosure controls and procedures are designed to ensure that information required to be disclosed in our reports filed under the Securities Exchange Act of 1934 (the Exchange Act), such as this Annual Report on Form 10-K, is recorded, processed, summarized and reported within the time periods specified by the Securities and Exchange Commission (the SEC). Disclosure controls are also designed to ensure that such information is accumulated and communicated to our management, including the CEO and CFO, as appropriate to allow timely decisions regarding required disclosure.

Based on the controls evaluation, our CEO and CFO have concluded that, as of the end of the period covered by this Form 10-K, our disclosure controls and procedures were effective.

(b) Management's Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Exchange Act Rules 13a-15(f) and 15d-15(f). Under the supervision and with the participation of our management, including our CEO and CFO, we conducted an evaluation of the effectiveness of our internal control over financial reporting as of March 31, 2018 using the criteria established in Internal Control-Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on this evaluation, our management has concluded that we maintained effective internal control over financial reporting as of March 31, 2018.

Deloitte & Touche LLP, an independent registered public accounting firm, who audited the 2018 Consolidated Financial Statements included in this annual report on Form 10-K, has audited the effectiveness of our internal control over financial reporting as of March 31, 2018, as referenced in their report included in (d) below.

(c) Changes in Internal Control

There has been no change in our internal control over financial reporting that occurred during our last fiscal quarter that has materially affected or is reasonably likely to materially affect our internal control over financial reporting.

(d) Report of Independent Registered Public Accounting Firm

To the Shareholders and the Board of Directors of Electro Scientific Industries, Inc.

Opinion on Internal Control over Financial Reporting

We have audited the internal control over financial reporting of Electro Scientific Industries, Inc. and subsidiaries (the "Company") as of March 31, 2018, based on criteria established in *Internal Control - Integrated Framework (2013)* 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 March 31, 2018, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by COSO.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated financial statements for the year ended March 31, 2018, of the Company and our report dated June 8, 2018, 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. 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/ Deloitte & Touche LLP

Portland, Oregon
June 8, 2018

Item 9B. Other Information

None.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

The information required by this item, including information about the Company's audit committee, is included under the headings "Proposal 1: Election of Directors," "Board Committees," "Executive Officers" and "Section 16(a) Beneficial Ownership Reporting Compliance" in our Proxy Statement for our 2018 Annual Meeting of Shareholders and is incorporated herein by reference.

The Company has adopted the ESI Code of Conduct, a code of ethics and business practices with which every person who works for the Company is expected to comply. In addition, the Company has adopted a Code of Ethics for Financial Managers applicable to the chief executive officer, principal financial officer, principal accounting officer or controller and any other person performing similar functions on behalf of the Company. The ESI Code of Conduct and Code of Ethics for Financial Managers are publicly available on the Company's website under "Corporate Governance" in the Investors Section (at <http://investors.esi.com/corporate-governance>). This website address is intended to be an inactive, textual reference only; none of the materials on this website are part of this report. If any waiver is granted, including any implicit waiver, from a provision of the Code of Ethics for Financial Managers, the Company will disclose the nature of such waiver on that website or in a report on Form 8-K.

Item 11. Executive Compensation

The information required by this item is included under the headings "Board Compensation," "Executive Compensation," "Compensation Discussion and Analysis," "Compensation Committee Report" and "Compensation Committee Interlocks and Insider Participation" in our Proxy Statement for our 2018 Annual Meeting of Shareholders and is incorporated herein by reference.

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

Certain information required by this item is included under the headings "Security Ownership of Certain Beneficial Owners and Management" and "Equity Compensation Plan Information" in our Proxy Statement for our 2018 Annual Meeting of Shareholders and is incorporated herein by reference.

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

The information required by this item is included under "Certain Relationships and Related Transactions" and "Corporate Governance Guidelines and Independence" in our Proxy Statement for our 2018 Annual Meeting of Shareholders and is incorporated herein by reference.

Item 14. Principal Accounting Fees and Services

The information required by this item is included under "Proposal 3: Ratification of Independent Registered Public Accounting Firm - Principal Accounting Fees and Services" and "Pre-Approval Policy" in our Proxy Statement for our 2018 Annual Meeting of Shareholders and is incorporated herein by reference.

PART IV

Item 15. Exhibits and Financial Statement Schedules

(a)(1) and (a)(2) Financial Statements and Schedules

The Consolidated Financial Statements, together with the reports thereon of our independent registered public accounting firm, are included on the pages indicated below:

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Consolidated Statements of Operations for the years ended March 31, 2018; April 1, 2017 and April 2, 2016	40
Consolidated Statements of Comprehensive Income (Loss) for the years ended March 31, 2018; April 1, 2017 and April 2, 2016	41
Consolidated Statements of Shareholders' Equity for the years ended March 31, 2018; April 1, 2017 and April 2, 2016	42
Consolidated Statements of Cash Flows for the years ended March 31, 2018; April 1, 2017 and April 2, 2016	43
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There are no schedules required to be filed herewith.

(a)(3) Exhibits

The following exhibits are filed herewith and this list is intended to constitute the exhibit index. An asterisk (*) beside the exhibit number indicates the exhibits containing a management contract, compensatory plan or arrangement, which are required to be identified in this report.

- 3.1 [Third Restated Articles of Incorporation, as amended. Incorporated by reference to Exhibit 3.1 of the Company's Annual Report on Form 10-K, filed on June 15, 2010.](#)
- 3.2 [2009 Amended and Restated Bylaws, as amended. Incorporated by reference to Exhibit 3.1 of the Company's Current Report on Form 8-K filed on March 26, 2015](#)
- 10.1 [Amended and Restated Loan and Security Agreement, dated January 31, 2017, between the Company and Silicon Valley Bank. Incorporated by reference to Exhibit 10.1 of the Company's Current Report on Form 8-K filed on February 1, 2017.](#)
- 10.2 [First Amendment to Loan and Security Agreement, dated July 12, 2016, between the Company and Silicon Valley Bank. Incorporated by reference to Exhibit 10.1 of the Company's Current Report on Form 8-K filed on July 14, 2016.](#)
- 10.3 [Loan and Security Agreement, dated March 20, 2015, between the Company and Silicon Valley Bank. Incorporated by reference to Exhibit 10.1 of the Company's Current Report on Form 8-k filed on March 23, 2015.](#)
- 10.4 [Loan Agreement, dated January 9, 2017, between ESI Leasing, LLC and First Technology Federal Credit Union. Incorporated by reference to Exhibit 10.1 of the Company's Current Report on Form 8-K filed on January 10, 2017.](#)
- 10.5 [Promissory Note, dated January 9, 2017, by ESI Leasing, LLC in favor of First Technology Federal Credit Union. Incorporated by reference to Exhibit 10.2 of the Company's Current Report on Form 8-K filed on January 10, 2017.](#)
- 10.6 [Lease, dated January 9, 2017, between ESI Leasing, LLC and Electro Scientific Industries, Inc. Incorporated by reference to Exhibit 10.3 of the Company's Current Report on Form 8-K filed on January 10, 2017.](#)
- 10.7 [Deed of Trust, Assignment of Leases and Rents, Security Agreement, and Fixture Filing, dated January 9, 2017, by ESI Leasing, LLC in favor of WFG National Title Insurance Company, as trustee, for the benefit of First Technology Federal Credit Union. Incorporated by reference to Exhibit 10.4 of the Company's Current Report.](#)
- 10.8 [Unconditional Guaranty of Payment, dated January 9, 2017, by Electro Scientific Industries, Inc. in favor of First Technology Federal Credit Union. Incorporated by reference to Exhibit 10.5 of the Company's Current Report on Form 8-K filed on January 10, 2017.](#)
- 10.9 * [Employment Agreement, dated August 19, 2016, between the Company and Michael Burger. Incorporated by reference to Exhibit 10.1 of the Company's Current Report on Form 8-K filed on August 19, 2016.](#)

- 10.10 * [2004 Stock Incentive Plan, as amended. Incorporated by reference to Exhibit 10.1 of the Company's Current Report on Form 8-K filed on August 22, 2016.](#)
- 10.11 * [Retention Bonus Agreement, dated August 31, 2016, between Electro Scientific Industries, Inc. and Paul R Oldham. Incorporated by reference to Exhibit 10.1 of the Company's Current Report on Form 8-K filed on September 2, 2016.](#)
- 10.12 * [Form of Performance-Based Restricted Stock Unit Agreement for May 2016 awards. Incorporated by reference to Exhibit 10.5 to the Company's Quarterly Report on Form 10-Q for the quarter ended October 1, 2016.](#)
- 10.13 * [Time-Based Restricted Stock Unit Agreement between the Company and Michael Burger, dated as of October 3, 2016. Incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended December 31, 2016.](#)
- 10.14 * [Form of Performance-Based Restricted Stock Unit Award Agreement between the Company and executives other than Edward Grady \(November 18, 2014\). Incorporated by reference to Exhibit 10.4 to the December 2014 10-Q.](#)
- 10.15 * [Form of Performance-Based Restricted Stock Unit Agreement \(May 2014 grants\). Incorporated by reference to Exhibit 10 of the Company's Quarterly Report on Form 10-Q for the quarter ended September 27, 2014.](#)
- 10.16 * [2004 Stock Incentive Plan, as amended. Incorporated by reference to Exhibit 10.2 of the Company's Current Report on Form 8-K filed on August 25, 2014.](#)
- 10.17 * [Deferred Compensation Plan 2008 Restatement. Incorporated by reference to Exhibit 10.14 of the Company's Annual Report on Form 10-K for the fiscal year ended March 29, 2008 \(2008 10-K\).](#)
- 10.18 * [Amendment No. 1 to Deferred Compensation Plan 2008 Restatement. Incorporated by reference to Exhibit 10.31 of the 2008 10-K.](#)
- 10.19 * [Amendment No. 2 to Deferred Compensation Plan 2008 Restatement, dated February 16, 2012. Incorporated by reference to Exhibit 10.15 of the Company's Annual Report on Form 10-K for the fiscal year ended March 31, 2012 \(2012 10-K\).](#)
- 10.2 * [Form of Amended and Restated Change in Control Agreement between the Company and each of Robert DeBakker, Paul Oldham and Bing Fai Wong. Incorporated by reference to Exhibit 10.1 of the Company's Current Report on Form 8-K filed May 18, 2015.](#)
- 10.21 * [Form of Restricted Stock Unit Agreement for directors. Incorporated by reference to Exhibit 10.4 of the Company's Current Report on Form 8-K filed July 25, 2006.](#)
- 10.22 * [Form of Notice of Grant of Stock Options and Option Agreement and related Terms and Conditions \(for awards made after February 2008\). Incorporated by reference to Exhibit 10.27 of the 2008 10-K.](#)
- 10.23 * [Form of Stock Appreciation Rights Agreement \(for awards made prior to May 2010\). Incorporated by reference to Exhibit 10.1 of the Company's Quarterly Report on Form 10-Q for the fiscal quarter ended September 26, 2009.](#)
- 10.24 * [Form of Indemnification Agreement for directors and certain officers. Incorporated by reference to Exhibit 10 of the Company's Current Report on Form 8-K filed on February 17, 2010.](#)
- 10.25 * [Form of Stock Appreciation Rights Agreement \(for awards made on May 13, 2010\). Incorporated by reference to Exhibit 10.34 of the Company's Annual Report on Form 10-K for the fiscal year ended April 22, 2011.](#)
- 10.26 * [Form of Restricted Stock Units Award Agreement \(for awards made on or after May 12, 2011\). Incorporated by reference to Exhibit 10.40 of the 2012 10-K.](#)
- 10.27 * [Form of Stock Appreciation Rights Agreement \(for awards made between May 2011 and April 2015\). Incorporated by reference to Exhibit 10.23 of the Company's Annual Report on Form 10-K for the fiscal year ended April 2, 2016 \(2016 10-K\).](#)
- 10.28 * [Form of Stock Appreciation Rights Agreement \(for awards made after April 2015\). Incorporated by reference to Exhibit 10.24 of the 2016 10-K.](#)
- 10.29 * [Separation and Release Agreement, dated December 23, 2017, between the Company and Paul Oldham. Incorporated by reference to Exhibit 10.1 of the Company's Quarterly Report on Form 10-Q for the fiscal quarter ended December 30, 2017.](#)
- 10.30 * [Form of Change in Control Agreement with the Company's executive officers other than the Chief Executive Officer. Incorporated by reference to Exhibit 10.2 of the Company's Quarterly Report on Form 10-Q for the fiscal quarter ended December 30, 2017.](#)
- 21 [Subsidiaries of the Company](#)
- 23 [Consent of Independent Registered Public Accounting Firm - Deloitte & Touche LLP](#)
- 31.1 [Certification of the Chief Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.](#)
- 31.2 [Certification of the Chief Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.](#)
- 32.1 [Certification of Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.](#)

32.2	Certification of Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	XBRL Taxonomy Extension Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document

ESI Subsidiaries
As of March 31, 2018

Name	State/Country of Incorporation	Percentage of Voting Securities Owned
ESI International Corp.	Oregon	100%
ESI China, Inc.	Oregon	100%
New Wave Research, Inc.	California	100%
ESI-Pyrophotonics Lasers, Inc.	Canada	100%
Electro Scientific Industries Europe Ltd.	United Kingdom	100%
Electro Scientific Industries, SARL	France	100%
Electro Scientific Industries GmbH	Germany	100%
Eolite Systems, SAS	France	100%
ESI Taiwan (Branch Office)	Taiwan	100%
ESI Electronic Equipment (Shanghai) Co., Ltd.	China	100%
ESI Korea Co. Ltd.	Korea	100%
Electro Scientific Industries Japan Co., Ltd.	Japan	100%
Electro Scientific Industries Singapore PTE Ltd.	Singapore	100%
ESI Technology Development, Pte. Ltd.	Singapore	100%
ESI China R&D Investment, Pte. Ltd.	Singapore	100%
ESI (Beijing) R&D Center Co., Ltd.	China	100%
ESI (Beijing) Electro Optic Manufacturing Co. Ltd.	China	100%
Wuhan Topwin Optoelectronics Technology Co. Ltd.	China	100%

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in Registration Statement No. 333-213856, 333-213857, 333-55060, 333-67356, 333-88411, 333-122660, 333-122661, 333-137878, 333-137879, 333-146107, 333-151804, 333-155978, 333-162876, 333-199166 and 333-220045 on Form S-8 of our reports dated June 8, 2018, relating to the financial statements of Electro Scientific Industries, Inc., and the effectiveness of Electro Scientific Industries, Inc.'s internal control over financial reporting, appearing in this Annual Report on Form 10-K of Electro Scientific Industries, Inc. for the year ended March 31, 2018.

/s/ Deloitte & Touche LLP

Portland, Oregon
June 8, 2018

**CERTIFICATION PURSUANT TO
SECTION 302(a) OF THE SARBANES-OXLEY ACT OF 2002**

I, Michael D. Burger, certify that:

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

Date: June 8, 2018

/s/ Michael D. Burger

Michael D. Burger

President and Chief Executive Officer

**CERTIFICATION PURSUANT TO
SECTION 302(a) OF THE SARBANES-OXLEY ACT OF 2002**

I, Allen L. Muhich, certify that:

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

Date: June 8, 2018

/s/ Allen L. Muhich

Allen L. Muhich

Vice President, Chief Financial Officer and Corporate
Secretary

(Principal Financial Officer and Principal Accounting Officer)

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

In connection with this annual report on Form 10-K of Electro Scientific Industries, Inc. (the Company) for the year ended March 31, 2018 as filed with the Securities and Exchange Commission on the date hereof (the Report), I, Michael D. Burger, President and Chief Executive Officer of the Company, certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that to the best of my knowledge:

- (1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ Michael D. Burger

Michael D. Burger

President and Chief Executive Officer

June 8, 2018

This certification is made solely for the purpose of 18 U.S.C. Section 1350, and not for any other purpose. A signed original of this written statement required by Section 906 has been provided to Electro Scientific Industries, Inc. and will be retained by Electro Scientific Industries, Inc. and furnished to the Securities and Exchange Commission or its staff upon request.

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

In connection with this annual report on Form 10-K of Electro Scientific Industries, Inc. (the Company) for the year ended March 31, 2018 as filed with the Securities and Exchange Commission on the date hereof (the Report), I, Allen L. Muhich, Vice President, Chief Financial Officer, and Corporate Secretary of the Company, certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that to the best of my knowledge:

- (1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ Allen L. Muhich

Allen L. Muhich
Vice President, Chief Financial Officer and Corporate
Secretary
(Principal Financial Officer and Principal Accounting Officer)

June 8, 2018

This certification is made solely for the purpose of 18 U.S.C. Section 1350, and not for any other purpose. A signed original of this written statement required by Section 906 has been provided to Electro Scientific Industries, Inc. and will be retained by Electro Scientific Industries, Inc. and furnished to the Securities and Exchange Commission or its staff upon request.

