

MACOM Technology Solutions Holdings, Inc.  
Form 10-K  
November 16, 2018

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 September 28, 2018

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

For the transition period from \_\_\_\_\_ to \_\_\_\_\_  
Commission file number: 001-35451

MACOM Technology Solutions Holdings, Inc.  
(Exact name of registrant as specified in its charter)

Delaware 27-0306875  
(State or other jurisdiction of incorporation or organization) (I.R.S. Employer Identification No.)

100 Chelmsford Street, Lowell, Massachusetts 01851  
(Address of principal executive offices) (Zip Code)

Registrant's telephone number, including area code: (978)  
656-2500

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

Title of Each Class	Name of Each Exchange on Which Registered
Common Stock, par value \$0.001 per share	Nasdaq Global Select Market

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

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

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

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

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files).  Yes  No

Indicate by check mark 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, 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.

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Large accelerated filer  Accelerated filer  Non-accelerated filer  Smaller reporting company  Emerging growth company

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

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).

Yes  No

The aggregate market value of the registrant's common stock held by non-affiliates of the registrant as of March 30, 2018, the last business day of the registrant's second fiscal quarter, was approximately \$746.4 million based on the closing price of the registrant's common stock as of such date as reported on the Nasdaq Global Select Market. For purposes of the foregoing calculations only, shares of common stock held by each executive officer and director of the registrant and their respective affiliates have been excluded, as such persons may be deemed to be affiliates. This determination of affiliate status is not necessarily a conclusive determination for other purposes.

The number of outstanding shares of the registrant's common stock, par value \$0.001 per share, as of November 9, 2018 was 65,192,357.

#### DOCUMENTS INCORPORATED BY REFERENCE

Part III incorporates certain information by reference from the registrant's definitive proxy statement for the 2019 Annual Meeting of Stockholders, which will be filed no later than 120 days after the close of the registrant's fiscal year ended September 28, 2018.

MACOM TECHNOLOGY SOLUTIONS HOLDINGS, INC.

ANNUAL REPORT ON FORM 10-K  
FOR THE FISCAL YEAR ENDED SEPTEMBER 28, 2018

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## CAUTIONARY STATEMENT

This Annual Report on Form 10-K (Annual Report) contains forward-looking statements, including statements regarding our business outlook, strategy, plans, expectations, estimates and objectives for future operations, our future results of operations and our financial position. Forward-looking statements generally may be identified by terms such as “anticipates,” “believes,” “could,” “continue,” “estimates,” “expects,” “intends,” “may,” “plans,” “potential,” “predicts,” “pr

“should,” “targets,” “will,” “would” or similar expressions or variations or the negatives of those terms. Forward-looking statements are neither historical facts nor assurances about future performance. Instead, they are based only on our current beliefs, expectations and assumptions. Because forward-looking statements relate to the future, such statements involve inherent risks, changes and uncertainties that are difficult to predict and many of which are outside of our control. A number of important factors could cause actual results and outcomes to differ materially and adversely from those expressed or implied by our forward-looking statements. We urge you to consider the risks and uncertainties in “Item 1A - Risk Factors” and elsewhere in this Annual Report and the other documents filed by us with the Securities and Exchange Commission (SEC). Except as required by law, we undertake no obligation to revise or update our forward-looking statements to reflect any event or circumstance that may arise after the date of this Annual Report.

In this document, the words “Company,” “we,” “our,” “us,” and similar terms refer only to MACOM Technology Solutions Holdings, Inc. and its consolidated subsidiaries, and not any other person or entity.

“MACOM,” “M/A-COM,” “M/A-COM Technology Solutions,” “M/A-COM Tech,” “Partners in RF & Microwave” and related logos are trademarks of MACOM Technology Solutions Holdings, Inc. All other brands and names listed are trademarks of their respective owners.

## PART I

### ITEM 1. BUSINESS

#### Overview

We are a leading provider of high-performance analog semiconductor solutions that enable next-generation Internet applications, the cloud connected apps economy and the modern, networked battlefield across the radio frequency (RF), microwave, millimeterwave and lightwave spectrum. Our technology enables next-generation radars for global and homeland defense, air traffic control and weather forecasting. We help our customers, including some of the world's leading communications infrastructure and aerospace and defense companies, solve complex challenges in areas including network capacity, signal coverage, energy efficiency and field reliability, utilizing our best-in-class team and broad portfolio of analog RF, microwave, millimeterwave and lightwave semiconductor solutions.

We design, develop, manufacture and have manufactured differentiated, high-value products for customers who demand high performance, quality and reliability. We offer a broad portfolio of over 5,000 standard and custom devices, which include integrated circuits (IC), multi-chip modules (MCM), power pallets and transistors, diodes, amplifiers, switches and switch limiters, passive and active components and complete subsystems, across more than 60 product lines serving over 7,000 end customers in three primary markets. Our semiconductor products are electronic components that our customers incorporate into their larger electronic systems, such as, wireless basestations, high density networks, active antenna arrays, radar, magnetic resonance imaging systems (MRI) and test and measurement. Our primary markets are: 1) Telecom, which includes carrier infrastructure like long-haul/metro, 5G and FTTx/PON; 2) Data Centers, enabled by our broad portfolio of photonic solutions and fiber optic applications; and 3) Industrial and Defense (I&D), which includes military and commercial radar, RF jammers, electronic countermeasures, communication data links and Multi-market applications, which include industrial, medical, test and measurement and scientific applications.

We have built upon a 60-year heritage of delivering innovative solutions dating back to the founding of Microwave Associates, Inc. We utilize our system-level knowledge and our extensive capabilities in high-frequency modeling, IC design, integration, packaging and manufacturing of semiconductors to address our customers' needs. Our specialized engineers and technologists located across 24 global design centers collaborate with our customers during the early stage of their system development process to incorporate our standard products and identify custom products we can develop to enhance their overall system performance. We intend to continue to expand our revenue opportunities through our market-facing strategy of aligning our solutions with our customers' needs and collaborating with them during the product definition stage of their systems toward design-in of our products. We believe this approach will allow us to sell more complete semiconductor solutions that integrate more functions and incorporate more highly-valued content into our products. We believe the combination of our market-facing strategy, targeted development projects, our engineering expertise and our fabrication capabilities enables us to identify profitable growth opportunities and rapidly develop and deliver new products and solutions.

Many of our products have long life cycles ranging from five to ten years, and some of our products have been shipping for over 20 years. We continue to develop or acquire new products and technologies to improve our ability to serve our target markets. Our growth strategy is to increase our market share, strengthen our customer relationships and capture more design wins. As we grow our portfolio and technology base, we believe our customers will select more of our components for use in their systems.

We believe our "fab-rite" manufacturing model provides us with a competitive advantage and an attractive financial model by allowing us to utilize our variable cost structure and enabling us to adapt to changing market conditions and customer demands. We operate semiconductor fabrication facilities at our Lowell, Massachusetts headquarters, in Ithaca, New York and in Ann Arbor, Michigan. We manufacture compound semiconductors including Gallium Arsenide (GaAs) and Indium Phosphide (InP). In the I&D markets, a domestic fabrication facility may be a requirement to be a strategic supplier, and we believe our status as a "Trusted Foundry" offers us further competitive differentiation.

We also utilize external semiconductor foundries to supply us with additional capacity and lower costs, and to provide us access to additional process technologies. The ability to utilize a broad array of internal proprietary process

technologies and commercially available foundry technologies allows us to select the most appropriate technology to solve our customers' needs. We believe our fab-rite strategy provides us with dependable domestic supply, control over quality, reduced capital investment requirements, faster time to market and additional outsourced capacity when needed. In addition, the experience base cultivated through the continued operation of our internal fabrication lines provides us with the expertise to better manage our external foundry suppliers.

We serve our broad and diverse customer base through a multi-channel sales strategy utilizing our direct sales force, application engineers, a global network of independent sales representatives and distributors. Our direct sales force and application engineers are focused on securing design wins by supporting industry-leading original equipment manufacturer (OEM) customers. Our external sales representatives and distributors are focused on increasing our design wins with smaller or emerging customers early in their new product development efforts.

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## Our Markets & Products

The growth of advanced electronic systems using analog RF, microwave, millimeterwave and lightwave semiconductor technologies has created demand for high-performance analog semiconductor components and solutions. The terms RF, microwave and millimeterwave are used to refer to electromagnetic waves in a particular frequency range produced by applying an alternating current to an antenna or conductor. A wide variety of advanced electronic systems rely on electromagnetic waves for high-speed data transmission or reception. We offer high-performance analog semiconductor products for both wireless and wireline applications across the frequency spectrum from RF to millimeterwave and beyond through photonics. We have historically reported our revenue by reference to three primary markets: Networks, Aerospace & Defense (A&D) and Multi-market. Given the recent increase in the size of the Networks market relative to other markets, and our increasing focus on Cloud Data Center applications, in fiscal year 2018 we began reporting our revenue by reference to the following three primary markets: I&D (roughly corresponding to the former Multi-market and A&D markets combined), Data Center and Telecom. The market demand for high-performance analog RF, microwave, millimeterwave and lightwave semiconductors is driven by the growth of mobile Internet devices, cloud computing and streaming video that strain existing network capacity, as well as the growth in advanced information-centric military applications. In addition, the increasing need for real-time information, sensing and imaging functions in industrial, medical, scientific and test and measurement applications is driving demand for our products.

Telecom. Growth in the Telecom market is driven by the proliferation of wireless and wired devices from smartphones and tablets to basestations, as well as the data rich applications and services they enable such as mobile Internet, cloud computing, video-on-demand, social media, global positioning functionality and location-based services. Growth in global next-generation Internet and Internet of Things (IoT) applications drives demand for communications infrastructure equipment requiring amplifiers, filters, receivers, switches, synthesizers, transformers, upconverters and other components to expand and upgrade cellular backhaul, cellular infrastructure, wired broadband and fiber optic networks. Semiconductor products and solutions must continually deliver greater bandwidth and functionality as the demands of our customers and end users increase.

Our expertise in system-level architectures and advanced IC design capability allow us to offer network OEM customers highly-integrated solutions optimized for performance and cost. Our portfolio of opto-electronics products includes lasers, clock and data recovery, optical post amplifiers, laser and modulator drivers, transimpedance amplifiers, transmitter and receiver applications in 2.5/6/10/40/100 gigabits per second (Gbps) long haul, metro, data center links and fiber-to-the-X (FTTx) fiber optic network components that enable telecommunications carriers and data centers to cost-efficiently increase their network capacity by a factor of four to ten times over earlier generation solutions. We match our opto-electronic components to various lasers enabling our customers to buy more complete solutions for their opto-electronic systems. For optical communications applications, we utilize a proprietary combination of GaAs, InP and Silicon Germanium (SiGe) technologies to obtain advantages in performance and size. For wired broadband applications, we offer OEM customers the opportunity to streamline their supply chain through our broad catalog of active components such as active splitters, amplifiers, multi-function ICs and switches, as well as passive components such as transformers, diplexers, filters, power dividers and combiners.

Data Center. The demand by Cloud Data Center providers for faster data delivery speeds at cost-effective prices is growing rapidly, where higher speeds are necessary to process the current growth in traffic. The pace of datacenter capacity expansion has created a fundamental change in the traditional model of network equipment development and deployment. Equipment vendors need to dramatically cut development cycles while bringing cost optimized solutions to market. To solve these challenges, MACOM is focused on complete chip-set solutions that enable our customers to deliver optical transceivers that meet the requirements of today's Cloud Data Center deployments. By building a comprehensive portfolio of complementary products that enable our customers' optical transceiver applications, MACOM offers high performing, cost-effective component solutions for next-generation networks.

We enable the market with a complete product portfolio of PAM-4 PHYs, TIAs, Modulator Drivers, Lasers, and Silicon Photonics, and, in many cases, individual component designs are optimized for use together as a chip-set.



Industrial & Defense. In the I&D market, military applications require advanced electronic systems, such as radar warning receivers, communications data links and tactical radios, unmanned aerial vehicles (UAVs), RF jammers, electronic countermeasures and smart munitions. Military applications are becoming more sophisticated, favoring higher performance semiconductor ICs based on GaAs and Gallium Nitride (GaN) technologies due to their high power density, improved power efficiency and broadband capability. Radar systems for mapping and targeting missions are undergoing a major transition from existing mechanically-scanned radar products to a next-generation of active electronically-scanned array (AESA) based products. Consisting of hundreds or thousands of transmit/receive modules commonly based on GaAs and GaN technologies, AESAs deliver greater speed, range, resolution and reliability over mechanically-scanned radar products that utilize a single transmitter and receiver with mechanical steering. Military communications employing wireless infrastructure and tactical radios in the field remain critical for allowing geographically dispersed operators to exchange information quickly and efficiently. UAVs and their underlying semiconductor content require innovative designs to meet rigorous specifications for high performance, small size and low power consumption.

We believe our in-depth knowledge of critical radar system requirements, integration expertise and track record of reliability make us a valued resource for our I&D customers faced with demanding application parameters. Further, we have been accredited by the United States Department of Defense with “Trusted Foundry” status, a designation conferred on microelectronics vendors exhibiting the highest levels of process integrity and protection, which we believe differentiates us as a trusted manufacturer of ICs for U.S. military and

aerospace applications. For radar applications, we offer standard and custom power transistor pallets, discrete components, switch limiters, phase shifters and integrated modules for transmit and receive functions in air traffic control, marine, weather, and military radar applications. For military communications data link and tactical radio applications, we offer a family of active, passive and discrete products, such as Monolithic Microwave Integrated Circuits (MMICs), control components, voltage-controlled oscillators (VCOs), transformers, power transistors and pallets, and diodes. In some cases, we design parts specifically for these applications, while in others, our reputation for quality and our broad catalog allows these demanding customers to reduce the cost of their high-performance systems by designing in standard dual-use or commercial off-the-shelf parts that we have developed for other applications. We believe manufacturing many of these products in our Lowell, Massachusetts Trusted Foundry offers us a competitive advantage in the I&D market because of certain I&D customers' requirements for a domestic supply chain.

Furthermore, growth in the I&D business is driven by multi-market applications encompassing industrial, medical, test and measurement and scientific applications, where analog RF, microwave and millimeterwave semiconductor solutions are gaining prevalence. In addition, evolving medical technology has increased the need for high-performance MMICs and other semiconductor solutions in medical imaging and patient monitoring to provide enhanced analysis and functionality.

In the medical industry, our custom designed non-magnetic diode product line is a critical component for certain MRI applications. For sensing and test and measurement applications, we believe our patented Heterolithic Microwave Integrated Circuit (HMIC) process is ideal for high-performance, integrated bias networks and switches. Our catalog of general purpose GaAs ICs includes low noise amplifiers, switches and power amplifiers that address a wide range of applications such as industrial automation systems to test and measurement equipment.

To address our target markets, we offer a broad range of standard and custom ICs, modules and complete subsystems across approximately 60 product lines. Our product catalog currently consists of more than 5,000 products including the following key product platforms: power pallets and transistors, ICs, diodes, switches and switch limiters, passive and active components, MCMs, and complete subsystems. Many of our product platforms are leveraged across multiple markets and applications. For example, our application expertise with regard to power transistor technology is leveraged across both scientific laboratory equipment applications and commercial and defense radar system applications. Our diode technology is used in switch filter banks of military tactical radios as well as medical imaging MRI systems. The table below presents the major product families and major applications in our primary target markets.

TARGET MARKET	MAJOR PRODUCT FAMILIES		MAJOR APPLICATIONS
Telecom	RF Power Transistors - GaN-on-Silicon (GaN-on-Si) Amplifiers	Enterprise Voice and Data Processors	Wireless Network Infrastructure
	Frequency Multipliers	Fabry-Perot Lasers	Wireless Backhaul
	Hybrid Mixers	Distributed Feedback Lasers	Wireless LAN (WiFi)
	Mixers	Photonic Integrated Circuits (PICs)	SatCom/VSAT
	Receivers	Laser Photonic Integrated Circuits (L-PIC)	5G Communications
	Up Converts	Crosspoint Switches, Signal Conditioners/Redrivers	Cameras
	Voltage Controlled Oscillators	Bias Networks	DVRs
	NLTL GaAs Comb Generators	Couplers	Data Center
	Laser and Modulator Drivers	Filters/Diplexers	Metro
	Transimpedance Amplifiers (TIAs)	Power Dividers/Combiners	Client Side
	Clock & Data Recovery	Transformers/Baluns	Line Side
	Optical Post Amplifiers	Resistor Products	FTTx
	LED/Laser Drivers for Display	Inductor Products	CATV Head-End
			CATV HFC Infrastructure

PIN Limiter Diodes	Capacitors	CATV/Satellite Set Top Box
PIN Switch and Attenuator Diodes	SDI Cable Drivers	FTTx Infrastructure
Schottky Mixer and Detector Diodes	SDI Cable Equalizers	Distribution Amplifiers
Multiplier Step Recovery Diodes	SDI Reclockers	Format Conversion
Varactor Tuning Diodes	HDcctv Cable Drivers	Monitors Routers and Switchers
Geranium Tunnel Diodes	HDcctv Cable Equalizers	Backplane Connectivity
DC Voltage Current Limiter	HDcctv Reclockers	Packet Switchers and Routers
Wide Area Networks		Storage Area Networks
Voice-over-IP (VoIP) Processors		Transport Networks/OTN
Carrier Convergence Processors		

TARGET MARKET	MAJOR PRODUCT FAMILIES	MAJOR APPLICATIONS	
Data Center	Fabry-Perot Lasers Distributed Feedback Lasers Photonic Integrated Circuits (PICs) Laser Photonic Integrated Circuits (L-PIC) Crosspoint Switches, Signal Conditioners/Redrivers Laser and Modulator Drivers Transimpedance Amplifiers (TIAs) Clock & Data Recovery Optical Post Amplifiers	Wireless Network Infrastructure Wireless Backhaul 5G Communications Cloud Data Center Metro Client Side Line Side FTTx	
Industrial & Defense	RF Power Transistors - Silicon Bipolar RF Power Transistors - Silicon MOSFET GaN and GaAs Device Bias Sequencer RF Power - Silicon Bipolar Pallet and Modules Amplifiers PIN Limiter Diodes PIN Switch and Attenuator Diodes Schottky Mixer and Detector Diodes Multiplier Step Recovery Diodes Varactor Tuning Diodes Germanium Tunnel Diodes DC Voltage Current Limiter CMOS Switch Drivers Digital Attenuators Digital Phase Shifters IQ Modulators/Demodulators Limiters Power Detectors Switches Voltage Variable Attenuators Phase Detectors Current Regulators Schottky Barrier Rectifier Chip Series Silicon Switching Diodes Ultrafast Rectifier Diodes Zener Diode Chips TC Zener Reference Diodes	NPN RAD Hard Small Signal Transistors RF Power Transistors - GaN-on-Si RF Power Transistors - Silicon Bipolar RF Power Transistors - Silicon MOSFET GaN and GaAs Device Bias Sequencer RF Power - Silicon Bipolar Pallet and Modules Amplifiers Frequency Multipliers Hybrid Mixers Mixers Receivers Transceivers Up Converts Voltage Controlled Oscillators NLTL GaAs Comb Generators PIN Limiter Diodes PIN Switch and Attenuator Diodes Schottky Mixer and Detector Diodes Multiplier Step Recovery Diodes Varactor Tuning Diodes Germanium Tunnel Diodes DC Voltage Current Limiter CMOS Switch Drivers Digital Attenuators Digital Phase Shifters IQ Modulators/Demodulators Limiters	5G Communications Communication Electronic Warfare (EW) Radar MACOM in Active Antennas Build-to-Specification Space and Hi-Rel Industrial Test and Measurement Healthcare Automotive Ignition Industrial Cooking Industrial Drying Medical Tumor Ablation Plasma Street Lighting

Low Noise Zener Diode	Power Detectors
Silicon Zener Diodes	Switches
Silicon Controlled Rectifiers	Voltage Variable Attenuators
PNP Transistors	Phase Detectors
NPN Power Transistors	

We believe the combination of our market-facing strategy and our engineering expertise enables us to identify profitable growth opportunities and rapidly develop and deliver new products and solutions complemented by strategic acquisitions. Many of our products have long lifecycles ranging from five to ten years, and some of our products have been shipping for over 20 years. Our goal is to strengthen customer relationships and capture design wins with customers that allow us to be a supplier of components used in their systems.

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## Research and Development

Our research and development efforts are directed toward the rapid development of new and innovative products and solutions, process technologies and packaging techniques. The interaction of semiconductor process technology, circuit design technology and packaging technology defines the performance parameters and the customers' acceptance of our products. We believe our core competency is the ability to model, design, integrate, package and manufacture differentiated solutions. We leverage this core competency to solve difficult and complex challenges that our customers face during their system design phases. We believe our integrated and customized solutions offer customers high performance, quality, reliability and faster time to market.

**Circuit design and device modeling expertise.** Our engineers are experts in the design of circuits capable of reliable, high-performance analog RF, microwave, millimeterwave and photonic signal conditioning. Our staff has decades of experience in solving complex design challenges in applications involving high frequency, high power and environmentally-rugged operating conditions. We also develop proprietary device and electro-magnetic modeling techniques that our engineers use to generate predictive models prior to fabrication. Our predictive modeling expertise allows us to achieve faster design cycle times resulting in shorter time to market for our products.

**Semiconductor process technology.** We leverage our domestic semiconductor wafer fabrication capabilities and our foundry suppliers to offer customers the right process technology to meet their particular requirements. Depending on the requirements for the application, our semiconductor products may be designed using an internally developed or externally sourced process technology.

**Packaging expertise.** Our extensive packaging expertise enables us to model the interaction between the semiconductor and its package. Our engineers make adjustments in the design of both the semiconductor and the package, to take account of that interaction. We offer products in a variety of different package types for specific applications, including plastic over-molded, ceramic and laminate-based packaging.

We continue to invest in proprietary processes to enable us to develop and manufacture high-value solutions. For example, we have developed innovative, patented technologies such as HMIC, which provides high integration, high power and low loss switching capabilities for our primary markets. This technology replaces mechanical switches for very high-power applications such as wireless base-stations.

Our engineers' radar, optical and microwave system-level design expertise allows us to offer differentiated solutions that leverage multiple process technologies and are integrated into a single, higher-level assembly, thereby delivering our customers enhanced functionality.

We anticipate that we will continue to make significant research and development expenditures in order to drive future new product and process introductions and maintain our competitive position.

## Sales and Marketing

We employ a global multi-channel sales strategy and support model intended to facilitate our customers' evaluations and selections of our products. We sell through our direct sales force, our application engineering staff, our global network of independent sales representatives, resellers and distributors, as well as an e-commerce channel. We have strategically positioned our direct sales and applications engineering staff in 33 locations worldwide, augmented by independent sales representatives and distributors with additional domestic and foreign locations to offer responsive local support resources to our customers and to build long-term relationships. Our application engineers visit customers at their engineering and manufacturing facilities, aid them in understanding our capabilities and collaborate with them to deliver products that can optimize their system performance. Our global independent sales representatives and distributor network allow us to extend our sales capabilities to new customers in new geographies more cost effectively than using our direct sales force alone.

Our products are principally sold in Asia, the U.S. and Europe, which is where we concentrate our direct sales force, application engineering staff, independent sales representatives and distributors. Sales to our distributors accounted for 29.0%, 19.3% and 13.2% of our revenue in fiscal years 2018, 2017 and 2016, respectively. Our agreements with sales representatives, resellers and distributors may provide for an initial term of one or more years with the opportunity for subsequent renewals or for an indefinite term, and also typically provide that either party may terminate the agreement for convenience with a minimum period of prior notice to the other party, usually between 30 and 90 days.

Our sales efforts are focused on the needs of our customers in our three primary markets rather than on particular product lines, facilitating product cross-selling across end markets, and within key accounts. Through our website, customers can order online, request samples and access our product selection guides, detailed product brochures and data sheets, application notes, suggested design block diagrams and test fixture information, technical articles and information regarding quality and reliability.

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### Customers

Our customer base is diversified and includes OEM customers, contract manufacturers, resellers and distributors. For fiscal year 2018, no direct customer individually accounted for 10% or more of our revenue. For fiscal year 2017, one direct customer, Huawei Technologies (Huawei) accounted for 10% of our revenue. In fiscal year 2016, two direct customers, Huawei and Alltek, individually accounted for more than 10% of our revenue at 15% and 12%, respectively. In addition, our principal distributor, Richardson Electronics, an Arrow Electronics Company (Richardson), accounted for 12.5%, 10.5% and 10.6% of our revenue in fiscal years 2018, 2017 and 2016, respectively. Our top 25 direct customers accounted for an aggregate of 52.8%, 59.1% and 65.8% of our revenue in fiscal years 2018, 2017 and 2016, respectively.

Our orders from and sales to customers in the telecommunications infrastructure and networking markets may tend to be lower in our first fiscal quarter as compared to other quarters due to seasonal inventory management by large OEM and contract manufacturing customers.

### Competition

The markets for our products are highly competitive and are characterized by continuously evolving customer requirements. We believe that the principal competitive factors in our markets include:

the ability to timely design and deliver products and solutions that meet customers' performance, reliability and price requirements;

the breadth and diversity of product offerings;

the ability to provide a reliable supply of products in sufficient quantities and in a timely manner;

the ability of engineering talent to drive innovation and new product development;

the quality of customer service and technical support; and

the financial reliability, operational stability and reputation of the supplier.

We believe that we compete favorably with respect to these factors. We compete primarily with both our customers' internal design resources and other suppliers of high-performance analog semiconductor solutions for use in wireless and wireline RF, microwave, millimeterwave and photonic applications, some of whom have greater financial resources and scale than us. We expect competition in our markets to intensify, as new competitors enter these markets, existing competitors merge or form alliances and new technologies emerge. We believe that in the future there will be increased competition from companies utilizing alternative technologies, including high-volume manufacturers using low-cost silicon process technology. Some of our competitors are also our customers, and in certain product categories we compete with semiconductor manufacturers from which we also obtain foundry services, such as Sumitomo Electric Device Innovations, Inc.

We compete with Broadcom Inc. (Broadcom) across our primary markets, Telecom, Data Center and I&D. In the Telecom and Data Center markets, we compete with NXP Semiconductors N.V. (NXP), Cree Inc., Inphi Corporation (Inphi), Maxlinear Inc. (Maxlinear) and Semtech Corporation (Semtech). In the I&D market, we compete with Analog Devices, Inc. (ADI), Cobham Defense Electronic Systems Corporation (Cobham), Microchip Technology Incorporated, Qorvo, Inc. (Qorvo) and Skyworks Solutions, Inc. (Skyworks).

### Backlog and Inventory

Our sales are made primarily on a purchase order basis, rather than pursuant to long-term contracts where the customer commits to buy any minimum amount of product over an extended period. On occasion, we ship finished goods inventory to certain customer or third-party "hub" locations, but do not recognize revenue associated with such shipments until these customers consume the inventory from the hub. We also frequently ship products from our inventory shortly after receipt of an order, which we refer to as "turns business". A substantial portion of our revenues for any particular fiscal quarter may be derived from turns business transacted in the last few weeks of the quarter, and unanticipated fluctuations in turns business may result in material shifts in revenue between fiscal quarters. Due to the foregoing factors, different ordering patterns of our customers and the wide range of lead times to produce and deliver our products, we believe that backlog as of any particular date may not be a reliable indicator of our future revenue levels.

### Intellectual Property



Our success depends in part upon our ability to protect our intellectual property. To accomplish this, we rely on a combination of intellectual property rights, including patents, copyrights, trademarks and trade secrets, as well as customary contractual protections with our customers, suppliers, employees and consultants.

As of September 28, 2018, we had 691 U.S. and 198 foreign issued patents and 125 U.S. and 174 foreign pending patent applications covering elements of circuit design, manufacturing and wafer fabrication. We do not know whether any of our pending patent applications will result in the issuance of patents or whether the examination process will require us to narrow our claims. The expiration dates of our patents range from 2018 to 2037. We do not regard any of the patents scheduled to expire in the next 12 months as material to our overall

intellectual property portfolio. Notwithstanding our active pursuit of patent protection when available, we believe that our future success will be determined by the innovation, technical expertise and management abilities of our engineers and management more than by patent ownership.

The semiconductor industry is characterized by the existence of a large number of patents, copyrights, trademarks and trade secrets, and by the vigorous pursuit, protection and enforcement of intellectual property rights. Many of our customer agreements require us to indemnify our customers for third-party intellectual property infringement claims, which may in the future require that we defend those claims and might require that we pay damages in the case of adverse rulings. Claims of this sort could harm our relationships with our customers and might deter future customers from doing business with us. With respect to any intellectual property rights claims against us or our customers or distributors, we may be required to cease manufacture of the infringing product, pay damages or settlement amounts, expend resources to develop non-infringing technology, seek a license, which may not be available on commercially reasonable terms or at all, or relinquish patents or other intellectual property rights.

#### Manufacturing, Sources of Supply and Raw Materials

When designing a product solution for our customers, we may choose to utilize our internal proprietary process technologies or technologies from external fabrication facilities, or a combination of both. We believe our ability to select both internal and external technologies in our product solutions is a competitive advantage because it helps us to provide a unique and optimized solution for our customers.

Our internal wafer fabrication and the majority of our internal assembly and test operations are conducted at our Lowell, Massachusetts headquarters and our Ithaca, New York and Ann Arbor, Michigan facilities. We believe having U.S.-based wafer fabrication lines is a competitive advantage for us over competitors that do not have this capability, because it provides us with greater control over quality, a secure source of supply and a domestic source for U.S. I&D customers. We also believe that our U.S.-based wafer fabrication lines allow us to develop products faster with shorter production lead times than if we utilized external foundries and allow us to efficiently produce a wide range of low, medium and high volume products. We perform internal assembly and test functions at our Lowell, Massachusetts, Ithaca, New York, Nashua, New Hampshire, Ann Arbor, Michigan and Hsinchu, Taiwan locations.

We complement our internal manufacturing with outsourced foundry partners and other suppliers. Our operations staff has extensive expertise in the management of outsourced manufacturing service providers and other supply chain participants. We believe our fab-rite model of outsourcing certain of our manufacturing activities rather than investing heavily in capital-intensive production facilities, provides us with the flexibility to respond to new market opportunities, simplifies our operations, provides access to other process technologies and additional manufacturing capacity and reduces our capital requirements. We also use third-party contract manufacturers for assembly, packaging and test functions, and in some cases for fully-outsourced turnkey manufacturing of our products.

The principal materials used in the production of our IC products are high purity source materials such as gallium, aluminum, arsenic, nitrite, carbon and silicon. We purchase from hundreds of suppliers worldwide, a wide variety of semiconductors, wafers, packages, metals, printed circuit boards, electromechanical components and other materials for use in our operations. These supply relationships are generally conducted on a purchase order basis. The use of external suppliers involves a number of risks, including the possibility of material disruptions in the supply of key raw materials and components, and the lack of control over delivery schedules, capacity, quality and costs.

While we attempt to maintain alternative sources for our principal raw materials to reduce the risk of supply interruptions or price increases, some of the raw materials and components are not readily available from alternate suppliers due to their unique nature, design or the length of time necessary for re-design or qualification. We routinely utilize single sources of supply for various materials based on availability, performance, efficiency or cost considerations. For example, wafers procured from merchant foundries for a particular process technology are generally sourced through a single foundry on which we rely for all of our wafers in that process. Our reliance on external suppliers puts us at risk of supply chain disruption if a supplier does not have sufficient raw material inventory to meet our manufacturing needs, goes out of business, changes or discontinues the process in which components or wafers are manufactured or declines to continue supplying us for competitive or other reasons, as discussed in more detail in "Item 1A. "Risk Factors" herein. Where practical, we attempt to mitigate these risks by

qualifying multiple sources of supply, redesigning products for alternative components and purchasing incremental inventory of raw materials and components in order to protect us against supply disruptions.

#### Quality Assurance

The goal of our quality assurance program is for our products to meet our customers' requirements, be delivered on time, and function reliably throughout their useful lives. The International Organization for Standardization (ISO) provides models for quality assurance for various operational disciplines, such as design, manufacturing, and testing, which comprise part of our overall quality management system. Our following locations have each received ISO 9001:2015 certifications in one or more of their principal functional areas: Lowell, Massachusetts; Cork, Ireland; Ithaca, New York; Santa Clara and Newport Beach, California; Morrisville, North Carolina; Ann Arbor, Michigan; Nashua, New Hampshire; Tokyo, Japan; and Hsinchu, Taiwan. In addition, our Lowell, Massachusetts facility has received an ISO 14001:2015 environmental management systems certification.

### Environmental Regulation

Our operations involve the use of hazardous substances and are regulated under federal, state and local laws governing health and safety and the environment in the U.S. and other countries. These regulations include limitations on discharge of pollutants into the air, water and soil; remediation requirements; product chemical content limitations; manufacturing chemical use and handling restrictions; pollution control requirements; waste minimization considerations; and, requirements regarding the treatment, transport, storage and disposal of hazardous wastes. We are also subject to regulation by the U.S. Occupational Safety and Health Administration and similar health and safety laws in other jurisdictions. While we are committed to compliance with applicable regulations, the risk of environmental liabilities can never be completely eliminated and there can be no assurance that the application of environmental and health and safety laws to our business will not require us to incur material future expenditures. We are also regulated under a number of federal, state and local laws regarding responsible sourcing, recycling, product packaging and product content requirements in the U.S. and other countries, including legislation enacted in the European Union and other foreign jurisdictions that have placed greater restrictions on the use of lead, among other chemicals, in electronic products, which affects materials composition and semiconductor packaging. These laws are becoming more stringent and may in the future cause us to incur material expenditures or otherwise cause financial harm.

### Export Regulations

We market and sell our products both inside and outside the U.S. Certain products are subject to the Export Administration Regulations, administered by the U.S. Department of Commerce, Bureau of Industry and Security (BIS), which require that we obtain an export license before we can export certain controlled products or technology to specified countries. Additionally, some of our products are subject to the International Traffic in Arms Regulations, which restrict the export of information and material that may be used for military or intelligence applications by a foreign person. Similar controls exist in other jurisdictions. Failure to comply with these laws could result in sanctions by the government, including substantial monetary penalties, denial of export privileges and debarment from government contracts. We maintain an export compliance program staffed by dedicated personnel under which we screen export transactions against current lists of restricted exports, destinations and end users with the objective of managing export-related decisions, transactions and shipping logistics to ensure compliance with these requirements.

### Employees

As of September 28, 2018, we employed approximately 1,400 individuals worldwide. None of our domestic employees are represented by a collective bargaining agreement; however, as of September 28, 2018, approximately 22 of our employees working in certain European locations were covered by collective bargaining agreements. We consider our relations with employees to generally be good and we have not experienced a work stoppage due to labor issues.

### History and Recent Developments

We were incorporated under the laws of the State of Delaware in March 2009. Our operations are conducted through our various subsidiaries, which are organized and operated according to the laws of their respective jurisdictions of incorporation.

MACOM Technology Solutions Inc., our primary operating subsidiary, which provides high-performance analog semiconductor solutions for use in wireless and wireline applications across the RF, microwave, millimeterwave and lightwave spectrum, was incorporated under the laws of the state of Delaware on July 16, 2008. MACOM Technology Solutions Limited, our primary foreign operating subsidiary, was incorporated under the laws of Ireland on November 18, 2008. The heritage of some of our business operations date back over 60 years to the founding of Microwave Associates, Inc. and the MACOM brand date back over 30 years.

In December 2013, we acquired Mindspeed Technologies, Inc. (Mindspeed), a supplier of semiconductor solutions for communications infrastructure applications (the Mindspeed Acquisition). We acquired Mindspeed to further our expansion into high-performance analog products.

In February 2014, subsequent to closing the Mindspeed Acquisition, we divested the wireless business of Mindspeed, which did not meet our expectations for profitable growth.

In May 2014, we divested Mindspeed's communications processor equipment (CPE) product line, which did not meet our expectations for profitable growth.

In February 2014, we completed the acquisition of Nitronex, LLC (Nitronex), a designer, developer, manufacturer and marketer of GaN semiconductors (the Nitronex Acquisition). We acquired Nitronex from a party under common control. As a result, we have accounted for the Nitronex Acquisition as a pooling of interest from the date of acquisition by the common control party in June 2012. The original acquisition of Nitronex by the common control party was accounted for as a purchase. Our financial statements have been retroactively combined to include the results of operations of Nitronex from June 2012.

In December 2014, we acquired BinOptics Corporation (BinOptics), a leading merchant provider of InP lasers for Cloud Data Centers, mobile backhaul, silicon photonics and access networks (the BinOptics Acquisition) to broaden our position in the optical

components market.

In August 2015, we divested our Automotive business to Autoliv ASP Inc. The business did not meet our expectations for profitable growth.

In December 2015, we acquired FiBest Limited (FiBest), a Japan-based merchant market component supplier of optical sub-assemblies (the FiBest Acquisition). We acquired FiBest to expand our position in optical networking components.

In December 2015, we acquired Aeroflex/Metelics, Inc. (Metelics), a diode supplier, in order to expand our existing diode product lines (the Metelics Acquisition).

In January 2017, we acquired Applied Micro Circuits Corporation (AppliedMicro), a global provider of silicon solutions for next-generation cloud infrastructure and Cloud Data Centers, as well as connectivity products for edge, metro and long-haul communications equipment (the AppliedMicro Acquisition). We acquired AppliedMicro in order to expand our business in enterprise and Cloud Data Center applications.

In connection with the acquisition of AppliedMicro, we announced a plan to divest the Compute business. On October 27, 2017, we sold the Compute business and received an equity interest in the buyer.

In May 2017, we completed the acquisition of Triple Play Communications Corporation (TPC) a privately-held company based in Melbourne, Florida. We acquired TPC in order to further expand our design center capabilities.

In July 2017, we completed the acquisition of certain assets of Antario Technologies (Antario), Inc. a privately-held company based in Taiwan and in Milpitas, California. We acquired Antario in order to expand our design center capabilities.

In August 2017, we completed the acquisition of certain assets of Picometrix LLC (Picometrix), a supplier of optical-to-electrical converters for data center infrastructure (the Picometrix Acquisition). We acquired Picometrix in order to expand our business in enterprise and Cloud Data Center applications.

In May 2018, we divested our long-range optical subassembly product line that we had acquired through our December 2015 acquisition of FiBest Limited (LR4 business). The LR4 business did not meet our expectations for profitable growth.

We intend to continue to pursue acquisitions of technologies, design teams, products and companies that complement our strengths and help us execute our strategies. Our acquisition strategy is intended to accelerate our revenue growth, expand our technology portfolio, grow our addressable market and create shareholder value. We believe our management team has a proven track record in identifying, acquiring and successfully integrating companies and technologies in the high-performance analog semiconductor industry.

#### Available Information

We maintain a website at [www.macom.com](http://www.macom.com), including an investors section at which we routinely post important information, such as webcasts of quarterly earnings calls and other investor events in which we participate or host, and any related materials. We encourage investors to monitor our website, in addition to following our press releases, SEC filings and public conference calls and webcasts, as well as MACOM's social media channels (MACOM's LinkedIn, Facebook and YouTube pages and Twitter account (@MACOMtweets)). You may access our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports, as well as other reports relating to us that are filed with or furnished to the SEC, free of charge in the investors section of our website as soon as reasonably practicable after such material is electronically filed with or furnished to the SEC. The SEC maintains a website that contains reports, proxy and information statements and other information regarding issuers that file electronically with the SEC at [www.sec.gov](http://www.sec.gov). The contents of the websites mentioned above, as well as our LinkedIn, Facebook and YouTube pages and Twitter account, are not incorporated into and should not be considered a part of this report.

#### ITEM 1A. RISK FACTORS

Our business involves a high degree of risk. You should carefully consider the following risks and other information in this Annual Report in evaluating the Company and its common stock. If any of the following risks actually occurs, our business, financial condition or results of operations could suffer. The risks described below are not the only ones facing us. Additional risks not presently known to us or that we currently consider immaterial may also adversely

affect our Company.

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### Risks Relating to Our Business

Our revenue growth and gross margin are substantially dependent on our successful development and release of new products.

Maintaining or growing our revenue will depend on our ability to timely develop new products for existing and new markets that meet customers' performance, reliability and price expectations. In addition, the average selling prices of our products are expected to decrease over time and we must introduce new products that can be manufactured at lower costs or that command higher prices based on superior performance to offset this expected price erosion. If we are not able to repeatedly introduce, in successive years, new products that ship in volume, our revenue will likely not grow and may decline significantly and rapidly. The development of new products is a highly complex process, and we have in the past and may in the future experience delays and failures in completing the development and introduction of new products. Our successful product development depends on a number of factors, including the following:

- the accurate prediction of market requirements, changes in technology and evolving standards;
- the availability of qualified product designers and process technologies needed to solve difficult design challenges in a cost-effective, reliable manner;
- our ability to design products that meet customers' cost, size and performance requirements and other technical specifications;
- our ability to design and manufacture new products in volume with acceptable manufacturing yields, and deliver them to customers in time for the applicable market adoption window;
- our ability to offer new products at competitive prices;
- the acceptance by customers of our new product designs;
- the identification of and timely entry into new markets for our products, such as our publicly announced market opportunities in Cloud Data Centers, 100G optical networks, GaN technology and active antennas;
- the acceptance of our customers' products by the market and the lifecycle of such products;
- our ability to innovate, the strength of our intellectual property rights, and our ability to protect our intellectual property rights;
- our ability to obtain, on commercially reasonable terms, licenses to necessary third party intellectual property rights; and
- our ability to maintain and increase our level of product content in our customers' systems.

A new product design effort may last 12 to 18 months or longer, and requires significant investment in engineering hours and materials, as well as sales and marketing expenses, which may not be recouped if the product launch is unsuccessful. The introduction of new products by our competitors, the delay or cancellation of a platform for which any of our semiconductor solutions is designed, the market acceptance of products based on new or alternative technologies or the emergence of new industry standards could render our existing or future products uncompetitive from a pricing standpoint, obsolete and otherwise unmarketable. Our failure to anticipate or timely develop new or enhanced products or technologies in response to technological shifts could result in decreased revenue and our competitors obtaining design wins. We may be unable to design, introduce, manufacture or deliver new products in a timely or cost-efficient manner, and our new products may fail to meet the requirements of the market or our customers, or may be adopted by customers more slowly than we expect. In that case, our gross margin may decrease, we may not reach our expected level of production orders and we may lose market share, which could adversely affect our ability to sustain our revenue growth or maintain our current revenue levels.

Underutilization, price competition, acquisitions and various other factors may reduce our gross margin, which could negatively affect our business, financial condition and results of operations.

If we are unable to utilize our design, fabrication, assembly and test facilities at a high level, the significant fixed costs associated with these facilities may not be fully absorbed, resulting in higher than average unit costs and lower gross margin. Similarly, when we compete for business on the basis of our products' unit price, the average selling price of our products is reduced, negatively affecting our gross margins. We have in the past and may in the future acquire



businesses with lower-margin products that reduce our overall gross margins. Our various products have different gross margins. Increased sales of lower-margin products, such as certain of our more mature products, in a given period relative to sales of higher-margin products, may cause us to report lower overall gross margin. In addition, increased raw material costs, changes in manufacturing yields, more complex engineering requirements and certain other factors can reduce our gross margins from time to time. We have experienced periods where our gross margin declined due to these and other factors, and expect these factors will have an adverse impact on our business, financial condition and results of operations from time to time in the future. As a result of these or other factors, we may be unable to maintain or increase our gross margin in future periods and our gross margin may fluctuate from period to period.

Our operating results may fluctuate significantly from period to period. We may not meet investors' quarterly or annual financial expectations and, as a result, our stock price may decline.

Our quarterly and annual operating results and related expectations may vary significantly in the future based upon a number of factors, many of which are beyond our control. Factors that could cause operating results and related expectations to fluctuate include:

- the general economic growth or decline in the U.S. or foreign markets;
- the reduction or cancellation of orders by customers, whether as a result of a loss of market share by us or our customers, changes in the design of customers' products or slowing demand for our products or customers' products;
- the amount of new customer orders we book and ship in any particular fiscal quarter, which accounts for a material amount of our net revenue in any particular quarter, and which can often be weighted toward the latter part of each fiscal quarter, making the timing of recognition of the associated revenue difficult to forecast and susceptible to slippage between quarters;
- the relative linearity of our shipments within any particular fiscal quarter, in that a less linear shipment pattern within a given fiscal quarter tends to result in lower gross margin in that quarter and a shipment pattern weighted toward the latter part of a fiscal quarter tends to reduce our cash flows from operations in that quarter, as collections of related receivables do not occur until later fiscal periods;
- the gain or loss of a key customer or significant changes in demand from or the financial condition of one or more key customers;
- fluctuations in the levels of component inventories held by our customers, as well as their ability to manage the inventory that they hold and to forecast accurately their demand for our products;
- the fluctuations in manufacturing output, yields, capacity levels, quality control or other potential problems or delays we or our subcontractors may experience in the fabrication, assembly, testing or delivery of our products;
- the fluctuations in demand relating to the I&D market due to changes in government programs, budgets or procurement;
- the market acceptance of our products and particularly the timing and success of new product and technology introductions by us, customers or competitors;
- our ability to predict market requirements and evolving industry standards accurately and in a timely manner;
  - the amount, timing and relative success of our investments in research and development, which impacts our ability to develop, introduce and market new products and solutions on a timely basis;
- the period-to-period changes in the mix of products we sell, which can result in lower gross margin;
- the availability, quality and cost of semiconductor wafers and other raw materials, equipment, components and internal or outsourced manufacturing, packaging and test capacity, particularly where we have only one qualified source of supply;
- the effects of seasonal and other changes in customer demand;
- the effects of competitive pricing pressures, including decreases in average selling prices of our products;
- the effects of impairment charges associated with intangible assets, including goodwill and acquisition-related intangible assets;
- the loss of key personnel or the shortage of available skilled workers;
- the effects of factors that could cause our reported domestic and foreign income taxes and income tax rate to increase in future periods, such as limits on our ability to utilize net operating losses or tax credits and the geographic distribution of our income, which may change from period to period;
- the exposure of our operations to possible capital and exchange controls, expropriation and other restrictive government actions, changes in intellectual property legal protections and remedies, as well as political unrest, unstable governments and legal systems and inter-governmental disputes;
- further clarifications and/or changes in interpretations of existing laws and regulations, trade policies or changes in laws and regulations, in the U.S. and other countries; and
- the effects of war, natural disasters, acts of terrorism, macroeconomic uncertainty or decline or geopolitical unrest.

The foregoing factors are difficult to forecast, and these, as well as other factors, could materially and adversely affect our quarterly and annual operating results and related expectations for future periods. If our operating results in any period do not meet our publicly stated guidance or the expectations of investors or securities analysts, our stock price may decline. Similarly, any publicly stated guidance we provide in the future may fail to meet the expectations of investors or securities analysts and our stock price may decline as a result. For example, on August 1, 2017 we announced results of operations for our third quarter of fiscal year 2017 and a financial outlook for our fourth quarter of fiscal year 2017 that were below the then-current consensus of securities analyst expectations. The closing price

per share of our common stock thereafter declined from \$61.06 on August 1, 2017 to \$45.50 on August 2, 2017, and further to \$39.67 on August 18, 2017, representing a cumulative decline of approximately 35.0%.

If demand for our products in our primary markets declines or fails to grow, our revenue and profitability may suffer. Our future growth depends on our ability to anticipate demand and respond to that demand with products that address our customers' needs. To a significant extent, this growth depends on the continued growth in usage of advanced electronic systems in our primary markets: Telecom, Data Center and I&D generally, and in the optical networks market in particular, which accounted for 22.6% of our revenue in the fiscal year ended September 28, 2018. The rate and extent to which these markets will grow, if at all, is uncertain. For example, we anticipate significant growth in the demand for our products in Cloud Data Centers, and have focused significant internal resources to meet that anticipated demand. Our ability to capitalize on this and our other previously announced market opportunities in 100G optical networks, GaN technology and active antennas will depend on, among other things, the future size and growth rates of these markets, the next generation technologies selected by customers, the timing of network upgrades in these markets and the future pace of adoption of our products in these markets. Our markets may fail to grow or decline for many reasons, including macro-economic factors, insufficient consumer demand, technological hurdles, research and development delays, lack of access to capital, sequestration or other changes in the U.S. defense budget and procurement processes and changes in export controls or other regulatory environments. Even if our primary markets grow, demand for our products in those markets may fail to grow in the event that they fail to embrace next-generation technologies we offer such as GaN-on-Silicon, etched facet lasers and radar tiles, or adopt technologies other than those we offer or implement changes in network specifications that our products do not adequately address. For instance, if demand for our products targeting 10 Gigabit PON or Cloud Data Center deployments is lower or slower to materialize than we anticipate, or we fail to deliver a portfolio of 10 Gigabit PON or Cloud Data Center products that meets the full set of solution requirements our customers demand within the requisite market window, our revenues could fail to grow or decline and our results of operations could be adversely affected. If demand for electronic systems that incorporate our products declines, fails to grow or grows more slowly than we anticipate, purchases of our products may be reduced, which will adversely affect our business, financial condition and results of operations. A failure to predict demand or respond to demand with successful products in timely fashion will materially affect our revenues and profitability.

We typically depend on orders from a limited number of customers for a significant percentage of our revenue. In the fiscal year ended September 28, 2018, sales to none of our direct customers accounted for 10% of our revenue and sales to our top 10 direct and distribution customers accounted for an aggregate of 56.6% of our revenue. While the composition of our top 10 customers varies from year to year, we expect that sales to a limited number of customers will continue to account for a significant percentage of our revenue for the foreseeable future. The purchasing arrangements with our customers are typically conducted on a purchase order basis that does not require our customers to purchase any minimum amount of our products over a period of time. As a result, it is possible that any of our major customers could terminate their purchasing arrangements with us with little or no warning and without penalty, or significantly reduce or delay the amount of our products that they order, purchase products from our competitors or develop their own products internally. The loss of, or a reduction in, orders from any major customer may cause a material decline in revenue and adversely affect our results of operations.

Our investment in technology as well as research and development may not be successful, which may impact our profitability.

The semiconductor industry requires substantial investment in technology as well as research and development in order to develop and bring to market new and enhanced technologies and products. Research and development expenses were \$177.7 million for the fiscal year ended September 28, 2018. In each of the last three fiscal years, we invested in research and development as part of our strategy toward the development of innovative products and solutions to fuel our growth and profitability. We cannot assure you if, or when, the products and solutions where we have focused our research and development expenditures will become commercially successful. In addition, we may not have sufficient resources to maintain the level of investment in research and development required to remain competitive or succeed in our strategy. Our efforts to develop new and improved process technologies for use in our

products require substantial expenditures that may not generate any return on investment, may take longer than we anticipate to generate a return or may generate a return on investment that is inadequate. Following our Nitronex Acquisition, we announced a number of strategic plans and positive expectations concerning the future cost structure, manufacturability, opportunity for strategic partnerships and licensing programs, market applicability and potential positive impact on our market share of GaN-on-Silicon technology, which is a focus of the Nitronex business. We have in the past and continue to experience unexpected difficulties, expenses or delays in qualifying our GaN-on-Silicon process technology either internally or at one or more third party foundries and qualifying related products with our customers, and we were engaged in a litigation with the former licensor of this technology as described elsewhere in this Annual Report. We may not be successful in process or product qualification, manufacturing cost reduction or marketing efforts related to GaN-on-Silicon, may not realize the competitive advantage we anticipate from related investments and may not realize customer demand for this technology that meets our expectations, any of which could lead to higher than expected operating expense, lower than expected revenue and gross margin, associated charges or otherwise reduce the price of our common stock. We also have undertaken significant research and development efforts aimed at new products targeting emerging market segments where we see potential for growth including the wireless basestation, Cloud Data Center and active antenna and radar tile markets. We may not be successful in our research and development

efforts or may not realize the competitive advantage, revenues or profits we anticipate from these new products, any of which may lead to higher research and development expense, lower than expected revenues and gross margin and reduced profitability, or may otherwise harm our business or reduce the price of our common stock.

We may incur significant risk and expense in attempting to win new business and such efforts may never generate revenue.

To obtain new business, we often need to win a competitive selection process to develop semiconductors for use in our customers' systems, known in the industry as a "design win". These competitive selection processes can be lengthy and can require us to incur significant and unreimbursed design and development expenditures and dedicate scarce engineering resources in pursuit of a single customer opportunity, particularly when seeking to develop or introduce solutions in new markets. We may not win the competitive selection process or may never generate any revenue despite incurring significant design and development expenditures and selling, general and administrative expenses. Failure to obtain a design win may prevent us from supplying components for an entire generation of a customer's system. This can result in lost or foregone revenue and could weaken our position in future competitive selection processes or cause us to fail to meet revenue projections or expectations.

Even when we achieve a design win, success is not guaranteed. Customer qualification and design cycles can be lengthy, and it may take a year or more following a successful design win and product qualification for one of our products to be purchased in volume by the customer. We may experience difficulties manufacturing the part in volume, such as low yields, supply chain delays or shortages or quality issues. Further, while the customer has successfully qualified our part for use in its system, it may not have qualified all of the other components being sourced for its system, or qualified its system as a whole with its end customers. Any difficulties our customer may experience in completing those qualifications may delay or prevent us from translating the design win into revenue. These risks can be particularly acute in our I&D market, where we may spend material amounts and commit substantial design engineering resources to product development work in support of an OEM customer's attempt to win business tied to a government contract award, but realize no related revenue or less than expected revenue from our investment due to failure of the OEM customer to win the business, government program cancellation, federal budget limitations or otherwise. Any of these events or any cancellation of a customer's program or failure of our customer to market its own product successfully after our design win, could materially and adversely affect our business, financial condition and results of operations, as we may have incurred significant expense and generated no revenue.

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

We generally sell our products on the basis of purchase orders rather than long-term purchase commitments from our customers. Our customers can typically cancel purchase orders or defer product shipments for some period without incurring a liability to us. We typically plan production and inventory levels based on internal forecasts of customer demand, which can be highly unpredictable and can fluctuate substantially, leading to excess inventory write-downs and resulting negative impacts on gross margin and net income. We have limited visibility into our customers' inventories, future customer demand and the product mix that our customers will require, which could adversely affect our production forecasts and operating margins. The difficulty in predicting demand may be compounded when we sell to OEM customers indirectly through distributors or contract manufacturers, or both, as our forecasts of demand are then based on estimates provided by multiple parties. In a number of markets we serve, large dollar value customer orders scheduled for delivery in the current fiscal quarter may be canceled or rescheduled by the customer for delivery in a future fiscal quarter on short notice, which may cause our reported revenue to vary materially from our prior expectations. In addition, the rapid pace of innovation in our industry could render significant portions of our inventory obsolete. If we overestimate our customers' requirements, we may have excess inventory, which could lead to obsolete inventory and unexpected costs. Further, if we build inventory specific to non-recurring engineering (NRE) arrangements that we may enter into with our customers from time to time and then fail to achieve one or more required milestones in connection with such NRE arrangements, we may have excess, non-qualified or non-conforming customer specific inventory, which could lead to unsellable inventory and unexpected costs.

Conversely, if we underestimate our customers' requirements, we may have inadequate inventory, which could lead to foregone revenue opportunities, loss of potential market share and damage to customer relationships caused by late product deliveries disrupting our customers' production schedules. Some of our larger customers also require us to build and maintain minimum inventories and keep them available for purchase at specified locations based on non-binding demand estimates that are subject to change, which exposes us to increased inventory risk and makes it more difficult to manage our working capital. If demand from such customers decreases, we may be left with excess or obsolete inventory that we are unable to sell. In response to anticipated long lead times to obtain inventory and materials from outside suppliers and foundries, we periodically order materials and build a stock of finished goods inventory in advance of customer demand. This advance ordering of raw material and building of finished goods inventory has in the past and may in the future result in excess inventory levels or unanticipated inventory write-downs if expected orders fail to materialize or other factors make our products less saleable. In addition, any significant future cancellation or deferral of product orders could adversely affect our revenue and margins, increase inventory write-downs due to obsolete inventory or adversely affect our operating results and stock price.

The average selling prices of our products may decrease over time, which could have a material adverse effect on our revenue and gross margin.

It is common in our industry for the average selling price of a given product to decrease over time as production volumes increase, competing products are developed, technology, industry standards and customer platforms evolve or new technologies featuring higher performance or lower cost emerge. To combat the negative effects that erosion of average selling prices have had in the past and may have in the future, on our revenue and gross margin, we attempt to actively manage the prices of our existing products, increase our sales volumes and introduce new process technologies and products in the market that exhibit higher performance, new features that are in demand or lower manufacturing costs. Despite this strategy, we expect to experience price erosion in future periods. Failure to maintain our current prices, to offset price reductions by increasing our sales volumes or to successfully execute on our new product development strategy will cause our revenue and gross margin to decline, which could decrease the value of your investment in our common stock.

We face intense competition in our industry, and our inability to compete successfully could negatively affect our operating results.

The semiconductor industry is highly competitive. While we compete with a wide variety of companies, we compete with Broadcom across most of our primary markets. Our other significant competitors include, among others, NXP, Inphi, Maxlinear, Semtech, ADI, Cobham, Microsemi, Qorvo and Skyworks.

We believe future competition could also come from companies developing new alternative technologies, component suppliers based in countries with lower production costs and IC manufacturers achieving higher levels of integration that exceed the functionality offered by our products. Our customers and suppliers could also develop products that compete with or replace our products. A decision by any of our large customers to design and manufacture ICs internally could have an adverse effect on our operating results. Increased competition has in the past and could in the future lead to lower prices for our products, reduced demand for our products and a corresponding reduction in our ability to recover development, engineering and manufacturing costs.

Many of our existing and potential competitors have entrenched market positions, historical affiliations with original equipment manufacturers, considerable internal manufacturing capacity, established intellectual property rights, strong brand recognition and substantial technological capabilities. Many of them may also have greater financial, technical, manufacturing or marketing resources than we do. The semiconductor industry has experienced significant consolidation over the past several years. Consolidation among our competitors could lead to a changing competitive landscape, which could negatively impact our competitive position and market share and harm our results of operations. In addition, certain countries such as China have announced and begun implementing state-sponsored initiatives to build domestic semiconductor supply chains and we may be at a disadvantage in attempting to compete with entities associated with such foreign government efforts based on their lower cost of capital, access to government largesse, preferential sourcing practices, stronger local relationships or otherwise. Prospective customers may decide not to buy from us due to concerns about our relative size, financial stability or other factors. Our failure to successfully compete could result in lower revenue, decreased profitability and a lower stock price.

We operate in the semiconductor and optical networking industries, each of which is cyclical and subject to significant downturns.

Each of the semiconductor industry and the optical networking industry is highly cyclical and is characterized by constant and rapid technological change, price erosion, product obsolescence, evolving standards, short product lifecycles and significant fluctuations in supply and demand. Each industry has historically experienced significant fluctuations in demand and product obsolescence, resulting in product overcapacity, high inventory levels and accelerated erosion of average selling prices. Downturns in these industries may be prolonged, and downturns in many sectors of the electronic systems industry have in the past contributed to extended periods of weak demand for semiconductor products. We have experienced decreases in our revenue, profitability, cash flows and stock price during such downturns in the past, and may be similarly harmed by future downturns, particularly if we are unable to effectively respond to reduced demand in a particular market.





An important part of our strategy is to focus on Cloud Data Center markets. If we are unable to further penetrate into and expand our share of these markets or accurately anticipate or react timely or properly to emerging trends, our revenues may not grow and could decline.

Our target markets, including the Cloud Data Center market, undergo transitions from time to time in which products incorporate new features, interoperability and performance standards on an industry-wide basis. If our products are unable to support the new features or standards required by OEMs or end customers in these markets, or if our products fail to be certified or adopted by OEMs, we will lose business from existing or potential customers and may not have the opportunity to compete for new design wins or certification until the next product transition occurs. If we fail to develop products with required features or standards, we experience a delay in certifying or bringing a new product to market, or our customers fail to achieve market acceptance of their products, our revenues could be significantly reduced for a substantial period. Many of our products targeting Cloud Data Center applications are relatively new or still in development. Even if we succeed in generating customer demand for such products, if we are unable to deliver the quantities required by customers on time and at the right price point, due to design challenges, manufacturing bottlenecks, supply shortages, manufacturing yield issues or otherwise, we may fail to secure or maintain business and our revenues and gross and net margins could be materially and adversely affected.

We may sell one or more of our businesses or product lines, from time to time, as a result of our evaluation of our businesses, products and markets, and any such divestiture could adversely affect our continuing business.

We periodically evaluate our various businesses and product lines and may, as a result, consider the divestiture or wind down of one or more of those businesses or product lines. For example, in August 2015, we sold our Automotive business based on our belief that it was not consistent with our long-term strategic vision from a growth and profitability perspective. In October 2017, we sold the Compute business that we had acquired through the AppliedMicro Acquisition, as the products were not complementary to our product portfolio and did not strategically align with our long-term focus. More recently, in May 2018, we sold certain capital equipment, inventory and other assets associated with our LR4 business that we had acquired through our December 2015 acquisition of FiBest. Divestitures have inherent risks, including the inability to find potential buyers with favorable terms, the expense of selling the product line, the possibility that any anticipated sale will be delayed or will not occur, the potential impact on our cash flows and results of operations, the potential delay or failure to realize the perceived strategic or financial merits of the divestment or receive milestone, earn-out, royalty or other post-closing payments, difficulties in the separation of operations, services, information technology, products and personnel, potential loss of customers or employees, exposure to unanticipated liabilities, unexpected costs associated with such separation, diversion of management's attention from other business concerns and potential post-closing claims for alleged breaches of related agreements, indemnification or other disputes.

The product families we acquired in our AppliedMicro acquisition face challenges due to declining sales of older products and the evolving dynamics of the networking and communications industries.

The product families we added through our AppliedMicro acquisition face industry-specific challenges, in addition to the risks applicable to our business as a whole. For our connectivity products, order patterns historically have been uneven from period to period. The unpredictable nature of demand in this sector makes it more difficult to forecast our revenues, and may cause us to incur additional expenses for inventory that may need to be written off. Our connectivity product lines are also subject to technology transitions within the communications industry. For example, as the communications industry has continued to shift away from the synchronous optical network (SONET)/synchronous data hierarchy standard to the higher speed, lower power optical transport network (OTN) standard, substantially all of our new connectivity product designs utilize the OTN standard. However, as a result of this transition, many of our older, SONET-based connectivity products are experiencing declining sales, while our newer connectivity products, such as the X-Weave product family, have not yet generated significant revenue. Moreover, the transition to OTN, resulting in higher sales volumes and increased competition from integrated solutions providers, is in turn leading to price and margin erosion challenges. The introduction of other technological standards may also affect demand for our products. For our PowerPC product lines, as well, the migration of the networking industry away from products utilizing the PowerPC architecture and towards products utilizing other

architectures such as ARM, has presented challenges. In line with this migration, we are no longer introducing new PowerPC product designs and are reducing our resources equipped to support our older PowerPC product lines. Moreover, many of our older, PowerPC-based computing products are experiencing declining sales. If we are unable to develop and deliver new products in other areas that meet changing customer and industry needs and generate sufficient revenue to offset the decline in sales of our older product lines, our business, results of operations and financial condition could be materially and adversely affected.

We are subject to risks from our international sales and operations.

We have operations in Europe and Asia, and customers around the world. As a result, we are subject to regulatory, geopolitical and other risks associated with doing business outside the U.S. Global operations involve inherent risks, including currency controls, currency exchange rate fluctuations, new or potential international trade agreements, tariffs, required import and export licenses, associated delays

and other related international trade restrictions and regulations. Further, there is a risk that language barriers, cultural differences and other factors associated with our international operations may make them more difficult to manage effectively.

The legal system in many of the regions where we conduct business can lack transparency in certain respects relative to that of the U.S. and can accord local government authorities a higher degree of control and discretion over business than is customary in the U.S. This makes the process of obtaining necessary regulatory approvals and maintaining compliance inherently more difficult and unpredictable. In addition, the protection accorded to proprietary technology and know-how under these legal systems may not be as strong as in the U.S., and, as a result, we may lose valuable trade secrets and competitive advantages. The cost of doing business in European jurisdictions can also be higher than in the U.S. due to exchange rates, local collective bargaining regimes and local legal requirements and norms regarding employee benefits and employer-employee relations, in particular. We are also subject to U.S. legal requirements related to our foreign operations, including the Foreign Corrupt Practices Act. Sales to customers located outside the U.S. accounted for 52.1% of our revenue for the fiscal year ended September 28, 2018.

Sales to customers located in the Asia Pacific region typically account for a substantial majority of our overall sales to customers located outside the U.S. We expect that revenue from international sales generally, and sales to the Asia Pacific region specifically, will continue to be a material part of our total revenue. Therefore, any financial crisis, trade war or dispute or other major event causing business disruption in international jurisdictions generally, and China and the Asia Pacific region in particular, could negatively affect our future revenues and results of operations. For example, in 2016 the BIS temporarily blocked exports of U.S. products to Chinese telecommunications OEM Zhongxing Telecommunications Equipment Corporation (ZTE), and issued an administrative subpoena to the largest such manufacturer, Huawei, which accounted for 15% of our revenue for fiscal year 2016, and which could possibly lead to similar restrictions in the future. More recently, in April 2018, the BIS again blocked exports of U.S. products to ZTE, which were lifted in July 2018, but the U.S. government continues to closely monitor ZTE's actions to ensure compliance. Also, in August 2018, the BIS blocked exports of U.S. products to certain Chinese aerospace customers. News reports have surfaced of a potential criminal investigation by the U.S. Department of Justice of Huawei regarding possible violations of U.S. sanctions related to Iran. A U.S. ban on exports to one or more large OEM customers could materially reduce our revenue and reduce the value of an investment in our common stock. Because the majority of our foreign sales are denominated in U.S. dollars, our products become less price-competitive in countries with currencies that are low or are declining in value against the U.S. dollar. Also, we cannot be sure that our international customers will continue to accept orders denominated in U.S. dollars. If they do not, our reported revenue and earnings will become more directly subject to foreign exchange fluctuations. Some of our customer purchase orders and agreements are governed by foreign laws, which may differ significantly from U.S. laws. As a result, we may be limited in our ability to enforce our rights under such agreements and to collect amounts owed to us. The majority of our assembly, packaging and test vendors are located in Asia. We generally do business with our foreign assemblers in U.S. dollars. Our manufacturing costs could increase in countries with currencies that are increasing in value against the U.S. dollar. Also, our international manufacturing suppliers may not continue to accept orders denominated in U.S. dollars. If they do not, our costs will become more directly subject to foreign exchange fluctuations. From time to time, we may attempt to hedge our exposure to foreign currency risk by buying currency contracts or otherwise, and any such efforts involve expense and associated risk that the currencies involved may not behave as we expect and we may lose money on such hedging strategies or not properly hedge our risk.

In addition, if terrorist activity, armed conflict, civil, economic or military unrest, natural disasters, embargoes or other economic sanctions or political instability occurs in the U.S. or other locations, such events may disrupt our manufacturing, assembly, logistics, security and communications, and could also result in reduced demand for our products. We have in the past and, may again in the future, experience difficulties relating to employees traveling in and out of countries facing civil unrest or political instability and with obtaining travel visas for our employees. Major health pandemics could also adversely affect our business and our customer order patterns. We could also be affected if labor issues disrupt our transportation arrangements or those of our customers or suppliers. There can be no assurance that we can mitigate all identified risks with reasonable effort. The occurrence of any of these events could

have a material adverse effect on our operating results.

Changes in U.S. and international laws, accounting standards and trade policies, particularly with regard to China, may adversely impact our business and operating results.

Our future results could be adversely affected by changes in interpretations of existing laws and regulations, or changes in laws and regulations, including, among others, changes in accounting standards, taxation requirements, competition laws, privacy laws and environmental laws in the U.S. and other countries.

The U.S. government has recently made statements and taken certain actions that have led to, and may lead to further, changes to U.S. and international trade policies, including recently-imposed tariffs affecting certain products exported by a number of U.S. trading partners, including China. In response, many of those trading partners, including China, have imposed or proposed new or higher tariffs on American products. It is unknown whether and to what extent new tariffs (or other new laws or regulations) will be adopted, or the effect that any such actions would have on us or our industry and customers. Any unfavorable government policies on international trade, such as capital controls or tariffs, may affect the demand for our products and services, increase the cost of components, delay production, impact the competitive position of our products or prevent us from being able to sell products in certain

countries. If any new tariffs, legislation and/or regulations are implemented or if existing trade agreements are renegotiated such changes could have an adverse effect on our business, financial condition, results of operations. We expect to make future acquisitions and investments, which involve numerous risks.

We have an active corporate development program and routinely evaluate potential acquisitions, investments and strategic alliances involving complementary technologies, design teams, products and companies. We expect to pursue such transactions if appropriate opportunities arise. However, we may not be able to identify suitable transactions in the future or if we do identify such transactions, we may not be able to complete them on commercially acceptable terms or at all. We also face intense competition for acquisitions from other acquirers in our industry.

These competing acquirers may have significantly greater financial and other resources than us, which may prevent us from successfully pursuing a transaction. In the event we pursue acquisitions, we will face numerous risks including:

- diversion of management's attention from normal daily operations of our business;
- difficulties in entering markets where competitors have stronger market positions;
- difficulties in improving and integrating the financial reporting capabilities and operating systems of any acquired operations, particularly foreign and formerly private operations, as needed to maintain effective internal control over financial reporting and disclosure controls and procedures;
- loss of any key personnel of the acquired company as well as their know-how, relationships and expertise, which is common following an acquisition;
- maintaining customer, supplier or other favorable business relationships of acquired operations;
- generating insufficient revenue from completed acquisitions to offset increased expenses associated with any abandoned or completed acquisitions;
- acquiring material or unknown leasehold, environmental, regulatory, infringement, contractual or other liabilities associated with any acquired operations;
- litigation frequently associated with merger and acquisition transactions; and
- increasing expense associated with amortization or depreciation of intangible and tangible assets we acquire.

Our past acquisitions required or continue to require significant management time and attention relating to the transaction. Past transactions, whether completed or abandoned by us, have resulted, and in the future may result, in significant costs, expenses, liabilities and charges to earnings. The accounting treatment for any acquisition may result in significant amortizable intangible assets which, when amortized, will negatively affect our consolidated results of operations. The accounting treatment for any acquisition may result in significant goodwill, which, if impaired, will negatively affect our consolidated results of operations. Furthermore, we may incur debt or issue equity securities to pay for acquisitions. The incurrence of debt could limit our operating flexibility and be detrimental to our profitability, and the issuance of equity securities would be dilutive to our existing stockholders. Any or all of the above factors may differ from the investment community's expectations in a given quarter, which could negatively affect our stock price. In addition, as a result of the foregoing, we may not be able to successfully execute acquisitions in the future to the same extent as we have in the past, if at all.

In the event we make future investments, the investments may decline in value or fail to deliver any strategic benefits we anticipate from them and we may lose all or part of our investment. For example, in May 2015, we received notice that a private company in which we held a minority equity investment was sold to a third party and that the proceeds we would receive at closing would be less than the carrying value previously reported in our consolidated financial statements. We wrote down the investment to the estimated net proceeds we would receive from the sale, and recorded a charge of \$3.5 million to other income (expense) resulting in an increase of our previously reported net loss per diluted share for the three and six months ended April 3, 2015, respectively.

We may be unable to successfully integrate the businesses and personnel of our acquired companies and businesses, and may not realize the anticipated synergies and benefits of such acquisitions.

From time to time, we complete acquisitions of companies and certain businesses of companies, and we may not realize the expected benefits from such acquisitions because of integration difficulties or other challenges. The success of our acquisitions will depend, in part, on our ability to realize all or some of the anticipated synergies and other

benefits from integrating the acquired businesses with our existing businesses. The integration process may be complex, costly and time-consuming. The potential difficulties we may face in integrating the operations of our acquisitions include, among others:

failure to implement our business plans for the combined businesses and consolidation or expansion of production capacity as planned and where applicable;

unexpected losses of key employees, customers or suppliers of our acquired companies and businesses;

unanticipated issues in conforming our acquired companies' and businesses' standards, processes, procedures and controls with our operations;  
coordinating new product and process development;  
increasing the scope, geographic diversity and complexity of our operations;  
diversion of management's attention from other business concerns;  
adverse effects on our or our acquired companies' and businesses' existing business relationships;  
unanticipated changes in applicable laws and regulations;  
operating risks inherent in our acquired companies' and businesses' business and operations;  
unanticipated expenses and liabilities;  
potential unfamiliarity with our acquired companies and businesses technology, products and markets, which may place us at a competitive disadvantage; and  
other difficulties in the assimilation of our acquired companies and businesses operations, technologies, products and systems.

Our acquired companies and businesses may have unanticipated or larger than anticipated liabilities for patent and trademark infringement claims, violations of laws, commercial disputes, taxes and other known and unknown types of liabilities. There may be liabilities that we underestimated or did not discover in the course of performing our due diligence investigation of our acquired companies and businesses. We may have no recourse or limited recourse under the applicable acquisition-related agreement to recover damages relating to the liabilities of our acquired companies and businesses.

We may not be able to maintain or increase the levels of revenue, earnings or operating efficiency that each of our acquired companies and businesses and us had historically achieved or might achieve separately. In addition, we may not accomplish the integration of our acquired companies and businesses smoothly, successfully or within the anticipated costs or timeframe. If we experience difficulties with the integration process or if the business of our acquired companies or businesses deteriorates, the anticipated cost savings, growth opportunities and other synergies of our acquired companies and businesses may not be realized fully or at all, or may take longer to realize than expected. If any of the above risks occur, our business, financial condition, results of operations and cash flows may be materially and adversely impacted, we may fail to meet the expectations of investors or analysts, and our stock price may decline as a result.

We may incur liabilities for claims of intellectual property infringement relating to our products. The semiconductor industry is generally subject to frequent litigation regarding patents and other intellectual property rights. For example, we recently concluded legal action against Infineon that had been pending in federal court and was brought to confirm and defend our exclusive rights to use certain patented GaN-on-Silicon technology developed by Nitronex in our core RF markets. Other companies in the industry have numerous patents that protect their intellectual property rights in these areas and technology is frequently licensed. In the past, we have been and may in the future be, subject to claims that we have breached infringed or misappropriated patent, license or other intellectual property rights. Our customers may assert claims against us for indemnification if they receive claims alleging that their or our products infringe upon others' intellectual property rights, and have in the past and may in the future choose not to purchase our products based on their concerns over such a pending claim. In the event of an adverse result of any intellectual property rights litigation, we could be required to incur significant costs to defend or settle such litigation, pay substantial damages for infringement, expend significant resources to develop non-infringing technology, incur material liability for royalty payments or fees to obtain licenses to the technology covered by the litigation or be subjected to an injunction, which could prevent us from selling our products, and materially and adversely affect our revenue and results of operations. Negotiated settlements resolving such claims may require us to pay substantial sums. We cannot be sure that we will be successful in any such non-infringing development or that any such license would be available on commercially reasonable terms, if at all. Any claims relating to the infringement of third-party proprietary rights, even if not meritorious, could result in costly litigation, lost sales or damaged customer relationships and diversion of management's attention and resources.



Many of our products currently incorporate technology licensed or acquired from third parties and we expect our products in the future to also require technology from third parties. If the licenses to such technology that we currently hold become unavailable or the terms on which they are available become commercially unreasonable, or if we are unable to acquire or license necessary technology for our products in the future, our business could be adversely affected.

We sell products in markets that are characterized by rapid technological changes, evolving industry standards, frequent new product introductions and increasing levels of integration. Our ability to keep pace with these markets at times depends on our ability to obtain technology from third parties on commercially reasonable terms to allow our products to remain competitive. If licenses to such technology are not available on commercially reasonable terms and conditions or at all and we cannot otherwise acquire or integrate such technology,

our products or our customers' products could become unmarketable or obsolete, we could lose market share and our revenue and results of operations could materially decline. For instance, the AppliedMicro business is a licensee of ARM Limited (ARM) and Synopsys Inc. (Synopsys) technology libraries, and continued license rights will depend upon our ability to successfully renew or otherwise maintain our license rights to those libraries, as well as the timely delivery by ARM and Synopsys of various updates and other support under their respective license agreements. There can be no guarantee that the existing ARM and Synopsys license rights will be sufficient to enable AppliedMicro to fully develop and implement its product roadmap.

In addition, disputes with third party licensors over required payments, scope of licensed rights and compliance with contractual terms are common in our industry and we have in the past and may in the future be subjected to disputes over the terms of such licenses. Such disputes may require us to incur significant costs defending our license rights, divert management's attention or result in our inability to sell or develop certain products. In such instances, we could also incur substantial unanticipated costs or scheduling delays in developing substitute technology to deliver competitive products, damaged customer and vendor relationships, indemnification liabilities and declining revenues and profitability. Such events could have a material adverse effect on our financial condition and results of operations and the value of an investment in our common stock.

We depend on third parties for products and services required for our business, which may limit our ability to meet customer demand, assure product quality and control costs.

We purchase numerous raw materials, such as ceramic packages, precious metals, semiconductor wafers and ICs, from a limited number of external suppliers. We also currently use several external manufacturing suppliers for assembly and testing of our products, and in some cases for fully-outsourced turnkey manufacturing of our products. We currently expect to increase our use of outsourced manufacturing in the future as a strategy. The ability and willingness of our external suppliers to perform is largely outside of our control. The use of external suppliers involves a number of risks, including the possibility of material disruptions in the supply of key components, the lack of control over delivery schedules, capacity constraints, manufacturing yields, quality and fabrication costs and misappropriation of our intellectual property. If these vendors' processes vary in reliability or quality, they could negatively affect our products and, therefore, our customer relations and results of operations. We generally purchase raw materials on a purchase order basis and we do not have significant long-term supply commitments from our vendors. The long-term supply commitments we have may result in an obligation to purchase excess material, which may materially and negatively impact our operating results. In terms of relative bargaining power, many of our suppliers are larger than we are, with greater resources, and many of their other customers are larger and have greater resources than we do. If these vendors experience shortages or fail to accurately predict customer demand, they may have insufficient capacity to meet our demand, creating a capacity constraint on our business. They may also choose to supply others in preference to us in times of capacity constraint or otherwise, particularly where the other customers purchase in higher volume. Third-party supplier capacity constraints have in the past and may in the future prevent us from supplying customer demand that we otherwise could have fulfilled at attractive prices. If we have a firm commitment to supply our customers but are unable to do so based on inability or unwillingness of one of our suppliers to provide related materials or services, we may be liable for resulting damages and expense incurred by our customers.

Based on superior performance features, cost parameters or other factors, we utilize sole source suppliers for certain semiconductor packages and other materials and it is common for one of our outside semiconductor foundries to be our sole supplier for the particular semiconductor fabrication process technologies manufactured at that supplier's facility. Such supplier concentrations involve the risk of a potential future business interruption if the supplier becomes unable or unwilling to supply us at any point. While in some cases alternate suppliers may exist, because there are limited numbers of third-party wafer suppliers that use the process technologies we select for our products and that have sufficient capacity to meet our needs, it may not be possible or may be expensive to find an alternative source of supply. Even if we are able to find an alternative source, moving production to an alternative supplier requires an extensive qualification or re-qualification process that could prevent or delay product shipments or disrupt customer's production schedules, which could harm our business. In addition, some of our external foundry suppliers

compete against us in the market in addition to being our supplier. The loss of a supplier can also significantly harm our business and operating results. A supplier may discontinue supplying us if its business is not sufficiently profitable, for competitive reasons or otherwise. We have in the past and may in the future have our supply relationship discontinued by an external foundry, causing us to experience supply chain disruption, customer dissatisfaction, loss of business and increased cost.

If we lose key personnel or fail to attract and retain key personnel, we may be unable to pursue business opportunities or develop our products.

We believe our continued ability to recruit, hire, retain and motivate highly-skilled engineering, operations, sales, administrative and managerial personnel is key to our future success. Competition for these employees is intense, particularly with respect to qualified engineers. Our failure to retain our present employees and hire additional qualified personnel in a timely manner and on reasonable terms could harm our competitiveness and results of operations. In addition, from time to time, we may recruit and hire employees from our competitors, customers, suppliers and distributors, which could result in liability to us and has in the past and could in the future, damage our business relationship with these parties. None of our senior management team is contractually bound to remain with us for a specified period, and we generally do not maintain key person life insurance covering our senior management. The loss of any member of our

senior management team could strengthen a competitor, weaken customer relationships or harm our ability to implement our business strategy.

Our internal and external manufacturing, assembly and test model subjects us to various manufacturing and supply risks.

We operate a leased semiconductor wafer processing and manufacturing facility at our headquarters in Lowell, Massachusetts, and at our Ithaca, New York and Ann Arbor, Michigan sites. These facilities are also important internal design, assembly and test facilities. We maintain other internal assembly and test operation facilities as well, including leased sites in Nashua, New Hampshire, and Hsinchu, Taiwan. We also use multiple external foundries for outsourced semiconductor wafer supply, as well as multiple domestic and Asian assembly and test suppliers to assemble and test our products. A number of factors will affect the future success of these internal manufacturing facilities and outsourced supply and service arrangements, including the following:

the level of demand for our products;

our ability to expand and contract our facilities and purchase commitments in a timely and cost-effective manner in response to changes in demand for our products;

our ability to generate revenue in amounts that cover the significant fixed costs of operating our facilities;

our ability to qualify our facilities for new products and process technologies in a timely manner and successfully avoid issues that may unduly prolong, or otherwise complicate, the qualification process;

the availability of raw materials, including GaAs, SiGe and InP substrates and high purity source materials such as gallium, aluminum, arsenic, carbon, nitrite, indium and silicon;

the availability and continued operation of key equipment, especially any that we may only have access to a limited number of;

our manufacturing cycle times and yields;

the political and economic risks associated with our reliance on outsourced Asian assembly and test suppliers;

the location of our facilities and those of our outsourced suppliers;

natural disasters, pandemics, acts of terrorism, armed conflicts or unrest impacting our facilities and those of our outsourced suppliers;

our ability to hire, train, manage and retain qualified production personnel;

our compliance with applicable environmental and other laws and regulations;

our ability to avoid prolonged periods of downtime or high levels of scrap in our and our suppliers' facilities for any reason; and

our ability to negotiate renewals to our existing lease agreements on favorable terms and without disruption to our wafer processing and manufacturing and internal assembly and test operations at our sites where such activities take place.

If we experience issues in any of the above areas, the effectiveness of our supply chain could be adversely affected, and could harm our results of operations.

Sources for certain components, materials and services are limited, which could result in interruptions, delays or reductions in product shipments.

Our industry may be affected from time to time by limited supplies of certain key components, materials and services. We have in the past and may in the future, experience delays or reductions in supply shipments, which could reduce our revenue and profitability. If key components, materials or services are unavailable, our costs could increase and our revenue could decline.

In particular, our manufacturing headquarters, design facilities, assembly and test facilities and supply chain, and those of our contract manufacturers, are subject to risk of catastrophic loss due to fire, flood or other natural or man-made disasters. The majority of our internally-manufactured semiconductor products are fabricated in our Lowell, Massachusetts headquarters. The majority of the internal and outsourced assembly and test facilities we utilize are located in the Pacific Rim and some of our internal design, assembly and test facilities are located in California regions with above average seismic and severe weather activity. In addition, our research and development personnel

are concentrated in a few locations, with the expertise of the personnel at each such location generally focused on one or two specific areas. Any catastrophic loss or significant damage to any of these facilities would likely disrupt our operations, delay production, shipments and revenue and result in significant expenses to repair or replace the facility and, in some instances, could significantly curtail our research and development efforts in a particular product area or primary market, which could have a material adverse effect on our operations. In particular, any catastrophic loss at our Lowell, Massachusetts headquarters could materially and adversely affect our business and financial results, revenue and profitability.

Our failure to continue to keep pace with new or improved semiconductor process technologies could impair our competitive position.

Semiconductor manufacturers constantly seek to develop new and improved semiconductor process technologies. Our future success depends in part upon our ability to continue to gain access to these semiconductor process technologies, internally or externally, in order to adapt to emerging customer requirements and competitive market conditions. We may be unable to internally develop such technologies successfully and may be unable to gain access to them from merchant foundries or other sources on commercially reasonable terms or at all. If we fail to remain abreast of new and improved semiconductor process technologies as they emerge, we may lose market share and our revenue and gross margin may decline, which could adversely affect our operating results.

Remaining competitive in the semiconductor industry requires transitioning to smaller geometry process technologies and achieving higher levels of design integration.

In order to remain competitive, we expect to continue to transition our products to increasingly smaller geometries.

This transition requires us to modify the manufacturing processes for our products, to design new products to more stringent standards and to redesign some existing products. In some instances, we depend on our relationships with our third-party foundries to transition to smaller geometry processes successfully. Our foundries may not be able to effectively manage the transition or we may not be able to maintain our foundry relationships. If our foundries or we experience significant delays in this transition or fail to efficiently implement this transition, our business, financial condition and results of operations could be materially and adversely affected. As smaller geometry processes become more prevalent, we expect to continue to integrate greater levels of functionality into our products. However, we may not be able to achieve higher levels of design integration or deliver new integrated products on a timely basis or at all.

Our business may be adversely affected if we experience product returns, product liability and defects claims.

Our products are complex and frequently operate in high-performance, challenging environments. We may not be able to anticipate all of the possible performance or reliability problems that could arise with our products after they are released to the market. If such problems occur or become significant, we may experience reduced revenue and increased costs related to product recalls, inventory write-offs, warranty or damage claims, delays in, cancellations of or returns of product orders and other expenses. The many materials and vendors used in the manufacture of our products increase the risk that some defects may escape detection in our manufacturing process and subsequently affect our customers, even in the case of long-standing product designs. Our use of newly-developed or less mature semiconductor process technologies, such as GaN and InP, which have a less extensive track record of reliability in the field than other more mature process technologies, also increases the risk of performance and reliability problems. These matters have arisen in our operations from time to time in the past, have resulted in significant expense to us per occurrence and will likely occur again in the future. The occurrence of defects could result in product returns and liability claims, reduced product shipments, the loss of customers, the loss of or delay in market acceptance of our products, harm to our reputation, diversion of management's time and resources, lower revenue, increased expenses and reduced profitability. Any warranty or other rights we may have against our suppliers for quality issues caused by them may be more limited than those our customers have against us, based on our relative size, bargaining power or otherwise. In addition, even if we ultimately prevail, such claims could result in costly litigation, divert management's time and resources and damage our customer and supplier relationships.

We also face exposure to potential liability resulting from the fact that some of our customers integrate our products into consumer products such as automobiles, which are then sold to consumers in the marketplace. We may be named in product liability claims even if there is no evidence that our products caused a loss. Product liability claims could result in significant expenses in connection with the defense of such claims and possible damages. In addition, we may be required to participate in a recall if our products prove to be defective. Any product recall or product liability claim brought against us, particularly in high-volume consumer markets, could have a material negative impact on our reputation, business, financial condition or results of operations.

Minor deviations in the manufacturing process can cause substantial manufacturing yield loss or even cause halts in production, which could have a material adverse effect on our revenue and gross margin.

Our products involve complexities in both their design and the semiconductor process technology employed in their fabrication. In many cases, the products are also assembled in customized packages or feature high levels of integration. Our products must meet exacting customer specifications for quality, performance and reliability.

Our manufacturing yield, or the percentage of units of a given product in a given period that is usable relative to all such units produced, is a combination of yields including wafer fabrication, assembly and test yields. Due to the complexity of our products, we periodically experience difficulties in achieving acceptable yields as even minor deviations in the manufacturing process can cause substantial manufacturing yield loss or halt production. Our customers may also test our components once they have been assembled into their products. The number of usable products that result from our production process can fluctuate as a result of many factors, including the following:

- design errors;
- defects in photomasks, used to print circuits on wafers;

minute impurities in materials used;  
contamination of the manufacturing environment;  
equipment failure or variations in the manufacturing processes;  
losses from broken wafers or other human errors;  
defects in packaging; and  
issues and errors in testing.

Typically, for a given level of sales, when our yields improve, our gross margin improves. When our yields decrease, our unit costs are typically higher, our gross margin is lower and our profitability is adversely affected, any or all of which can harm our results of operations and lower our stock price.

We depend on third-party sales representatives and distributors for a material portion of our revenues.

We sell many of our products to customers through independent sales representatives and distributors, as well as through our direct sales force. We are unable to predict the extent to which our independent sales representatives and distributors will be successful in marketing and selling our products. Moreover, many of our independent sales representatives and distributors also market and sell competing products. Our relationships with our representatives and distributors typically may be terminated by either party at any time, and do not require them to buy any of our products. Sales to distributors accounted for approximately 29.0% of our revenue for the fiscal year ended September 28, 2018, and sales to our largest distributor, Richardson, represented 12.5% of our revenue in the same period. If our sales representatives or distributors cease doing business with us or fail to successfully market and sell our products, our ability to sustain and grow our revenue could be materially adversely affected.

Our financial results may be adversely affected by increased tax rates and exposure to additional tax liabilities.

Our effective tax rate is highly dependent upon the geographic composition of our worldwide earnings and tax regulations governing each region, each of which can change from period to period. We are subject to income taxes in both the U.S. and various foreign jurisdictions and significant judgment is required to determine our worldwide tax liabilities. Our effective tax rate as well as the actual tax ultimately payable could be adversely affected by changes in the amount of our earnings attributable to countries with differing statutory tax rates, changes in the valuation of our deferred tax assets, changes in tax laws (or the interpretation of those laws by regulators) or tax rates (particularly in the U.S. or Ireland), increases in non-deductible expenses, the availability of tax credits, material audit assessments or repatriation of non-U.S. earnings, each of which could materially affect our profitability. For example, as of September 28, 2018, we had \$1,149.2 million of gross federal net operating loss (NOL) carryforwards, which, for those generated prior to the effective date of the 2017 Tax Cuts and Jobs Act (Tax Act), will expire at various dates through 2037, while those generated subsequent to the Tax Act have an indefinite carryforward with no expiration. However, our ability to use these federal NOL carryforwards and other deferred tax assets may be limited and, as a result of our conclusion that recovery of our U.S. deferred tax assets, including those assumed in the AppliedMicro Acquisition, is not considered more likely than not, we established a full valuation allowance against our U.S. deferred tax assets as of September 29, 2017. Any significant increase in our effective tax rates could materially reduce our net income in future periods and decrease the value of your investment in our common stock.

Changes in tax laws and interpretations (including new laws and interpretations) are introduced from time to time to reform taxation in the U.S., Ireland and other countries in which we have operations. Depending on the nature of such changes, if any, these consequences may be significant for us due to the large scale of our international business activities. If any changes are enacted or otherwise implemented, they could have material adverse consequences on the amount of tax we pay and, thereby, on our financial position and results of operations. In addition, on December 22, 2017, the U.S. government enacted the 2017 Tax Cuts and Jobs Act (Tax Act). The changes included in the Tax Act are broad and complex, and we are not able to finalize our evaluation of the impact of the Tax Act at this time due to uncertainties related to any future legislative or regulatory actions related to the Tax Act and availability of information needed to perform the final calculations. Accordingly, there is the risk that our use of deferred tax assets valuation allowance as well as our effective tax rate may be adversely affected.

Our previously announced plan to exit our Ithaca, New York, facility may not be completed on schedule or according to plan.



We currently expect to complete our exit from our Ithaca, New York, facility during fiscal year 2019. As part of our exit we plan to move certain manufacturing and other activities, and related equipment, from Ithaca to our headquarters in Lowell, Massachusetts. Delay or failure on our part to efficiently transition the activities from our Ithaca facility to our headquarters, including the transition of certain employees and equipment, could result in unanticipated expenses, management distraction and production downtime, or otherwise disrupt our business, and could adversely affect our financial condition and results of operations.

We may experience difficulties in managing any future growth.

To successfully conduct business in a rapidly evolving market, we must effectively plan and manage any current and future growth. Our ability to do so will be dependent on a number of factors, including the following:

maintaining access to sufficient manufacturing capacity to meet customer demands;

arranging for sufficient supply of key raw materials and services to avoid shortages or supply bottlenecks;

building out our administrative infrastructure at the proper pace to support any current and future sales growth while maintaining operating efficiencies;

adhering to our high quality and process execution standards, particularly as we hire and train new employees and during periods of high volume;

managing the various components of our working capital effectively;

upgrading our operational and financial systems, procedures and controls, including improvement of our accounting and internal management systems; and

maintaining high levels of customer satisfaction.

If we do not effectively manage any future growth, we may not be able to take advantage of attractive opportunities in our markets, our operations may be impacted, and we may experience delays in delivering products to our customers or damaged customer relationships and achieve lower than anticipated revenue and decreased profitability.

We may incur higher than expected expense from or not realize the expected benefits, of consolidation, outsourcing and restructuring initiatives designed to reduce costs and increase revenue across our operations.

We have pursued in the past and may pursue in the future various restructuring initiatives designed to reduce costs and increase revenue across our operations, including reductions in our number of manufacturing facilities, workforce reductions, establishing certain operations closer in location to our global customers and evaluating functions that may be more efficiently performed through outsourcing arrangements. These initiatives can be substantial in scope and disruptive to our operations and they can involve large expenditures. In fiscal years 2018, 2017, and 2016, we incurred restructuring charges of \$6.3 million, \$2.7 million and \$3.5 million, respectively, consisting primarily of employee severance and related costs resulting from reductions in our workforce. Exiting a leased site may involve contractual or negotiated exit payments with the landlord, temporary holding over at an increased lease rate, costs to perform restoration work required by the lease or associated environmental liability, any of which may be material in amount. Consolidation of operations and outsourcing may involve substantial capital expenses and the transfer of manufacturing processes and personnel from one site to another, with resultant startup issues at the receiving site and the need for re-qualification of the transitioned operations with major customers and for ISO or other certifications.

We may experience shortages of affected products, delays and higher than expected expenses. Affected employees may be distracted by the transition or may seek other employment, which could cause our overall operational efficiency to suffer. Any of these issues or our failure to realize the expected benefits of these initiatives could harm our results of operations and reduce the price of our common stock.

Our business may be harmed if systems manufacturers choose not to use components made of the compound semiconductor materials we utilize.

Silicon semiconductor technologies are the dominant process technologies for the manufacture of ICs in high-volume, commercial markets and the performance of silicon ICs continues to improve. While we use silicon for some applications, we also often use compound semiconductor technologies such as GaAs, InP, SiGe or GaN to deliver reliable operation at higher power, higher frequency or smaller form factor than a silicon solution has historically allowed. While these compound semiconductor materials offer high-performance features, it is generally more difficult to design and manufacture products with reliability and in volume using them. GaN and InP, in particular, are newer process technologies that do not have as extensive a track record of reliable performance in the field as many of the competing process technologies. Compound semiconductor technology tends to be more expensive than silicon technology due to its above-described challenges and the generally lower volumes at which parts in those processes tend to be manufactured relative to silicon parts for high-volume consumer applications.

System designers in some markets may be reluctant to adopt our non-silicon products or may be likely to adopt silicon products in lieu of our products if silicon products meeting their demanding performance requirements are available,

because of:

their unfamiliarity with designing systems using our products;

their concerns related to manufacturing costs and yields;

their unfamiliarity with our design and manufacturing processes; or

uncertainties about the relative cost effectiveness of our products compared to high-performance silicon components.

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We cannot be certain that additional systems manufacturers will design our compound semiconductor products into their systems or that the companies that have utilized our products will continue to do so in the future. Improvements in the performance of available silicon process technologies and solutions could result in a loss of market share on our part. If our products fail to achieve or maintain market acceptance for any of the above reasons, our results of operations will suffer.

If we fail to comply with export control regulations we could be subject to substantial fines or other sanctions, including loss of export privileges.

Certain of our products are subject to the Export Administration Regulations, administered by the BIS, which require that we obtain an export license before we can export products or technology to specified countries. Other products are subject to the International Traffic in Arms Regulations, which restrict the export of information and material that may be used for military or intelligence applications by a foreign person. U.S. regulators have announced “export control reform” that has changed and is expected to change many of the rules applicable to us in this area in the future in ways we do not yet fully understand and we have experienced and will continue to experience challenges in complying with the new rules as they become effective, resulting in difficulties or an inability to ship products to certain countries and customers.

We are also subject to U.S. import regulations and the import and export regimes of other countries in which we operate. Failure to comply with these laws could result in sanctions by the U.S. government, including substantial monetary penalties, denial of export privileges and debarment from government contracts. Export and import regulations may create delays in the introduction of our products in international markets or prevent the export or import of our products to certain countries or customers altogether. Any change in export or import regulations or related legislation, shift in approach by regulators to the enforcement or scope of existing regulations, changes in the interpretation of existing regulations by regulators, specific sanctions by regulators or change in the countries, persons or technologies targeted by such regulations, could harm our business by resulting in decreased use of our products by or our decreased ability to export or sell our products to, existing or potential customers with international operations. In addition, our sale of our products to or through third-party distributors, resellers and sales representatives creates the risk that any violation of these laws they may engage in may cause disruption in our markets or otherwise bring liability on us.

The outcome of litigation in which we are involved in is unpredictable and an adverse decision in any such matter could subject us to damage awards and lower the market price of our stock.

From time to time we are a party to litigation matters such as those described in “Item 3 - Legal Proceedings” below. These and any other future disputes, litigations, investigations, administrative proceedings or enforcement actions we may be involved in may divert financial and management resources that would otherwise be used to benefit our operations, result in negative publicity and harm our customer or supplier relationships. Although we intend to contest such matters vigorously, we cannot assure you that their outcome will be favorable to us. An adverse resolution of any such matter in the future, including the results of any amicable settlement, could subject us to material damage awards or settlement payments, loss of contractual or other rights, injunctions or other limitations on the operation of our business or other material harm to our business.

Our limited ability to protect our proprietary information and technology may adversely affect our ability to compete. Our future success and ability to compete is dependent in part upon our protection of our proprietary information and technology through patent filings, enforcement of agreements related to intellectual property and otherwise. We cannot be certain that any patents we apply for will be issued or that any claims allowed from pending applications will be of sufficient scope or strength to provide meaningful protection or commercial advantage. Our competitors may also be able to design around our patents. Similarly, counterparties to our intellectual property agreements may fail to comply with their obligations under those agreements, requiring us to resort to expensive and time-consuming litigation in an attempt to protect our rights, which may or may not be successful. The laws of some countries in which our products are or may be developed, manufactured or sold, may not protect our products or intellectual property

rights to the same extent as U.S. laws, increasing the possibility of piracy of our technology and products. Although we intend to vigorously defend our intellectual property rights, we may not be able to prevent misappropriation of our technology or may need to expend significant financial and other resources in defending our rights.

In addition, we rely on trade secrets, technical know-how and other unpatented proprietary information relating to our product development and manufacturing activities. We try to protect this information by entering into confidentiality agreements with employees and other parties. We cannot be sure that these agreements will be adequate and will not be breached, that we would have adequate remedies for any breach or that our trade secrets and proprietary know-how will not otherwise become known or independently discovered by others.

Additionally, our competitors may independently develop technologies that are substantially equivalent or superior to our technology. Despite our efforts to protect our proprietary rights, unauthorized parties may attempt to copy or otherwise obtain or use our products or technology. Patent litigation is expensive and our ability to enforce our patents and other intellectual property, is limited by our financial resources and is subject to general litigation risks. If we seek to enforce our rights, we may be subject to claims that the intellectual

property rights are invalid, are otherwise not enforceable or are licensed to the party against whom we assert a claim. In addition, our assertion of intellectual property rights could result in the other party seeking to assert alleged intellectual property rights of its own against us, which is a frequent occurrence in such litigations.

We face risks associated with government contracting.

Some of our revenue is derived from contracts with agencies of the U.S. government or subcontracts with its prime contractors. As a U.S. government contractor or subcontractor, we may be subject to federal contracting regulations, including the Federal Acquisition Regulations, which govern the allowability of costs incurred by us in the performance of U.S. government contracts. Certain contract pricing is based on estimated direct and indirect costs, which are subject to change. Additionally, the U.S. government is entitled after final payment on certain negotiated contracts to examine all of our cost records with respect to such contracts and to seek a downward adjustment to the price of the contract if it determines that we failed to furnish complete, accurate and current cost or pricing data in connection with the negotiation of the price of the contract.

In connection with our U.S. government business, we may also be subject to government audits and to review and approval of our policies, procedures and internal controls for compliance with procurement regulations and applicable laws. In certain circumstances, if we do not comply with the terms of a contract or with regulations or statutes, we could be subject to downward contract price adjustments or refund obligations or could in extreme circumstances be assessed civil and criminal penalties or be debarred or suspended from obtaining future contracts for a specified period of time. Any such suspension or debarment or other sanction could have an adverse effect on our business.

Under some of our government subcontracts, we are required to maintain secure facilities and to obtain security clearances for personnel involved in performance of the contract, in compliance with applicable federal standards.

Complying with these standards can be both costly and time consuming, and can adversely affect our ability to compete in commercial markets. If we were unable to comply with these requirements or if personnel critical to our performance of these contracts were to lose their security clearances, we might be unable to perform these contracts or compete for other projects of this nature, which could adversely affect our revenue.

We may need to modify our activities or incur substantial costs to comply with environmental laws, and if we fail to comply with environmental laws we could be subject to substantial fines or be required to change our operations.

We are subject to a variety of international, federal, state and local governmental regulations directed at preventing or mitigating climate change and other environmental harms, as well as to the storage, discharge, handling, generation, disposal and labeling of toxic or other hazardous substances used to manufacture our products. If we fail to comply with these regulations, substantial fines could be imposed on us and we could be required to suspend production, alter manufacturing processes, cease operations or remediate polluted land, air or groundwater, any of which could have a negative effect on our revenue, results of operations and business. Failure to comply with environmental regulations could subject us to civil or criminal sanctions and property damage or personal injury claims. Compliance with current or future environmental laws and regulations could restrict our ability to expand our facilities or build new facilities, or require us to acquire additional expensive equipment, modify our manufacturing processes, or incur other substantial expenses which could harm our business, financial condition and results of operations. In addition, under some of these laws and regulations, we could be held financially responsible for remedial measures if our properties or those nearby are contaminated, even if we did not cause the contamination. We have incurred in the past and may in the future incur environmental liability based on the actions of prior owners, lessees or neighbors of sites we have leased or may lease in the future, third party commercial waste disposal sites we utilize or sites we become associated with due to acquisitions. We cannot predict:

changes in environmental or health and safety laws or regulations;

the manner in which environmental or health and safety laws or regulations will be enforced, administered or interpreted;

our ability to enforce and collect under any indemnity agreements and insurance policies relating to environmental liabilities; or

the cost of compliance with future environmental or health and safety laws or regulations or the costs associated with any future environmental claims, including the cost of clean-up of currently unknown environmental conditions. In addition to the costs of complying with environmental, health and safety requirements, we may in the future incur costs defending against environmental litigation brought by government agencies, lessors at sites we currently lease or have been associated with in the past and other private parties. We may be defendants in lawsuits brought by parties in the future alleging environmental damage, personal injury or property damage. A significant judgment or fine levied against us or agreed settlement payment could materially harm our business, financial condition and results of operations. For example, since 1993, MACOM Connectivity Solutions, LLC (formerly known as AppliedMicro) has been named as a potentially responsible party (PRP) along with more than 100 other companies that used the Omega Chemical Corporation waste treatment facility in Whittier, California (the Omega Site). The U.S. Environmental Protection Agency has alleged that the Omega Site failed to properly treat and dispose of certain hazardous waste material. We are a member of a large group

of PRPs, known as the Omega Chemical Site PRP Organized Group (OPOG), which has agreed to fund certain ongoing remediation efforts at and nearby the Omega Site and with respect to the regional groundwater allegedly contaminated thereby.

Based on currently available information with respect to the total anticipated level of investigatory, remedial and monitoring costs to be incurred by the OPOG and our allocable share of those costs, we have a loss accrual for the Omega Site that is not material. However, the proceedings are ongoing and several factors beyond our control, such as growth in overall remedial costs, insolvency of members of OPOG, or the prosecution of third party contribution or cost recovery actions against OPOG, could cause this loss accrual to prove inadequate. In addition, in 2012, as a result of the PRP group's modification of its liability allocation formulae and the withdrawal of PRP group members from OPOG, our proportional allocation of responsibility among the PRPs increased. Subsequently, certain other PRPs withdrew from OPOG or initiated bankruptcy proceedings, and legal proceedings and settlement negotiations with these parties are continuing. Any future increases to our allocation of responsibility among the PRPs or the future reduction of parties participating in the PRP group could materially increase our potential liability relating to the Omega Site.

Environmental regulations such as the WEEE and RoHS directives limit our flexibility and may require us to incur material expense.

Various countries require companies selling a broad range of electrical equipment to conform to regulations such as the Waste Electrical and Electronic Equipment (WEEE) and the European Directive 2002/95/EC on Restriction of Hazardous Substances (RoHS). New environmental standards such as these could require us to redesign our products in order to comply with the standards, require the development of compliance administration systems or otherwise limit our flexibility in running our business or require us to incur substantial compliance costs. For example, RoHS requires that certain substances be removed from most electronic components. The WEEE directive makes producers of electrical and electronic equipment financially responsible for specified collection, recycling, treatment and disposal of past and future covered products. We have already invested significant resources into complying with these regimes, and further investments may be required. Alternative designs implemented in response to regulation may be costlier to produce, resulting in an adverse effect on our gross profit margin. If we cannot develop compliant products in a timely fashion or properly administer our compliance programs, our revenue may also decline due to lower sales, which would adversely affect our operating results. Further, if we were found to be non-compliant with any rule or regulation, we could be subject to fines, penalties and/or restrictions imposed by government agencies that could adversely affect our operating results.

Our term loan and revolving credit facility could result in outstanding debt with a claim to our assets that is senior to that of our stockholders and may have other adverse effects on our results of operations.

As of September 28, 2018, we had a credit facility consisting of a term loan facility with an outstanding principle balance of \$679.9 million and a revolving credit facility with \$160.0 million of available borrowing capacity. The facility is secured by a first priority lien on our assets and those of our domestic subsidiaries. The amount of our indebtedness could have important consequences, including the following:

we may be unable or limited in our ability to obtain additional financing on favorable terms in the future for working capital, capital expenditures, acquisitions, general corporate or other purposes;

we may be limited in our ability to make distributions to our stockholders in a sale or liquidation until our debt is repaid in full;

we may be more vulnerable to economic downturns, less able to withstand competitive pressures and less flexible in responding to changing business and economic conditions;

our cash flow from operations will be allocated to the payment of the principal of and interest on, any outstanding indebtedness; and

we cannot assure you that our business will generate sufficient cash flow from operations or other sources to enable us to meet our payment obligations under the facility and to fund other liquidity needs.

Our credit facility also contains certain restrictive covenants that may limit or eliminate our ability to, among other things, incur additional debt, sell, lease or transfer our assets, pay dividends, make investments and loans, make



acquisitions, guarantee debt or obligations, create liens, enter into transactions with our affiliates, enter into new lines of business and enter into certain merger, consolidation or other reorganizations transactions. These restrictions could limit our ability to withstand downturns in our business or the economy in general or to take advantage of business opportunities that may arise, any of which could place us at a competitive disadvantage relative to our competitors that are not subject to such restrictions. If we breach a loan covenant, the lenders could either refuse to lend funds to us or accelerate the repayment of any outstanding borrowings under the credit facility. We might not have sufficient assets to repay such indebtedness upon a default. If we are unable to repay the indebtedness, the lenders could initiate a bankruptcy proceeding against us or collection proceedings with respect to our subsidiaries securing the facility, which could materially decrease the value of our common stock.

Customer demands and regulations related to “conflict” minerals may force us to incur additional expenses and liabilities.

Pursuant to the Dodd-Frank Wall Street Reform and Consumer Protection Act, the SEC promulgated rules regarding disclosure and reporting requirements for companies who use “conflict” minerals mined from the Democratic Republic of Congo and adjoining countries in their products. In the semiconductor industry, these minerals are most commonly found in metals used in the manufacture of semiconductor devices and related assemblies. These requirements may adversely affect our ability to source related minerals and metals and increase our related cost. We face difficulties and increased expenses associated with complying with the related disclosure requirements, such as costs related to determining the source of any conflict minerals used in our products. Continued timely reporting is dependent upon the improvement and implementation of new systems and processes and information supplied by our suppliers of products that contain or potentially contain, conflict minerals. Our supply chain is complex and some suppliers may be unwilling to share related confidential information regarding the source of their products or may provide us information that is inaccurate or inadequate. If those risks arise or if our processes in obtaining that information do not fulfill the SEC’s requirements, we may face both reputational challenges and SEC enforcement risks based on our inability to sufficiently verify the origins of the subject minerals and metals or otherwise. More recently, executive orders issued by the President of the United States have increased sanctions in this area as well, which may impact us in the scenarios described above. Moreover, we may encounter challenges to satisfy any related requirements of our customers, which may be different from or more onerous than the requirements of the related SEC rules and executive orders. If we cannot satisfy these customers, they may choose a competitor’s products or may choose to disqualify us as a supplier and we may experience lower than expected revenues or have to write off inventory in the event that it becomes unsalable as a result of these regulations.

We are a holding company and rely on dividends, distributions and other payments, advances and transfers of funds from our subsidiaries to meet our obligations.

As a holding company, we derive substantially all of our cash flow from our subsidiaries. Because we conduct our operations through our subsidiaries, we depend on those entities for dividends and other payments or distributions to meet our operating needs. Legal and contractual restrictions in any existing and future outstanding indebtedness we or our subsidiaries incur may limit our ability to obtain cash from our subsidiaries. The deterioration of the earnings from or other available assets of, our subsidiaries for any reason could limit or impair their ability to pay dividends or other distributions to us.

Our business and operations could suffer in the event of a security breach, cybersecurity incident or disruption of our information technology systems.

We increasingly rely on sophisticated information technology systems throughout our company to keep financial records and business data, employee data, process orders, manage inventory, coordinate shipments to customers, maintain confidential and proprietary information, assist in semiconductor engineering and other technical activities and operate other critical functions such as internet connectivity, network communications and email. We also manage and store various proprietary information and sensitive confidential data related to our business, employees and operations. We maintain a system of controls over the physical security of our facilities. However, our physical facilities and our information technology systems may be susceptible to damage, disruptions or shutdowns due to power outages, hardware failures, telecommunication failures, user errors, catastrophes or other unforeseen events. If we fail to maintain the integrity of our systems or data or if we experience a prolonged disruption in the information technology systems that involve our internal communications or our interactions with customers or suppliers, it could result in the loss of sales and customers and significant incremental costs, which could adversely and materially affect our business.

We may also be subject to security breaches caused by human error, inadequate or outdated software or tools, computer viruses or ransomware, illegal break-ins or hacking, sabotage, misappropriation or acts of vandalism by employees or third parties. Cyber attacks and attempts by others to gain unauthorized access to our information technology systems are becoming more frequent and sophisticated and may be successful. These attempts, which might be related to industrial or other espionage, include covertly introducing malware to our computers and

networks, exploiting vulnerabilities in our network infrastructure, or impersonating authorized users, among others. We seek to detect, contain and investigate all security incidents and to prevent their recurrence, but in some cases, we might be unaware of an incident or its magnitude and effects. The theft, unauthorized use or publication of our intellectual property and/or confidential business information of us or third parties could harm our competitive position, reduce the value of our investment in research and development and other strategic initiatives or otherwise adversely affect our business and reputation. To the extent that any security breach impacts the operation of our products in the field or results in inappropriate disclosure of third party confidential information, we may incur liability, governmental sanctions, reputational damage or impaired business relationships as a result, which could harm our business. While we expect to continually invest in additional resources and services to bolster the security of our information technology systems, no amount of investment will eliminate these risks entirely.

Variability in self-insurance liability estimates could adversely impact our results of operations.

We self-insure for employee health insurance and workers' compensation insurance coverage up to a predetermined level, beyond which we maintain stop-loss insurance from a third-party insurer. Our aggregate exposure varies from year to year based upon the number of participants in our insurance plans. We estimate our self-insurance liabilities using an analysis provided by our claims administrator

and our historical claims experience. Our accruals for insurance reserves reflect these estimates and other management judgments, which are subject to a high degree of variability. If the number or severity of claims for which we self-insure increases, it could cause a material and adverse change to our reserves for self-insurance liabilities, as well as to our earnings.

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

Failure to comply with the General Data Protection Regulation or other data privacy regimes could subject us to significant fines and reputational harm.

Global privacy legislation, enforcement and policy activity are rapidly expanding and creating a complex data privacy compliance environment and the potential for high-profile negative publicity in the event of any data breach. We are subject to many privacy and data protection laws and regulations in the United States and around the world, some of which place restrictions on our ability to process personal data across our business. In particular, the General Data Protection Regulation (GDPR) is a comprehensive update to the data protection regime in the European Economic Area that is effective as of May 25, 2018. The GDPR imposes new requirements relating to, among other things, consent to process personal data of individuals, the information provided to individuals regarding the processing of their personal data, the security and confidentiality of personal data, and notifications in the event of data breaches and use of third party processors. The GDPR imposes substantial fines for breaches of data protection requirements, which can be up to four percent of the worldwide revenue or 20 million Euros, whichever is greater. We have invested, and continue to invest, human and technology resources into our GDPR compliance efforts and our data privacy compliance efforts generally. These compliance efforts may be time-intensive and costly. Despite those efforts, there is a risk that we may be subject to fines and penalties, litigation and reputational harm if we fail to protect the privacy of third party data or to comply with the GDPR or other applicable regimes.

We may be subject to liabilities based on alleged links between the semiconductor manufacturing process and certain illnesses and birth defects.

In recent years, there has been increased media scrutiny and associated reports regarding a potential link between working in semiconductor manufacturing clean room environments and birth defects and certain illnesses, primarily cancer. Regulatory agencies and industry associations have begun to study the issue to determine if any actual correlation exists. Because we utilize clean rooms, we may become subject to liability claims alleging personal injury. These, and any future, reports or studies may also affect our ability to recruit and retain employees. In addition, a significant judgment against us or material defense costs could harm our reputation, business, financial condition and results of operations.

Our portfolio of marketable securities is significant and subject to market, interest and credit risk that may reduce its value.

We maintain a significant portfolio of marketable securities. Changes in the value of this portfolio could adversely affect our earnings. In particular, the value of our investments may decline due to increases or decreases in interest

rates, downgrades of money market funds, commercial paper, U.S. Treasuries and corporate bonds included in our portfolio, instability in the global financial markets that reduces the liquidity of securities included in our portfolio and other factors. Each of these events may cause us to record charges to reduce the carrying value of our investment portfolio or sell investments for less than our acquisition cost.

#### Risks Relating to Ownership of our Common Stock

We may engage in future capital-raising transactions that dilute the ownership of our existing stockholders or cause us to incur debt.

We may issue additional equity, debt or convertible securities to raise capital in the future. If we do, existing stockholders may experience significant further dilution. In addition, new investors may demand rights, preferences or privileges that differ from or are senior to, those of our existing stockholders. Our incurrence of indebtedness could limit our operating flexibility and be detrimental to our results of operations.

The market price of our common stock may be volatile, which could result in substantial losses for investors. We cannot predict the prices at which our common stock will trade. The market price of our common stock may fluctuate significantly, depending upon many factors, some of which may be beyond our control. In addition to the risks described in this Annual Report, other factors that may cause the market price of our common stock to fluctuate include:

- changes in general economic, industry and market conditions;
- domestic and international economic factors unrelated to our performance;
- actual or anticipated fluctuations in our quarterly operating results;
- changes in or failure to meet publicly disclosed expectations as to our future financial performance;
- changes in securities analysts' estimates of our financial performance or lack of research and reports by industry analysts;
- changes in market valuations or earnings of similar companies;
- changes in investor perception of us and the industry in which we operate;
- addition or loss of significant customers;
- announcements by us or our competitors, customers or suppliers of significant products, contracts, acquisitions, strategic partnerships or other events;
- developments or disputes concerning patents or proprietary rights, including any injunction issued or material sums paid for damage awards, settlement payments, license fees, attorney's fees or other litigation expenses associated with intellectual property lawsuits we may initiate, or in which we may be named as defendants;
- failure to complete significant sales or to win a competitive selection process;
- developments concerning current or future strategic alliances or acquisitions;
- any future sales of our common stock or other securities; and
- additions or departures of directors, executives or key personnel.

For example, on August 1, 2017 we announced results of operations for our third quarter of fiscal year 2017 and a financial outlook for our fourth quarter of fiscal year 2017 that were below the then-current consensus of securities analyst expectations. The closing price per share of our common stock thereafter declined from \$61.06 on August 1, 2017 to \$45.50 on August 2, 2017, and further to \$39.67 on August 18, 2017, representing a cumulative decline of approximately 35.0%. Furthermore, the stock markets recently have experienced price and volume fluctuations that have affected and continue to affect the market prices of equity securities of many companies. These fluctuations often have been unrelated or disproportionate to the operating performance of those companies. These broad market and industry fluctuations, as well as general economic, political, and market conditions such as recessions, interest rate changes or international currency fluctuations, may negatively impact the market price of our common stock. In the past, companies that have experienced volatility in the market price of their stock have been subject to securities class action litigation. We may be the target of this type of litigation in the future. Securities litigation against us could result in substantial costs and divert our management's attention from other business concerns, which could seriously harm our business.

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

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

Our common stock price may decline if a substantial number of shares are sold in the market by our stockholders.

Future sales of substantial amounts of shares of our common stock by our existing stockholders in the public market, or the perception that these sales could occur, may cause the market price of our common stock to decline. Increased sales of our common stock in the market for any reason could exert significant downward pressure on our stock price.

These sales also might make it more difficult for us to sell equity or equity-related securities in the future at a time and price we deem appropriate.

If we fail to maintain effective internal controls over financial reporting, we may not be able to accurately report our financial results, which could have a material adverse effect on our operations, investor confidence in our business and the trading prices of our securities.

We are required to maintain disclosure controls and procedures and internal controls over financial reporting that are effective for the purposes described in "Item 9A.- Controls and Procedures" below.

The existence of a material weakness in our internal controls may adversely affect our ability to record, process, summarize and report financial information timely and accurately and, as a result, our financial statements may contain material misstatements or omissions, which could result in regulatory scrutiny, cause investors to lose confidence in our reported financial condition and otherwise have a material adverse effect on our business, financial condition, cash flow results of operations or the trading price of our stock.

Some of our stockholders can exert control over us and they may not make decisions that reflect our interests or those of other stockholders.

Our largest stockholders control a significant amount of our outstanding common stock. As of September 28, 2018, John and Susan Ocampo beneficially owned 30.2% of our common stock. As a result, these stockholders will be able to exert a significant degree of influence over our management and affairs and control over matters requiring stockholder approval, including the election of our directors and approval of significant corporate transactions. In addition, this concentration of ownership may delay or prevent a change in control of us and might affect the market price of our securities. In addition, the interests of these stockholders may not always coincide with your interests or the interests of other stockholders.

Anti-takeover provisions in our charter documents and Delaware law could prevent or delay a change in control of our company that stockholders may consider beneficial and may adversely affect the price of our stock.

Provisions of our fifth amended and restated certificate of incorporation and third amended and restated bylaws may discourage, delay or prevent a merger, acquisition or change of control that a stockholder may consider favorable.

These provisions could also discourage proxy contests and make it more difficult for stockholders to elect directors and take other corporate actions. The existence of these provisions could limit the price that investors might be willing to pay in the future for shares of our common stock. These provisions include authorization of the issuance of "blank check" preferred stock, staggered elections of directors and advance notice requirements for nominations for election to the board of directors and for proposing matters to be submitted to a stockholder vote. Provisions of Delaware law may also discourage, delay or prevent someone from acquiring or merging with our company or obtaining control of our company. Specifically, Section 203 of the Delaware General Corporate Law may prohibit business combinations with stockholders owning 15% or more of our outstanding voting stock. Our board of directors could rely on Delaware law to prevent or delay an acquisition of us and this reliance could reduce our value.

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

We do not intend to pay any cash dividends on our common stock in the foreseeable future. The payment of cash dividends is restricted under the terms of the agreements governing our indebtedness. In addition, because we are a holding company, our ability to pay cash dividends may be limited by restrictions on our ability to obtain sufficient funds through dividends from subsidiaries, including restrictions under the terms of the agreements governing our indebtedness. We anticipate that we will retain all of our future earnings for use in the development of our business and for general corporate purposes. Any determination to pay dividends in the future will be at the discretion of our board of directors. Accordingly, investors must rely on sales of their common stock after price appreciation, which may never occur, as the only way to realize any future gains on their investments.

#### ITEM 1B. UNRESOLVED STAFF COMMENTS.

None.

#### ITEM 2. PROPERTIES.

In December 2016, we closed the sale and subsequent leaseback of our 162,000 square foot semiconductor manufacturing and corporate headquarters facility and related property located in Lowell, Massachusetts at 100 Chelmsford Street. In conjunction with this transaction, we also entered into a 20-year build-to-suit lease arrangement



for the construction and subsequent lease back of an additional facility to be located at 144 Chelmsford Street. As of September 28, 2018, the construction of this additional facility was in process and is expected to be complete in the first quarter of fiscal year 2019.

We also maintain leased facilities for our design centers located in Massachusetts, California, North Carolina, New York, Rhode Island, Oregon, Florida, Michigan, New Jersey, Pennsylvania, Canada, Taiwan, India, Ireland, France, the Netherlands, Japan and China as well as for our administrative, assembly and test operations located in California, New Hampshire, and Taiwan, and our local sales offices in Oregon, Canada, Germany, Malaysia, China, Japan, India, and South Korea. We believe that our leased facilities are adequate for our present operations. In addition to our corporate headquarters facility the following is a list of our main leased facilities and their primary functions.

Site	Major Activity <sup>(1)</sup>	Square Footage	Lease Expiration
Lowell, Massachusetts	A,P&F,R&D,T&A and AE	60,700	December 2036
Newport Beach, California	A, R&D, A&E and S&M	68,435	December 2019
Ithaca, New York	A, P&F, R&D and T&A	30,600	December 2025
Cork, Ireland	A, R&D, S&M, AE and RT	21,422	August 2026
Santa Clara, California	A, R&D, A&E	59,625	October 2024
Nashua, New Hampshire	A,T&A	17,000	December 2021
Ann Arbor, Michigan	A, P&F, R&D and T&A	50,335	May 2021
Pune, India	A, R&D, A&E, RT	44,986	January 2019

(1) Major activities include Administration (A), Research and Development (R&D), Production and Fabrication (P&F), Sales and Marketing (S&M), Application Engineering (AE), Test and Assembly (T&A) and Reliability Testing (RT).

For additional information regarding property, plant and equipment by geographic region for each of the last two fiscal years, see Notes to Consolidated Financial Statements in "Item 8. - Financial Statements and Supplementary Data" below.

### ITEM 3. LEGAL PROCEEDINGS.

From time to time we may be subject to commercial and employment disputes, claims by other companies in the industry that we have infringed their intellectual property rights and other similar claims and litigations. Any such claims may lead to future litigation and material damages and defense costs. Other than as set forth below, we were not involved in any pending legal proceedings as of the filing date of this Annual Report that we believe would have a material adverse effect on our business, operating results, financial condition or cash flows.

Certain legal proceedings in which we are involved are discussed in Note 13 - Commitments and Contingencies to our Consolidated Financial Statements included in this Annual Report which is incorporated by reference herein.

### ITEM 4. MINE SAFETY DISCLOSURES.

Not applicable.

## PART II

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

Our common stock has been listed on the Nasdaq Global Select Market under the symbol "MTSI" since March 15, 2012. The number of stockholders of record of our common stock as of November 9, 2018 was approximately 14. The number of stockholders of record does not include beneficial owners whose shares are held by nominees in street name.

## Stock Price Performance Graph

The following graph shows a comparison from September 27, 2013 through September 28, 2018 of the total cumulative return of our common stock with the total cumulative return of the NASDAQ Composite Index and the PHLX Semiconductor Index. The amounts represented below assume an investment of \$100.00 in our common stock at the closing price of \$17.21 on September 27, 2013 and in the Nasdaq Composite Index and the PHLX Semiconductor Index on the closest month end date of September 27, 2013, and assume reinvestment of dividends. The comparisons in the graph are historical and are not intended to forecast or be indicative of possible future performance of our common stock.

	September 27, 2013	October 3, 2014	October 2, 2015	September 30, 2016	September 29, 2017	September 28, 2018
MACOM Technology Solutions Holdings, Inc.	\$100.00	\$125.68	\$167.17	\$246.02	\$259.21	\$119.70
Nasdaq Composite Index	\$100.00	\$119.83	\$127.50	\$145.65	\$180.15	\$225.49
PHLX Semiconductor Index	\$100.00	\$129.22	\$128.47	\$179.99	\$256.68	\$304.66

## Issuer Purchases of Equity Securities

Period	Total Number of Shares (or Units) Purchased (1)	Average Price Paid per Share (or Unit)	Total Number of Shares (or Units) Purchased as Part of Publicly Announced Plans or Programs	Maximum Number (or Approximate Dollar Value) of Shares (or Units) that May Yet Be Purchased Under the Plans or Programs
June 30, 2018—July 27, 2018	1,609	\$ 23.29	—	—
July 28, 2018—August 24, 2018	5,982	20.92	—	—
August 25, 2018—September 28, 2018	—	—	—	—
Total	7,591	\$ 21.42	—	—

Our board of directors has approved "withhold to cover" as a tax payment method for vesting of restricted stock awards for our employees. Pursuant to an election for "withhold to cover" made by our employees in connection with (1) the vesting of such awards, all of which were outside of a publicly-announced repurchase plan, we withheld from such employees the shares noted in the table above to cover tax withholding

related to the vesting of their awards. The average prices listed in the above table are averages of the fair market prices at which we valued shares withheld for purposes of calculating the number of shares to be withheld.

ITEM 6. SELECTED FINANCIAL DATA.

You should read the following selected financial data in conjunction with our consolidated financial statements and related notes, as well as "Item 1A - Risk Factors" and "Item 7 - Management's Discussion and Analysis of Financial Condition and Results of Operations" appearing elsewhere in this Annual Report.

We derived (i) the statements of operations data for the fiscal years 2018, 2017 and 2016, and (ii) the balance sheet data as of September 28, 2018 and September 29, 2017, from our audited consolidated financial statements, which appear elsewhere in this Annual Report. We derived the statements of operations data for the fiscal years 2015 and 2014 and balance sheet data as of September 30, 2016, October 2, 2015 and October 3, 2014 from our audited consolidated financial statements, adjusted for discontinued operations, which do not appear elsewhere in this Annual Report. We adopted a 52-or 53-week fiscal year ending on the Friday closest to September 30.

The historical results presented below are not necessarily indicative of financial results to be achieved in future periods.

	Fiscal Years				
	2018	2017	2016	2015	2014
	(in thousands, except per share data)				
Statements of Operations Data (1):					
Revenue	\$570,398	\$698,772	\$544,338	\$420,609	\$339,189
Gross profit	245,706	326,884	281,609	203,590	140,940
(Loss) income from operations	(106,520 )	(16,084 )	13,248	10,092	(27,827 )
Loss before income taxes	(155,235 )	(49,505 )	(21,571 )	(15,400 )	(40,900 )
Income tax (benefit) expense	(21,473 )	100,911	(17,983 )	(9,858 )	(16,086 )
Loss from continuing operations	(133,762 )	(150,416 )	(3,588 )	(5,542 )	(24,814 )
(Loss) income from discontinued operations	(6,215 )	(19,077 )	5,022	54,131	9,491
Net (loss) income attributable to common stockholders	\$(139,977)	\$(169,493)	\$1,434	\$48,589	\$(15,323 )
Basic (loss) income per common share:					
Loss from continuing operations	\$(2.07 )	\$(2.48 )	\$(0.07 )	\$(0.11 )	\$(0.53 )
(Loss) income from discontinued operations	(0.10 )	(0.31 )	0.09	1.06	0.20
Net (loss) income - basic	\$(2.16 )	\$(2.79 )	\$0.03	\$0.95	\$(0.33 )
Diluted (loss) income per common share:					
Loss from continuing operations	\$(2.47 )	\$(2.48 )	\$(0.07 )	\$(0.11 )	\$(0.53 )
(Loss) income from discontinued operations	(0.10 )	(0.31 )	0.09	\$1.06	\$0.20
Net (loss) income - diluted	\$(2.57 )	\$(2.79 )	\$0.03	\$0.95	\$(0.33 )
Shares used to compute net (loss) income per common share:					
Basic	64,741	60,704	53,364	51,146	47,009
Diluted	65,311	60,704	53,364	51,146	47,009
As of					
	September 28, 2018	September 29, 2017	September 30, 2016	October 2, 2015	October 3, 2014
Consolidated Balance Sheet Data (in thousands):					
Cash and cash equivalents	\$94,676	\$ 130,104	\$ 332,977	\$ 122,312	\$ 173,895
Working capital	351,856	445,778	520,794	312,743	287,703
Total assets	1,482,495	1,637,123	1,188,551	860,834	675,852

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Long-term debt and capital leases, less current portion	687,395	678,746	576,345	335,087	336,796
Stockholders' equity	\$668,675	\$ 777,374	\$ 462,784	\$424,533	\$ 228,567

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(1) See Results of Operations in Item 7 - Management's Discussion and Analysis of Financial Condition and Results of Operations and Consolidated Statements of Operations and our Notes to Consolidated Financial Statements for additional information for fiscal years 2018, 2017 and 2016 in Item 8 - Financial Statements and Supplementary Data.

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

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our consolidated financial statements and related notes that appear elsewhere in this Annual Report. In addition to historical information, the following discussion contains forward-looking statements that are subject to risks and uncertainties. Actual results may differ substantially and adversely from those referred to herein due to a number of factors, including but not limited to those described below and in "Item 1A - Risk Factors" and elsewhere in this Annual Report.

### OVERVIEW

See "Item 1 - Business" for additional information.

We are a leading provider of high-performance analog semiconductor solutions that enable next-generation Internet applications, the cloud connected apps economy and the modern, networked battlefield across the radio frequency (RF), microwave, millimeterwave and lightwave spectrum. Our technology enables next-generation radars for global and homeland defense, air traffic control and weather forecasting. We help our customers, including some of the world's leading communications infrastructure and aerospace and defense companies, solve complex challenges in areas including network capacity, signal coverage, energy efficiency and field reliability, utilizing our best-in-class team and broad portfolio of analog RF, microwave, millimeterwave and lightwave semiconductor solutions. We design, develop, manufacture and have manufactured differentiated, high-value products for customers who demand high-performance, quality and reliability. We offer a broad portfolio of over 5,000 standard and custom devices, which include integrated circuits (IC), multi-chip modules (MCM), power pallets and transistors, diodes, amplifiers, switches and switch limiters, passive and active components and complete subsystems, across more than 60 product lines serving over 7,000 end customers in three primary markets. Our semiconductor products are electronic components that our customers incorporate into their larger electronic systems, such as, wireless basestations, high density networks, active antenna arrays, radar, magnetic resonance imaging systems (MRI) and test and measurement. Our primary markets are: 1) Telecom, which includes carrier infrastructure like long-haul/metro, 5G and FTTx/PON; 2) Data Centers, enabled by our broad portfolio of photonic solutions and fiber optic applications; and 3) I&D, which includes military and commercial radar, RF jammers, electronic countermeasures, communication data links and Multi-market applications, which include industrial, medical, test and measurement and scientific applications.

### Basis of Presentation

We have one reportable operating segment. All intercompany balances have been eliminated in consolidation. Certain prior period financial statement amounts, such as deferred revenue and cash flow line item presentation have been adjusted to conform to currently reported presentations.

We have a 52 or 53-week fiscal year ending on the Friday closest to the last day of September. The fiscal years 2018, 2017 and 2016 included 52 weeks. To offset the effect of holidays, for fiscal years in which there are 53 weeks, we typically include the extra week in the first quarter of our fiscal year.

### Description of Our Revenue

Revenue. Substantially all of our revenue is derived from sales of high-performance RF, microwave, millimeterwave and lightwave semiconductor solutions. We design, integrate, manufacture and package differentiated product solutions that we sell to customers through our direct sales organization, our network of independent sales representatives and our distributors.

We believe the primary drivers of our future revenue growth will include:

- engaging early with our lead customers to develop custom and standard products and solutions that can be driven across multiple growth markets;

-

leveraging our core strength and leadership position in standard, catalog products that service all of our end applications;

• increasing content of our semiconductor solutions in our customers' systems through cross-selling of our more than 60 product lines;

introducing new products through internal development and acquisitions with market reception that command higher prices based on the application of advanced technologies, added features, higher levels of integration and improved performance; and

• continued growth in the demand for high-performance analog and optical semiconductors in our three primary markets in particular.

Our core strategy is to develop and innovate high-performance products that address our customers' most difficult technical challenges in our primary markets: Telecom, Data Center and I&D. While sales in any or all of our primary markets may slow or decline from period to period, over the long-term we generally expect to benefit from our strength in these markets.

We expect our revenue in the Telecom market to be primarily driven by continued upgrades and expansion of communications equipment to support the proliferation of mobile computing devices such as smartphones and tablets, increasing adoption of bandwidth rich services such as video on demand and cloud computing. We expect our Data Center market to be driven by the rapid adoption of cloud-based services and the migration to an application centric architecture, which we expect will drive adoption of higher speed, 100G and higher speed optical and photonic wireless links.

We expect our revenue in the I&D market to be driven by the upgrading of radar systems and modern battlefield communications equipment and networks designed to improve situational awareness. Growth in this market is subject to changes in governmental programs and budget funding, which is difficult to predict. We expect revenue in this market to be further supported by growth in applications for our multi-purpose catalog products.

#### CRITICAL ACCOUNTING POLICIES AND ESTIMATES

Our discussion and analysis of our financial condition and results of operations are based on our consolidated financial statements. The preparation of financial statements, in conformity with generally accepted accounting principles (GAAP) in the U.S., requires management to make estimates and judgments that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenue and expenses during the reporting period. By their nature, these estimates and judgments are subject to an inherent degree of uncertainty and could be material if our actual or expected experience were to change unexpectedly. On an ongoing basis, we re-evaluate our estimates and judgments.

We base our estimates and judgments on our historical experience and on other assumptions that we believe are reasonable under the circumstances, the results of which form the basis for making the judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results could differ from those estimates and material effects on our operating results and financial position may result. The accounting policies which our management believes involve the most significant application of judgment or involve complex estimation, are inventories and associated reserves; goodwill and intangibles asset valuations and associated impairment assessments; revenue reserves; warranty reserves; and share-based compensation valuations.

When we evaluate inventory for excess quantities and obsolescence, we utilize historical product usage experience and expected demand for establishing our reserve estimates. Our actual product usage may vary from the historical experience and estimating demand is inherently difficult, particularly given the cyclical nature of the semiconductor industry, both of these factors may result in us recording excess and obsolete inventory amounts that do not match the required amounts.

Significant management judgment is required in our valuation of goodwill and intangible assets and when assessing for potential impairment, many of which are based the creation of forecasts of future operating results that are used in the valuation, including (i) estimation of future cash flows, (ii) estimation of the long-term rate of growth for our business, (iii) estimation of the useful life over which cash flows will occur, (iv) terminal values, if applicable and (v) the determination of our weighted average cost of capital, which helps determine the discount rate. It is possible that these forecasts may change and our performance projections included in our forecasts of future results may prove to be inaccurate. If our actual results, or the forecasts and estimates used in future impairment analyses, are lower than the original estimates used to assess the recoverability of these assets, we could incur additional impairment charges. The value of our goodwill and purchased intangible assets could also be impacted by future adverse changes such as a decline in the valuation of technology company stocks, including the valuation of our common stock, or a significant slowdown in the worldwide economy or in the optical communications equipment or semiconductor industry.

We establish revenue reserves, primarily for distributor price adjustments, which requires the use of judgment and estimates that impact the amount and timing of revenue recognition. We record reductions of revenue for such distributor pricing adjustments in the same period that the related revenue is recorded based on estimates of historical pricing adjustments granted to distributors. The actual pricing adjustments granted to distributors may significantly exceed or be less than the historical estimates resulting in adjustments to revenue in the incorrect period.

We establish a product warranty liability at the time of revenue recognition. Product warranties generally have terms of 12 months and cover nonconformance with specifications and defects in material or workmanship. For sales to



distributors, our warranty generally begins when the product is resold by the distributor. The liability is based on estimated costs to fulfill customer product warranty obligations and utilizes historical product failure rates. Should actual warranty obligations differ from estimates, revisions to the warranty liability may be required.

We account for share-based compensation arrangements using the fair value method as described in Note 2 - Summary of Significant Accounting Policies to our Consolidated Financial Statements in this Annual Report. There are a significant number of estimates and assumptions required for the initial valuation of certain transactions as well as for the ongoing valuation of certain share-based compensation items. These estimates may vary significantly and the assumptions may not be accurate resulting us to make adjustments to historically recorded balances. Historically, we have not experienced material differences in our estimates and actual results.

For additional information related to these and other accounting policies refer to Note 2 - Summary of Significant Accounting Policies to our Consolidated Financial Statements included in this Annual Report which is incorporated by reference herein.

## RESULTS OF OPERATIONS

As discussed in Note 21 - Divested Businesses and Discontinued Operations to our Consolidated Financial Statements included in this Annual Report, we have adjusted certain amounts associated with discontinued operations in our results of operations, cash flows and assets and liabilities for all periods presented.

The following table sets forth, for the periods indicated, our statement of operations data (in thousands):

	Fiscal Years		
	2018	2017	2016
Revenue	\$570,398	\$698,772	\$544,338
Cost of revenue <sup>(1) (4) (7)</sup>	324,692	371,888	262,729
Gross profit	245,706	326,884	281,609
Operating expenses:			
Research and development <sup>(1)</sup>	177,713	147,986	107,698
Selling, general and administrative <sup>(1) (3) (5) (8)</sup>	161,673	187,886	145,433
Impairment charges <sup>(7)</sup>	6,575	4,352	11,765
Restructuring charges	6,265	2,744	3,465
Total operating expenses	352,226	342,968	268,361
(Loss) income from operations	(106,520 )	(16,084 )	13,248
Other (expense) income:			
Warrant liability gain (expense) <sup>(2)</sup>	27,646	(2,522 )	(16,431 )
Interest expense	(31,338 )	(28,855 )	(18,427 )
Other (expense) income, net <sup>(9) (6)</sup>	(45,023 )	(2,044 )	39
Other expense, net	(48,715 )	(33,421 )	(34,819 )
Loss before income taxes	(155,235 )	(49,505 )	(21,571 )
Income tax (benefit) expense	(21,473 )	100,911	(17,983 )
Loss from continuing operations	(133,762 )	(150,416 )	(3,588 )
(Loss) income from discontinued operations <sup>(5) (6)</sup>	(6,215 )	(19,077 )	5,022
Net (loss) income	\$(139,977)	\$(169,493)	\$1,434

(1) Includes (a) Amortization expense related to intangible assets arising from acquisitions and (b) Share-based compensation expense included in our consolidated statements of operations as set forth below (in thousands):

	Fiscal Years		
	2018	2017	2016
(a) Intangible amortization expense:			
Cost of revenue	\$33,429	\$30,286	\$26,615
Selling, general and administrative	48,265	35,456	23,640
(b) Share-based compensation expense:			
Cost of revenue	3,869	3,189	2,150
Research and development	13,448	10,565	6,568
Selling, general and administrative	14,620	22,581	18,236

(2) Represents changes in the fair value of common stock warrants recorded as liabilities and adjusted each reporting period to fair value.

Includes specific litigation costs of \$3.5 million, \$2.3 million and \$2.2 million incurred in fiscal years 2018, 2017 (3) and 2016, respectively, primarily related to the GaN lawsuit. See Note 13 - Commitments and Contingencies to the Consolidated Financial Statements included in this Annual Report for additional information.

(4) In fiscal years 2018, 2017 and 2016, includes approximately \$0.2 million, \$43.2 million and \$2.1 million, respectively, of costs for step-up in valuation of acquired business inventories to fair value.

(5)

Includes change in control payments associated with the AppliedMicro Acquisition of \$21.3 million for fiscal year 2017, of which \$12.0 million was recorded as selling, general and administrative expenses and \$9.3 million was recorded as discontinued operations.

(6) See Note 21 - Divested Business and Discontinued Operations to the Consolidated Financial Statements included in this Annual Report for additional information.

Impairment charges includes \$6.6 million and cost of revenue includes \$2.5 million incurred during fiscal year 2018 related to property and equipment, other assets and inventory designated for future use with ZTE.

(7) Additionally, cost of revenue includes inventory charges of \$17.2 million associated with certain production and product line exits during fiscal year 2018. Impairment related charges of \$4.4 million during fiscal year 2017 related to the revaluation of IPR&D technology placed in service during the fiscal year, and impairment related charges of \$11.8 million during fiscal year 2016 related to the exiting of a product line.

Includes acquisition and transaction related costs of \$10.9 million associated with the AppliedMicro Acquisition (8) during fiscal year 2017, and \$2.7 million associated with the FiBest Acquisition and \$0.5 million associated with the Metelics Acquisition during fiscal year 2016.

Includes \$10.4 million of losses for fiscal year 2018 associated with our equity method investment in Compute (9) based on our proportionate share of the losses of Compute, as well as a \$34.3 million loss on disposal of the LR4 business.

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

	Fiscal Years		
	2018	2017	2016
Revenue	100.0 %	100.0 %	100.0 %
Cost of revenue	56.9	53.2	48.3
Gross profit	43.1	46.8	51.7
Operating expenses:			
Research and development	31.2	21.2	19.8
Selling, general and administrative	28.3	26.9	26.7
Impairment charges	1.2	0.6	2.2
Restructuring charges	1.1	0.4	0.6
Total operating expenses	61.8	49.1	49.3
(Loss) income from operations	(18.7 )	(2.3 )	2.4
Other (expense) income:			
Warrant liability gain (expense)	4.8	(0.4 )	(3.0 )
Interest expense	(5.5 )	(4.1 )	(3.4 )
Other (expense) income, net	(7.9 )	(0.3 )	—
Other expense, net	(8.5 )	(4.8 )	(6.4 )
(Loss) before income taxes	(27.2 )	(7.1 )	(4.0 )
Income tax (benefit) expense	(3.8 )	14.4	(3.3 )
Loss from continuing operations	(23.5 )	(21.5 )	(0.7 )
(Loss) income from discontinued operations	(1.1 )	(2.7 )	0.9
Net (loss) income	(24.5 )%	(24.3 )%	0.3 %

Comparison of Fiscal Year Ended September 28, 2018 to Fiscal Year Ended September 29, 2017

We acquired AppliedMicro on January 26, 2017 and certain assets of Picometrix on August 9, 2017, and we divested the Compute business on October 27, 2017 and our LR4 business on May 10, 2018. For additional information related to acquisitions and divestitures refer to Note 3 - Acquisitions and Note 21 - Divested Business and Discontinued Operations, respectively, in this Annual Report. Our annual Statements of Operations includes activity since the dates of acquisition for AppliedMicro and Picometrix and excludes activity for the Compute business and LR4 business after the date of the divestiture, representing less than twelve months of activity for AppliedMicro and Picometrix for the fiscal year ended September 29, 2017.

Revenue. In fiscal year 2018, our revenue decreased by \$128.4 million, or 18.4%, to \$570.4 million from \$698.8 million for fiscal year 2017.

We have historically reported our revenue by reference to three primary markets: Networks, Aerospace and Defense (A&D) and Multi-market. Given the recent increase in the size of the Networks market relative to other markets, and

our increased focus on Cloud Data Center applications, beginning in fiscal year 2018 we began reporting our revenue by reference to the following three primary markets: Industrial and Defense (I&D) (roughly corresponding to the former A&D and Multi-market combined), Data Center and Telecom.

Revenue from our primary markets, the percentage of change between the years and revenue by primary markets expressed as a percentage of total revenue were (in thousands, except percentages):

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	Fiscal Years		% Change
	2018	2017	
Telecom	\$222,940	\$340,022	(34.4)%
Data Center	162,098	172,481	(6.0 )%
Industrial & Defense	185,360	186,269	(0.5 )%
Total	\$570,398	\$698,772	(18.4)%
Telecom	39.1	% 48.6	%
Data Center	28.4	% 24.7	%
Industrial & Defense	32.5	% 26.7	%
Total	100.0	% 100.0	%

In fiscal year 2018, our Telecom market revenue decreased by \$117.1 million, or 34.4%, compared to fiscal year 2017. The decrease was primarily due to lower sales of carrier-based optical semiconductor products to our Asia customer base, lower sales of products targeting fiber to the home applications and the May 2018 sale of our LR4 business.

In fiscal year 2018, our Data Center market revenue decreased by \$10.4 million, or 6.0%, compared to fiscal year 2017. The decrease was primarily due to decreased revenue from sales of legacy optical products and lasers and cloud data center applications.

In fiscal year 2018, our I&D market revenues decreased by \$0.9 million, or 0.5%, compared to fiscal year 2017. The decrease was primarily related to lower certain legacy defense products partially offset by higher revenue across other areas within the product portfolio.

Gross profit. In fiscal year 2018, our gross profit decreased by \$81.2 million, or 24.8%, compared to fiscal year 2017. Gross margin of 43.1% in fiscal year 2018 decreased 370 basis points, compared to fiscal year 2017. Gross profit during 2018 was negatively impacted by lower fiscal year 2018 revenue, ZTE-related inventory charges, production and product line exit costs of \$17.2 million, higher depreciation and amortization expense primarily associated with the AppliedMicro and Picometrix Acquisitions, partially offset by lower acquisition related inventory fair market value step up expense recorded during fiscal year 2017.

Research and development. In fiscal year 2018, research and development expense increased by \$29.7 million, or 20.1%, to \$177.7 million representing 31.2% of revenue, compared with \$148.0 million, or 21.2% of revenue in fiscal year 2017. Research and development expense increased in the 2018 period primarily as a result of higher AppliedMicro-related compensation costs, share-based compensation and depreciation expense, as well as increased spending for Data Center-related initiatives.

Selling, general and administrative. In fiscal year 2018, selling, general and administrative expenses decreased by \$26.2 million, or 14.0% to \$161.7 million, or 28.3% of revenue, compared with \$187.9 million, or 26.9% of revenue, for fiscal year 2017. Selling, general and administrative expenses decreased in the fiscal year 2018 period primarily due to no fiscal year 2018 AppliedMicro change in control payments, lower acquisition-related transaction expenses, lower integration costs and lower share-based compensation costs, partially offset by higher intangible amortization and acquisition-related compensation.

Impairment charges. We recorded impairment charges of \$6.6 million, or 1.2% of revenue, in fiscal year 2018, related to property and equipment and other assets designated for future use with ZTE as a result of the April 15, 2018 denial order issued by the U.S. Department of Commerce's Bureau of Industry and Security's List of Denied Persons. During fiscal year 2017, we recorded impairment charges of \$4.4 million related to an in process research and development technology asset that was placed in service, at which time we determined that the intangible asset value was impaired due to lower than expected cash flow projections.

Restructuring charges. In fiscal year 2018, restructuring charges were \$6.3 million, or 1.1% of our revenue, compared with \$2.7 million, or 0.4% of our revenue, for fiscal year 2017. The increase in restructuring charges during fiscal year 2018 was primarily related to the completion of our exit of facilities in Long Beach, California, Belfast, the United

Kingdom and Sydney, Australia. We expect to incur additional restructuring costs associated with additional restructuring actions associated with the exit of certain production and product lines of approximately \$5.3 million and \$6.7 million during fiscal 2019 as we complete these restructuring actions. Refer to Note 14 - Restructurings in this Annual report on Form 10-K for additional information.

Warrant liability gain. In fiscal year 2018, we recorded a warrant gain of \$27.6 million, or 4.8% of revenue, compared to an expense of \$2.5 million, or 0.4% of revenue, for fiscal year 2017. The difference between periods were driven by a decrease in the estimated fair value of common stock warrants we issued in December 2010, which we carry as a liability at fair value.

Provision for income taxes. In fiscal year 2018, the provision for income taxes was a benefit of \$21.5 million, or 3.8% of revenue, compared to an expense of \$100.9 million, or 14.4% of revenue, for fiscal year 2017. The provision decreased primarily due to changes in the valuation allowance against our U.S. deferred tax assets, partially offset by the impact of the 2017 Tax Cuts and Jobs Act ("Tax Act") which was enacted during our fiscal year 2018. For the fiscal year ended September 28, 2018, the blended U.S. federal income tax rate was 24.5%.

The difference between the blended U.S. federal income tax rate of 24.5% and our effective income tax rate for fiscal year 2018 was primarily impacted by the Tax Act, partially offset by the valuation allowance against our U.S. deferred tax assets. For fiscal year

2017, our effective income tax rate was primarily impacted by an establishment of a full valuation allowance against our U.S. deferred tax assets as well as income taxed in foreign jurisdictions at tax rates generally lower than the U.S. rate.

During fiscal year 2018, the Company's unrecognized tax benefits decreased by \$1.4 million to \$0.3 million due to the audit settlement of our fiscal year 2014 U.S. tax filings. The remaining unrecognized tax benefits of \$0.3 million primarily relates to transfer pricing positions taken on foreign tax filings in tax years 2010 - 2013.

Comparison of Fiscal Year Ended September 29, 2017 to Fiscal Year Ended September 30, 2016

We acquired AppliedMicro on January 26, 2017 and certain assets of Picometrix on August 9, 2017. For additional information related to the AppliedMicro Acquisition refer to Note 3 - Acquisitions in this Annual Report. Our annual Statements of Operations includes activity since the dates of acquisition for AppliedMicro and Picometrix, representing less than twelve months of activity for AppliedMicro and Picometrix for the fiscal year ended September 29, 2017.

We acquired FiBest and Metelics during December 2015. For additional information related to the FiBest Acquisition and Metelics Acquisition refer to Note 3 - Acquisitions. Our annual Statements of Operations includes activity since the dates of acquisition, representing less than twelve months of activity for FiBest and Metelics for the fiscal year ended September 29, 2017.

Revenue. In fiscal year 2017, our revenue increased by \$154.4 million, or 28.4%, to \$698.8 million from \$544.3 million for fiscal year 2016.

Revenue from our primary markets, the percentage of change between the years and revenue by primary markets expressed as a percentage of total revenue were (in thousands, except percentages):

	Fiscal Years		% Change
	2017	2016	
Telecom	\$340,022	\$341,749	(0.5 )%
Data Center	172,481	51,949	232.0 %
Industrial & Defense	186,269	150,640	23.7 %
Total	698,772	544,338	28.4 %
Telecom	48.6	% 62.8	%
Data Center	24.7	% 9.5	%
Industrial & Defense	26.7	% 27.7	%
Total	100.0	% 100.0	%

In fiscal year 2017, our Telecom market revenue decreased by \$1.7 million, or 0.5%, compared to fiscal year 2016. The decrease was primarily related to weakness in our products targeting fiber to the home and carrier-based optical revenue.

In fiscal year 2017, our Data Center market revenue increased by \$120.5 million, or 232.0%, compared to fiscal year 2016. The increase was primarily related to the inclusion of revenue from the sales of products acquired as part of the AppliedMicro Acquisition and other products targeting Cloud Data Centers.

In fiscal year 2017, our I&D revenues increased \$35.6 million, or 23.7%, compared to fiscal year 2016. The increase was primarily due to incremental revenue increases from sales related to radar applications and sales of products acquired as part of the Metelics Acquisition.

Gross profit. In fiscal year 2017, our gross profit increased by \$45.3 million, or 16.1%, compared to fiscal year 2016. Gross margin of 46.8% decreased 490 basis points compared to fiscal year 2016. Gross profit during fiscal year 2017 was negatively impacted by higher intangibles amortization and amortization of inventory step-up associated with the AppliedMicro Acquisition during fiscal year 2017, partially offset by increased profit associated with revenue from recently acquired businesses and lower compensation expense and impairment related charges associated with a product line exit incurred during the three months ended April 1, 2016.



Research and development. In fiscal year 2017, research and development expense increased \$40.3 million, or 37.4%, to \$148.0 million representing 21.2% of revenue, compared with \$107.7 million, or 19.8% of revenue, in fiscal year 2016. Research and development expense increased in fiscal year 2017, primarily as a result of additional costs from our acquisitions, higher depreciation expense and share-based compensation and increased spending on new product development initiatives.

Selling, general and administrative. In fiscal year 2017, selling, general and administrative expense increased by \$42.5 million, or 29.2%, to \$187.9 million, or 26.9% of revenue, compared with \$145.4 million or 26.7% of revenue for fiscal year 2016. Selling, general and administrative expense increased in fiscal year 2017 primarily due to \$12.0 million of change in control compensation expense and \$11.0 million of transaction related expenses, each associated with the AppliedMicro Acquisition. In addition, we incurred higher intangible amortization and share-based compensation as well as additional acquisition integration-related costs in fiscal year 2017, partially offset by lower BinOptics acquisition-related compensation expenses and variable compensation expense.

Impairment charges. We recorded impairment charges of \$4.4 million, or 0.6% of revenue, during fiscal year 2017 related to an in-process research and development technology asset that was placed in service, at which time we determined that the intangible asset value was impaired due to lower than expected cash flow projections. The remaining \$3.6 million value of the technology was transferred to acquired technology as of September 29, 2017.

During fiscal year 2016, we recorded an impairment charge of \$11.8 million related to a strategic decision to exit a product line and end programs associated with our GaN-on Silicon Carbide license and technology transfer.

Restructuring charges. In fiscal year 2017, restructuring charges were \$2.7 million, or 0.4% of our revenue, compared with \$3.5 million, or 0.6% of our revenue, for fiscal year 2016. The decrease in restructuring charges during 2017 was primarily related to completion of Metelics Acquisition restructuring activities as well as our planned exit of a facility in California.

Warrant liability expense. In fiscal year 2017, we recorded warrant expense of \$2.5 million, or 0.4% of revenue, compared to an expense of \$16.4 million, or 3.0% of revenue, for fiscal year 2016. The expense relates to the change in the estimated fair value of common stock warrants we issued in December 2010, which we carry as a liability at fair value.

Provision for income taxes. In fiscal year 2017, the provision for income taxes was an expense of \$100.9 million, or 14.4% of revenue, compared to a benefit of \$18.0 million for fiscal year 2016. The provision increased primarily due to an establishment of a full valuation allowance against our U.S. deferred tax assets during the quarter ended March 31, 2017.

The difference between the U.S. federal statutory income tax rate of 35% and our effective income tax rate for fiscal year 2017 was primarily impacted by an establishment of a full valuation allowance against our U.S. deferred tax assets as well as income taxed in foreign jurisdictions at tax rates generally lower than the U.S. rate. For fiscal year 2016, our effective income tax rate was primarily impacted by changes in fair value of the stock warrant liability which is not deductible for tax purposes, as well as income taxed in foreign jurisdictions at tax rates generally lower than the U.S. rate, research and development credits and non-deductible compensation.

During fiscal year 2017, the Company's unrecognized tax benefits did not change and remained at \$1.7 million. The unrecognized tax benefits primarily relate to positions taken by the Company in its 2014 U.S. tax filings.

#### LIQUIDITY AND CAPITAL RESOURCES

The following table summarizes our cash flow activities for the fiscal years ended September 28, 2018 and September 29, 2017, respectively (in thousands):

	Fiscal Year Ended	
	September 28, 2018	September 29, 2017
Cash and cash equivalents, beginning of period	\$ 130,104	\$ 332,977
Net cash provided by operating activities	36,293	61,050
Net cash used in investing activities	(67,119 )	(337,570 )
Net cash provided by financing activities	(4,451 )	73,653
Effect of exchange rates on cash balances	(151 )	(6 )
Cash and cash equivalents, end of period	\$94,676	\$ 130,104

#### Cash Flow from Operating Activities:

Our cash flow from operating activities for fiscal year 2018 was \$36.3 million and consisted of a net loss of \$140.0 million, plus adjustments to reconcile our net loss to cash provided by operating activities of \$153.7 million plus changes in operating assets and liabilities of \$22.6 million. Adjustments to reconcile our net income to cash provided by operating activities of \$153.7 million primarily included depreciation and intangible amortization expense of \$112.4 million, loss on disposition of business of \$34.3 million, share-based compensation expense of \$31.9 million, loss on minority equity investment of \$10.4 million and impairment related charges of \$9.1 million, partially offset by a warrant liability gain of \$27.6 million. In addition, cash from operating assets and liabilities was \$22.6 million for fiscal year 2018, primarily driven by a decrease in accounts receivable of \$38.7 million, partially offset by an increase

in prepaid expenses and other assets of \$10.6 million, a decrease in income taxes payable of \$3.1 million, a decrease in accounts payable of \$2.6 million and an increase in inventory of \$2.2 million. Inventory increases during fiscal year 2018 are expected to support anticipated customer demand and are net of production and product line exit write-offs and divested businesses. The fiscal year 2018 decrease in accounts receivable balances was primarily due to lower revenue compared to fiscal year 2017.

Our cash flow from operating activities for fiscal year 2017 was \$61.1 million and consisted of a net loss of \$169.5 million, plus adjustments to reconcile our net income to cash provided by operating activities of \$253.4 million less changes in operating assets and liabilities of \$22.8 million. Adjustments to reconcile our net income to cash provided by operating activities of \$253.4 million primarily included depreciation and intangible amortization expense of \$93.0 million, inventory step-up of \$44.0 million, share-based incentive compensation expense of \$36.3 million, impairment related charges of \$4.4 million and warrant liability expense of \$2.5 million, partially offset by income from discontinued operations of \$25.5 million. In addition, cash used by operating assets and liabilities was \$22.8 million for fiscal year 2017, primarily driven by an increase in accounts receivable of \$15.8 million, inventory

of \$4.1 million and a decrease in accrued and other liabilities of \$15.2 million, partially offset by an increase in income taxes payable of \$7.6 million and accounts payable of \$3.4 million. Inventory increases during fiscal year 2017 were to support anticipated customer demand. The fiscal year 2017 increase in accounts receivable was due to increases in revenue compared to 2016.

#### Cash Flow from Investing Activities:

Our cash flow used by investing activities for fiscal year 2018 consisted primarily of \$114.5 million in purchases of short-term investments, capital expenditures of \$53.0 million and a \$5.0 million equity investment, partially offset by received proceeds of \$100.4 million related to the sale of short-term investments and \$5.0 million from the sale of the LR4 business.

Our cash flow used by investing activities for fiscal year 2017 consisted primarily of cash paid for the AppliedMicro Acquisition and the Picometrix Acquisition of \$270.0 million and capital expenditures of \$32.8 million, partially offset by \$25.5 million consisting of consulting fee income of \$7.5 million and our receipt of an indemnification escrow fund release of \$18.0 million associated with the sale of our Automotive business. Additionally, during fiscal year 2017, we purchased \$105.0 million of short-term investments and received proceeds of \$44.6 million related to the sale of short-term investments which was used to fund acquisitions and operating activities.

For additional information related to Acquisitions, Investments and Divested Business and Discontinued Operations see Notes 3, 4 and 21, respectively, to our Consolidated Financial Statements included in this Annual Report.

#### Cash Flow from Financing Activities:

For additional information related to our Debt, specifically our Credit Agreement, Term Loans and Revolving Facility, see Note 9 - Debt to our Consolidated Financial Statements included in this Annual Report.

During fiscal year 2018, our cash used in financing activities of \$4.5 million was primarily related to \$6.9 million of principal payments associated with our Term Loans (as defined in Note 9 - Debt to our Consolidated Financial Statements included in this Annual Report) and \$6.8 million in purchases of stock associated with employee tax withholdings, partially offset by \$7.0 million of proceeds from stock option exercises and employee stock purchases and \$4.0 million of proceeds from the sale of our corporate headquarters facility.

During fiscal year 2017, our cash from financing activities of \$73.7 million was primarily related to \$96.6 million of proceeds from the amendment of our Credit Agreement (as defined in Note 9 - Debt to our Consolidated Financial Statements included in this Annual Report), \$8.3 million of proceeds from stock option exercises and employee stock purchases and \$4.3 million of proceeds from the sale of our corporate headquarters facility. These inflows were partially offset by \$18.5 million in purchases of our common stock associated with employee tax withholdings, \$9.1 million of financing costs associated with the amendment of our Credit Agreement and \$4.7 million of principal payments associated with our Term Loans.

#### Liquidity

As of September 28, 2018, we held \$94.7 million of cash and cash equivalents, primarily deposited with financial institutions. The undistributed earnings of our foreign subsidiaries are indefinitely reinvested and we do not intend to repatriate such earnings. We believe the decision to reinvest these earnings will not have a significant impact on our liquidity. As of September 28, 2018, cash held by our foreign subsidiaries was \$45.5 million, which, along with cash generated from foreign operations, is expected to be used in the support of international growth and working capital requirements as well as the repayment of certain intercompany loans. As of September 28, 2018, we also held \$98.2 million of liquid short-term investments, and had \$160.0 million in borrowing capacity under our Revolving Facility. We plan to use our remaining available cash and cash equivalents, short-term investments, and as deemed appropriate our borrowing capacity under our Revolving Facility (as defined in Note 9 - Debt to our Consolidated Financial Statements included in this Annual Report) for general corporate purposes, including working capital, or for the acquisition of or investment in complementary technologies, design teams, products and businesses. We believe that our cash and cash equivalents, short-term investments, cash generated from operations and borrowing availability under the Revolving Facility will be sufficient to meet our working capital requirements for at least the next 12 months. We may need to raise additional capital from time to time through the issuance and sale of equity or debt securities, and there is no assurance that we will be able to do so on favorable terms or at all.

OFF-BALANCE SHEET ARRANGEMENTS

As of September 28, 2018, we had no material transactions that meet the definition of an off-balance sheet arrangement required to be disclosed pursuant to SEC Regulation S-K Item 303(a)(4)(ii).

**CONTRACTUAL OBLIGATIONS**

The following is a summary of our contractual payment obligations for consolidated debt, purchase agreements, operating leases, other commitments and long-term liabilities as of September 28, 2018 (in thousands):

Contractual Cash Obligations	Payments Due By Period				
	Total	Less Than 1 Year	1-3 Years	3-5 Years	More Than 5 Years
Principal Payments on Long-term Debt	\$679,856	\$ 6,885	\$ 13,770	\$ 13,770	\$645,431
Interest Payments on Long-term Debt	170,785	30,847	60,670	59,662	19,606
Capital Leases	55,600	2,797	5,446	5,110	42,247
Estimated Interest Payments on Capital Leases	27,786	2,067	4,023	3,860	17,836
Operating Lease Obligations (1)	34,822	10,068	12,969	7,122	4,663
Purchase Commitments (2)	1,813	1,813	—	—	—
Total Contractual Cash Obligations	\$970,662	\$ 54,477	\$ 96,878	\$ 89,524	\$729,783
Other Commercial Commitments					
Letters of Credit	400	400	—	—	—
Commercial Contract Commitments (3)	93,166	86,006	6,929	231	—
Total Commercial Commitments	\$93,566	\$ 86,406	\$ 6,929	\$ 231	\$—

We have non-cancelable operating lease agreements for office, research, development and manufacturing space in the U.S. and certain foreign locations. We also have operating leases for certain equipment and services. These (1) lease agreements expire at various dates through 2026 and certain agreements contain provisions for extension at substantially the same terms as currently in effect.

(2) In the normal course of business, we enter into supply arrangements with certain of our suppliers to purchase minimum quantities of inventories.

(3) The most significant of our commercial contract commitments relate to open purchase orders of approximately \$93.2 million.

As of September 28, 2018, we estimated \$1.8 million in asset retirement obligations primarily for the restoration of leased facilities upon the termination of the related leases. Although it is reasonably possible that our estimates could materially change in the next 12 months, we are presently unable to reliably estimate when any cash settlement of these obligations may occur.

As of September 28, 2018, we recorded \$0.3 million of unrecognized tax benefits. We are unable to make a reasonable estimate as to when and if such amounts will be paid.

**OTHER MATTERS**

Inflation did not have a material impact upon our results of operations during the three-year period ended September 28, 2018.

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

We are exposed to market risk in the ordinary course of business, which consists primarily of interest rate risk associated with our cash and cash equivalents, short-term investments and our variable rate debt, as well as foreign exchange rate risk. In addition, the value of our warrant liability is based on the underlying price of our common stock and changes in its value could significantly impact our warrant liability expense.

Interest rate risk. The primary objectives of our investment activity are to preserve principal, provide liquidity and invest excess cash for an average rate of return. To minimize market risk, we maintain our portfolio in cash and diversified investments, which may consist of corporate bonds, bank deposits, money market funds and commercial paper. The interest rates are variable and fluctuate with current market conditions. The risk associated with fluctuating interest rates is limited to this investment portfolio. We believe that a 10% change in interest rates would not have a material impact on our financial position or results of operations. We do not enter into financial instruments for

trading or speculative purposes.

Our exposure to interest rate risk also relates to the increase or decrease in the amount of interest expense we must pay on the outstanding debt under the Credit Agreement. The interest rates on our term loans and revolving credit facility are variable interest rates based on our lender's prime rate or a LIBOR rate, in each case plus an applicable margin, which exposes us to market interest rate risk when we have outstanding borrowings under the Credit Agreement. As of September 28, 2018, we had \$679.9 million of outstanding borrowings under the Credit Agreement. Assuming our outstanding debt remains constant under the Credit Agreement for an entire year and the applicable annual interest rate increases or decreases by 1%, our annual interest expense would increase or decrease by \$6.8 million.

Foreign currency risk. To date, our international customer agreements have been denominated primarily in U.S. dollars. Accordingly, we have limited exposure to foreign currency exchange rates. The foreign operations of one of our subsidiaries located in Japan has transactions which are predominately denominated in Japanese Yen. The functional currency of a majority of our foreign operations continues to be in U.S. dollars with the remaining operations being local currency. Increases in the value of the U.S. dollar relative to

other currencies could make our products more expensive, which could negatively impact demand in certain regions. Conversely, decreases in the value of the U.S. dollar relative to other currencies could result in our products being more expensive to certain customers and could reduce or delay orders, or otherwise negatively affect how they do business with us. The effects of exchange rate fluctuations on the net assets of the majority of our operations are accounted for as transaction gains or losses. We believe that a change of 10% in such foreign currency exchange rates would not have a material impact on our financial position or results of operations. In the future, we may enter into foreign currency exchange hedging contracts to reduce our exposure to changes in exchange rates.

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ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA.  
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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the shareholders and the Board of Directors of MACOM Technology Solutions Holdings, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of MACOM Technology Solutions Holdings, Inc. and subsidiaries (the "Company") as of September 28, 2018 and September 29, 2017, the related consolidated statements of operations, comprehensive (loss) income, stockholders' equity, and cash flows, for each of the three years in the period ended September 28, 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 September 28, 2018 and September 29, 2017, and the results of its operations and its cash flows for each of the three years in the period ended September 28, 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 September 28, 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 November 15, 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

Boston, Massachusetts

November 15, 2018

We have served as the Company's auditor since 2010.

MACOM TECHNOLOGY SOLUTIONS HOLDINGS, INC.  
CONSOLIDATED BALANCE SHEETS  
(In thousands)

	September 28, 2018	September 29, 2017
<b>ASSETS</b>		
Current assets:		
Cash and cash equivalents	\$ 94,676	\$ 130,104
Short-term investments	98,221	84,121
Accounts receivable (less allowances of \$6,795 and \$9,410, respectively)	97,375	136,096
Inventories	122,837	136,074
Income tax receivable	17,601	18,493
Assets held for sale	4,840	35,571
Prepaid and other current assets	23,311	22,438
Total current assets	458,861	562,897
Property, plant and equipment, net	149,923	131,019
Goodwill	314,076	313,765
Intangible assets, net	512,785	621,092
Deferred income taxes	2,272	948
Other investments	31,094	—
Other long-term assets	13,484	7,402
Total assets	\$ 1,482,495	\$ 1,637,123
<b>LIABILITIES AND STOCKHOLDERS' EQUITY</b>		
Current liabilities:		
Current portion of lease payable	\$ 467	\$ 815
Current portion long-term debt	6,885	6,885
Accounts payable	41,951	47,038
Accrued liabilities	49,945	58,243
Liabilities held for sale	—	2,144
Deferred revenue	7,757	1,994
Total current liabilities	107,005	117,119
Lease payable, less current portion	29,023	17,275
Long-term debt, less current portion	658,372	661,471
Warrant liability	13,129	40,775
Other long-term liabilities	5,902	7,937
Deferred income taxes	389	15,172
Total liabilities	813,820	859,749
Stockholders' equity:		
Preferred stock, \$0.001 par value, 10,000 shares authorized, no shares issued	—	—
Common stock, \$0.001 par value, 300,000 shares authorized; 65,202 and 64,279 shares issued and 65,179 and 64,256 shares outstanding as of September 28, 2018 and September 29, 2017, respectively, of which 6 and 0 shares, respectively, are subject to forfeiture	65	64
Treasury Stock, at cost, 23 shares as of both September 28, 2018 and September 29, 2017	(330	) (330
Accumulated other comprehensive income	2,188	2,977
Additional paid-in capital	1,074,728	1,041,644
Accumulated deficit	(407,976	) (266,981

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Total stockholders' equity	668,675	777,374
Total liabilities and stockholders' equity	\$ 1,482,495	\$ 1,637,123
See notes to consolidated financial statements.		

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MACOM TECHNOLOGY SOLUTIONS HOLDINGS, INC.  
CONSOLIDATED STATEMENTS OF OPERATIONS  
(In thousands, except per share data)

	Fiscal Years		
	2018	2017	2016
Revenue	\$570,398	\$698,772	\$544,338
Cost of revenue	324,692	371,888	262,729
Gross profit	245,706	326,884	281,609
Operating expenses:			
Research and development	177,713	147,986	107,698
Selling, general and administrative	161,673	187,886	145,433
Impairment charges	6,575	4,352	11,765
Restructuring charges	6,265	2,744	3,465
Total operating expenses	352,226	342,968	268,361
(Loss) income from operations	(106,520 )	(16,084 )	13,248
Other (expense) income:			
Warrant liability gain (expense)	27,646	(2,522 )	(16,431 )
Interest expense, net	(31,338 )	(28,855 )	(18,427 )
Other (expense) income	(45,023 )	(2,044 )	39
Total other expense, net	(48,715 )	(33,421 )	(34,819 )
Loss before income taxes	(155,235 )	(49,505 )	(21,571 )
Income tax (benefit) expense	(21,473 )	100,911	(17,983 )
Loss from continuing operations	(133,762 )	(150,416 )	(3,588 )
(Loss) income from discontinued operations	(6,215 )	(19,077 )	5,022
Net (loss) income	\$(139,977)	\$(169,493)	\$1,434
Net (loss) income per share:			
Basic (loss) income per share:			
Loss from continuing operations	\$(2.07 )	\$(2.48 )	\$(0.07 )
(Loss) income from discontinued operations	(0.10 )	(0.31 )	0.09
(Loss) income per share - basic	\$(2.16 )	\$(2.79 )	\$0.03
Diluted (loss) income per share:			
Loss from continuing operations	\$(2.47 )	\$(2.48 )	\$(0.07 )
(Loss) income from discontinued operations	(0.10 )	(0.31 )	0.09
(Loss) income per share - diluted	\$(2.57 )	\$(2.79 )	\$0.03
Shares used:			
Basic	64,741	60,704	53,364
Diluted	65,311	60,704	53,364
See notes to consolidated financial statements.			

MACOM TECHNOLOGY SOLUTIONS HOLDINGS, INC.  
 CONSOLIDATED STATEMENTS OF COMPREHENSIVE (LOSS) INCOME  
 (In thousands)

	Fiscal Years		
	2018	2017	2016
Net (loss) income	\$(139,977)	\$(169,493)	\$1,434
Unrealized loss on short-term investments, net of tax	(287 )	(63 )	(2 )
Foreign currency translation (loss) gain, net of tax	(502 )	(5,999 )	11,320
Other comprehensive (loss) income, net of tax	(789 )	(6,062 )	11,318
Total comprehensive (loss) income	\$(140,766)	\$(175,555)	\$12,752
See notes to consolidated financial statements.			

MACOM TECHNOLOGY SOLUTIONS HOLDINGS, INC.  
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY  
(In thousands)

	Common Stock		Treasury Stock		Accumulated Other Comprehensive Income (Loss)	Additional Paid-In Capital	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount	Shares	Amount				
Balance - October 2, 2015	52,958	\$ 53	(23)	\$(330)	\$ (2,279)	\$ 526,011	\$ (98,922)	\$ 424,533
Stock option exercises	130	—	—	—	—	1,253	—	1,253
Vesting of restricted common stock and units	750	1	—	—	—	—	—	1
Issuance of common stock pursuant to employee stock purchase plan	154	—	—	—	—	4,207	—	4,207
Shares repurchased for tax withholdings on restricted stock awards	(283)	—	—	—	—	(9,995)	—	(9,995)
Share-based compensation	—	—	—	—	—	26,954	—	26,954
Excess tax benefits	—	—	—	—	—	3,079	—	3,079
Other comprehensive income, net of tax	—	—	—	—	11,318	—	—	11,318
Net income	—	—	—	—	—	—	1,434	1,434
Balance at September 30, 2016	53,709	\$ 54	(23)	\$(330)	\$ 9,039	\$ 551,509	\$ (97,488)	\$ 462,784
Stock option exercises	234	—	—	—	—	3,117	—	3,117
Vesting of restricted common stock and units	984	—	—	—	—	—	—	—
Issuance of common stock pursuant to employee stock purchase plan	145	—	—	—	—	5,164	—	5,164
Shares repurchased for tax withholdings on restricted stock awards	(382)	—	—	—	—	(18,534)	—	(18,534)
Share-based compensation	—	—	—	—	—	36,335	—	36,335
Shares issued in connection with acquisition including converted equity awards	9,589	10	—	—	—	465,072	—	465,082
Equity issuance costs	—	—	—	—	—	(1,019)	—	(1,019)
Other comprehensive loss, net of tax	—	—	—	—	(6,062)	—	—	(6,062)
Net loss	—	—	—	—	—	—	(169,493)	(169,493)
Balance at September 29, 2017	64,279	\$ 64	(23)	\$(330)	\$ 2,977	\$ 1,041,644	\$ (266,981)	\$ 777,374
Cumulative effect of adoption of ASU 2016-09	—	—	—	—	—	1,018	(1,018)	—
Stock option exercises	27	—	—	—	—	76	—	76
Vesting of restricted common stock and units	906	1	—	—	—	—	—	1
	306	—	—	—	—	6,881	—	6,881

Issuance of common stock pursuant to employee stock purchase plan								
Shares repurchased for tax withholdings on restricted stock awards	(316 )	—	—	—	—	(6,828 )	—	(6,828 )
Share-based compensation	—	—	—	—	—	31,937	—	31,937
Other comprehensive loss, net of tax	—	—	—	—	(789 )	—	—	(789 )
Net loss	—	—	—	—	—	—	(139,977 )	(139,977 )
Balance at September 28, 2018	65,202	\$ 65	(23)	\$ (330)	\$ 2,188	\$ 1,074,728	\$ (407,976)	\$ 668,675
See notes to consolidated financial statements.								



MACOM TECHNOLOGY SOLUTIONS HOLDINGS, INC.  
CONSOLIDATED STATEMENTS OF CASH FLOWS  
(In thousands)

	Fiscal Years		
	2018	2017	2016
<b>CASH FLOWS FROM OPERATING ACTIVITIES:</b>			
Net (loss) income	\$(139,977)	\$(169,493)	\$1,434
Adjustments to reconcile net (loss) income to net cash from operating activities:			
Depreciation and intangible amortization	112,383	92,998	70,591
Share-based compensation	31,937	36,335	26,954
Warrant liability (gain) expense	(27,646)	2,522	16,431
Acquired inventory step-up amortization	224	44,022	2,061
Deferred financing costs amortization and write offs	4,587	3,373	1,717
Acquisition prepaid compensation amortization	—	506	4,457
Loss on extinguishment of debt	—	—	—
Loss (gain) from disposition of business	34,343	(25,520)	(7,500)
Deferred income taxes	(16,528)	92,171	(9,936)
Impairment related charges	9,143	4,352	12,955
Loss on minority equity investment	10,406	—	—
Changes in assets held for sale from discontinued operations	(6,644)	218	—
Other adjustments, net	1,463	2,400	1,083
Change in operating assets and liabilities:			
Accounts receivable	38,679	(15,754)	(17,209)
Inventories	(2,166)	(4,094)	(24,708)
Prepaid expenses and other assets	(10,585)	1,126	(2,412)
Accounts payable	(2,609)	3,449	(1,075)
Accrued and other liabilities	2,347	(15,176)	10,862
Income taxes	(3,064)	7,615	(6,473)
Net cash from operating activities	36,293	61,050	79,232
<b>CASH FLOWS FROM INVESTING ACTIVITIES:</b>			
Acquisition of businesses, net	(1,000)	(270,008)	(85,517)
Purchases of property and equipment	(53,044)	(32,804)	(31,326)
Proceeds from sale of assets	1,274	215	—
Proceeds from sales and maturities of short-term investments	100,375	44,555	51,573
Purchases of short-term investments	(114,461)	(105,048)	(36,316)
Purchases of other investments and intellectual property	(5,000)	—	(777)
Proceeds associated with divested business and discontinued operations	4,737	25,520	7,500
Net cash used in investing activities	(67,119)	(337,570)	(94,863)
<b>CASH FLOWS FROM FINANCING ACTIVITIES:</b>			
Proceeds from notes payable	—	96,558	247,625
Payments of financing costs	(505)	(9,077)	—
Proceeds from stock option exercises and employee stock purchases	6,957	8,281	5,460
Payments on notes payable	(6,885)	(4,747)	(4,138)
Payments of capital leases and assumed debt	(713)	(1,137)	(9,938)
Repurchase of common stock	(6,828)	(18,534)	(9,995)
Proceeds from corporate facility financing obligation	4,000	—	—
Other adjustments, net	(477)	2,309	(1,660)
Net cash (used in) from financing activities	(4,451)	73,653	227,354
Foreign currency effect on cash	(151)	(6)	(1,058)

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NET CHANGE IN CASH AND CASH EQUIVALENTS	(35,428 )	(202,873 )	210,665
CASH AND CASH EQUIVALENTS — Beginning of year	\$130,104	\$332,977	122,312
CASH AND CASH EQUIVALENTS — End of year	\$94,676	\$130,104	\$332,977

Supplemental disclosure of non-cash activities

Issuance of common stock in connection with the AppliedMicro Acquisition (See Note 3 - Acquisitions)	\$—	\$465,082	\$—
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See notes to consolidated financial statements.

MACOM TECHNOLOGY SOLUTIONS HOLDINGS, INC.  
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. DESCRIPTION OF BUSINESS

MACOM Technology Solutions Holdings, Inc. (the Company) was incorporated in Delaware on March 25, 2009. We are a leading provider of high-performance analog semiconductor solutions that enable next-generation Internet applications, the cloud connected apps economy, and the modern, networked battlefield across the radio frequency (RF), microwave, millimeterwave and lightwave spectrum. We design, develop, manufacture and have manufactured differentiated, high-value products for customers who demand high performance, quality and reliability.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

**Principles of Consolidation, Basis of Presentation and Reclassification**—We have one reportable segment, semiconductors and modules. The accompanying consolidated financial statements include our accounts and the accounts of our majority-owned subsidiaries. Certain prior period financial statement amounts, such as deferred revenue and cash flow line item presentation have been adjusted to conform to currently reported presentations. All intercompany balances and transactions have been eliminated in consolidation.

We have a 52- or 53-week fiscal year ending on the Friday closest to the last day of September. The fiscal years 2018, 2017 and 2016 included 52 weeks. To offset the effect of holidays, for fiscal years in which there are 53 weeks, we typically include the extra week arising in our fiscal years in the first quarter.

**Use of Estimates**—The preparation of consolidated financial statements in conformity with accounting principles generally accepted in the U.S. requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities during the reporting periods, the reported amounts of revenue and expenses during the reporting periods and the disclosure of contingent assets and liabilities at the date of the financial statements. On an ongoing basis, we base estimates and assumptions on historical experience, currently available information and various other factors that management believes to be reasonable under the circumstances. Actual results may differ from these estimates and assumptions.

**Divested Businesses and Discontinued Operations**—In the first quarter of fiscal year 2018, we divested AppliedMicro's compute business (the Compute business). In the third quarter of fiscal year 2018, we divested our Japan-based long-range optical subassembly business (the LR4 business). The operating results of the LR4 business have been reflected in our continuing operations up through the May 10, 2018 sale date with the \$34.3 million loss on disposal recorded as other expense. The operating results of the Compute business are reflected in discontinued operations. See Note 21 - Divested Business and Discontinued Operations for additional information.

**Foreign Currency Translation and Remeasurement**—Our consolidated financial statements are presented in U.S. dollars. While the majority of our foreign operations use the U.S. dollar as the functional currency, the financial statements of our foreign operations for which the functional currency is not the U.S. dollar are translated into U.S. dollars at the exchange rates in effect at the balance sheet dates (for assets and liabilities) and at average exchange rates (for revenue and expenses). The unrealized translation gains and losses on the net investment in these foreign operations are accumulated as a component of other comprehensive (loss) income.

The financial statements of our foreign operations where the functional currency is the U.S. dollar, but where the underlying transactions are transacted in a different currency, are remeasured at the exchange rate in effect at the balance sheet date with respect to monetary assets and liabilities. Nonmonetary assets and liabilities, such as inventories and property and equipment and related statements of operations accounts, such as cost of revenue and depreciation, are remeasured at historical exchange rates. Revenue and expenses, other than cost of revenue, amortization and depreciation, are translated at the average exchange rate for the period in which the transaction occurred. The net gains and losses on foreign currency remeasurement are reflected in selling, general and administrative expense in the accompanying consolidated statements of operations. Net foreign exchange transaction gains and losses for all periods presented were not material.

**Cash and Cash Equivalents**—Cash equivalents are primarily composed of short-term, highly-liquid instruments with an original maturity of three months or less and consist primarily of money market funds.

Investments— Short-term investments: We classify our short-term investments as available-for-sale. Our investments classified as available-for-sale are recorded at fair value based upon third party pricing at period end. Unrealized gains and losses that are deemed temporary in nature are recorded in accumulated other comprehensive income and loss as a separate component of stockholders' equity.

A decline in the fair value of any security below cost that is deemed other than temporary results in a charge to earnings and the corresponding establishment of a new cost basis for the security. Premiums and discounts are amortized (accrued) over the life of the related security as an adjustment to its yield. Dividend and interest income are recognized when earned. Realized gains and losses are included in earnings and are derived using the specific identification method for determining the cost of investments sold.

Other investments: We use the equity method to account for investments in companies if the investment provides us with the ability to exercise significant influence over operating and financial policies of the investee. Our proportionate share of the net income (loss) resulting from these investments are reported within the Other (expense) income line in our Consolidated Statements of Operations.

The carrying value of our equity method investments is reported in Other investments in our Consolidated Balance Sheets.

Other investments that are not controlled, and over which we do not have the ability to exercise significant influence, are accounted for under the cost method and reported in Other investments in our Consolidated Balance Sheets.

Our equity method investments are reported at cost and adjusted each period for our share of the investee's income or loss and dividends paid, if any, while cost method investments are carried at cost. The entities do not have a readily determinable fair value and are periodically evaluated for impairment. An impairment loss would be recorded whenever a decline in value of an investment below its carrying amount is determined to be other than temporary. Refer to Note 4 - Investments, for additional information.

**Inventories**—Inventories are stated at the lower of cost or net realizable value. We use a combination of standard cost and moving weighted-average cost methodologies to determine the cost basis for our inventories, approximating a first-in, first-out basis. The standard cost of finished goods and work-in-process inventory is composed of material, labor and manufacturing overhead, which approximates actual cost. In addition to stating inventory at the lower of cost or net realizable value, we also evaluate inventory each reporting period for excess quantities and obsolescence, establishing reserves when necessary based upon historical experience, assessment of economic conditions and expected demand. Once recorded, these reserves are considered permanent adjustments to the carrying value of inventory.

**Property and Equipment**—Property and equipment are stated at cost, less accumulated depreciation and amortization. Expenditures for maintenance and repairs are charged to expense as incurred, whereas major improvements that significantly extend the useful life of the assets are capitalized as additions to property and equipment.

Property and equipment are depreciated or amortized using the straight-line method over the following estimated useful lives:

Asset Classification	Estimated Useful Life In Years
Buildings and improvements	20 – 40
Capital lease assets	5 - 20
Machinery and equipment	2 – 7
Computer equipment and software	2 – 5
Furniture and fixtures	7 – 10
Leasehold improvements	Shorter of useful life or term of lease

**Goodwill and Indefinite-Lived Intangible Assets**—We have goodwill and certain intangible assets with indefinite lives which are not subject to amortization; these are reviewed for impairment annually as of the end of our August fiscal month end and more frequently if events or changes in circumstances indicate that the assets may be impaired. For our assessment of goodwill impairment, we compare the carrying value of the reporting unit to the fair value of the Company. For our assessment of in-service indefinite-lived assets we compare the carrying value of the asset to the estimated fair value of the asset. For indefinite-lived assets not in service, such as in-process research and development, we perform both qualitative and quantitative assessments using an assumption of "more likely than not" to determine if there are any impairment indicators. If impairment exists, a loss is recorded to write down the value of the assets to their implied fair values. During the fiscal year ended September 29, 2017, we recorded impairment charges of \$4.4 million related to indefinite-lived intangible assets. See Note 16 - Intangible Assets, for further detail of these impairment charges. There were no significant expenses related to abandoned in-process research and development projects in any other period presented.

**Impairment of Long-Lived Assets**—Long-lived assets include property and equipment and definite-lived intangible assets subject to amortization. We evaluate long-lived assets for recoverability when events or changes in circumstances indicate that their carrying amounts may not be recoverable. Circumstances which could trigger a review include, but are not limited to, significant decreases in the market price of the asset or asset group, significant adverse changes in the business climate or legal factors, the accumulation of costs significantly in excess of the

amount originally expected for the acquisition or construction of the asset, current period cash flow or operating losses combined with a history of losses or a forecast of continuing losses associated with the use of the asset and a current expectation that the asset will more likely than not, be sold or disposed of significantly before the end of its previously estimated useful life.

In evaluating a long-lived asset for recoverability, we estimate the undiscounted cash flows expected to result from our use and eventual disposition of the asset. If the sum of the expected undiscounted cash flows is less than the carrying amount of the asset, an impairment loss, equal to the excess of the carrying amount over the fair value of the asset, is recognized. In fiscal year 2018, we recorded impairment charges of \$6.6 million, including \$4.6 million related to property and equipment and \$2.0 million related to other assets

designated for future use with Zhongxing Telecommunications Equipment Corporation (ZTE), as a result of the Bureau of Industry and Security (BIS) denial order on April 15, 2018. In fiscal year 2016 we recorded impairment charges of \$13.8 million related to our strategic decision to exit a product line and end programs associated with our GaN-on Silicon Carbide (GaN-on-SiC) license and technology transfer. There were no impairments of long-lived assets in fiscal year 2017. Intangible assets related to in-process research and development acquired are not amortized until the underlying asset begins revenue-generating activity, at which time it is amortized over its estimated useful life. Intangibles related to abandoned in-process research and development projects are expensed in the period the project is abandoned.

**Other Intangible Assets**—Our other intangible assets, including acquired technology and customer relationships, are definite-lived assets and are subject to amortization. We amortize definite-lived assets over their estimated useful lives, which range from five to fourteen years, generally based on the pattern over which we expect to receive the economic benefit from these assets.

**Revenue Recognition**—We recognize revenue when: (i) persuasive evidence of an arrangement exists; (ii) delivery or services have been rendered; (iii) the price is fixed or determinable; and (iv) collectability is reasonably assured. We recognize revenue with the transfer of title and risk of loss and provide for reserves for returns and other allowances. We generally do not provide customers other than distributors the right to return product, with the exception of warranty related matters. Shipping and handling fees billed to customers are recorded as revenue while the related costs are classified as a component cost of revenue.

We provide warranties for certain products and accrue the estimated costs of warranty claims in the period the related revenue is recorded. Product warranties generally have terms of 12 months and cover nonconformance with specifications and defects in material or workmanship. For sales to distributors, our warranty generally begins when the product is resold by the distributor. The liability is based on estimated costs to fulfill customer product warranty obligations and utilizes historical product failure rates. Should actual warranty obligations differ from estimates, revisions to the warranty liability may be required.

We have agreements with some distribution customers for various programs, including compensation, volume-based pricing, obsolete inventory, new products and stock rotation. Sales to these distribution customers, as well as the existence of compensation programs, are in accordance with terms set forth in written agreements with these distribution customers. In general, credits allowed under these programs are capped based upon individual distributor agreements. We record charges associated with these programs as a reduction of revenue at the time of sale with a corresponding adjustment to accounts receivable based upon historical activity. Our policy is to use a 12 months rolling historical experience rate and an estimated general reserve percentage in order to estimate the necessary allowance to be recorded.

We record deferred revenue when payments are received or due in advance of our performance under a contract, which is then recognized as revenue once the performance obligations are satisfied.

**Research and Development Costs**—Costs incurred in the research and development of products are expensed as incurred.

**Income Taxes**—Deferred tax assets and liabilities are recognized based on temporary differences between the financial reporting and income tax bases of assets and liabilities, using rates anticipated to be in effect when such temporary differences reverse. A valuation allowance against net deferred tax assets is required if, based upon the available evidence, it is more likely than not that some or all of the deferred tax assets will not be realized.

We provide reserves for potential payments of tax to various tax authorities related to uncertain tax positions and other issues. Reserves are based on a determination of whether and how much of a tax benefit is taken by us in our tax filings or positions that are more likely than not to be realized following an examination by taxing authorities. We recognize the financial statement benefit of an uncertain tax position only after considering the probability that a tax authority would sustain the position in an examination. For tax positions meeting a “more-likely-than-not” threshold, the amount recognized in the financial statements is the benefit expected to be realized upon settlement with the tax authority. For tax positions not meeting the threshold, no financial statement benefit is recognized. Potential interest and penalties associated with such uncertain tax positions are recorded as a component of income tax expense.

Earnings Per Share—Basic net (loss) income per share is computed by dividing net (loss) income by the weighted-average number of common shares outstanding during the period, excluding the dilutive effect of common stock equivalents. Diluted net (loss) income per share reflects the dilutive effect of common stock equivalents, such as stock options, warrants and restricted stock units, using the treasury stock method.

Fair Value Measurements—Financial assets and liabilities are measured at fair value. Fair value is an exit price, representing the amount that would be received from the sale of an asset or paid to transfer a liability at the measurement date under current market conditions in an orderly transaction between market participants. As such, fair value is a market-based measurement that should be determined based on assumptions that market participants would use in pricing an asset or liability. As a basis for considering such assumptions, we group financial assets and liabilities in a three-tier fair value hierarchy, according to the inputs used in measuring fair value as follows:

Level 1—observable inputs such as quoted prices in active markets for identical assets and liabilities; Level 2—inputs other than quoted prices in active markets that are observable either directly or indirectly, such as quoted prices in active markets for similar assets and liabilities, quoted prices for identical assets and liabilities in markets that are not active and model-based valuation techniques for which significant assumptions are observable in active markets; and, Level 3—unobservable inputs for which there is little



or no market data, requiring us to develop our own assumptions for model-based valuation techniques. This hierarchy requires us to use observable market data, when available, and to minimize the use of unobservable inputs when determining fair value.

Money market funds are actively traded and consist of highly liquid investments with original maturities of 90 days or less. They are measured at their net asset value and classified as Level 1. Corporate and agency bonds and commercial paper are categorized as Level 2 assets except where sufficient quoted prices exist in active markets, in which case such securities are categorized as Level 1 assets. These securities are valued using third-party pricing services. These services may use, for example, model-based pricing methods that utilize observable market data as inputs. We generally use quoted prices for recent trading activity of assets with similar characteristics to the debt security or bond being valued. The securities and bonds priced using such methods are generally classified as Level 2. Broker dealer bids or quotes on securities with similar characteristics may also be used.

The carrying amounts of cash and cash equivalents, accounts receivable, accounts payable and accrued liabilities approximate fair value due to the short-term nature of these assets and liabilities.

**Contingent Consideration**—We estimate and record at the acquisition date, the fair value of contingent consideration making up part of the purchase price consideration for acquisitions. Additionally, at each reporting period, we estimate the change in the fair value of contingent consideration and any change in fair value is recognized in the consolidated statements of operations. We estimate the fair value of contingent consideration by discounting the associated expected cash flows, using a probability-weighted, discounted cash flow model. The estimate of the fair value of contingent consideration requires subjective assumptions to be made regarding future operating results, discount rates and probabilities assigned to various potential operating result scenarios.

**Share-Based Compensation**—We account for all share-based compensation arrangements using the fair value method. We recognize compensation expense over the requisite service period of the award, which is generally the vesting period, using the straight-line method for service-based awards and the accelerated method for performance-based awards, and providing that the minimum amount of compensation recorded is equal to the vested portion of the award. We record the expense in the consolidated statements of operations in the same manner in which the award recipients' salary costs are classified. For restricted stock awards with service conditions we use the closing stock price on the date of grant to estimate the fair value of the awards. We use the Black-Scholes option-pricing model to estimate the fair value of stock options with service and performance conditions, inclusive of assumptions for risk-free interest rates, dividends, expected terms and estimated volatility. We use the Monte Carlo Simulation analysis to estimate the fair value of stock options with market conditions, inclusive of assumptions for risk free interest rates, expected term, expected volatility and the target price. We derive the risk-free interest rate assumption from the U.S. Treasury's rates for U.S. Treasury zero-coupon bonds with maturities similar to the expected term of the award being valued. We base the assumed dividend yield on its expectation of not paying dividends in the foreseeable future. We calculate the weighted-average expected term of the options using the simplified method, which is a method of applying a formula that uses the vesting term and the contractual term to compute the expected term of a stock option. The decision to use the simplified method is based on a lack of relevant historical data, due to our limited operating experience. In addition, we calculate our estimated volatility using our historical stock price volatility data. In fiscal year 2018 we adopted Accounting Standards Update (ASU) 2016-09, Compensation - Stock Compensation (ASU 2016-09), and upon adoption we elected to account for forfeitures when they occur. Prior to the adoption of ASU 2016-09 the accounting for share-based compensation required forfeitures to be estimated at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differed from those estimates. See the Recent Accounting Pronouncements section below for additional detail on the adoption of ASU 2016-09. Share-based awards that are settled in cash are recorded as liabilities. The measurement of the liability and compensation cost for these awards is based on the fair value of the award, and is recorded in operating income over the award's vesting period. Changes in our payment obligation prior to the settlement date of a stock-based award are recorded as compensation expense in operating income in the period of the change. The final payment amount for such awards is established on the date of the exercise of the award by the employee.

Guarantees and Indemnification Obligations—We enter into agreements in the ordinary course of business with, among others, customers, distributors and original equipment manufacturers (OEM). Most of these agreements require us to indemnify the other party against third-party claims alleging that a Company product infringes a patent and/or copyright. Certain agreements in which we grant limited licenses to Company intellectual property require us to indemnify the other party against third-party claims alleging that the use of the licensed intellectual property infringes a third-party's intellectual property. Certain of these agreements require us to indemnify the other party against certain claims relating to property damage, personal injury or the acts or omissions, its employees, agents or representatives. In addition, from time to time, we have made certain guarantees in the form of warranties regarding the performance of Company products to customers.

We have agreements with certain vendors, creditors, lessors and service providers pursuant to which we have agreed to indemnify the other party for specified matters, such as acts and omissions, its employees, agents or representatives. We have procurement or license agreements with respect to technology used in our products and agreements in which we obtain rights to a product from an OEM. Under some of these agreements, we have agreed to indemnify the supplier for certain claims that may be brought against such party with respect to our acts or omissions relating to the supplied products or technologies.

Our certificate of incorporation and agreements with certain of our directors and officers and certain of our subsidiaries' directors and officers provide them indemnification rights, to the extent legally permissible, against liabilities incurred by them in connection with

legal actions in which they may become involved by reason of their service as a director or officer. As a matter of practice, we have maintained director and officer liability insurance coverage, including coverage for directors and officers of acquired companies.

We have not experienced any losses related to these indemnification obligations in any period presented and no claims with respect thereto were outstanding as of September 28, 2018 and September 29, 2017. We do not expect significant claims related to these indemnification obligations and, consequently, have concluded that the fair value of these obligations is negligible. No liabilities related to indemnification liabilities have been established.

Recent Accounting Pronouncements—

Pronouncements Adopted in Fiscal Year 2018

In March 2016, the Financial Accounting Standards Board (FASB) issued ASU 2016-09, which simplifies several aspects of the accounting for employee share-based payment transactions for both public and nonpublic entities. We adopted this ASU as of September 30, 2017. Prior to ASU 2016-09, the accounting for share-based compensation required forfeitures to be estimated at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differ from those estimates. ASU 2016-09 allows an entity to make an entity-wide accounting policy election to either estimate the number of awards that are expected to vest or account for forfeitures when they occur. ASU 2016-09 requires an entity that elects to account for forfeitures when they occur to apply the accounting change on a modified retrospective basis as a cumulative-effect adjustment to retained earnings as of the date of adoption. We elected to account for forfeitures when they occur, and recorded a \$1.0 million cumulative-effect adjustment to beginning retained earnings as of September 30, 2017. We did not record any adjustments to retained earnings for the tax effect of the adoption of ASU 2016-09 as we have a full valuation allowance position against our U.S. deferred tax asset. ASU 2016-09 requires all excess tax benefits and tax deficiencies to be recorded in the consolidated income statement on a prospective basis when the awards vest or are settled. Due to our full U.S. valuation allowance, ASU 2016-09 had no impact to our tax expense for fiscal year 2018.

Pronouncements for Adoption in Subsequent Periods

In May 2014, the FASB issued ASU 2014-09, Revenue from Contracts with Customers (Topic 606). In March, April, May and December 2016, the FASB issued additional guidance related to Topic 606. The new standard superseded nearly all existing revenue recognition guidance. Under Topic 606, an entity is required to recognize revenue upon transfer of promised goods or services to customers in an amount that reflects the expected consideration to be received in exchange for those goods or services. Topic 606 defines a five-step process in order to achieve this core principle, which may require the use of judgment and estimates, and also requires expanded qualitative and quantitative disclosures relating to the nature, amount, timing and uncertainty of revenue and cash flows arising from contracts with customers, including significant judgments and estimates used. The new standard also defines accounting for certain costs related to origination and fulfillment of contracts with customers, including whether such costs should be capitalized. The new standard permits adoption either by using (i) a full retrospective approach for all periods presented in the period of adoption or (ii) a modified retrospective approach where the new standard is applied in the financial statements starting with the year of adoption. Under both approaches, cumulative impact of the adoption is reflected as an adjustment to retained earnings (accumulated deficit) as of the earliest date presented in accordance with the new standard. In August 2015, the FASB issued ASU 2015-14, Revenue from Contracts with Customers: Deferral of the Effective Date, which delayed the effective date of the new standard from January 1, 2017 to January 1, 2018. We plan to implement the new guidance as of September 29, 2018, the beginning of our next fiscal year, using the modified retrospective approach, applied to those contracts that were not completed as of that date. We developed a project plan for the implementation of the guidance, including a review of our revenue streams to identify any differences in the timing, measurement or presentation of revenue recognition and costs to obtain or fulfill the contracts. We have completed our assessment of the impacts of the standard, including any impacts from issued amendments, and have determined that the cumulative effect of the adoption of this new standard is not material.

In January 2016, the FASB issued ASU 2016-01, Recognition and Measurement of Financial Assets and Financial Liabilities. This update makes amendments to the guidance in U.S. GAAP on the classification and measurement of financial instruments. The new standard significantly revises an entity's accounting related to (1) the classification and

measurement of investments in equity securities and (2) the presentation of certain fair value changes for financial liabilities measured at fair value. It also amends certain disclosure requirements associated with the fair value of financial instruments. ASU 2016-01 is effective for fiscal years beginning after December 15, 2017, including interim periods within those fiscal years. We do not expect the updated standard to have a material impact on our consolidated financial statements and related disclosures.

In February 2016, the FASB issued ASU 2016-02, Leases (Topic 842). In September 2017 and January and July of 2018, the FASB issued additional guidance related to Topic 842. The new standard increases transparency and comparability among organizations by recognizing lease assets and lease liabilities on the balance sheet and disclosing key information about leasing arrangements. Certain qualitative and quantitative disclosures are required, as well as a retrospective recognition and measurement of impacted leases. The new guidance is effective for fiscal years and interim periods within those years beginning after December 15, 2018, with early adoption permitted. We are evaluating the effect that the updated standard will have on our consolidated financial statements and related disclosures and we anticipate that this new guidance will materially impact our financial statements as we have a significant number of operating leases.

In June 2016, the FASB issued ASU 2016-13, Measurement of Credit Losses on Financial Instruments. This update amends the guidance on reporting credit losses for assets held at amortized cost basis and available for sale debt securities. For available for sale debt

securities, credit losses should be measured in a manner similar to current GAAP; however, this update will require that credit losses be presented as an allowance rather than as a write-down. ASU 2016-13 is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2019. We are evaluating the effect that the updated standard will have on our consolidated financial statements and related disclosures.

In August 2016, the FASB issued ASU 2016-15, Classification of Certain Cash Receipts and Cash Payments. This update addresses debt prepayment or debt extinguishment costs, settlement of zero-coupon debt instruments or other debt instruments with coupon interest rates that are insignificant in relation to the effective interest rate of the borrowing, contingent consideration payments made after a business combination, proceeds from the settlement of insurance claims, proceeds from the settlement of corporate-owned life insurance policies, distributions received from equity method investees, beneficial interests in securitization transactions and separately identifiable cash flows and application of the predominance principle. ASU 2016-15 is effective for fiscal years beginning after December 15, 2017, and interim periods within those fiscal years. We are evaluating the effect that the updated standard will have on our consolidated financial statements and related disclosures.

In October 2016, the FASB issued ASU 2016-16, Intra-Entity Transfers of Assets Other Than Inventory. This update amends the guidance on recognizing the income tax consequences of an intra-entity transfer of an asset other than inventory when the transfer occurs. Consequently, the amendment eliminates the exception for an intra entity transfer of an asset other than inventory. ASU 2016-16 is effective for annual reporting periods beginning after December 15, 2017, including interim reporting periods within those annual reporting periods. We are evaluating the effect that the updated standard will have on our consolidated financial statements and related disclosures.

### 3. ACQUISITIONS

Acquisition of Applied Micro Circuits Corporation— On January 26, 2017, we completed the acquisition of Applied Micro Circuits Corporation (AppliedMicro), a global provider of silicon solutions for next-generation cloud infrastructure and Cloud Data Centers, as well as connectivity products for edge, metro and long-haul communications equipment (the AppliedMicro Acquisition). We acquired AppliedMicro in order to expand our business in enterprise and Cloud Data Center applications. In connection with the AppliedMicro Acquisition, we acquired all of the outstanding common stock of AppliedMicro for total consideration of \$695.4 million, which included cash paid of \$287.1 million, less \$56.8 million of cash acquired, and equity issued at a fair value of \$465.1 million. In conjunction with the equity issued, we granted vested out-of-the-money stock options and unvested restricted stock units to replace outstanding vested out-of-the-money stock options and unvested restricted stock units of AppliedMicro. The total fair value of granted vested out-of-the-money stock options and unvested restricted stock units was \$14.5 million, of which \$9.3 million was attributable to pre-combination service and was included in the total consideration transferred. We funded the AppliedMicro Acquisition with cash on hand and short-term investments. There were no transaction costs for the fiscal year ended September 28, 2018, and during the fiscal year ended September 29, 2017, we recorded transaction costs of \$11.9 million. We recorded transaction costs related to the acquisition in selling, general and administrative expense, except for \$1.0 million related to equity issuance costs that were recorded to additional paid-in capital. The AppliedMicro Acquisition was accounted for as a stock purchase and the operations of AppliedMicro have been included in our consolidated financial statements since the date of acquisition.

We recognized the AppliedMicro assets acquired and liabilities assumed based upon the fair value of such assets and liabilities measured as of the date of acquisition. The aggregate purchase price for AppliedMicro has been allocated to the tangible and identifiable intangible assets acquired and liabilities assumed based on their estimated fair value at the date of acquisition. The excess of the purchase price over the fair value of the acquired net assets represents cost and revenue synergies specific to the Company, as well as non-capitalizable intangible assets, such as the employee workforce acquired, and has been allocated to goodwill, none of which will be tax deductible.

In connection with the acquisition of AppliedMicro, we entered into a plan to divest a portion of AppliedMicro's business specifically related to its compute business (the "Compute business"). The divestiture of the Compute business was completed on October 27, 2017. See Note 21 - Divested Business and Discontinued Operations for further details of the divestiture.

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The following table summarizes the total estimated acquisition consideration (in thousands):

Cash consideration paid to AppliedMicro common stockholders	\$287,060
Common stock issued (9,544,125 shares of our common stock at \$47.53 per share)	453,632
Equity consideration for vested "in-the-money" stock options and unvested restricted stock units	2,143
Fair value of the replacement equity awards attributable to pre-acquisition service	9,307
Total consideration paid, less cash acquired	\$752,142

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We finalized the purchase accounting during the fiscal quarter ended December 29, 2017. The final purchase price allocation is as follows (in thousands):

	As Reported September 29, 2017	Allocation Adjustments	Final Allocation
Current assets	\$ 70,434	\$ (553 )	\$ 69,881
Intangible assets	412,848	—	412,848
Assets held for sale	40,944	—	40,944
Other assets	9,800	—	9,800
Total assets acquired	534,026	(553 )	533,473
Liabilities held for sale	4,444	—	4,444
Other liabilities	17,627	651	18,278
Total liabilities assumed	22,071	651	22,722
Net assets acquired	511,955	(1,204 )	510,751
Consideration:			
Cash paid upon closing	230,298	—	230,298
Common stock issued	455,775	—	455,775
Equity instruments issued	9,307	—	9,307
Total consideration	\$ 695,380	\$ —	\$ 695,380
Goodwill	\$ 183,425	\$ 1,204	\$ 184,629

The components of the acquired intangible assets were as follows (in thousands):

	Included In Assets Held For Sale	Included In Retained Business	Useful Lives (Years)
Developed technology	\$ 9,600	\$ 78,448	7 years
Customer relationships	—	334,400	14 years
	\$ 9,600	\$ 412,848	

The overall weighted-average life of the identified intangible assets acquired in the AppliedMicro Acquisition is estimated to be 12.7 years and the assets are being amortized over their estimated useful lives based upon the pattern over which we expect to receive the economic benefit from these assets.

The following is a summary of AppliedMicro revenue and earnings included in our accompanying consolidated statements of operations for the fiscal year ended September 29, 2017 (in thousands):

	Amount
Revenue	\$ 110,117
Loss from continuing operations	(27,222 )
Loss from discontinued operations	(44,599 )

The pro forma statements of operations data for the fiscal year ended September 29, 2017, below, gives effect to the AppliedMicro Acquisition, described above, as if it had occurred at October 2, 2015. These amounts have been calculated after applying our accounting policies and adjusting the results of AppliedMicro to reflect: transaction costs, retention compensation expense, the impact of the step-up to the value of acquired inventory, as well as the additional intangible amortization that would have been charged assuming the fair value adjustments had been applied and incurred since October 2, 2015. This pro forma data is presented for informational purposes only and does not purport to be indicative of our future results of operations.

	Fiscal Year Ended	
	September	September
	29, 2017	30, 2016
Revenue	\$755,728	\$707,299
Loss from continuing operations	(104,828 )	(53,613 )
Loss from discontinued operations	(43,734 )	(72,730 )

Acquisition of Assets of Picometrix LLC— On August 9, 2017, we completed the acquisition of certain assets of Picometrix LLC (Picometrix), a supplier of optical-to-electrical converters for Cloud Data Center infrastructure (the Picometrix Acquisition). We acquired Picometrix in order to expand our business in enterprise and Cloud Data Center applications. The purchase consideration was \$33.5 million, comprised of an upfront cash payment of \$29.5 million, and \$4.0 million placed in escrow for potential satisfaction of certain indemnification obligations that may arise from the closing date through December 15, 2018. For the fiscal year ended September 28, 2018, we recorded no transaction costs. For the fiscal year ended September 29, 2017, we recorded transaction costs of \$0.2 million in selling, general and administrative expense. The Picometrix Acquisition was accounted for as an asset purchase business acquisition, and the operations of Picometrix have been included in our consolidated financial statements since the date of acquisition.

We recognized the Picometrix assets acquired based upon the fair value of such assets measured as of the date of acquisition. The aggregate purchase price for the Picometrix assets has been allocated to the tangible and identifiable intangible assets acquired based on their estimated fair value at the date of acquisition. The excess of the purchase price over the fair value of the acquired assets represents cost and revenue synergies specific to the Company, as well as non-capitalizable intangible assets, such as the employee workforce acquired, and has been allocated to goodwill, all of which will be tax deductible.

We finalized the purchase accounting during the fiscal quarter ended June 29, 2018. The final purchase price allocation is as follows (in thousands):

	As		
	Reported	Allocation	Final
	September	Adjustments	Allocation
	29, 2017		
Current assets	\$ 7,375	\$ (1,088 )	\$ 6,287
Intangible assets	19,000	—	19,000
Other assets	3,301	(81 )	3,220
Total assets acquired	29,676	(1,169 )	28,507
Current liabilities	2,169	142	2,311
Other liabilities	190	275	465
Total liabilities assumed	2,359	417	2,776
Net assets acquired	27,317	(1,586 )	25,731
Consideration:			
Cash paid upon closing, net of cash acquired	33,500	—	33,500
Goodwill	\$ 6,183	\$ 1,586	\$ 7,769



The pro forma financial information for fiscal year 2017, including revenue and net income, is immaterial, and has not been separately presented.

Other Acquisitions— On July 31, 2017, we completed the acquisition of certain assets of Antario Technologies, Inc. (Antario) a privately-held company based in Taiwan and in California. The total cash consideration was approximately \$5.8 million, of which \$4.8 million was paid upon closing, and approximately \$1.0 million was withheld for potential satisfaction of certain indemnification obligations that may arise from the closing date through July 31, 2018. We finalized the purchase accounting during the fiscal quarter ended December 29, 2017, which resulted in goodwill of \$1.6 million and intangible assets, including acquired technology and

customer relationships, of \$4.1 million. The Antario transaction was accounted for as an asset purchase business combination and the operations have been included in our consolidated financial statements since the acquisition date. Pro forma financial disclosures are not presented herein as the financial results of Antario are considered immaterial. On May 26, 2017, we completed the acquisition of Triple Play Communications Corporation (TPC) a privately-held company based in Melbourne, Florida. The total cash consideration was approximately \$2.6 million, of which \$2.2 million was paid upon closing, and approximately \$0.4 million was withheld for potential satisfaction of certain indemnification obligations from the closing date through November 23, 2018. We finalized the purchase accounting during the fiscal quarter ended December 29, 2017, which resulted in goodwill of \$3.7 million and intangible assets, including customer relationships, of \$0.2 million. TPC was accounted for as a stock purchase business combination and the operations have been included in our consolidated financial statements since the acquisition date. Pro forma financial disclosures are not presented herein as the financial results of TPC are considered immaterial.

Acquisition of FiBest Limited—On December 9, 2015, we completed the acquisition of FiBest Limited (FiBest) a Japan-based merchant market component supplier of optical sub-assemblies (FiBest Acquisition). We acquired FiBest to expand our position in optical networking components. In connection with the FiBest Acquisition, all of the outstanding equity interests (including outstanding options) of FiBest were exchanged for aggregate consideration of \$59.1 million including cash of \$47.5 million and assumed debt of \$11.6 million. We funded the FiBest Acquisition with cash on-hand. There were no transaction costs recorded for the fiscal year ended September 29, 2017. For the fiscal year ended September 30, 2016, we recorded transaction costs of \$2.7 million as selling, general and administrative expense related to this acquisition.

The FiBest Acquisition was accounted for as a stock purchase business combination and the operations of FiBest have been included in our consolidated financial statements since the date of acquisition.

We recognized the FiBest assets acquired and liabilities assumed based upon the fair value of such assets and liabilities measured as of the date of acquisition. The aggregate purchase price for FiBest is being allocated to the tangible and identifiable intangible assets acquired and liabilities assumed based on their estimated fair values at the date of acquisition. The excess of the purchase price over the fair value of the acquired net assets represents cost and revenue synergies specific to the Company, as well as non-capitalizable intangible assets, such as the employee workforce acquired, and has been allocated to goodwill, none of which will be tax deductible.

The final allocation of purchase price as of December 30, 2016, is as follows (in thousands):

	Final Allocation
Current assets	\$ 10,445
Intangible assets	45,650
Other assets	3,317
Total assets acquired	59,412
Debt	11,627
Deferred income taxes	11,552
Other liabilities	4,294
Total liabilities assumed	27,473
Net assets acquired	31,939
Consideration:	
Cash paid upon closing, net of cash acquired	47,517
Goodwill	\$ 15,578

The components of the acquired intangible assets on a preliminary basis were as follows (in thousands):

	Amount	Useful Lives (Years)
Developed technology	\$9,400	7
Customer relationships	36,250	10

\$45,650

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The overall weighted-average life of the identified intangible assets acquired in the FiBest Acquisition is estimated to be 9.4 years and the assets are being amortized over their estimated useful lives based upon the pattern over which we expect to receive the economic benefit from these assets.

The following is a summary of FiBest revenue and earnings included in our accompanying consolidated statements of operations for the fiscal year ended September 30, 2016 (in thousands):

	Amount
Revenue	\$30,540
Loss before income taxes	(4,616 )

Unaudited Supplemental Pro Forma Data—The pro forma statements of operations data for the fiscal year ended September 30, 2016 and October 2, 2015 below give effect to the FiBest Acquisition, described above, as if it had occurred at October 4, 2014. These amounts have been calculated after applying our accounting policies and adjusting the results of FiBest to reflect; transaction costs, retention compensation expense, the impact of the step-up to the value of acquired inventory, as well as the additional intangible amortization that would have been charged assuming the fair value adjustments had been applied and incurred since October 4, 2014. This pro forma data is presented for informational purposes only and does not purport to be indicative of our future results of operations.

	Fiscal Year Ended September 30, 2016
Revenue	\$551,964
Net (loss) income	(3,324 )

Acquisition of Aeroflex/Metelics Inc.—On December 14, 2015, we acquired Aeroflex/Metelics, Inc. (Metelics), a diode supplier for aggregate cash consideration of \$37.1 million, subject to customary working capital and other adjustments (Metelics Acquisition). We acquired Metelics to expand our diode business. We funded the acquisition with cash on hand. The Metelics Acquisition was accounted for as a stock purchase business combination and the operations of Metelics have been included in our consolidated financial statements since the date of acquisition. For the fiscal year ended September 29, 2017, there were no transaction costs recorded related to this acquisition. For the fiscal year ended September 30, 2016, we recorded transaction costs of \$0.5 million as selling, general and administrative expenses related to this acquisition.

We recognized the Metelics assets acquired and liabilities assumed based upon the fair value of such assets and liabilities measured as of the date of acquisition. The aggregate purchase price for Metelics is being allocated to the tangible and identifiable intangible assets acquired and liabilities assumed based on their estimated fair values at the date of acquisition. The excess of the purchase price over the fair value of the acquired net assets represents cost and revenue synergies specific to the Company, as well as non-capitalizable intangible assets, such as the employee workforce acquired, and has been allocated to goodwill, which will be tax deductible due to a 338(h)(10) election.

We finalized our allocation of purchase price during the fiscal quarter ended December 30, 2016. The final allocation of purchase price as of December 30, 2016, is as follows (in thousands):

	Final Allocation
Current assets	\$ 12,614
Intangible assets	20,900
Other assets	3,089
Total assets acquired	36,603
Other liabilities	7,201
Total liabilities assumed	7,201
Net assets acquired	29,402
Consideration:	
Cash paid upon closing, net of cash acquired	37,125
Goodwill	\$ 7,723

The components of the acquired intangible assets on a preliminary basis were as follows (in thousands):

	Amount	Useful Lives (Years)
Developed technology	\$1,000	7
Customer relationships	19,900	10
	\$20,900	

The overall weighted-average life of the identified intangible assets acquired in the Metelics Acquisition is estimated to be 9.9 years and the assets are being amortized over their estimated useful lives based upon the pattern over which we expect to receive the economic benefit from these assets.

The following is a summary of Metelics revenue and earnings included in our accompanying consolidated statements of operations for the fiscal year ended September 30, 2016 (in thousands):

	Amount
Revenue	\$33,552
Income before income taxes	3,372

Unaudited Supplemental Pro Forma Data—The pro forma statements of operations data for the fiscal year ended September 30, 2016, below, give effect to the Metelics Acquisition, described above, as if it had occurred at October 4, 2014. These amounts have been calculated after applying our accounting policies and adjusting the results of Metelics to reflect the transaction costs, the impact of the step-up to the value of acquired inventory, as well as, the additional intangible amortization that would have been charged assuming the fair value adjustments had been applied and incurred since October 4, 2014. This pro forma data is presented for informational purposes only and does not purport to be indicative of our future results of operations.

	Fiscal Year Ended September 30, 2016
Revenue	\$553,174
Net income	1,183

#### 4. INVESTMENTS

All investments are short-term in nature and are invested in corporate bonds, commercial paper and agency bonds, and are classified as available-for-sale. The amortized cost, gross unrealized holding gains or losses and fair value of our available-for-sale investments by major investments type as of September 28, 2018 and September 29, 2017 are summarized in the tables below (in thousands):

	September 28, 2018			
	Amortized Cost	Gross Unrealized Holding Gains	Gross Unrealized Holding Losses	Aggregate Fair Value
Corporate bonds	\$28,731	\$ —	—\$ (460 )	\$28,271
Commercial paper	69,966	—	(16 )	69,950
Total investments	\$98,697	\$ —	—\$ (476 )	\$98,221

  

	September 29, 2017			
	Amortized Cost	Gross Unrealized Holding Gains	Gross Unrealized Holding Losses	Aggregate Fair Value
Corporate bonds	\$26,366	\$ 10	\$ (166 )	\$26,210
Commercial paper	57,943	4	(36 )	57,911
Total investments	\$84,309	\$ 14	\$ (202 )	\$84,121

The contractual maturities of available-for-sale investments were as follows (in thousands):

	September 28, 2018
Less than 1 year	\$ 70,200
Over 1 year	28,021
Total investments	\$ 98,221

Available-for-sale investments are reported at fair value and as such, their associated unrealized gains and losses are reported as a separate component of stockholders' equity within accumulated other comprehensive income (loss). We have determined that the gross unrealized losses on available for sale securities at September 28, 2018 and September 29, 2017 are temporary in nature. We review our investments to identify and evaluate investments that have indications of possible impairment. The techniques used to measure the fair value of our investments are described in Note 5 - Fair Value. Factors considered in determining whether a loss is temporary include the length of time and extent to which fair value has been less than the cost basis, the financial condition and near-term prospects of the investee, and our intent and ability to hold the investment for a period of time sufficient to allow for any anticipated recovery in market value. Substantially all of our fixed income securities are rated investment grade or better.

We received proceeds from sales of available-for-sale securities of \$100.4 million and \$44.6 million during the fiscal years 2018 and 2017, respectively. Such sales resulted in gross realized losses of \$0.3 million and \$0.1 million during the fiscal years ended September 28, 2018 and September 29, 2017, respectively, which have been recorded within other (expense) income.

Other Investments— As of September 28, 2018, we held two non-marketable equity investments classified as other long-term investments.

One of these is a minority investment in a preferred stock ownership of a privately held manufacturing corporation with preferred liquidation rights over other equity shares. This investment had a value of \$5.0 million at the date of purchase and approximates the then current fair value. Since we do not have the ability to exercise significant influence or control over the investee we account for this investment at cost, which we evaluate for impairment at each balance sheet date and through September 28, 2018 no impairment has been recorded for this investment.

In addition, we have a minority investment of less than 20.0% of the outstanding equity of a privately held limited liability corporation (Compute). This investment was acquired in conjunction with the divestiture of the Compute business during the fiscal quarter ended December 29, 2017, had an initial value of \$36.5 million and is accounted for using the equity method. We have no obligation to provide further funding to Compute. This investment value is updated quarterly based on our proportionate share of the losses or earnings of Compute utilizing the equity method. During fiscal year 2018, we recorded a \$10.4 million loss associated with this investment as other expense in our consolidated statements of operations. As of September 28, 2018, the carrying value of this investment is \$26.1 million.

## 5. FAIR VALUE

We group our financial assets and liabilities measured at fair value on a recurring basis in three levels, based on the markets in which the assets and liabilities are traded and the reliability of the assumptions used to determine fair value. These levels are:

Level 1 - Quoted prices in active markets for identical assets or liabilities.

Level 2 - Observable inputs other than Level 1 prices, such as quoted prices for similar assets or liabilities, quoted prices in markets with insufficient volume or infrequent transactions (less active markets) or model-driven valuations in which all significant inputs are observable or can be derived principally from, or corroborated with, observable market data.

Level 3 - Fair value is derived from valuation techniques in which one or more significant inputs are unobservable, including assumptions and judgments made by us.

### Assets and Liabilities Measured and Recorded at Fair Value on a Recurring Basis

We measure certain assets and liabilities at fair value on a recurring basis such as our financial instruments. There have been no transfers between Level 1, 2 or 3 assets or liabilities during the fiscal year ended September 28, 2018.

Assets and liabilities measured at fair value on a recurring basis consist of the following (in thousands):

	September 28, 2018			
	Fair Value	Active Markets for Identical Assets (Level 1)	Observable Inputs (Level 2)	Unobservable Inputs (Level 3)
<b>Assets</b>				
Money market funds	\$253	\$ 253	\$ —	\$ —
Commercial paper	69,950	—	69,950	—
Corporate bonds	28,271	—	28,271	—
Total assets measured at fair value	\$98,474	\$ 253	\$ 98,221	\$ —
<b>Liabilities</b>				
Contingent consideration	\$585	\$ —	\$ —	\$ 585
Common stock warrant liability	13,129	—	—	13,129
Total liabilities measured at fair value	\$13,714	\$ —	\$ —	\$ 13,714

	September 29, 2017			
	Fair Value	Active Markets for Identical Assets (Level 1)	Observable Inputs (Level 2)	Unobservable Inputs (Level 3)
<b>Assets</b>				
Money market funds	\$36	\$ 36	\$ —	\$ —
Commercial paper	57,911	—	57,911	—
Corporate bonds	26,210	—	26,210	—
Total assets measured at fair value	\$84,157	\$ 36	\$ 84,121	\$ —
<b>Liabilities</b>				
Contingent consideration	\$1,679	\$ —	\$ —	\$ 1,679
Warrant liability	40,775	—	—	40,775



Total liabilities measured at fair value \$42,454 \$ — \$ — \$ 42,454

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The quantitative information utilized in the fair value calculation of our Level 3 liabilities are as follows:

Liabilities	Valuation Technique	Unobservable Input	September 28, 2018	September 29, 2017
Contingent consideration	Discounted cash flow	Discount rate	9.2%	9.2%
		Probability of achievement	90%	70% - 100%
		Timing of cash flows	1 month	2 - 8 months
Warrant liability	Black-Scholes model	Volatility	60.7%	44.9%
		Discount rate	2.81%	1.62%
		Expected life	2.2 years	3.2 years
		Exercise price	\$14.05	\$14.05
		Stock price	\$20.60	\$44.61
		Dividend rate	—%	—%

The fair values of the contingent consideration liabilities were estimated based upon a risk-adjusted present value of the probability-weighted expected payments by us. Specifically, we considered base, upside and downside scenarios for the operating metrics upon which the contingent payments are to be based. Probabilities were assigned to each scenario and the probability-weighted payments were discounted to present value using risk-adjusted discount rates. The changes in assets and liabilities with inputs classified within Level 3 of the fair value hierarchy consist of the following (in thousands):

Fiscal Year 2018

	September 2017	Net Realized/Unrealized Losses (Gains) Included in Earnings	Purchases and Issuances	Sales and Settlements	Transfers in and/or (out) of Level 3	September 28, 2018
Contingent consideration	\$1,679	\$ (394 )	\$ —	—\$ (700 )	\$ —	—\$ 585
Warrant liability	\$40,775	\$ (27,646 )	\$ —	—\$ —	\$ —	—\$ 13,129

Fiscal Year 2017

	September 2016	Net Realized/Unrealized Losses (Gains) Included in Earnings	Purchases and Issuances	Sales and Settlements	Transfers in and/or (out) of Level 3	September 29, 2017
Contingent consideration	\$848	\$ 180	\$ 1,701	\$ (1,050 )	\$ —	—\$ 1,679
Warrant liability	\$38,253	\$ 2,522	\$ —	\$ —	\$ —	—\$ 40,775

Fiscal Year 2016

	October 2015	Net Realized/Unrealized Losses (Gains) Included in Earnings	Purchases and Issuances	Sales and Settlements	Transfers in and/or (out) of Level 3	September 30, 2016
Contingent consideration	\$1,150	\$ 98	\$ —	—\$ (400 )	\$ —	—\$ 848
Warrant liability	\$21,822	\$ 16,431	\$ —	—\$ —	\$ —	—\$ 38,253



**6. ACCOUNTS RECEIVABLES ALLOWANCES**

Summarized below is the activity in our accounts receivable allowances including compensation credits and doubtful accounts as follows (in thousands):

	Fiscal Year		
	2018	2017	2016
Balance - beginning of year	\$9,410	\$3,279	\$5,745
Provision, net	15,465	29,512	10,453
Charge-offs	(18,080)	(23,381)	(12,919)
Balance - end of year	\$6,795	\$9,410	\$3,279

The balances at the end of fiscal years 2018, 2017 and 2016 are comprised primarily of compensation credits of \$6.3 million, \$8.9 million and \$3.0 million, respectively, and allowances for doubtful accounts of \$0.2 million for fiscal year 2018, \$0.3 million for fiscal year 2017 and \$0.2 million for fiscal year 2016.

**7. INVENTORIES**

Inventories consist of the following (in thousands):

	September 28, September 29,	
	2018	2017
Raw materials	\$ 71,408	\$ 78,999
Work-in-process	13,466	13,962
Finished goods	37,963	43,113
Total	\$ 122,837	\$ 136,074

**8. PROPERTY, PLANT AND EQUIPMENT**

Property, plant and equipment consist of the following (in thousands):

	September 28, September 29,	
	2018	2017
Construction in process	49,661	22,195
Machinery and equipment	174,638	160,955
Leasehold improvements	14,984	13,809
Furniture and fixtures	2,306	2,078
Capital lease assets	19,380	20,410
Computer equipment and software	17,317	16,539
Total property and equipment	278,286	235,986
Less accumulated depreciation and amortization	(128,363)	(104,967)
Property and equipment — net	\$ 149,923	\$ 131,019

In fiscal years 2018 and 2017 capital lease assets includes \$17.1 million and \$16.9 million, respectively, of assets related to our corporate facility lease obligation, with the remaining balance primarily related to leased equipment. Depreciation and amortization expense related to property and equipment for fiscal years 2018, 2017 and 2016 was \$30.7 million, \$27.3 million and \$20.4 million, respectively. Accumulated depreciation on capital lease assets for fiscal years 2018 and 2017 was \$3.2 million and \$2.3 million, respectively.

**9. DEBT**

As of September 28, 2018, we are party to a credit agreement dated as of May 8, 2014 with a syndicate of lenders and Goldman Sachs Bank USA (Goldman Sachs), as administrative agent (as amended on February 13, 2015, August 31, 2016, March 10, 2017, May 19, 2017, May 2, 2018 and May 9, 2018, the "Credit Agreement").

As of September 28, 2018, the Credit Agreement consisted of term loans with an original principal amount of \$700.0 million (Term Loans) and a revolving credit facility with an aggregate borrowing capacity of \$160.0 million (Revolving Facility). The Revolving Facility will mature in November 2021 and the Term Loans will mature in May

2024 and bear interest at: (i) for LIBOR loans for any interest period, a rate per annum equal to the LIBOR rate as determined by the administrative agent, plus an applicable margin of 2.25%; and (ii) for base rate loans, a rate per annum equal to the greater of (a) the prime rate quoted in the print edition of

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the Wall Street Journal, Money Rates Section, (b) the federal funds rate plus one-half of 1.00% and (c) the LIBOR rate applicable to a one-month interest period plus 1.00% (but, in each case, not less than 1.00%), plus an applicable margin of 1.25%.

All principal amounts outstanding and interest rate information as of September 28, 2018, for the Credit Agreement were as follows (in thousands, except rate data):

	Principal Outstanding	LIBOR Rate	Margin	Effective Interest Rate
Term loans	\$679,856	2.24%	2.25%	4.49%

On May 2, 2018, we entered into an amendment to our Credit Agreement (the “May 2nd Amendment”) with the lenders party thereto and Goldman Sachs, as the administrative agent. The amendment extended the maturity of \$130.0 million of borrowing availability under our existing Revolving Facility until November 2021, with the remaining \$30.0 million of borrowing availability maturing in May 2019. Prior to the amendment, the entire \$160.0 million of the Revolving Facility borrowing availability was scheduled to mature in May 2019.

On May 9, 2018, we entered into another amendment to our Credit Agreement (the “May 9th Amendment”, together with the May 2nd Amendment, the “May 2018 Amendments”) with the lenders party thereto and Goldman Sachs, as the administrative agent. The amendment extended the maturity of the remaining \$30.0 million of commitments comprising the aggregate \$160.0 million of borrowing availability under our existing Revolving Facility until November 2021.

We incurred \$0.5 million in connection with the May 2018 Amendments, which were recorded as deferred financing costs and are being amortized over the life of the Revolving Facility as interest expense. As of September 28, 2018, approximately \$10.9 million of deferred financing costs remain unamortized, of which \$10.0 million related to the Term Loans is recorded as a direct reduction of the recognized debt liabilities in our accompanying consolidated balance sheet, and \$0.9 million related to the Revolving Facility is recorded in other long-term assets in our accompanying consolidated balance sheet.

The Term Loans are secured by a first priority lien on substantially all of our assets and provide that we must comply with certain financial and non-financial covenants.

The Term Loans are payable in quarterly principal installments of approximately \$1.7 million on the last business day of each calendar quarter, with the remainder due on the maturity date. In the event that we divest a business, the net cash proceeds of the divestment are generally required, subject to certain exceptions, to be applied to repayment of outstanding Term Loans except to the extent we reinvest such proceeds in assets useful for our business within 18 months of receiving the proceeds. If we enter into a binding agreement to reinvest such proceeds within 18 months of receiving them, we have until the later of 18 months following our receipt of the proceeds and 6 months following the date of such agreement to complete the reinvestment.

As of September 28, 2018, we had \$160.0 million of borrowing capacity under our Revolving Facility.

As of September 28, 2018, the following remained outstanding on the Term Loans:

Principal balance	\$679,856
Unamortized discount	(4,625 )
Unamortized deferred financing costs	(9,974 )
Total term loans	665,257
Current portion	6,885
Long-term, less current portion	\$658,372

As of September 28, 2018, the minimum principal payments under the Term Loans in future fiscal years were as follows (in thousands):

2019	\$6,885
2020	6,885
2021	6,885
2022	6,885
2023	6,885

Thereafter 645,431  
Total \$679,856

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The fair value of the Term Loans was estimated to be approximately \$689.2 million and \$696.2 million as of September 28, 2018 and September 29, 2017, respectively, and was determined using Level 2 inputs, including a quoted interest rate from a bank.

#### 10. CAPITAL LEASE AND FINANCING OBLIGATIONS

##### Corporate Facility Financing Obligation

On May 26, 2016, we entered into a Purchase and Sale Agreement (Purchase and Sale Agreement) with Calare Properties, Inc., a Delaware corporation (together with its affiliates, the Buyer), for the sale and subsequent leaseback of our corporate headquarters, located at 100 Chelmsford Street, Lowell, Massachusetts. The transactions contemplated by the Purchase Agreement closed on December 28, 2016, at which time we also entered into three lease agreements with the Buyer including: (1) a 20-year leaseback of the facility located at 100 Chelmsford Street (the 100 Chelmsford Lease), (2) a 20-year build-to-suit lease arrangement for the construction and subsequent lease back of a new facility to be located at 144 Chelmsford Street (the 144 Chelmsford Lease), and (3) a 14-year building lease renewal of an adjacent facility at 121 Hale Street (the 121 Hale Lease, and together with the 100 Chelmsford Lease and the 144 Chelmsford Lease, the Leases).

Because the transactions contemplated by the Purchase and Sale Agreement and the related Leases were negotiated and consummated at the same time and in contemplation of one another to achieve the same commercial objective, the transactions are accounted for by us as a single unit of accounting. In addition, the Leases were determined to represent a failed sale-leaseback due to our continuing involvement in the properties in the form of non-recourse financing. As a result, the Leases are accounted for under the financing method and we will be deemed the accounting owner under the arrangement, including the assets to be constructed under the 144 Chelmsford Lease. We will continue to recognize the existing building and improvements sold under the Purchase and Sale Agreement, capitalize the 121 Hale Street building as well as the assets constructed under the Leases, and depreciate the assets over the shorter of their estimated useful lives or the lease terms. The sale proceeds from the Purchase and Sale Agreement of \$8.2 million (which includes \$4.2 million in cash and \$4.0 million in construction allowances) and the fair value of the 121 Hale Street building of \$4.0 million were recognized as a financing obligation, which is included in lease payable on our consolidated balance sheet, and are being amortized over the 20-year lease term based on the minimum lease payments required under the Leases and our incremental borrowing rate. Future construction costs funded by the Buyer under the 144 Chelmsford Lease will be recognized as additional financing obligations on our consolidated balance sheet as incurred, and will be amortized over the 20-year lease term based on the minimum lease payments required under the Leases and our incremental borrowing rate when the building is placed into service.

As a result of the failed sale-leaseback accounting, we calculated a lease obligation based on the future minimum lease payments discounted at 7.2% as of September 28, 2018. The discount rate represents the estimated incremental borrowing rate over the lease term of 20 years. The minimum lease payments are recorded as interest expense and in part as a payment of principal reducing the lease obligation. The real property assets in the transaction remain on the consolidated balance sheets and continue to be depreciated over their remaining useful lives. As of September 28, 2018 and September 29, 2017, approximately \$28.3 million and \$15.8 million, respectively, of the lease obligation was outstanding associated with the Leases, of which \$16.3 million and \$3.6 million, respectively, was associated with the 144 Chelmsford Lease that had not yet been placed in service.

Additionally, we have capital equipment lease obligations, of which approximately \$1.2 million and \$2.3 million were outstanding as of September 28, 2018 and September 29, 2017, respectively.

As of September 28, 2018, future minimum payments under capital lease obligations related to all of our in service Leases were as follows (in thousands):

Fiscal year ending:	Amount
2019	\$2,797
2020	2,760
2021	2,686
2022	2,547
2023	2,563



Thereafter	42,247
Total minimum capital lease payments	\$55,600
Less amount representing interest	(27,786 )
Present value of net minimum capital lease payments	\$27,814

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**11. EMPLOYEE BENEFIT PLANS**

We established a defined contribution savings plan under Section 401(k) of the Internal Revenue Code of 1986, as amended (Section 401(k)) on October 1, 2009 (401(k) Plan). The 401(k) Plan follows a calendar year, covers substantially all U.S. employees who meet minimum age and service requirements and allows participants to defer a portion of their annual compensation on a pretax basis, subject to legal limitations. Our contributions to the plan may be made at the discretion of the board of directors. During the fiscal year ended September 28, 2018, we contributed \$2.7 million to our 401(k) Plan for calendar year 2017. As of September 28, 2018 there were no contributions made by us to the 401(k) Plan for calendar year 2018. During the fiscal year ended September 29, 2017, we contributed \$2.4 million to our 401(k) Plan for calendar year 2016. During the fiscal year ended September 30, 2016, we contributed \$1.9 million to our 401(k) Plan for calendar year 2015.

Our employees located in foreign jurisdictions meeting minimum age and service requirements participate in defined contribution plans whereby participants may defer a portion of their annual compensation on a pretax basis, subject to legal limitations. Company contributions to these plans are discretionary and vary per region. We expensed contributions of \$1.2 million, \$1.3 million and \$1.1 million for fiscal years 2018, 2017 and 2016, respectively.

**12. ACCRUED LIABILITIES**

Accrued liabilities consist of the following (in thousands):

	September 28, 2018	September 29, 2017
Compensation and benefits	\$ 22,935	\$ 32,505
Distribution costs	10,670	5,777
Product warranty	5,756	3,672
Professional fees	1,875	2,140
Rent and utilities	1,660	1,257
Contingent consideration	585	1,679
Income taxes payable	415	4,184
Purchase price holdback	375	1,000
Restructuring costs	89	627
Other	5,585	5,402
Total	\$ 49,945	\$ 58,243

**13. COMMITMENTS AND CONTINGENCIES**

**Operating Leases**—We have non-cancelable operating lease agreements for office, research and development and manufacturing space in the United States and foreign locations. We also have operating leases for certain equipment and services in the United States and foreign jurisdictions. These lease agreements expire at various dates through 2026, and certain agreements contain provisions for extension at substantially the same terms as currently in effect. Lease escalation clauses, rent abatements and/or concessions, such as rent holidays and landlord or tenant incentives or allowances, are typically included in the determination of straight-line rent expense over the lease term.

Future minimum lease payments for the next five fiscal years as of September 28, 2018, are as follows (in thousands):

2019	\$10,068
2020	7,527
2021	5,442
2022	3,766
2023	3,356
Thereafter	4,663
Total minimum lease payments	\$34,822

Rent expense incurred under non-cancelable operating leases was \$9.5 million, \$10.9 million and \$7.0 million in fiscal years 2018, 2017 and 2016, respectively.

Asset Retirement Obligations—We are obligated under certain facility leases to restore those facilities to the condition in which we or our predecessors first occupied the facilities. We are required to remove leasehold improvements and equipment installed in these facilities prior to termination of the leases. As of the end of fiscal years 2018, 2017 and 2016, the estimated costs for the removal of these assets are recorded as asset retirement obligations in other long-term liabilities were \$1.8 million, \$2.3 million and \$4.3 million, respectively.

Unused Letter of Credit—As of September 28, 2018, we had outstanding unused letters of credit from a bank aggregating to \$0.4 million.

Purchase Commitments—As of September 28, 2018, we had outstanding non-cancelable purchase commitments aggregating to \$1.8 million pursuant to inventory supply arrangements.

Litigation—From time to time we may be subject to commercial disputes, employment issues, claims by other companies in the industry that we have infringed their intellectual property rights and other similar claims and litigations. Any such claims may lead to future litigation and material damages and defense costs. Other than as set forth below, we were not involved in any material pending legal proceedings during the year ended September 28, 2018.

GaN Lawsuit Against Infineon—On April 26, 2016, we and our wholly-owned subsidiary Nitronex, LLC brought suit against Infineon Technologies Americas Corporation ("Infineon Americas") and Infineon Technologies AG ("Infineon AG" and collectively, with Infineon Americas, "Infineon") in the Federal District Court for the Central District of California, seeking injunctive relief, monetary damages, and specific performance of certain contractual obligations. The suit arose out of agreements relating to GaN-on-Silicon patents that were executed in 2010 by Nitronex Corporation (acquired by us in 2014) and International Rectifier Corporation (acquired by Infineon AG in 2015). We asserted claims for breach of contract, breach of the covenant of good faith and fair dealing, declaratory judgment of contractual rights, declaratory judgment of non-infringement of patents, and, against Infineon AG only, intentional interference with contract and unfair competition, and Infineon Americas asserted contract and patent infringement counterclaims. In an order dated October 31, 2016, the district court granted us a preliminary injunction against Infineon, which then issued on December 7, 2016 and was modified on March 6, 2017. The preliminary injunction declared, among other things, that a licensing agreement between us and Infineon that Infineon had purported to terminate is still in effect. On January 29, 2018, the Federal Circuit affirmed the district court's decision to enter a preliminary injunction declaring the license agreement to still be in effect, although it reversed other aspects of the district court's decision. The parties entered into a settlement agreement in October 2018 pursuant to which all claims and counterclaims in the litigation were dismissed by the district court on November 1, 2018 and the patents in dispute were assigned back to MACOM, among other terms.

#### 14. RESTRUCTURINGS

We have periodically implemented restructuring actions in connection with broader plans to reduce staffing, reduce our internal manufacturing footprint and generally reduce operating costs. The restructuring expenses are primarily comprised of direct and incremental costs related to headcount reductions including severance and outplacement fees for the terminated employees, as well as facility closure costs.

During the fiscal quarter ended September 28, 2018, we commenced a plan to exit certain production and product lines including exiting our production facility located in Ithaca, New York. We did not incur any restructuring costs during fiscal year 2018 associated with these plans. We expect to complete these restructuring activities during fiscal year 2019, and incur restructuring costs ranging from approximately \$5.3 million and \$6.7 million, of which approximately \$1.5 million to \$1.9 million are one time termination costs, \$1.0 million to \$1.3 million are contract termination costs and \$2.8 million to \$3.5 million are asset acceleration expense. Approximately \$2.5 million to \$3.2 million of these costs are expected to be future cash expenditures.

During the fiscal quarter ended December 29, 2017, we initiated plans to restructure our facility in Long Beach, California and to close our facilities in Belfast, the United Kingdom and Sydney, Australia, which represents the majority of our fiscal year 2018 restructuring expenses. As of June 29, 2018, the operations from the Long Beach facility have been consolidated into our other California locations in order to achieve operational synergies. The Belfast and Sydney facilities have been closed as we have discontinued certain product development activities that were performed in those locations. We do not expect to incur any additional restructuring costs associated with these facilities.

In fiscal years 2017 and 2016 the restructuring expenses are primarily comprised of direct and incremental costs related to headcount reductions including severance and outplacement fees for the terminated employees. These actions were in connection with broader plans to reduce staffing, reduce our internal manufacturing footprint and,

generally, reduce operating costs.

The following is a summary of the restructuring charges incurred for the periods presented (in thousands):

	Fiscal Years		
	2018	2017	2016
Employee related expenses	\$2,789	\$2,744	\$3,465
Facility related expenses	3,476	—	—
Total restructuring expenses	\$6,265	\$2,744	\$3,465

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The following is a summary of the costs incurred and remaining balances included in accrued expenses related to restructuring actions taken (in thousands):

	Fiscal Years		
	2018	2017	2016
Balance - beginning of year	\$627	\$3,104	\$943
Expense	6,265	2,744	3,465
Charges paid/settled	(6,803)	(5,221)	(1,304)
Balance - end of year	\$89	\$627	\$3,104

The restructuring expenses recorded to date are expected to be paid through the remainder of calendar year 2018. We expect to incur additional restructuring costs in the range of approximately \$5.3 million and \$6.7 million during fiscal year 2019 as we complete restructuring actions primarily associated with facility consolidations.

#### 15. PRODUCT WARRANTIES

We establish a product warranty liability at the time of revenue recognition. Product warranties generally have terms of 12 months and cover nonconformance with specifications and defects in material or workmanship. For sales to distributors, our warranty generally begins when the product is resold by the distributor. The liability is based on estimated costs to fulfill customer product warranty obligations and utilizes historical product failure rates. Should actual warranty obligations differ from estimates, revisions to the warranty liability may be required.

Product warranty liability activity is as follows (in thousands):

	Fiscal Years		
	2018	2017	2016
Balance — beginning of year	\$3,672	\$1,039	\$656
(Divested)/acquired	(49)	952	413
Provisions/(expense)	1,865	1,737	(30)
Direct charges/(payments)	268	(56)	—
Balance — end of year	\$5,756	\$3,672	\$1,039

#### 16. INTANGIBLE ASSETS

Amortization expense related to intangible assets is as follows (in thousands):

	Fiscal Years		
	2018	2017	2016
Cost of revenue	\$33,429	\$30,286	\$26,615
Selling, general and administrative	48,265	35,456	23,640
Total	\$81,694	\$65,742	\$50,255

Intangible assets consist of the following (in thousands):

	September 28, September 29,	
	2018	2017
Acquired technology	\$ 251,673	\$ 251,655
Customer relationships	518,234	556,648
Trade name	3,400	3,400
Total	773,307	811,703
Less accumulated amortization	(260,522)	(190,611)
Intangible assets — net	\$ 512,785	\$ 621,092

A summary of the activity in intangible assets and goodwill follows (in thousands):

	Intangible Assets					
	Total Intangibles	Acquired Technology	Customer Relationships	In-Process Research and Development	Trade Name	Total Goodwill
Balance at September 30, 2016	\$384,471	\$165,397	\$207,674	\$8,000	\$3,400	\$120,024
Acquired	436,181	83,518	352,663	—	—	195,145
Placed in service	—	3,648	—	(3,648)	—	—
Fair value adjustment	—	—	—	—	—	220
Currency translation adjustments	(4,597)	(908)	(3,689)	—	—	(1,624)
Impairments of intangible assets	(4,352)	—	—	(4,352)	—	—
Balance at September 29, 2017	811,703	251,655	556,648	—	3,400	313,765
Allocation to divested business	(39,285)	—	(39,285)	—	—	(2,560)
Fair value adjustment	—	—	—	—	—	2,790
Currency translation adjustments	889	18	871	—	—	81
Balance at September 28, 2018	\$773,307	\$251,673	\$518,234	\$—	\$3,400	\$314,076

As of September 28, 2018, our estimated amortization of our intangible assets in future fiscal years, was as follows (in thousands):

	2019	2020	2021	2022	2023	Thereafter
Amortization expense	\$83,749	\$81,669	\$74,061	\$61,830	\$51,466	\$156,610

Our trade name is an indefinite-lived intangible asset. During development, in-process research and development (IPR&D) is not subject to amortization and is tested for impairment annually or more frequently if events or changes in circumstances indicate that the asset might be impaired. The impairment test consists of both a qualitative and quantitative assessment using an assumption of 'more likely than not' to determine if there were any impairment indicators. If impairment exists, a loss is recognized in an amount equal to that excess. Once an IPR&D project is complete, it becomes a definite long-lived intangible asset and is evaluated for impairment in accordance with our policy for long-lived assets. During the fourth quarter of fiscal year 2017, we completed the last IPR&D project and placed the acquired technology into service. Prior to placing the technology into service we performed an impairment assessment, at which time we determined that the value of the technology was impaired by \$4.4 million, which was expensed in the fiscal fourth quarter of 2017. The remaining \$3.6 million was placed in service as acquired technology.

Accumulated amortization for the acquired technology and customer relationships was \$140.0 million and \$120.5 million, respectively, as of September 28, 2018, and \$106.8 million and \$83.9 million, respectively, as of September 29, 2017.

During the second quarter of fiscal year 2016, we made a strategic decision to exit the product line and end programs associated with our GaN-on-SiC license and technology transfer to focus on development of our GaN-on-Si efforts. As a result of this strategic decision, we determined that the intangible assets and contractual commitments under the long-term technology licensing and transfer agreement signed in July 2013, as well as certain dedicated fixed assets and inventory, would no longer have any future benefit. The associated charges incurred during the fiscal year 2016 were \$13.8 million, which included a write-off of \$10.1 million of intangible assets, \$0.6 million of property and equipment, \$1.1 million of contractual commitments and \$2.0 million of inventory.

## 17. INCOME TAXES

Deferred income taxes reflect the net effect of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and amounts used for income tax purposes. The components of our deferred tax assets and liabilities are as follows (in thousands):

	September 28, 2018	September 29, 2017
Deferred tax assets (liabilities):		
Federal and foreign net operating losses and credits	\$ 321,982	\$ 396,871
Intangible assets	(94,929 )	(180,544 )
Property and equipment	(6,293 )	(1,045 )
Other non-current deferred tax assets	13,850	20,756
Deferred compensation	3,810	9,291
Deferred gain	6,575	14,853
Valuation allowance	(243,112 )	(274,406 )
Total deferred tax (liability) asset	\$ 1,883	\$ (14,224 )

Included in the above table are the attributes of our Japan jurisdiction which is in a net liability position of \$0.1 million and \$8.8 million relating primarily to intangible assets for fiscal years 2018 and 2017, respectively.

As of September 28, 2018, we had \$1,149.2 million of gross federal net operating loss (NOL) carryforwards consisting of \$772.7 million relating to the AppliedMicro Acquisition, \$158.9 million relating to the Mindspeed Acquisition, \$26.2 million relating to the BinOptics Acquisition and \$180.8 million relating to losses generated by MACOM. The federal NOL carryforwards will expire at various dates through 2037. The reported net operating loss carryforward includes any limitation under Sections 382 and 383 of the Internal Revenue Code of 1986, as amended, which applies to an ownership change as defined under Section 382.

During the fourth quarter of fiscal year 2016, we identified and corrected a prior period error where we understated our income tax benefit during 2013 through 2015. This was a result of the incorrect recording of intercompany pretax income among a few of our operating entities and due to the fact that these entities had different statutory tax rates. The out-of-period correction resulted in a \$3.9 million increase in income tax benefit in the fiscal year ended September 30, 2016 of which \$1.7 million, \$1.0 million and \$1.2 million related to the prior fiscal years 2015, 2014 and 2013, respectively.

The domestic and foreign income (loss) from continuing operations before taxes were as follows (in thousands):

	Fiscal Years		
	2018	2017	2016
United States	\$(145,851)	\$(111,432)	\$(46,593)
Foreign	(9,384 )	61,927	25,022
(Loss) income from operations before income taxes	\$(155,235)	\$(49,505 )	\$(21,571)

The components of the provision (benefit) for income taxes are as follows (in thousands):

	Fiscal Years		
	2018	2017	2016
Current:			
Federal	\$(6,876 )	\$100	\$(5,861 )
State	(160 )	225	(766 )
Foreign	1,642	7,307	906
Current provision (benefit)	(5,394 )	7,632	(5,721 )
Deferred:			
Federal	75,428	(42,637 )	(8,163 )



State	(15,526 )	(4,037 )	(502 )
Foreign	(24,652 )	(466 )	(2,603 )
Change in valuation allowance	(51,329 )	140,419	(994 )
Deferred provision (benefit)	(16,079 )	93,279	(12,262 )
Total provision (benefit)	\$(21,473)	\$100,911	\$(17,983)

We recognize deferred tax assets to the extent that we believe that these assets are more likely than not to be realized. In making this determination, we consider available positive and negative evidence and factors that may impact the valuation of our deferred tax asset including results of recent operations, future reversals of existing taxable temporary differences, projected future taxable income,

and tax-planning strategies. A significant piece of objective negative evidence evaluated was the cumulative U.S. loss incurred over the three-year period ended September 28, 2018 which we believe limited our ability to consider other subjective evidence, such as our projections for future growth.

Certain transaction and integration related expenses incurred in the U.S., associated primarily with the AppliedMicro Acquisition during the three months ended March 31, 2017, resulted for the first time in significant negative objective evidence in the form of adjusted cumulative losses in the U.S. over the past three-year period. This resulted in our determination that there was not sufficient objectively verifiable positive evidence to offset this negative objective evidence and we concluded that a full valuation allowance totaling \$93.5 million was required for our U.S. deferred tax assets as of September 29, 2017. In addition, a full valuation allowance was established against the U.S. deferred tax assets acquired in connection with the AppliedMicro Acquisition.

The \$243.1 million of valuation allowance as of September 28, 2018 relates primarily to federal and state NOLs, tax credit carryforwards and a partial valuation allowance on tax credits in Canada of \$13.6 million whose recovery is not considered more likely than not. The \$274.4 million of valuation allowance as of September 29, 2017 related primarily to federal and state NOL and tax credit carryforwards assumed in the AppliedMicro Acquisition along with an establishment of a full valuation allowance against the Company's U.S. deferred tax assets whose recovery is not considered more likely than not. The change during the fiscal year ended September 28, 2018 of \$31.3 million primarily relates to the decrease of our deferred tax assets resulting from the lower U.S. federal tax rate, partially offset by a valuation allowance on state NOLs and tax credits in Canada.

Our effective tax rates differ from the federal and statutory rate as follows:

	Fiscal Years		
	2018	2017	2016
Federal statutory rate	24.5%	35.0%	35.0%
Foreign rate differential	5.1	31.9	40.1
State taxes net of federal benefit	0.8	0.2	1.0
Warrant liabilities	4.4	(1.8)	(26.7)
Change in valuation allowance	34.0	(270.0)	3.0
Research and development credits	9.0	12.8	16.9
Correction of prior period	—	—	18.3
Provision to return adjustments	8.3	(4.0)	3.5
Nondeductible compensation expense	1.4	(4.1)	(9.2)
Nondeductible legal fees	0.9	(3.9)	(1.8)
2017 tax reform	(73.7)	—	—
Other permanent differences	(0.9)	0.1	3.3
Effective income tax rate	13.8%	(203.8)%	83.4%

For fiscal years 2018, 2017 and 2016, the effective tax rates to calculate the tax benefit on \$155.2 million, \$49.5 million and \$21.6 million, respectively, of pre-tax loss from continuing operations were 13.8%, (203.8)% and 83.4%, respectively. The effective income tax rate for fiscal years 2018, 2017 and 2016 were primarily impacted by a lower income tax rate in many foreign jurisdictions in which our foreign subsidiaries operate, research and development tax credits, and fair market value adjustment of warranty liabilities. For fiscal year 2018 and 2017, effective tax rates were also impacted by the valuation allowance. For fiscal year 2018, the effective tax rate was impacted by the Tax Act. For fiscal year 2017, the effective tax rate was impacted by an establishment of a full valuation allowance against our U.S. deferred tax assets. For fiscal year 2016, the effective tax rate impacted by a retroactive enactment of the R&D tax credit from fiscal years 2015.

All earnings of foreign subsidiaries are considered indefinitely reinvested for the periods presented. A one-time deemed repatriation of gross foreign earnings and profits totaling \$202.0 million will result in approximately \$101.5 million in U.S. taxable income for the year ended September 28, 2018 with Grand Cayman and Ireland accounting for \$70.0 million and \$30.3 million, respectively. Due to the fact that we are in a full U.S. valuation allowance, this

one-time deemed repatriation will have no impact on our tax expense. We also expect our current period taxable loss to fully offset this one-time deemed repatriation of taxable income resulting in no additional cash tax payments. Undistributed earnings of all foreign subsidiaries as of September 28, 2018, subsequent to the one-time deemed repatriation, aggregated \$23.6 million, with Ireland and Grand Cayman accounting for \$5.1 million and \$15.7 million, respectively. It is not practicable to determine the U.S. federal, state and foreign withholding deferred tax liabilities associated with such foreign earnings.

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Activity related to unrecognized tax benefits is as follows (in thousands):

	Amount
Balance - September 30, 2016	(1,670 )
Additions based on tax positions	—
Reductions based on tax positions	—
Balance - September 29, 2017	\$(1,670)
Additions based on tax positions	—
Reductions based on tax positions	1,370
Balance at September 28, 2018	\$(300 )

The balance of the unrecognized tax benefit as of September 28, 2018, is included in other long-term liabilities in the accompanying consolidated balance sheets. The entire balance of unrecognized tax benefits, if recognized, will reduce income tax expense.

It is our policy to recognize any interest and penalties accrued related to unrecognized tax benefits in income tax expense. During fiscal year 2018, we did not make any payment of interest and penalties. There was nothing accrued in the consolidated balance sheets for the payment of interest and penalties at September 28, 2018, as the remaining unrecognized tax benefits would only serve to reduce our current federal and state NOL carryforwards, if ultimately recognized.

A summary of the fiscal tax years that remain subject to examination, as of September 28, 2018, for the Company's significant tax jurisdictions are:

Jurisdiction	Tax Years Subject to Examination
United States—federal	2015 - forward
United States—various states	2014 - forward
Ireland	2016 - forward

Generally, we are no longer subject to federal income tax examinations for years before 2015, except to the extent of loss and tax credit carryforwards from those years.

On December 22, 2017, the U.S. Congress enacted comprehensive tax legislation commonly referred to as the Tax Cuts and Jobs Act (the "Tax Act"). The Tax Act makes broad and complex changes to the U.S. tax code, including, but not limited to:

- reducing the highest marginal U.S. federal corporate income tax rate from 35% in the period ending December 29, 2017 to 21%, effective January 1, 2018;
- requiring companies to become liable for a one-time deemed repatriation transition tax (Transition Tax) based on previously untaxed accumulated and current earnings and profits (E&P) of certain foreign subsidiaries for our fiscal year ending September 28, 2018;
- generally eliminating U.S. federal income taxes on dividends from foreign subsidiaries that will apply to our fiscal year beginning September 29, 2018;
- requiring the inclusion of certain income such as Global Intangible Low Taxed Income (GILTI) earned by controlled foreign corporations (CFCs) in our U.S. federal taxable income that would apply to our fiscal year beginning September 29, 2018;
- eliminating the corporate alternative minimum tax (AMT) and changing how existing AMT credits can be realized that will apply to our fiscal year beginning September 29, 2018;
- repealing the performance-based compensation exception to the section 162(m) \$1.0 million deduction limitation and revising the definition of a covered employee for our fiscal year beginning September 29, 2018;
- creating the base erosion anti-abuse tax, a new minimum tax that will apply to our fiscal year beginning September 29, 2018;
- creating a new limitation on deductible interest expense that will apply to our fiscal year beginning September 29, 2018;
- limiting the degree to which net operating losses can be utilized against taxable income that would apply to losses created beginning with our fiscal year beginning September 29, 2018;

changing rules related to the ability to apply net operating losses against later or earlier tax years that applies to losses created beginning with our fiscal year beginning September 30, 2017; and  
an increase in the allowable deduction for costs to acquire qualified property placed into service after September 27, 2017.

Our financial results for the fiscal year ended September 28, 2018 includes a non-cash reduction in income tax expense of approximately \$2.6 million resulting from the re-measurement of our U.S. deferred tax liabilities to reflect the new 21% U.S. federal tax rate. Due to changes in the net operating loss carryforward rules, we also reduced our deferred tax liability by \$5.7 million resulting in a reduction to income tax expense of \$5.7 million.

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To determine the amount of the Transition Tax, we must determine, in addition to other factors, the amount of E&P of the relevant subsidiaries as well as the amount of non-U.S. income taxes paid on such earnings. We were able to make a reasonable estimate of the Transition Tax and have determined that we expect to have sufficient taxable losses during the current year to reduce any cash tax payments associated with the one-time repatriation of E&P down to zero. We are continuing to analyze additional information to more precisely compute the amount of the Transition Tax.

The Tax Act creates a new requirement that certain income such as GILTI earned by CFCs must be included in the gross income of the CFCs' U.S. shareholder. GILTI is the excess of the shareholder's net CFC tested income over the net deemed tangible income return, which is currently defined as the excess of (1) 10 percent of the aggregate of the U.S. shareholder's pro rata share of the qualified business asset investment of each CFC with respect to which it is a U.S. shareholder over (2) the amount of certain interest expense taken into account in the determination of net CFC-tested income.

The Company also assessed whether its valuation allowance analyses are affected by various aspects of the Tax Act (e.g., the Transition Tax, GILTI inclusions and new categories of foreign tax credits). The changes included in the Tax Act are broad and complex. Although we are not able to finalize our evaluation of the impact of the Tax Act at this time due to uncertainties related to any future legislative or regulatory actions related to the Tax Act and availability of information needed to perform the final calculations, we do believe that a full valuation allowance continues to be required. However, we will continue to evaluate the impact the Tax Act may have on our financial statements including the impact on our full valuation allowance against our U.S. deferred tax assets and any impact this would have on our tax expense.

The SEC has issued Staff Accounting Bulletin No. 118 that would allow for a measurement period of up to one year after the enactment date of the Tax Act to finalize the application of Accounting Standards Codification Topic 740, Income Taxes. We currently anticipate finalizing and recording any resulting adjustments within one year after the enactment date.

## 18. SHARE-BASED COMPENSATION PLANS

### Stock Plans

We have three equity incentive plans: the Amended and Restated 2009 Omnibus Stock Plan (2009 Plan), the 2012 Omnibus Incentive Plan, as amended (2012 Plan) and the 2012 Employee Stock Purchase Plan, as amended and restated (ESPP).

Upon the closing of our initial public offering, all shares that were reserved under the 2009 Plan but not awarded were assumed by the 2012 Plan. No additional awards will be made under the 2009 Plan. Under the 2012 Plan, we have the ability to issue incentive stock options (ISOs), nonqualified stock options (NQs), stock appreciation rights, restricted stock (RSAs), restricted stock units (RSUs), performance-based stock units (PRSUs) and other equity-based awards to employees, directors and outside consultants. The ISOs and NQs must be granted at a price per share not less than the fair value of our common stock on the date of grant. Options granted to date primarily vest based on certain market-based and performance-based criteria as described below. Certain of the share-based awards granted and outstanding as of September 28, 2018, are subject to accelerated vesting upon a sale of the Company or similar changes in control. Options granted generally have a term of four to seven years.

As of September 28, 2018, we had 14.1 million shares available for future issuance under the 2012 Plan and 3.2 million shares available for issuance under our ESPP. The financial impact of any modifications to share-based awards during the periods presented was not material.

Outside of the three equity plans described above, we also grant incentive stock units (ISUs) liability awards to certain of our international employees which typically vest over four years and for which the fair value is determined by our underlying stock price, which are settled in cash upon vesting. As of September 28, 2018, we had 191,620 ISU awards outstanding with a fair value of \$1.9 million recorded as an accrued compensation liability. As of September 29, 2017, we had approximately 203,000 ISU awards outstanding with a fair value of \$4.4 million recorded as an accrued compensation liability. During fiscal year 2018, 68,813 ISU awards were settled with a fair value of \$1.4 million. We recorded a gain for these ISU awards of \$1.1 million in fiscal year 2018, primarily as a result of declines in our stock

price, and we recorded expense of \$3.9 million and \$4.0 million in fiscal years 2017 and 2016, respectively.

#### Share-Based Compensation

The following table shows a summary of share-based compensation expense included in the Consolidated Statement of Operations during the periods presented (in thousands):

	Fiscal Years		
	2018	2017	2016
Cost of revenue	\$3,869	\$3,189	\$2,150
Research and development	13,448	10,565	6,568
Selling, general and administrative	14,620	22,581	18,236
Total	\$31,937	\$36,335	\$26,954

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Amounts presented above include share-based compensation expense of \$0.8 million for fiscal year 2017, which is recorded as discontinued operations related to employees of our Compute business.

As of September 28, 2018, the total unrecognized compensation costs related to outstanding stock options, restricted stock awards and units including awards with time-based and performance-based vesting was \$51.3 million, which we expect to recognize over a weighted-average period of 2.4 years.

### Stock Options

A summary of stock option activity for fiscal year 2018 is as follows (in thousands, except per share amounts and contractual term):

	Number of Shares	Weighted-Average Exercise Price per Share	Weighted-Average Remaining Contractual Term (in Years)	Aggregate Intrinsic Value
Options outstanding - September 29, 2017	1,177	\$ 31.61		
Granted	405	36.58		
Exercised	(27 )	2.87		
Forfeited, canceled or expired	(147 )	46.29		
Options outstanding - September 28, 2018	1,408	\$ 32.05	4.93	\$ 1,850
Options vested and expected to vest - September 28, 2018	1,408	\$ 32.05	4.93	\$ 1,850
Options exercisable - September 28, 2018	343	\$ 19.08	3.77	\$ 1,850

Aggregate intrinsic value represents the difference between our closing stock price on September 28, 2018, and the exercise price of outstanding, in-the-money options. The total intrinsic value of options exercised was \$0.9 million, \$8.9 million and \$3.7 million for fiscal years 2018, 2017 and 2016, respectively.

#### Stock Options with Time-based Vesting Criteria

In November 2017, we granted 10,924 incentive stock options and 69,076 non-qualified stock options with a total grant date fair value of \$17.55 per share, or \$1.4 million. These stock options are valued using a Black-Scholes model, using a volatility rate of 45.7%, a risk-free rate of 2.21%, a strike price of \$36.61 and an expected term of 6.5 years. Share-based compensation expense is recognized on a straight-line basis over the service period of approximately 4.5 years. If the required service period is not met for these options, then the share-based compensation expense would be reversed.

#### Stock Options with Performance-based Vesting Criteria

We granted approximately 5,000 non-qualified stock options in 2016 with an aggregate fair value of \$0.1 million on the date of grant. These stock options will vest and become exercisable if service conditions are met and certain performance criteria are met or exceeded in any period of four consecutive fiscal quarters completed during the term of the options based on pre-established revenue and gross margin targets. We used a Black-Scholes option pricing model to estimate the fair value on the date of grant of \$10.54 per option. The fair value of stock options is calculated using valuation assumptions, including volatility, the Company's stock price, expected term of the option, risk-free interest rate and expected dividends. The stock options have a term of seven years, assuming continued employment with or services to the Company, and have a weighted average exercise price of \$39.50 and equal to the closing price of the Company's common stock on the date of grant.

The weighted average Black-Scholes input assumptions used for calculating the fair value of these performance-based stock options are as follows:

Fiscal  
Years



2016

Risk-free interest rate 1.15%

Expected term (years) 4.0

Expected volatility 31.8%

Expected dividends — %

**Stock Options with Market-based Vesting Criteria**

We grant non-qualified stock options that are subject to vesting only upon the market price of our underlying public stock closing above a certain price target within seven years of the date of grant. Share-based compensation expense is recognized regardless of the number of awards that are earned based on the market condition and is recognized on a straight-line basis over the estimated service

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period of approximately three years. If the required service period is not met for these options, then the share-based compensation expense would be reversed. In the event that our common stock achieves the target price per share based on a 30-day trailing average prior to the end of the estimated service period, any remaining unamortized compensation cost will be recognized.

Stock options granted for fiscal years 2018, 2017 and 2016 were 325,000, 320,000, and 300,000, respectively, at weighted average grant date fair values of \$15.52, \$13.18 and \$11.65 per share, or \$5.0 million, \$4.3 million and \$3.5 million, respectively.

These non-qualified stock options with market based vesting conditions were valued using a Monte Carlo simulation model. The weighted average Monte Carlo input assumptions used for calculating the fair value of these market-based stock options are as follows:

	Fiscal Years		
	2018	2017	2016
Risk-free interest rate	2.3 %	1.9 %	2.1 %
Expected term (years)	3.4	7.0	7.0
Expected volatility	45.8 %	32.3 %	36.5 %
Target price	\$98.99	\$67.39	\$64.22

#### Restricted Stock Awards and Units

A summary of restricted stock awards and units activity for fiscal year 2018 is as follows (in thousands):

	Number of Shares	Weighted-Average Grant Date Fair Value	Aggregate Intrinsic Value
Issued and unvested - September 29, 2017	1,907	\$ 39.20	\$ 85,093
Granted	1,145	26.68	
Vested	(906 )	35.24	
Forfeited, canceled or expired	(274 )	34.56	
Issued and unvested shares - September 28, 2018	1,872	34.15	\$ 38,452

As of September 28, 2018, the aggregate intrinsic value of vested and expected to vest restricted stock units including time-based and performance-based units was \$37.1 million for fiscal year 2018. The total fair value of restricted stock awards and units vested was \$19.7 million, \$51.2 million and \$26.5 million for the fiscal years 2018, 2017 and 2016, respectively.

In addition to RSUs, we also issue PRSUs with specific performance vesting criteria. These PRSUs have both a service and performance-based vesting condition and awards are divided into three equal tranches and vest based on achieving certain adjusted earnings per share growth metrics. The service condition requires participants to be employed on May 15th of the following year once the performance condition has been met. Depending on the actual performance achieved, a participant may earn between 0% to 300% of the targeted shares for each tranche, which is determined based on a straight-line interpolation applied for the achievement between the specified performance ranges. As of September 28, 2018, no performance condition targets had been met for awards with future service conditions. We granted 84,753 PRSUs during fiscal year 2018. The amount of incremental PRSU awards that could ultimately vest if all performance criteria are achieved would be 413,916 shares assuming a maximum of 300% of the targeted shares.

#### Employee Stock Purchase Plan

The ESPP allows eligible employees to purchase shares of our common stock at a discount through payroll deductions of up to 15% of their eligible compensation, subject to any plan limitations. In administering the ESPP, the board of directors has limited discretion to set the length of the offering periods thereunder. As of September 28, 2018, total unrecognized compensation cost related to the ESPP was not material. In fiscal years 2018, 2017 and 2016, 305,851, 146,149 and 154,187, respectively, of shares of common stock were issued under the ESPP.

The 2012 Plan contains an “evergreen” provision, pursuant to which the number of shares of common stock available for issuance under the 2012 Plan can be increased on the first day of each fiscal year by the lesser of (a) 4.0% of outstanding common stock on a fully diluted basis as of the end of the immediately preceding fiscal year, (b) 1.9 million shares of common stock and (c) a lesser amount determined by the board of directors; provided, however, that any shares from any increases in previous years that are not actually issued will continue to be available for issuance under the 2012 Plan. The ESPP also contains an “evergreen” provision, pursuant to which the number of shares of common stock available for issuance under the ESPP can be increased on the first day of each fiscal year by the lesser of (a) 1.25% of outstanding common stock on a fully diluted basis as of the end of the immediately preceding fiscal year, (b) 550,000 shares of common stock and (c) a lesser amount determined by the board of directors; provided, however, that any shares from any increases in previous years that are not actually issued will continue to be available for issuance under the ESPP. In fiscal year 2018, pursuant to the evergreen provisions, the number of shares of common stock available for issuance under the 2012 Plan and the ESPP were increased by 1.9 million shares and 550,000 shares, respectively.

## 19. STOCKHOLDERS' EQUITY

We have authorized 10 million shares of \$0.001 par value preferred stock and 300 million shares of \$0.001 par value common stock as of September 28, 2018 and September 29, 2017. The outstanding shares of common stock as of September 28, 2018 and September 29, 2017, presented in the accompanying consolidated statements of stockholders' equity, exclude 6,100 and 200 unvested shares of restricted stock awards, respectively, issued as compensation to employees that were subject to forfeiture.

**Common Stock Warrants**—In March 2012, we issued warrants to purchase 1,281,358 shares of common stock for \$14.05 per share. The warrants expire December 21, 2020, or earlier as per the terms of the agreement, including immediately following consummation of a sale of all or substantially all assets or capital stock or other equity securities, including by merger, consolidation, recapitalization or similar transactions. We do not currently have sufficient registered and available shares to immediately satisfy a request for registration, if such a request were made. As of September 28, 2018, no exercise of the warrants had occurred and no request had been made to register the warrants or any underlying securities for resale by the holders.

We are recording the estimated fair values of the warrants as a long-term liability in the accompanying consolidated financial statements with changes in the estimated fair value being recorded in the accompanying statements of operations.

## 20. RELATED-PARTY TRANSACTIONS

Cadence Design Systems, Inc. (Cadence) provides us with certain engineering licenses on an ongoing basis. Geoffrey Ribar, who joined our board of directors on March 22, 2017, served as an officer of Cadence through September 30, 2017 and served as a Senior Advisor to Cadence until March 31, 2018. During fiscal year 2018, we made payments of \$4.1 million to Cadence prior to March 31, 2018. During fiscal year 2017, we made payments of \$6.3 million subsequent to Mr. Ribar joining our board of directors.

## 21. DIVESTED BUSINESS AND DISCONTINUED OPERATIONS

### Divested Business

On May 10, 2018, we completed the sale and transfer of certain assets associated with our Japan-based long-range optical subassembly business (the LR4 business), pursuant to an Asset Purchase and Intellectual Property License Agreement, dated April 30, 2018 (the LR4 Agreement). The LR4 Agreement provided that the buyer would pay us \$5.0 million within 30 days following the closing of the transactions contemplated by the LR4 Agreement, provide us with the opportunity to supply components, and would pay us further amounts to be determined for inventory and fixed assets within 60 days of receipt of required government approvals. As of September 28, 2018, we have received \$5.0 million of consideration and expect additional consideration before the end of calendar 2018 of \$12.2 million, net of tax, of which \$7.4 million has been recorded as other current assets and \$4.8 million has been recorded as assets held for sale as they had not been transferred to the buyer as of September 28, 2018.

As a result of the transaction, during fiscal year 2018 we recorded a loss on disposal of \$34.3 million associated with LR4 business as other expense, comprised of expected proceeds of \$17.2 million, subject to receipt of required government approvals, less the carrying value of assets sold, primarily including customer relationship intangible assets of \$27.7 million, inventory of \$13.7 million, fixed assets of \$7.6 million and goodwill of \$2.6 million. The transaction did not meet the criteria of discontinued operations. We also entered into a Transition Services Agreement (the LR4 TSA) with the buyer, pursuant to which we agreed to incur up to \$2.0 million of operating expenses for certain ongoing administrative services to support the buyer for up to six months after the closing of the transaction. During fiscal year 2018, we have incurred \$2.0 million of expenses associated with the LR4 TSA which were recorded as general and administrative expenses.

### Discontinued Operations

On October 27, 2017, we entered into a purchase agreement to sell the Compute business. In consideration for the transfer and sale of the Compute business, we received an equity interest in the buyer valued at approximately \$36.5 million, representing the carrying value of the assets divested and representing less than 20.0% of the buyer's total outstanding equity. The operations of the Compute business were accounted for as discontinued operations through the date of divestiture.

We also entered into a transition services agreement (the Compute TSA), pursuant to which we agreed to perform certain primarily general and administrative functions on the buyer's behalf during a migration period and for which we are reimbursed for costs incurred. During the fiscal year 2018, we received \$3.6 million of reimbursements under the Compute TSA, which was recorded as a reduction of our general and administrative expenses.

In August of fiscal year 2015, we sold our Automotive business, as the Automotive business was not consistent with our long-term strategic vision from both a growth and profitability perspective. Additionally, we entered into a Consulting Agreement with the buyer pursuant to which we were to provide the buyer with certain non-design advisory services for a period of two years following the closing of the transaction for up to \$15.0 million, from which we have recorded \$7.5 million as other income during both fiscal years 2017 and 2016. No income was recognized during fiscal year 2018.

During fiscal year 2017, we received \$18.0 million, the full amount of the indemnification escrow.

The accompanying consolidated statement of operations includes the following operating results related to these discontinued operations (in thousands):

	Fiscal Years	
	2018	2017
Revenue (1)	\$—	\$ 660
Cost of revenue (1)	(596)	2,252
Gross (loss) profit	596	(1,592)
Operating expenses:		
Research and development (1)	5,229	29,167
Selling, general and administrative (1)	1,560	3,840
Total operating expenses	6,849	13,007
(Loss) income from discontinued operations (1)	(6,215)	(19,077)
Other income (2)	—	7,500
Gain on sale (2)	—	18,022
(Loss) income before income taxes	(6,215)	(19,077)
Income tax provision (benefit)	—	2,786
(Loss) income from discontinued operations	(6,215)	(19,077)
Cash flow from Operating Activities (1)	(10,734)	4,776
Cash flow from Investing Activities (2)	—	25,522

(1) Amounts are associated with the Compute business.

(2) Amounts are associated with the Automotive business.

For the fiscal year ended September 29, 2017, we recorded assets held for sale of \$35.6 million, which included inventory and other assets of \$1.3 million, property and equipment of \$7.8 million, goodwill and intangibles of \$28.4 million, as well as a \$2.0 million provision for disposition costs. During the same period, liabilities held for sale amounted to \$2.1 million.

## 22. EARNINGS PER SHARE

The following table set forth the computation for basic and diluted net income (loss) per share of common stock (in thousands, except per share data):

	Fiscal Years		
	2018	2017	2016
Numerator:			
Loss from continuing operations	\$(133,762)	\$(150,416)	\$(3,588)
(Loss) income from discontinued operations	(6,215)	(19,077)	5,022
Net (loss) income	(139,977)	(169,493)	1,434
Warrant liability gain	(27,646)	—	—
Net (loss) income attributable to common stockholders	\$(167,623)	\$(169,493)	\$1,434
Denominator:			
Weighted average common shares outstanding-basic	64,741	60,704	53,364
Dilutive effect of warrants	570	—	—
Weighted average common shares outstanding-diluted	65,311	60,704	53,364
Common stock earnings per share-basic:			
Continuing operations	\$(2.07)	\$(2.48)	\$(0.07)
Discontinued operations	(0.10)	(0.31)	0.09
Net common stock earnings per share-basic	\$(2.16)	\$(2.79)	\$0.03
Common stock earnings per share-diluted:			

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Continuing operations	\$ (2.47	)	\$ (2.48	)	\$ (0.07	)
Discontinued operations	(0.10	)	(0.31	)	0.09	)
Net common stock earnings per share-diluted	\$ (2.57	)	\$ (2.79	)	\$ 0.03	)

As of September 28, 2018, we had warrants outstanding which were reported as a liability on the consolidated balance sheet. During fiscal year 2018, we recorded a \$27.6 million gain associated with adjusting the fair value of the warrants, in the consolidated statements of operations primarily as a result of declines in our stock price. When calculating earnings per share we are required to adjust for the

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dilutive effect of outstanding common stock equivalents, including adjustment to the numerator for the dilutive effect of contracts that must be settled in common stock. During the fiscal year ended September 28, 2018, we adjusted the numerator to exclude the warrant gain of \$27.6 million and the denominator by the incremental shares of 569,667 under the treasury stock method. For the fiscal year 2018, the table above excludes the effects of 375,940 shares of potential shares of common stock issuable upon exercise of stock options, restricted stock and restricted stock units as the inclusion would be antidilutive. The table also excludes the effects of 1,877,401 and 1,855,049 shares for fiscal years 2017 and 2016, respectively, of potential shares of common stock issuable upon exercise of stock options, restricted stock, restricted stock units and warrants as the inclusion would be antidilutive.

### 23. SUPPLEMENTAL CASH FLOW INFORMATION

As of September 28, 2018 and September 29, 2017, we had \$4.0 million and \$7.6 million, respectively, in unpaid amounts related to purchases of property and equipment included in accounts payable and accrued liabilities. These amounts have been excluded from the payments for purchases of property and equipment in the accompanying consolidated statements of cash flows until paid.

In January 2017, we issued common stock with a fair value of \$465.1 million in connection with the AppliedMicro Acquisition. This was accounted for as a non-cash transaction as no shares were purchased or sold as part of the transaction.

During fiscal years 2018 and 2017, we capitalized \$18.4 million and \$3.6 million, respectively, of net construction costs relating to the 144 Chelmsford Street facility, of which \$12.7 million and \$3.6 million, respectively, were accounted for as a non-cash transaction as the costs were paid by the developer.

During fiscal year 2018, we divested the Compute business with net assets valued at approximately \$36.5 million in exchange for a \$36.5 million equity interest in Compute. During fiscal year 2018, we recorded \$10.4 million of losses associated with this investment based on our proportionate share of the losses of Compute.

The following is supplemental cash flow information regarding non-cash investing and financing activities (in thousands):

	Fiscal Years		
	2018	2017	2016
Cash paid for interest	\$29,698	\$30,529	\$16,335
Cash paid (refunded) for income taxes	\$3,559	\$(3,161)	\$(373)

### 24. ACCUMULATED OTHER COMPREHENSIVE INCOME (LOSS)

The components of accumulated other comprehensive income (loss), net of income taxes, are as follows:

	Foreign Currency Items	Other Items	Total
Balance - September 30, 2016	\$ 9,138	\$(99)	\$9,039
Foreign currency translation, net of tax	(5,999)	—	(5,999)
Unrealized gain/loss on short-term investments, net of tax	—	(63)	(63)
Balance - September 29, 2017	3,139	(162)	2,977
Foreign currency translation, net of tax	(502)	—	(502)
Unrealized gain/loss on short-term investments, net of tax	—	(287)	(287)
Balance at September 28, 2018	\$ 2,637	\$(449)	\$2,188

### 25. GEOGRAPHIC AND SIGNIFICANT CUSTOMER INFORMATION

We have one reportable operating segment that designs, develops, manufactures and markets semiconductors and modules. The determination of the number of reportable operating segments is based on the chief operating decision maker's use of financial information for the purposes of assessing performance and making operating decisions. In evaluating financial performance and making operating decisions, the chief operating decision maker primarily uses consolidated revenue, gross profit and operating income (loss).





Information about our operations in different geographic regions, based upon customer locations, is presented below (in thousands):

Revenue by Geographic Region	Fiscal Years		
	2018	2017	2016
United States	\$272,951	\$265,038	\$155,998
China	159,763	206,136	201,911
Asia Pacific, excluding China (1)	79,581	170,826	144,872
Other Countries (2)	58,103	56,772	41,557
Total	\$570,398	\$698,772	\$544,338

(1) Asia Pacific represents Taiwan, Japan, Singapore, India, Thailand, South Korea, Australia, Malaysia, New Zealand, the Philippines and Vietnam.

(2) No international country or region represented greater than 10% of the total revenue as of the dates presented, other than China and the Asia-Pacific region as presented above.

Long-Lived Assets by Geographic Region	As of	
	September 28, 2018	September 29, 2017
United States	\$122,888	\$101,044
Asia Pacific (1)	24,702	24,945
Other Countries (2)	2,333	5,030
Total	\$149,923	\$131,019

(1) Asia Pacific represents Taiwan, Japan, Singapore, India, Thailand, South Korea, Malaysia, the Philippines, Vietnam and China.

(2) No international country or region represented greater than 10% of the total net long-lived assets as of the dates presented, other than the Asia-Pacific region as presented above.

The following is a summary of customer concentrations as a percentage of total sales and accounts receivable as of and for the periods presented:

Revenue	Fiscal Years		
	2018	2017	2016
Customer A	13 %	11 %	11 %
Customer B	6 %	10 %	15 %
Customer C	2 %	6 %	12 %

Accounts Receivable	September 28, September 29,			
	2018		2017	
Customer A	19	%	13	%
Customer D	26	%	14	%

No other customer represented more than 10% of revenue or accounts receivable in the periods presented in the accompanying consolidated financial statements. In fiscal years 2018, 2017 and 2016, our top ten customers represented an aggregate of 57%, 52% and 62% of total revenue, respectively.

## 26. QUARTERLY FINANCIAL DATA (UNAUDITED)

(In thousands, except per share data)

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Fiscal Year
Fiscal Year 2018					
Revenue	\$ 130,925	\$ 150,414	\$ 137,872	\$ 151,187	\$ 570,398
Gross profit	60,954	65,601	48,169	70,982	245,706
Loss from continuing operations	(16,970 )	(15,466 )	(85,210 )	(16,116 )	(133,762 )
Loss from discontinued operations (1)	(5,599 )	(18 )	(220 )	(378 )	(6,215 )
Per share data (2)					
Loss from continuing operations, basic	\$(0.26 )	\$(0.24 )	\$(1.31 )	\$(0.25 )	\$(2.07 )
Loss from discontinued operations, basic	\$(0.09 )	\$0.00	\$0.00	\$(0.01 )	\$(0.10 )
Per share data (2) (3)					
Loss from continuing operations, diluted	\$(0.49 )	\$(0.50 )	\$(1.31 )	\$(0.29 )	\$(2.47 )
Loss from discontinued operations, diluted	\$(0.09 )	\$0.00	\$0.00	\$(0.01 )	\$(0.10 )
Fiscal Year 2017					
Revenue	\$ 151,752	\$ 186,084	\$ 194,555	\$ 166,381	\$ 698,772
Gross profit	78,495	68,864	92,629	86,896	326,884
Loss from continuing operations	(2,171 )	(134,267 )	(13,977 )	(1 )	(150,416 )
Income (loss) from discontinued operations (1)	1,206	4,136	(13,700 )	(10,719 )	(19,077 )
Per share data (2)					
Loss from continuing operations, basic	\$(0.04 )	\$(2.21 )	\$(0.22 )	\$0.00	\$(2.48 )
Income (loss) from discontinued operations, basic	\$0.02	\$0.07	\$(0.21 )	\$(0.17 )	\$(0.31 )
Per share data (2) (3)					
Loss from continuing operations, diluted	\$(0.04 )	\$(2.21 )	\$(0.22 )	\$(0.21 )	\$(2.48 )
Income (loss) from discontinued operations, diluted	\$0.02	\$0.07	\$(0.21 )	\$(0.16 )	\$(0.31 )

During the second quarter of fiscal year 2017, we announced a plan to divest the Compute business of (1) AppliedMicro, and have included the results of the Compute business as discontinued operations in each subsequent quarter.

Earnings per share calculations for each of the quarters are based on the weighted average number of shares (2) outstanding and included common stock equivalents in each period. Therefore, the sums of the quarters do not necessarily equal the full year earnings per share.

Diluted (loss) income per share for the fiscal first, second and fourth quarters of 2018 and the fiscal fourth quarter (3) 2017 excluded \$14.6 million, \$17.0 million, \$2.8 million and \$14.0 million, respectively, related to warrant liability gain.

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

None.

#### ITEM 9A. CONTROLS AND PROCEDURES.

##### Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures (as defined in Rule 13a-15(e) under the Securities Exchange Act of 1934, as amended (the Exchange Act), that are intended to ensure that information that would be required to be disclosed in Exchange Act reports is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to our management, including the principal executive officer and the principal financial officer, as appropriate, to allow timely decisions

regarding required disclosure.

An evaluation was performed, under the supervision, and with the participation of our management, including our principal executive officer and principal financial officer, of the effectiveness of the design and operation of our disclosure controls and procedures as of September 28, 2018. Based on this evaluation, our principal executive officer and principal financial officer concluded that our disclosure controls and procedures were effective as of September 28, 2018.

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

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting is defined in Rule 13a-15(f) or 15d-15(f) promulgated under the Securities Exchange Act of 1934 as a process designed by, or under the supervision of, the company's principal executive and principal financial officers and effected by the company's board of directors, management and other personnel, 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 and includes those policies and procedures that:

- Pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of the assets of the company;
- 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
- 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. 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.

Our management assessed the effectiveness of our internal control over financial reporting as of September 28, 2018. In making this assessment, the company's management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in Internal Control-Integrated 2013 Framework.

Based on this assessment, our management concluded that, as of September 28, 2018, our internal control over financial reporting is effective based on those criteria.

The effectiveness of our internal control over financial reporting as of September 28, 2018 has been audited by Deloitte & Touche LLP, an independent registered public accounting firm, as stated in their report which is included herein.

#### Changes in Internal Control over Financial Reporting

There have been no changes in the Company's internal control over financial reporting that occurred during the Company's fiscal quarter ended September 28, 2018 that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

Report of Independent Registered Public Accounting Firm

To the shareholders and the Board of Directors of MACOM Technology Solutions Holdings, Inc.

Opinion on Internal Control over Financial Reporting

We have audited the internal control over financial reporting of MACOM Technology Solutions Holdings, Inc. and subsidiaries (the "Company") as of September 28, 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 September 28, 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 as of and for the year ended September 28, 2018, of the Company and our report dated November 15, 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 Annual Report on Internal Control Over Financial Reporting" appearing in Item 9A. 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

Boston, Massachusetts

November 15, 2018

ITEM 9B. OTHER INFORMATION.

None.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE.

The information required by this item is incorporated herein by reference to our definitive proxy statement for the 2019 Annual Meeting of Stockholders to be filed with the SEC within 120 days after September 28, 2018.

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We have adopted a written code of business conduct and ethics that applies to our directors, officers and employees, including our principal executive officer, principal financial officer, principal accounting officer or controller, and persons performing similar functions. We make available our code of business conduct and ethics free of charge through our website, which is located at [www.macom.com](http://www.macom.com). We intend to disclose any amendments to, or waivers from, our code of business conduct and ethics that are required to be publicly disclosed pursuant to rules of the SEC and the Nasdaq Global Select Market by posting any such amendment or waivers on our website.

#### ITEM 11. EXECUTIVE COMPENSATION.

The information required by this item is incorporated herein by reference to our definitive proxy statement for the 2019 Annual Meeting of Stockholders to be filed with the SEC within 120 days after September 28, 2018.

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

Certain information required by this item is incorporated herein by reference to our definitive proxy statement for the 2019 Annual Meeting of Stockholders to be filed with the SEC within 120 days after September 28, 2018.

##### Equity Compensation Plan Information

We have two equity compensation plans under which shares are currently authorized for issuance, our 2012 Omnibus Incentive Plan (2012 Plan) and our 2012 Employee Stock Purchase Plan (2012 ESPP). We also maintain our Amended and Restated 2009 Omnibus Stock Plan (2009 Plan), however, no additional awards may be issued under the 2009 Plan. Each of our aforementioned plans were approved by our stockholders prior to our initial public offering in March 2012. The following table provides information regarding securities authorized for issuance as of September 28, 2018 under our equity compensation plans.

Plan Category	(a) Number of securities to be issued upon exercise of outstanding options, warrants and rights(1)	(b) Weighted-average exercise price of outstanding options, warrants and rights(1)	(c) Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a))(2)(3)
Equity Compensation Plans Approved by Security Holders	2,689,274	\$ 16.68	16,813,715
Equity Compensation Plans Not Approved by Security Holders	—	—	—
Total	2,689,274	\$ 16.68	16,813,715

(1) Does not include 1,872,668 unvested shares outstanding as of September 28, 2018 in the form of restricted stock awards or restricted stock units under our 2012 Plan, which do not require the payment of any consideration by the recipients.

(2) The 2012 Plan contains an “evergreen” provision, pursuant to which the number of shares of our common stock available for issuance under the 2012 Plan can be increased on the first day of each fiscal year by the lesser of (a) 4.0% of our outstanding common stock on a fully diluted basis as of the end of our immediately preceding fiscal



year, (b) 1.9 million shares of our common stock and (c) a lesser amount determined by our board of directors; provided, however, that any shares from any increases in previous years that are not actually issued will continue to be available for issuance under the 2012 Plan.

(3) The 2012 ESPP contains an “evergreen” provision, pursuant to which the number of shares of our common stock available for issuance under the 2012 ESPP can be increased on the first day of each fiscal year by the lesser of (a) 1.25% of our outstanding common stock on a fully diluted basis as of the end of our immediately preceding fiscal year, (b) 550,000 shares of our common stock and (c) a lesser amount determined by our board of directors; provided, however, that any shares from any increases in previous years that are not actually issued will continue to be available for issuance under the 2012 ESPP.

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

The information required by this item is incorporated herein by reference to our definitive proxy statement for the 2019 Annual Meeting of Stockholders to be filed with the SEC within 120 days after September 28, 2018.

#### ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES.

The information required by this item is incorporated herein by reference to our definitive proxy statement for the 2019 Annual Meeting of Stockholders to be filed with the SEC within 120 days after September 28, 2018.

PART IV

ITEM 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULES.

(a) Financial Statements (included in "Item 8. - Financial Statements and Supplementary Data" of this Annual Report):

Report of Independent Registered Public Accounting Firm

Consolidated Balance Sheets as of September 28, 2018 and September 29, 2017

Consolidated Statements of Operations for the Fiscal Years Ended September 28, 2018, September 29, 2017 and September 30, 2016

Consolidated Statements of Stockholders' Equity and Comprehensive (Loss) Income for the Fiscal Years Ended September 28, 2018, September 29, 2017 and September 30, 2016

Consolidated Statements of Cash Flows for the Fiscal Years September 28, 2018, September 29, 2017 and September 30, 2016

Notes to Consolidated Financial Statements

(b) Exhibits

The exhibits required by Item 601 of Regulation S-K are filed herewith and incorporated by reference herein.

Exhibit Number	Description
2.1	<u>Purchase Agreement by and among MACOM Connectivity Solutions, LLC, Project Denver Holdings LLC, and MACOM Technology Solutions Holdings, Inc., dated October 27, 2017 (incorporated by reference to Exhibit 2.1 to our Current Report on Form 8-K filed on October 27, 2017).</u>
2.2	<u>Asset Purchase and Intellectual Property License Agreement, dated as of April 30, 2018, by and among CIG Shanghai Co., Ltd., MACOM Japan Limited and MACOM Technology Solutions Holdings, Inc (solely with respect to Sections 2.5 and 12.16 thereof) (incorporated by reference to Exhibit 2.1 to our Current Report on Form 8-K filed on May 15, 2018).</u>
2.3	<u>Amendment to Asset Purchase and Intellectual Property License Agreement, dated as of May 10, 2018, by and among MACOM Japan Limited and CIG Shanghai Co., Ltd. (incorporated by reference to Exhibit 2.2 to our Current Report on Form 8-K filed on May 15, 2018).</u>
3.1	<u>Fifth Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed on June 2, 2016).</u>
3.2	<u>Third Amended and Restated Bylaws (incorporated by reference to Exhibit 3.2 to our Current Report on Form 8-K filed on June 2, 2016).</u>
4.1	<u>Specimen of Common Stock Certificate (incorporated by reference to Exhibit 4.1 to Amendment No. 4 to our Registration Statement on Form S-1 (File No. 333-175934) filed on November 23, 2011).</u>
4.2	<u>Form of Common Stock Purchase Warrant issued on December 21, 2010 (incorporated by reference to Exhibit 4.3 our Registration Statement on Form S-1 (File No. 333-175934) filed on August 1, 2011).</u>
4.3	<u>Second Amended and Restated Investor Rights Agreement, dated February 28, 2012 (incorporated by reference to Exhibit 4.2 to Amendment No. 6 to our Registration Statement on Form S-1 (File No. 333-175934) filed on February 28, 2012).</u>
4.4	<u>First Amendment to the Second Amended and Restated Investor Rights Agreement, dated May 20, 2013 (incorporated by reference to Exhibit 4.5 to our Registration Statement on Form S-3 (File No. 333-188728) filed on May 21, 2013).</u>
4.5	<u>Second Amendment to the Second Amended and Restated Investor Rights Agreement, dated February 2, 2015 (incorporated by reference to Exhibit 4.5 to our Registration Statement on Form S-3 ASR (File No. 333-201827) filed on February 2, 2015).</u>
4.6	

Third Amendment to the Second Amended and Restated Investor Rights Agreement, dated June 6, 2018 (incorporated by reference to Exhibit 4.6 to our Registration Statement on Form S-3 ASR (File No. 333-225509) filed on June 8, 2018).

10.1\* Form of Indemnification Agreement between MACOM Technology Solutions Holdings, Inc. and each of its directors and executive officers (incorporated by reference to Exhibit 10.1 to Amendment No. 3 to our Registration Statement on Form S-1 (File No. 333-175934) filed on October 21, 2011).

10.2 MACOM Technology Solutions Holdings, Inc. Amended and Restated 2009 Omnibus Stock Plan, as amended (incorporated by reference to Exhibit 10.2 to our Annual Report on Form 10-K filed on November 28, 2012).

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- 10.3 Form of Incentive Stock Option Agreement under the MACOM Technology Solutions Holdings, Inc. 2009 Omnibus Stock Plan (incorporated by reference to Exhibit 10.3 to our Registration Statement on Form S-1 (File No. 333-175934) filed on August 1, 2011).
- 10.4\* Form of Restricted Stock Agreement under the MACOM Technology Solutions Holdings, Inc. 2009 Omnibus Stock Plan (incorporated by reference to Exhibit 10.4 to our Registration Statement on Form S-1 (File No. 333-175934) filed on August 1, 2011).
- 10.5\* MACOM Technology Solutions Holdings, Inc. 2012 Omnibus Incentive Plan, as amended (incorporated by reference to Exhibit 10.5 to our Annual Report on Form 10-K filed on November 28, 2012).
- 10.6\* Form of Restricted Stock Unit Award Agreement under 2012 Omnibus Incentive Plan (Time-Based and Performance-Based).
- 10.7\* Form of Nonqualified Stock Option Agreement under 2012 Omnibus Incentive Plan (Performance-Based).
- 10.8\* MA-COM Technology Solutions Holdings, Inc. 2012 Employee Stock Purchase Plan, as amended, (incorporated by reference to Exhibit 10.4 to our Quarterly Report on Form 10-Q filed on February 2, 2015).
- 10.9\* Offer of Employment Letter to Michael Murphy, dated September 28, 2009, as amended (incorporated by reference to Exhibit 10.13 to our Registration Statement on Form S-1 (File No. 333-175934) filed on August 1, 2011).
- 10.10\* Offer of Employment to John Croteau, dated September 6, 2012 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on September 7, 2012).
- 10.11\* Offer of Employment to Robert McMullan, dated December 11, 2013 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed on December 16, 2013).
- 10.12\* Offer of Promotion and Revised Terms of Employment Letter, dated September 24, 2013, between MACOM Technology Solutions Inc. and Robert Dennehy (incorporated by reference to Exhibit 10.1 to our Quarterly Report on Form 10-Q filed on February 2, 2015).
- 10.13\* Offer of Employment Letter, dated as of December 11, 2013, between MACOM Technology Solutions Inc. and Preetinder Virk (incorporated by reference to Exhibit (d)(8) to Amendment No. 4 to our Tender Offer Statement on Schedule TO filed with the SEC on December 11, 2013).
- 10.14\* Form of Nonqualified Stock Option Agreement under 2012 Omnibus Incentive Plan.
- 10.15\* Form of Stock Option Agreement under 2012 Omnibus Incentive Plan.
- 10.16\* Form of Restricted Stock Award Agreement under 2012 Omnibus Incentive Plan.
- 10.17 Credit Agreement by and among MACOM Technology Solutions Holdings, Inc., Goldman Sachs Bank USA, as Administrative Agent, Collateral Agent, Swing Line Lender and an L/C Issuer, and the other agents and lenders party thereto, dated May 8, 2014 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on May 12, 2014).
- 10.18 Incremental Amendment, dated February 13, 2015, among Morgan Stanley Senior Funding, Inc., MACOM Technology Solutions Holdings, Inc., and Goldman Sachs Bank USA (incorporated by reference to Exhibit 10.1 to our Quarterly Report on Form 10-Q filed on May 13, 2015).
- 10.19 Purchase and Sale Agreement and Escrow Instructions by and between MACOM Technology Solutions Inc., and Calare Properties, Inc., dated May 23, 2016 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on June 2, 2016).
- 10.20 Incremental Term Loan Amendment, dated August 31, 2016, by and among MACOM Technology Solutions Holdings, Inc., Goldman Sachs Bank USA, as the administrative agent, and the lender party thereto (incorporated by reference to our Current Report on Form 8-K filed August 31, 2016).
- 10.21 First, Second and Third Amendments to Purchase And Sale Agreement and Escrow Instructions by and between MACOM Technology Solutions Inc. and Calare Properties, Inc. dated July 22, 2016, September 20, 2016 and September 22, 2016, respectively (incorporated by reference to Exhibit 10.23 to our Annual Report on Form 10-K filed on November 17, 2016).
- 10.22 Lease Agreement for 100 Chelmsford Street by and between MACOM Technology Solutions Holdings, Inc., CPI 100 Chelmsford, LLC and CPI 144 Chelmsford, LLC, dated December 28, 2016 (incorporated by

- reference to Exhibit 10.1 to our Current Report on Form 8-K filed on January 5, 2017).
- 10.23 Lease Agreement for 144 Chelmsford Street by and between MACOM Technology Solutions Holdings, Inc., CPI 100 Chelmsford, LLC and CPI 144 Chelmsford, LLC, dated December 28, 2016 (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed on January 5, 2017).
- 10.24 MACOM Technology Solutions Holdings, Inc. Amended and Restated Change in Control Plan and Form of Participation Notice, amended and restated on February 11, 2017 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on February 16, 2017).
- 10.25 Second Incremental Amendment, dated as of March 10, 2017, by and among MACOM Technology Solutions Holdings, Inc., Barclays Bank PLC and Goldman Sachs Bank USA, as Administrative Agent (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on March 13, 2017).

- 10.26 Amendment No. 4 to Credit Agreement, dated as of March 10, 2017, by and among MACOM Technology Solutions Holdings, Inc., the revolving credit lenders and Goldman Sachs Bank USA, as Administrative Agent (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed on March 13, 2017).
- 10.27 Refinancing Amendment, dated as of March 10, 2017, by and among MACOM Technology Solutions Holdings, Inc., the lenders party thereto and Goldman Sachs Bank USA, as Administrative Agent (incorporated by reference to Exhibit 10.3 to our Current Report on Form 8-K filed on March 13, 2017).
- 10.28 Second Refinancing Amendment, dated as of May 19, 2017, by and among MACOM Technology Solutions Holdings, Inc., Morgan Stanley Senior Funding, Inc. and the other term lenders party thereto and Goldman Sachs Bank USA, as Administrative Agent (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on May 19, 2017).
- 10.29 Second Incremental Term Loan Amendment, dated as of May 19, 2017, by and among MACOM Technology Solutions Holdings, Inc., Morgan Stanley Senior Funding, Inc., as the initial lender, and Goldman Sachs Bank USA, as Administrative Agent (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed on May 19, 2017).
- 10.3 Amendment No. 8 to Credit Agreement, dated as of May 2, 2018, by and among MACOM Technology Solutions Holdings, Inc., certain revolving credit lenders and Goldman Sachs Bank USA, as Administrative Agent (incorporated by reference to Exhibit 10.1 to our Quarterly Report on Form 10-Q filed on August 1, 2018).
- 10.31 Amendment No. 9 to Credit Agreement, dated as of May 9, 2018, by and among MACOM Technology Solutions Holdings, Inc., certain revolving credit lenders and Goldman Sachs Bank USA, as Administrative Agent (incorporated by reference to Exhibit 10.2 to our Quarterly Report on Form 10-Q filed on August 1, 2018).
- 21.1 Subsidiaries of Registrant.
- 23.1 Consent of Deloitte & Touche LLP.
- 31.1 Certification of Principal Executive Officer Required Under Rule 13a-14(a) and 15d-14(a) of the Securities Exchange Act of 1934, as amended.
- 31.2 Certification of Principal Financial Officer Required Under Rule 13a-14(a) and 15d-14(a) of the Securities Exchange Act of 1934, as amended.
- 32.1 Certification of Principal Executive Officer and Principal Financial Officer Required Under Rule 13a-14(b) of the Securities Exchange Act of 1934, as amended, and 18 U.S.C. §1350.
- 101.INS XBRL Instance Document
- 101.SCH XBRL Taxonomy Extension Schema Document
- 101.CAL XBRL Taxonomy Calculation Linkbase Document
- 101.DEF XBRL Taxonomy Definition Linkbase Document
- 101.LAB XBRL Taxonomy Label Linkbase Document
- 101.PRE XBRL Taxonomy Presentation Linkbase Document
- \*Management contract or compensatory plan.

ITEM 16. FORM 10-K SUMMARY.

None.

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SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this Annual Report to be signed on its behalf by the undersigned, thereunto duly authorized.

Date: November 15, 2018

MACOM TECHNOLOGY SOLUTIONS  
HOLDINGS, INC.

Registrant

By: /s/ John Croteau  
John Croteau  
President and Chief Executive Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities indicated on November 15, 2018.

Signature and Title	Signature and Title
/s/ John Croteau John Croteau President and Chief Executive Officer Director (Principal Executive Officer)	/s/ John Ocampo John Ocampo Chairman of the Board
/s/ Robert J. McMullan Robert J. McMullan Senior Vice President and Chief Financial Officer (Principal Accounting and Financial Officer)	/s/ Susan Ocampo Susan Ocampo Director
	/s/ Peter Chung Peter Chung Director
	/s/Gil Van Lunsen Gil Van Lunsen Director
	/s/ Charles Bland Charles Bland Director
	/s/ Stephen Daly Stephen Daly Director
	/s/ Geoffrey Ribar Geoffrey Ribar



Director