

MACOM Technology Solutions Holdings, Inc.
Form 10-K
November 15, 2017

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 29, 2017

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 and posted on its corporate website, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes No

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

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer", "accelerated filer", "smaller reporting

company” and “emerging growth company” in Rule 12b-2 of the Exchange Act.

Large accelerated filer <input type="checkbox"/>	Accelerated filer <input type="checkbox"/>	Non-accelerated filer <input type="checkbox"/>	Smaller reporting company <input type="checkbox"/>	Emerging growth company <input type="checkbox"/>
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(Do not check if a smaller reporting 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 31, 2017, the last business day of the registrant's second fiscal quarter, was approximately \$2.1 billion 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 10, 2017 was 64,263,802.

DOCUMENTS INCORPORATED BY REFERENCE

Part III incorporates certain information by reference from the registrant's definitive proxy statement for the 2018 Annual Meeting of Stockholders, which will be filed no later than 120 days after the close of the registrant's fiscal year ended September 29, 2017.

MACOM TECHNOLOGY SOLUTIONS HOLDINGS, INC.

ANNUAL REPORT ON FORM 10-K
FOR THE FISCAL YEAR ENDED SEPTEMBER 29, 2017

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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 air traffic control and weather forecasting, as well as mission success on the modern networked battlefield. 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 photonic semiconductor solutions.

We design and manufacture 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 6,500 end customers in three primary markets. Our semiconductor products are electronic components that our customers incorporate into their larger electronic systems, such as, point-to-point wireless backhaul radios, high density networks, active antenna arrays, radar, magnetic resonance imaging systems (MRI) and unmanned aerial vehicles (UAVs). Our primary markets are: Networks, which includes carrier and enterprise infrastructure and Cloud Data Centers, wired broadband and cellular backhaul, cellular infrastructure, photonic solutions and fiber optic applications; Aerospace and Defense (A&D), which includes military and commercial radar, RF jammers, electronic countermeasures, and communication data links; and, Multi-market, which includes 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 27 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), and we are currently in the process of adding Gallium Nitride (GaN) fabrication capacity as well. In the A&D market, 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, 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, distributors and our e-commerce channel 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, 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, beginning in our fiscal year 2018 we will begin reporting our revenue by reference to the following three primary markets: Industrial and Defense (roughly corresponding to the former A&D and Multi-market 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.

Networks. Growth in the Networks market is driven by the proliferation of wireless and wired devices from smartphones and tablets to data centers, 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 Networks 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 2.5/6/10/40/100/400 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.

Aerospace & Defense. In the A&D market, military applications require advanced electronic systems, such as radar warning receivers, communications data links and tactical radios, UAVs, RF jammers, electronic countermeasures, and smart munitions. Military applications are becoming more sophisticated, favoring higher performance semiconductor ICs based on GaAs and 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 A&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 A&D market because of certain A&D customers’ requirements for a domestic supply chain.

Multi-market. Multi-market encompasses 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
Networks	RF Power Transistors - GaN on Si	Carrier Convergence Processors	Wireless Network Infrastructure
	Amplifiers	Enterprise Voice and Data Processors	Wireless Backhaul
	Frequency Multipliers	Fabry-Perot Lasers	Wireless LAN (WiFi)
	Hybrid Mixers	Distributed Feedback Lasers	SatCom/VSAT
	Mixers	Photonic Integrated Circuits (PICs)	5G Communications
	Receivers	Laser Photonic Integrated Circuits (L-PIC)	Cameras
	Transceivers	Crosspoint Switches	DVRs
	Up Converts	Signal Conditioners/Redrivers	Data Center
	Voltage Controlled Oscillators	Bias Networks	Metro
	NLTL GaAs Comb Generators	Couplers	Client Side
	Laser and Modulator Drivers	Filters/Diplexers	Line Side
	Transimpedance Amplifiers (TIAs)	Power Dividers/Combiners	FTTx
	Clock & Data Recovery	Transformers/Baluns	CATV Head-End
	Optical Post Amplifiers	Resistor Products	CATV HFC Infrastructure
	LED/Laser Drivers for Display	Inductor Products	CATV/Satellite Set Top Box
	PIN Limiter Diodes	Capacitors	FTTx Infrastructure
	PIN Switch and Attenuator Diodes	Transmitter Optical Sub-Assemblies (TOSA)	Distribution Amplifiers
	Schottky Mixer and Detector Diodes	Receiver Optical Sub-Assemblies (ROSA)	Format Conversion
	Multiplier Step Recovery Diodes	SDI Cable Drivers	Router/Switch Monitoring Switchers
	Varactor Tuning Diodes	SDI Cable Equalizers	Backplane Connectivity

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Germanium Tunnel Diodes	SDI Reclockers	Packet Switchers and Routers
DC Voltage Current Limiter	HDcctv Cable Drivers	Storage Area Networks
Wide Area Networks	HDcctv Cable Equalizers	Transport Networks/OTN
Voice-over-IP (VoIP) Processors	HDcctv Reclockers	

TARGET MARKET	MAJOR PRODUCT FAMILIES	MAJOR APPLICATIONS		
Aerospace and Defense	RF Power Transistors - Silicon Bipolar Power Detectors	5G Communications		
	RF Power Transistors - Silicon MOSFET	Switches Communications		
	GaN and GaAs Device Bias Sequencer	Voltage Variable Attenuators	Electronic Warfare	
	RF Power - Silicon Bipolar Pallet and Modules	Phase Detectors	Radar	
	Amplifiers	Current Regulators	Active Antennas	
	PIN Limiter Diodes	Schottky Barrier Rectifier Chip Series	Space and Hi-Rel	
	PIN Switch and Attenuator Diodes	Silicon Switching Diodes		
	Schottky Mixer and Detector Diodes	Ultrafast Rectifier Diodes		
	Multiplier Step Recovery Diodes	Zener Diode Chips		
	Varactor Tuning Diodes	TC Zener Reference Diodes		
	Germanium Tunnel Diodes	Low Noise Zener Diode		
	DC Voltage Current Limiter	Silicon Zener Diodes		
	CMOS Switch Drivers	Silicon Controlled Rectifiers		
	Digital Attenuators	PNP Transistors		
	Digital Phase Shifters	NPN Power Transistors		
	IQ Modulators/Demodulators	NPN RAD Hard Small Signal Transistors		
	Limiters			
	Multi-Market	RF Power Transistors - GaN-on-Si	PIN Switch and Attenuator Diodes	5G Communications
		RF Power Transistors - Silicon Bipolar	Schottky Mixer and Detector Diodes	Industrial
		RF Power Transistors - Silicon MOSFET	Multiplier Step Recovery Diodes	Test and Measurement
GaN and GaAs Device Bias Sequencer		Varactor Tuning Diodes	Healthcare	
RF Power - Silicon Bipolar Pallet and Modules		Germanium Tunnel Diodes	Automotive Ignition	
Amplifiers		DC Voltage Current Limiter	Industrial Cooking	
Frequency Multipliers		CMOS Switch Drivers	Industrial Drying	
Hybrid Mixers		Digital Attenuators	Medical Tumor Ablation	
Mixers		Digital Phase Shifters	Plasma Street Lighting	
Receivers		IQ Modulators/Demodulators		
Transceivers		Limiters		
Up Converters		Power Detectors		
Voltage Controlled Oscillators		Switches		
NLTL GaAs Comb Generators		Voltage Variable Attenuators		
PIN Limiter Diodes		Phase Detectors		

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.

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.

Research and development expenses were \$148.0 million, \$107.7 million and \$82.2 million for fiscal years 2017, 2016 and 2015, respectively. 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 36 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 19.3%, 13.2% and 20.7% of our revenue in fiscal years 2017, 2016 and 2015, 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.

Customers

Our customer base is diversified and includes OEM customers, contract manufacturers, resellers and distributors. For fiscal year 2017, one direct customer, Huawei Technologies (Huawei) at 10%, individually accounted for 10% or more of our revenue. For fiscal year 2016, two direct customers, Huawei and Alltek, individually accounted for more

than 10% of our revenue at 15% and 12%, respectively. In fiscal year 2015, one direct customer accounted for more than 10% of our revenue, Alltek at 12%. In addition, our principal distributor, Richardson Electronics, an Arrow Electronics Company (Richardson), accounted for 10.5%, 10.6% and 17.7% of our revenue in fiscal years 2017, 2016 and 2015, respectively. Our top 25 direct customers accounted for an aggregate of 59.1%, 65.8% and 54.6% of our revenue in fiscal years 2017, 2016 and 2015, 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 Analog Devices, Inc. (ADI) across our primary markets, Networks, A&D and Multi-market. In the Networks market, we also compete with NXP Semiconductors N.V., Inphi Corporation, Broadcom LTD. (Broadcom), and Semtech Corporation. In the A&D market, we also compete with Cobham Defense Electronic Systems Corporation (Cobham), Microsemi Corporation (Microsemi) and Qorvo, Inc. (Qorvo). In the Multi-market arena, we also compete with Cobham, Broadcom, Microsemi and Skyworks Solutions, Inc. (Skyworks).

Segment and Geographic Information

We manage our operations in one reportable segment. Financial information about our operations, including our revenue and long-lived assets by geographic region, is included in our consolidated financial statements and accompanying notes in Item 8. "Financial Statements and Supplementary Data" appearing elsewhere below.

Risks attendant to our foreign operations are discussed in this Annual Report under "Item 1A - Risk Factors."

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 29, 2017, we had 763 U.S. and 120 foreign issued patents and 129 U.S. and 116 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 2017 to 2036. 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. A&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 and Lawrence, Massachusetts, Long Beach, California, 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 Standards (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 and Lawrence, Massachusetts; Ithaca, New York; Long Beach, Santa Clara and Newport Beach, California; Morrisville, North Carolina; Nashua, New Hampshire; Hsinchu, Taiwan and Sydney, Australia, and the following locations have each received ISO 9001:2008 certifications: Ann Arbor, Michigan; Belfast, Northern Ireland; Cork, Ireland and Tokyo, Japan. In addition, our Lowell, Massachusetts facility has received an ISO 14001:2005 environmental management systems certification and our Tokyo, Japan facility has received an ISO 14001:2005 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 Security, 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 29, 2017, we employed approximately 1,800 individuals worldwide. None of our domestic employees are represented by a collective bargaining agreement; however, as of September 29, 2017, approximately 22 of our employees working in certain European locations were covered by collective bargaining agreements. We consider our relations with employees to 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. The operations of the wireless business are included in discontinued operations.

In May 2014, we divested Mindspeed's communications processor equipment (CPE) product line, which did not meet our expectations for profitable growth. The operations of the CPE product line are included in the results of continuing operations through the date of the sale.

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. (Autoliv). 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 its 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.

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, 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. 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 public may also read and copy materials we file with the SEC at the SEC's Public Reference Room, which is located at 100 F Street, NE, Room 1580, Washington, DC 20549. You can obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. The SEC also 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. The contents of the websites mentioned above 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 also may adversely affect our Company.

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; 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 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 A&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; 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: Networks, A&D and Multi-market generally, and in the optical networks market in particular, which accounted for 59% of our revenue in the fiscal year ended September 29, 2017. 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. For example, in fiscal year 2017 we experienced decreased demand in China for our products targeting 2.5 Gigabit passive optical networks (PON), metro/long-haul optical network deployments and other carrier-side applications, as carriers began migrating from 2.5 Gigabit to 10 Gigabit PON and the pace of provincial network deployments in China slowed. 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 29, 2017, sales to two of our direct and distribution customers each accounted for 10% or more of our revenue and sales to our top 10 direct and distribution customers accounted for an aggregate of 52% 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 \$148.0 million for the fiscal year ended September 29, 2017. 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. For example, in July 2013, we announced that we had licensed GaN on Silicon Carbide (GaN-on-SiC) process technology from Global Communications Semiconductors, LLC (GCS) and would be installing such process technology to our Lowell, Massachusetts manufacturing facility. In our 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-Silicon efforts and incurred associated charges of \$13.8 million, including a write-off of \$10.1 million of intangible assets. 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 may in the future 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 are currently engaged in a litigation with a licensor of this technology as described elsewhere in this Annual Report. We may not be successful in our licensing, 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 base station, 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 A&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, such as the reported decrease in 2.5 Gigabit PON spending by carriers in China in fiscal year 2017 in preparation for an eventual transition to 10 Gigabit PON

deployments, 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 Analog Devices, Inc. across most of our primary markets. Our other significant competitors include, among others, Broadcom, 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.

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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.

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, Asia and Australia, and customers around the world. In addition, in December 2015, we acquired FiBest, a Japan-based merchant market component supplier of optical sub-assemblies. The FiBest Acquisition significantly increased our overall scope of operations and employee base in Japan. 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, 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 62.1% of our revenue for the fiscal year ended September 29, 2017.

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 or other major event causing business disruption in international jurisdictions generally, and the Asia Pacific region in particular, could negatively affect our future revenues and results of operations. For example, in fiscal year 2017 we experienced decreased demand in China for our products targeting 2.5 Gigabit PON,

metro/long-haul optical network deployments and other carrier-side applications, as carriers began migrating from 2.5 Gigabit to 10 Gigabit PON and the pace of provincial network deployments in China slowed. Further, in 2016 the U.S. Bureau of Industry and Security temporarily blocked exports of U.S. products to Chinese telecommunications OEM ZTE Corp., 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. 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. 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.

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 also periodically evaluate the merits of a potential divestment of one or more of our existing business lines. 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 sell one or more of our product lines, from time to time, as a result of our evaluation of our products and markets, and any such divestiture could adversely affect our continuing business.

We periodically evaluate our various product lines and may, as a result, consider the divestiture of one or more of those 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. More recently, 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.

Divestitures have inherent risks, including the expense of selling the product line, the possibility that any anticipated sale will be delayed or will not occur, the potential failure to realize the perceived strategic or financial merits of the divestment, difficulties in the separation of operations, services, information technology, products and personnel, 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.

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 have initiated legal action against Infineon in federal court 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, as was the case in September 2013 when we paid \$7.25 million in settlement of a suit alleging intellectual property misappropriation. 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 the ARM Limited (ARM) 64-bit instruction set architecture (ISA), and continued license rights will depend upon our ability to successfully renew or otherwise maintain our license rights to that ISA, as well as the timely delivery by ARM of various updates and other support under the license agreement. There can be no guarantee that the existing ARM license rights, some of which expired in fiscal year 2016, will be sufficient to enable AppliedMicro to fully develop and implement its ARM-based product roadmap. The success of the AppliedMicro ARM-based products will also

depend, among other things, on customers' willingness to incorporate products based on the ARM architecture into their products and systems, and the anticipated timeframe within which such incorporation occurs. 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. For example, the outcome of our current litigation against Infineon relating to the scope of our rights to use certain patented GaN-on-Silicon technology developed by Nitronex may impact our associated intellectual property rights and related future revenue prospects. 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.

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 and our facility in Ithaca, New York. 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 or our Ithaca, New York facility 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. 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 19.3% of our revenue for the fiscal year ended September 29, 2017, and sales to our largest distributor, Richardson, represented 10.5% of our revenue in the same period. If our 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 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 Long Beach, California, Nashua, New Hampshire, Hsinchu, Taiwan, and Tokyo, Japan. 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;

- 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;

- 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.

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 29, 2017, we had \$1,084.8 million of gross federal net operating loss (NOL) carryforwards, which will expire at various dates through 2036. 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. In addition, certain intercompany loans could be re-characterized as equity for tax purposes resulting in additional tax on the repatriation of the loan to the U.S.

Changes in tax laws are introduced from time to time to reform taxation of international business activities by the U.S., Ireland and other countries in which we have operations. Depending on the final form of legislation enacted, if any, these consequences may be significant for us due to the large scale of our international business activities. If any of these proposals are enacted into legislation, they could have material adverse consequences on the amount of tax we pay and, thereby, on our financial position and results of operations.

The construction of a new headquarters facility for us in Lowell, Massachusetts may not be completed on time, on budget or at all, or may lead to disruptions in our business.

The owner and lessor of our current corporate headquarters and wafer fabrication facility, located in Lowell, Massachusetts, is currently constructing a new and adjacent headquarters facility for lease to us. We cannot guarantee that the construction will be completed on time, on budget, or at all. Delay or failure on the part of the owner to construct the new headquarters facility could limit our ability to hire additional staff and expand our operations at this location, result in unanticipated expense and management distraction, 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 2017, 2016, and 2015, we incurred restructuring charges of \$2.7 million, \$3.5 million and \$1.3 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.

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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.

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 U.S. Department of Commerce, Bureau of Industry Security, 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.

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 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.

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.

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.

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 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 (EPA) 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 29, 2017, we had a term loan outstanding of \$686.7 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 limited in our ability to obtain additional financing 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 expense 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.

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.

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 customer 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. 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 computer viruses, illegal break-ins or hacking, sabotage, 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 and 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 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 our customers' confidential information, we may incur liability, 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.

In addition, global privacy legislation, enforcement and policy activity are rapidly expanding and creating a complex data privacy compliance environment. A failure to comply with federal, state or international privacy related or data protection laws and regulations could result in proceedings against us by governmental entities or others.

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. In addition, these reports may also affect our ability to recruit and retain employees. 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;