

FORMFACTOR INC  
Form 10-K  
March 15, 2017

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

(Mark One)

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

For the fiscal year ended December 31, 2016

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: 000-50307

FormFactor, Inc.

(Exact name of registrant as specified in its charter)

Delaware 13-3711155

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

7005 Southfront Road, Livermore, California 94551

(Address of principal executive offices, including zip code)

(925) 290-4000

(Registrant's telephone number, including area code)

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

Name of each exchange on which registered: NASDAQ Global 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 Section 15(d) of the Exchange 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 Exchange Act 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 submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of the Regulation S-T 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 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" and "smaller reporting company" in Rule 12b-2 of the Exchange Act:

Non-accelerated filer

Large accelerated filer  Accelerated filer  (Do not check if a smaller reporting company)  Smaller reporting company

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

Aggregate market value of registrant's common stock held by non-affiliates of the registrant, based upon the closing price of a share of the registrant's common stock on June 24, 2016 (the last business day of the registrant's most recently completed second quarter) as reported by NASDAQ Global Market on that date: \$456,272,004. Shares of the registrant's common stock held by each executive officer, director and person who owns 5% or more of the outstanding common stock of the registrant have been excluded in that 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 shares of the registrant's common stock, par value \$0.001 per share, outstanding as of March 13, 2017 was 71,652,152 shares.

**DOCUMENTS INCORPORATED BY REFERENCE**

Portions of the registrant's definitive Proxy Statement for the 2017 Annual Meeting of Stockholders, which will be filed within 120 days of the end of the registrant's fiscal year ended December 31, 2016, are incorporated by reference in Part III hereof. Except with respect to information specifically incorporated by reference in this Annual Report on Form 10-K, the Proxy Statement is not deemed to be filed as a part of this Annual Report on Form 10-K.

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FORMFACTOR, INC.

Form 10-K for the Fiscal Year Ended December 31, 2016

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FormFactor, the FormFactor logo and its product and technology names are trademarks or registered trademarks of FormFactor, Inc. or its subsidiaries in the United States and other countries. All other trademarks, trade names or service marks appearing in this Annual Report on Form 10-K are the property of their respective owners.

Throughout this Annual Report on Form 10-K, we refer to FormFactor, Inc. and its consolidated subsidiaries as "the Company", "FormFactor," "we," "us," and "our". Our fiscal year ends on the last Saturday in December. Our last three fiscal years ended on December 31, 2016, December 26, 2015 and December 27, 2014.

#### NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K contains forward-looking statements within the meaning of the Securities Exchange Act of 1934 and the Securities Act of 1933, which are subject to known and unknown risks and uncertainties. The forward-looking statements include statements concerning, among other things, our business strategy (including the influence of anticipated trends and developments in our business and the markets in which we operate), financial results, operating results, revenues, gross margin, operating expenses, products, projected costs and capital expenditures, research and development programs, sales and marketing initiatives and competition. In some cases, you can identify these statements by our use of forward-looking words, such as "may," "might," "will," "could," "should," "expect," "plan," "anticipate," "believe," "estimate," "predict," "intend" and "continue," the negative or plural of these words and other comparable terminology. Forward-looking statements are based on information available to us as of the filing date of this Annual Report on Form 10-K and our current expectations about future events, which are inherently subject to change and involve known and unknown risks and uncertainties. You should not place undue reliance on these forward-looking statements. We have no obligation to update any of these statements, and we assume no obligation to do so. Actual events or results may differ materially from those expressed or implied by these statements due to various factors, including but not limited to the matters discussed below in the section entitled "Item 1A: Risk Factors", and elsewhere in this Annual Report on Form 10-K.

Our operating results have fluctuated in the past and are likely to continue to fluctuate. You should not rely on period-to-period comparisons of our financial results as indicators of our future performance. Some of the important factors that could cause our revenues, operating results and outlook to fluctuate from period to period include:

- customer demand for and adoption of our products;
- market and competitive conditions in our industry, the semiconductor industry and the economy as a whole;
- the timing and success of new technologies and product introductions by our competitors and by us;
- our ability to work efficiently with our customers on their qualification of our new technologies and products;
- our ability to deliver reliable, cost-effective products that meet our customers' testing requirements in a timely manner;
- our ability to transition to new product architectures to solve next-generation semiconductor test and measurement challenges, and to bring new products into volume production on time and at acceptable yields and cost;
- our ability to implement measures for enabling efficiencies and supporting growth in our design, applications, manufacturing and other operational activities;
- the reduction, rescheduling or cancellation of orders by our customers;
- our ability to collect accounts receivables owed by our customers;
- our product and customer sales mix and geographical sales mix;
- a reduction in the price or the profitability of our products due to competitive pressures or other factors;
- the timely availability or the cost of components and materials utilized in our products;
- our ability to efficiently optimize manufacturing capacity and production yields as necessary to meet customer demand and ramp variable production volumes at our manufacturing facilities;

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our ability to protect our intellectual property against infringement and continue our investment in research and development and design activities;

any disruption in the operation of our manufacturing facilities; and

the timing of and return on our investments in research and development.

## PART I

### Item 1: Business

#### General

FormFactor, Inc., headquartered in Livermore, California, is a leading provider of test and measurement solutions. We provide a broad range of high-performance probe cards, analytical probes, probe stations, thermal sub-systems and reliability test systems to both semiconductor companies and scientific institutions. Our products provide electrical information from a variety of semiconductor and electro-optical devices and integrated circuits (devices) from development to production. Customers use our products and services to lower production costs, improve yields, and enable development of complex next generation devices. We believe our technology leadership enables critical roadmap advances for our customers.

FormFactor, Inc. was incorporated in 1993 and we introduced our first product in 1995. For much of our history, sales of probe cards for testing Dynamic Random Access Memory, or DRAM, devices made up the majority of our revenues. In October 2012, we completed the acquisition of Astria Semiconductor Holdings, Inc., including its subsidiary Micro-Probe Incorporated (together "MicroProbe"). The majority of MicroProbe's sales consisted of probe cards for testing foundry and logic devices. The acquisition of Microprobe diversified and broadened our customer and revenue base, and enabled us to realize operational and cost efficiencies in the combined companies' technology, resources, assets, and teams. In June 2016, we acquired Cascade Microtech Inc. ("Cascade Microtech"), a leading manufacturer of advanced wafer probe cards, sub-systems, thermal probe stations and reliability test systems. The acquisition of Cascade Microtech transformed our business into a broader test and measurement market leader with greater scale, diversification and market opportunities.

As of December 31, 2016, we operate in two reportable segments consisting of the Probe Cards Segment and Systems Segment. Sales of our probe cards and analytical probes are included in the Probe Cards Segment while sales of our probe stations, thermal sub-systems and reliability test systems are included in the Systems Segment.

#### Products

We design, manufacture and sell multiple product lines, including probe cards, analytical probes, probe stations, integrated measurement systems, thermal sub-systems, reliability test systems, and related services.

**Probe cards.** Our probe cards utilize a variety of technologies and product architectures, including micro-electromechanical systems (MEMS) technologies. We use advanced design and automation technologies to enable our rapid and cost-effective manufacturing of resilient multi-material composite spring-like electrically-conductive contact elements with characteristic length scales of a few microns. These contact elements are designed to optimize the relative amounts of force on, and across, a chip's bond pad, solder bump, or copper pillar during the test process and maintain their shape and position over a range of compression. In addition, while maintaining these mechanical characteristics, the contact elements must achieve reliable and high-fidelity electrical contact through wafer surfaces that are generally oxidized or otherwise contaminated, and must maintain these attributes over hundreds of thousands, and even millions, of compression cycles. Our range of capabilities enable us to rapidly produce customer-design specific probe cards that deliver leading precision, reliability, and electro-mechanical performance.

Our probe cards are customized for our customers' unique wafer and chip designs by modifying and adapting our standard product architectures to meet an individual customer's design layout and electrical test requirements. We offer probe cards to test a variety of semiconductor device types, including "system on a chip" products, mobile application processors, microprocessors, microcontrollers, graphic processors, radio frequency, analog, mixed signal, image sensors, electro-optical, DRAM, NAND flash memory and NOR flash memory devices.

For many advanced applications, our products must maintain tens of thousands of simultaneous high-fidelity low-impedance electrical contacts with the corresponding chip contacts on the wafer. Our present technologies enable probe cards with over 100,000 contact elements with spacings as small as 40 microns over geometries as large as 300mm. In addition, for high signal-fidelity devices such as wireless radio frequency transceivers and automotive radar chips, our probe card technologies are capable of testing in the GHz range, up to 81GHz.

We have invested, and intend to continue to invest, considerable resources in proprietary probe card design tools and processes. These tools and processes are intended to enable the rapid and accurate customization of products required

to meet customer requirements, including automated routing and trace length adjustment within our probe cards, to rapidly design complex structures.

In addition, some of our customers test certain chips over a large range of operating temperatures. We design probe cards to provide for a precise match with the thermal expansion characteristics of the wafer under test across the range of test

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operating temperatures. For many of our products, our customers can use the same probe card for both low and high temperature testing. We also design probe cards for customers that require extreme positional accuracy at a specific temperature.

Through on-going investments in both our technology and operations, we continue to innovate and improve so that our products will meet customers' future technical roadmap performance, quality, and commercial requirements. We also focus upon leveraging these ongoing investments across all advanced probe card markets to realize synergies and economies of scale to benefit our competitiveness, time-to-market and overall profitability.

**Analytical Probes.** We offer over 50 different analytical probe models for engineering and production testing.

Analytical probes are used for a diverse set of applications, including device characterization, electrical simulation model development, failure analysis, and prototype design debugging. Our customers for analytical probes include universities, research institutions, semiconductor integrated device manufacturers, semiconductor foundries, and fabless semiconductor companies. We continue to add new models of analytical probes that address measurements with higher complexities and at higher frequencies up to 1 THz.

**Probe Stations.** Probing systems are required in the development of new generations of semiconductor processes and designs. Probe stations are highly configurable for the required measurements, the size and type of wafer under test, the characteristics of the device design to be tested, and the temperatures at which testing is to be performed. Process development and design complexities have continually increased with each new generation of semiconductor technology to accommodate smaller design geometries, new materials and more layers. Probing systems are a fundamental tool for characterizing and verifying electrical performance and reliability to enable new semiconductor technologies. We design our probing systems for semiconductor design engineers to capture and analyze more accurate data in a shorter amount of time.

We build upon our probe stations to create integrated measurement systems that provide complete solutions for our customers' complex measurement requirements. These systems include test instrumentation, probe, cabling configurations, and software to enable fast, accurate, on-wafer data collection for complex application and measurement needs. We offer pre-configured and customized measurement systems for production testing, power device characterization, vacuum probing, cryogenic probing, high-pressure probing, and a variety of other specific applications.

**Thermal Subsystems.** Our thermal subsystems produce thermal chucks and other test systems used in probe stations. Thermal chuck systems enable the testing of devices at precise temperatures or across a range of temperatures.

**Reliability Test Systems.** Our reliability test systems enable customers to develop products that are less susceptible to a variety of phenomenon that can degrade semiconductor device performance, such as electro-migration, stress migration, time dependent dielectric breakdown, stress induced leakage current, hot carrier injection and bias temperature instability.

**Services and Support.** In addition to routine installation services at the time of sale, we offer services to enable our customers to maintain and more effectively utilize our products and to enhance our customer relationships. In addition to traditional maintenance services, our applications engineers assist our customers in test methodologies to make advanced measurements during process and product development, and during mass production.

**Customers**

Our customers include companies that design or make semiconductor products in the foundry & logic, DRAM and Flash markets. Our customers use our products to test nearly all semiconductor device types, notably mobile application processors, microprocessors, microcontrollers, graphic processors, radio frequency, analog, mixed signal, image sensors, opto-electrical, DRAM, NAND flash memory and NOR flash memory devices.

Fabless semiconductor suppliers do not manufacture their own semiconductors, but they purchase our analytical probes and probe stations for research and development, and device characterization. They also purchase, or direct their foundries or wafer test facilities to purchase, our probe cards to test wafers manufactured for them.

We believe our customers consider timely service and support to be an important aspect of our relationship. Our probe stations are installed at customer sites either by us, our manufacturers' representatives or our distributors, depending on the complexity of the installation and the customer's geographic location. We assist our customers in the selection, integration and use of our products through application engineering support. We also provide worldwide on-site probe



card maintenance and service training, seminars and telephone support. Our manufacturers' representatives and distributors provide additional service and support.

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One customer accounted for 30.1% of our revenues in fiscal 2016, 4 customers accounted for 60.2% of our revenues in fiscal 2015 and 3 customers accounted for 51.6% of our revenues in fiscal 2014, as follows:

	Fiscal 2016	Fiscal 2015	Fiscal 2014
Intel	30.1 %	19.6 %	19.7 %
Samsung	*	14.6	*
SK hynix	*	14.3	16.9
Micron	*	11.7	15.0
Total revenues attributable to customers greater than 10%	30.1 %	60.2 %	51.6 %

\*Less than 10% of revenues.

Information concerning revenue by geographic region and by country based upon ship-to location appears under Item 7: Management's Discussion and Analysis of Financial Condition and Results of Operations - Revenues - Revenues by Geographic Region and Note 16 - Operating Segments and Geographic Information of the Notes to Consolidated Financial Statements, that are included in this Annual Report on Form 10-K.

#### Segment and Enterprise-Wide Disclosures

See Note 16- Operating Segments and Geographic Information of the Notes to Consolidated Financial Statements included in Part II, Item 8 of this Form 10-K for certain financial information related to our segments and our enterprise-wide disclosures.

#### Backlog

We manufacture our products based on order backlog and customer commitments. Backlog includes only orders with written authorizations and shipment dates within 12 months. Backlog also includes revenue for existing product service agreements to be earned within the next 12 months. Customers may delay delivery of products or cancel orders prior to shipment, subject to possible cancellation penalties. Due to possible changes in delivery schedules and cancellations of orders, our backlog on any particular date is not necessarily indicative of actual sales for any succeeding period. Delays in delivery schedules or a reduction in backlog during any particular period could have a material adverse effect on our business and results of operations.

#### Manufacturing

Our probe cards are designed for each of our customers' unique wafer designs, by modifying and adapting our product architectures to meet an individual customer's design layout and test requirements. Our proprietary manufacturing processes for our probe cards include: a complex interconnection system-level design process; a front-end process, which may include wire bonding, photolithography, plating and metallurgical processes, dry and electro-deposition, pick and place assembly; and a back-end process, which includes general assembly and test. Critical steps in our manufacturing process are performed in a variety of clean room environments, including as stringent as a Class 100 environment, depending on the requirements of the specific manufacturing processes.

Our probe and system products design and manufacturing process activities emphasize accurate electrical measurements, precise and reliable mechanical components and assemblies, and compliance with industry and governmental safety requirements. We prototype and test our new standard product designs and components to ensure high electrical signal integrity, mechanical accuracy and safety. We also monitor our product quality throughout the various stages of our manufacturing processes using a variety of process control methods and tests.

We depend on suppliers for materials and some critical components of our manufacturing processes, including ceramic and organic substrates and complex printed circuit boards. We also rely on suppliers to provide certain contact elements and interconnects incorporated into our products. Some of these components and materials are supplied by a single vendor, and some are subject to certain minimum order quantities. Generally, we rely on purchase orders rather than long-term contracts with our suppliers, which subjects us to risks, including price increases, manufacturing capacity constraints issues and component shortages. We continually assess and evaluate alternative sources of supply for all components and materials.

Our primary manufacturing facilities are located in Livermore, San Jose and Carlsbad, California, Beaverton, Oregon, United States, and in Thiendorf, Germany. We also perform manufacturing operations in our facilities in Munich, Germany, Suzhou, China and Yokohama, Japan.



We maintain repair and service capabilities in Livermore, San Jose, and Carlsbad, California and Beaverton, Oregon, United States; Thiendorf and Munich, Germany; Bundang, South Korea; Yokohama City and Hiroshima, Japan; Suzhou, China; Hsinchu, Taiwan; and Singapore.

#### Research, Development and Engineering

The semiconductor industry is subject to rapid technological change and new product introductions and enhancements. We believe that our continued commitment to research and development and our timely introduction of new and enhanced products and technologies are integral to maintaining and enhancing our competitive position. We allocate significant resources to these efforts, and prioritize those resources to prepare for our customers' next generation wafer test challenges. We also increasingly seek to deploy our resources to solve fundamental challenges that are both common to, and provide competitive advantage across, our probe card and system product offerings and roadmaps.

Research and development expenses were \$57.5 million for fiscal 2016, \$44.2 million for fiscal 2015 and \$42.7 million for fiscal 2014.

#### Sales and Marketing

We sell our products worldwide through a global direct sales force and through a combination of manufacturers' representatives and distributors.

Our direct sales and marketing staff are located in the United States, China, Germany, Italy, Japan, Singapore, South Korea, and Taiwan. They work closely with customers in the effort to understand their businesses, anticipate trends and define products that will provide significant technical and economic advantages to our customers. We utilize a highly skilled team of application and customer support engineers that support our customers as they integrate our products into their research, development and manufacturing processes. Through these customer relationships, we seek to develop a close understanding of customer and product requirements to align our capabilities with our customers' roadmaps and production ramps.

We also have a network of representatives and distributors across the globe to broaden our reach. We engage sales representatives to act as independent third parties that agree to promote our products, at our prices and on terms set by us, in return for a commission based on sales. We typically use sales representatives in areas that we believe require greater levels of customer support than we can deliver from our own sales offices and where local language capabilities can offer an advantage. Our distributors purchase our products and resell them at prices and upon terms set by the particular distributor. We typically use distributors in particular geographies due to local regulations or business customs.

#### Environmental Matters

We are subject to U.S. Federal, State, local, and foreign governmental laws and regulations relating to the protection of the environment, including those governing the discharge of pollutants into the air and water, the management and disposal of hazardous substances and wastes, the clean-up of contaminated sites and the maintenance of a safe workplace. We believe that we comply in all material respects with the environmental laws and regulations that apply to us. We did not receive any notices of violations of environmental laws and regulations in fiscal 2016, 2015 or 2014. In the future, we may receive notices of violations of environmental regulations, or otherwise learn of such violations. Environmental contamination or violations may negatively impact our business.

#### Competition

The markets for our products are highly competitive and we anticipate that these markets will continually evolve and be subject to rapid technological change. Our current and potential competitors are as below:

Probe Card market. The probe card market comprises many domestic and foreign companies, and has historically been fragmented with many local suppliers servicing individual customers in often differentiated applications. Our primary competitors are Advantest Corporation, AMST Co., Ltd., Feinmetall GmbH, Japan Electronic Materials Corporation, Korea Instrument Co., Ltd., M2N Co., Ltd., Microfriend Inc., Micronics Japan Co., Ltd., MPI Corporation, Micro Square Technology Inc., NHK Spring Co., Ltd., Soulbrain Engineering, SV Probe, Inc., Synergie CAD, Technoprobe S.p.A, TSE Co., Ltd., Wentworth Laboratories Inc., WILL-Technology Co., Ltd., and Yokowo, among others. In addition to the ability to address probe card performance and capability requirements in differing applications, the primary competitive factors in the markets in which we compete include product quality and

reliability, price, total cost of ownership, design and manufacturing lead times, service capability, geographic proximity, field applications support and timeliness of delivery.

Probe card vendors such as Japan Electronic Materials Corporation, Micronics Japan Company, Ltd. and Technoprobe, offer probe cards built using types of lithographic patterning as do we. The high capital investment and other costs associated

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with the development of lithographically defined probe cards and the time and high cost of the customer evaluation process represent a significant barrier to entry for this type of technology.

We believe that the primary competitive factors in the production probe card market depend upon the type of integrated circuit being tested, but also include customer service, knowledge of measurement techniques, delivery time, price, probe card lifetime, chip damage prevention, probe tip touch-down accuracy, speed and frequency of the probe card, number of chips contacted in parallel, number of probe tips and their layout, signal integrity, and frequency and effectiveness of any required cleaning. As a result of our relative strengths in these areas, we believe that we compete favorably in the advanced probe card market, and in probe cards for parallel testing of chips with densely-packed bond pads, bumps or pillars, and in high signal integrity testing of wireless radio frequency transceivers, microwave, and millimeter wave.

**Analytical Probes.** Our primary competitor in the analytical probe market is GGB Industries Inc. Regional competitors include Yokowo and TechnoProbe Co Ltd in Japan, and MPI/Allstron in Taiwan. We believe that the primary competitive factors in this market are breadth of probe types, probe frequency and electrical signal integrity, contact integrity and the related cleaning required, knowledge of measurement techniques, calibration support, delivery time and price. We believe that we compete favorably with respect to these factors.

**Probe Stations.** Our primary competitors in the probe station market are Vector Semiconductor Co. Ltd., Signatone Corporation, MPI Corporation, Tokyo Seimitsu Co., LTD/Accretech, Tokyo Electron (“TEL”), The Micromanipulator Company Inc., HiSOL, Inc., and Wentworth Laboratories Inc. We believe that the primary competitive factors in the probe station market are measurement accuracy and versatility, measurement speed, automation features, knowledge of measurement techniques, completeness of the measurement solutions, delivery time and price. We believe that we compete favorably with respect to these factors.

**Thermal Subsystems.** In the market for thermal subsystems, we compete principally against ERS Electronic, GmbH, Temptronic Corporation, and Espec Corp. In addition, many of our probe station competitors develop and produce their own thermal subsystems for use in their products. We believe the primary competitive factors in this market are thermal performance, reliability, flexibility and completeness of product offerings. We believe that we compete favorably with respect to these factors.

**Reliability Test Systems.** Our reliability test products compete against a number of competitors including Qualitau, Inc., STAr Technologies, Inc., Reedholm Instruments Co. and Chiron Technology Pte. Ltd. We believe the primary competitive factors in this market involve build quality, scalability and the ability to properly correlate results between package level and wafer level reliability. We believe our solutions and systems compete favorably with respect to these factors.

Some of our competitors are also suppliers of other types of test equipment or other semiconductor equipment and may have greater financial and other resources than we do. We expect our competitors may enhance their current products and may introduce new products that will be competitive with ours. In addition, it is possible that new competitors, including test equipment manufacturers, may offer new technologies that reduce the value of one or more of our products.

Semiconductor manufacturers may implement chip designs that include capabilities or use other methodologies that increase test throughput and reduce test content, that may reduce or eliminating some or all of our current products’ advantages. Semiconductor manufacturer may also increase their use of test strategies that include low performance semiconductor testers, less complex probe cards, or test procedures that do not involve our products. Our ability to compete favorably may also be adversely affected the long-standing relationships between our competitors and certain semiconductor manufacturers.

#### Intellectual Property

Our success depends in part upon our ability to continue to innovate and invest in research and development to meet the testing requirements of our customers, to maintain and protect our proprietary technology, and to conduct our business without infringing on the proprietary rights of others. We rely on a combination of patents, trade secrets, trademarks and contractual restrictions on disclosure to protect our intellectual property rights. We have filed actions to enforce those rights against third parties, and may pursue such actions in the future.

We have generated, and continue to generate and maintain, patents and other intellectual property rights covering innovations that are intended to create a competitive advantage, and to support the protection of our investments in research and development. We believe that we possess one of the most substantial patent portfolios relevant to probe card products. Many of our issued patents cover features of our products.

Although we believe that our patents and other intellectual property rights have significant value, we do not believe that maintaining or growing our business is materially dependent on any single patent. Due to the rapid pace of innovation within

the markets that we serve, it is possible that our protection through patents may be less important than factors such as our technological expertise, continuing development of new products and technologies, protection of trade secrets, market penetration, customer relationships, and our ability to provide comprehensive support and service to customers worldwide.

No assurance can be given that any patents will not be challenged, invalidated or circumvented, or that the rights granted thereunder will provide us with a sustained competitive advantage. In addition, there can be no assurance that we will be able to protect our technology, or that competitors will not be able to independently develop similar or functionally competitive technologies, design around our patents, or attempt to manufacture and sell infringing products in countries that do not strongly enforce intellectual property rights.

#### Employees

As of December 31, 2016, we had 1,571 regular full-time employees, including 910 in operations, 293 in research and development, 231 in sales and marketing and 137 in general and administrative functions. By region, 1,104 of our employees were in North America, 287 in Asia and 180 in Europe. No employees are currently covered by a collective bargaining agreement. However, certain employees at our manufacturing facility in Thiendorf, Germany, are represented by a works council. We believe that, overall, our relations with our employees are good.

#### Available Information

We maintain a website at <http://www.formfactor.com>. We make available free of charge on our website our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, current reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act, as soon as reasonably practicable after we electronically file such material with, or furnish it to, the United State Securities and Exchange Commission, or SEC. The reference to our website does not constitute incorporation by reference of the information contained at the site.

The public may also read and copy any materials that we file with the SEC at the SEC's Public Reference Room at 100 F Street N.E., Washington, D.C. 20549. The public may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. The SEC also maintains an Internet website that contains reports and other information regarding issuers, such as FormFactor, that file electronically with the SEC. The SEC's Internet website is located at <http://www.sec.gov>.

#### Directors and Executive Officers

The information required by this item is incorporated by reference to the proxy statement for our 2017 Annual Meeting of Stockholders.

#### Item 1A: Risk Factors

In addition to the other information in this Annual Report on Form 10-K, you should carefully consider the risk factors discussed in this Annual Report on Form 10-K in evaluating FormFactor and our business. If any of the identified risks actually occur, our business, financial condition and results of operations could be materially adversely affected, the trading price of our common stock could decline and you may lose all or part of your investment in our common stock. The risks and uncertainties described in this Annual Report on Form 10-K are not the only ones we face. Additional risks that we currently do not know about, or that we currently believe to be sufficiently important to describe here, may also impair our business operations or the trading price of our common stock.

#### Risks Relating to the Nature and Operations of Our Business

The markets in which we participate are competitive, and if we do not compete effectively, our operating results could be harmed.

We have experienced increased competition in the markets in which we operate, and we expect competition to intensify in the future. Increased competition has resulted in, and in the future is likely to result in, price reductions, reduced gross margins or loss of market share. Competitors might introduce new competitive products for the same markets that our products currently serve. These products may have better performance, lower prices, shorter delivery times or broader acceptance than our products.

In addition, it is possible that new competitors, including test equipment manufacturers, may offer new technologies that reduce the value of our products. Also, semiconductor manufacturers may implement chip designs or



methodologies that increase test throughput, reduce test content, or change their test procedures, thereby eliminating some or all of our current product advantages.

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Our current or potential competitors may have larger customer bases, more established customer relationships or greater financial, technical, manufacturing, marketing and other resources than we do. As a result, they might be able to respond more quickly to new or emerging technologies and changes in customer requirements, devote greater resources to the development, promotion, sale and support of their products, and reduce prices to increase market share.

If we do not innovate and keep pace with technological developments in the semiconductor industry, our products might not be competitive and our revenues and operating results could suffer.

We must continue to innovate and to invest in research and development to improve our competitive position and to meet the testing requirements of our customers. Our future growth depends, in significant part, upon our ability to work effectively with and anticipate the testing needs of our customers and to develop and support new products and product enhancements to meet these needs on a timely and cost-effective basis. Our customers' testing needs are becoming more challenging as the semiconductor industry continues to experience rapid technological change driven by the demand for complex circuits that are shrinking in size, are increasing in speed and functionality, and also becoming less expensive to produce.

Successful product design, development and introduction on a timely basis require that we:

- collaborate with customers to understand their future requirements;
- design innovative and performance-enhancing product architectures, technologies and features that differentiate our products from those of our competitors;
- in some cases engage with third parties who have particular expertise in order to complete one or more aspects of the design and manufacturing process;
- qualify with the customer(s) the new product, or an existing product incorporating new technology;
- transition our products to new manufacturing technologies;
- offer our products for sale at competitive price levels while maintaining our gross-margins within our financial model;
- identify emerging technological trends in our target markets;
- maintain effective marketing strategies;
- respond effectively to technological changes or product announcements by others; and
- adjust to changing market conditions quickly and cost-effectively.

Not only do we need the technical expertise to implement the changes necessary to keep our technologies current, but we must also rely heavily on the judgment of our management to anticipate future market trends. If we are unable to timely predict industry changes or industry trends, or if we are unable to modify our products or design, manufacture and deliver new products on a timely basis, or if a third party with which we engage does not timely deliver a component or service for one of our product modifications or new products, we might lose customers or market share. In addition, we might not be able to recover our research and development expenditures, which could harm our operating results.

We depend upon the sale of our probes cards products for the substantial majority of our revenues.

Although our acquisition of Cascade Microtech has expanded our product offerings, we have historically derived the majority of our revenues from the sale of our probe cards products, primarily to manufacturers of microprocessor, foundry & logic and memory devices. We anticipate that sales of probe cards will represent a substantial majority of our revenues for the foreseeable future. Our success depends in large part upon the continued acceptance of our products on the basis of a variety of factors including performance, quality, timely delivery and price, and depends upon our ability to continue to develop and introduce new products that meet our customers' requirements. The degree to which we depend upon the sales of our probes cards products for our revenues may increase our susceptibility to failures to satisfy the customers for such products, which may adversely affect our revenues and our ability to grow our business.

We derive a substantial portion of our revenues from a small number of customers.

A relatively small number of customers account for a significant portion of our revenues. One customer represented 30% of total revenues in fiscal 2016, four customers represented 60% of total revenues in fiscal 2015 and three customers represented 52% of total revenues in fiscal 2014. We anticipate that sales of our products to a relatively small number of customers will continue to account for a significant portion of our revenues. Consolidation in the

semiconductor industry may

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increase this concentration. In the future, the loss of any of these customers, or cancellation, reduction or deferral of even a small number of purchases of our products by these customers could significantly reduce our revenues. Cancellations, reductions, deferrals or non-payment of invoices, could result from another downturn in the semiconductor industry, manufacturing delays, quality or reliability issues with our products, or from interruptions to our customers' operations due to fire, natural disasters or other events, or other issues with the financial stability of our customers. Furthermore, because our probe cards are custom products designed for our customers' unique wafer designs, any cancellations, reductions or delays can result in significant, non-recoverable costs. In some situations, our customers might be able to cancel or reduce orders without a significant penalty.

If our relationships with our customers deteriorate, our product development activities could be harmed.

The success of our product development efforts depends upon our ability to anticipate market trends and to collaborate closely with our customers. Our relationships with these customers provide us with access to valuable information regarding manufacturing and process technology trends in the semiconductor industry, which enables us to better plan our product development activities. These relationships also provide us with opportunities to understand the performance and functionality requirements of our customers, which improves our ability to customize our products to fulfill their needs. Our relationships with our customers could deteriorate as a result of a variety of factors, such as if they become concerned about our ability to deliver quality products on a timely basis or to protect their intellectual property. Many of our customers are large companies that place significant orders with us, and the consequences of deterioration in our relationship with any of these companies could be significant due to the competitiveness of our industry and the significant influence that these companies exert in our market.

Consolidation in the semiconductor industry and within the semiconductor test equipment market could adversely affect the market for our products and negatively impact our ability to compete.

Consolidation in the semiconductor industry may reduce our customer base and could adversely affect the market for our products, which could cause a decline in our revenues. With consolidation, the number of actual and potential customers for our products has decreased in recent years. Consolidation may lead to relatively fewer opportunities to sell our products if we are not chosen as a supplier by any given prospective customer, and may lead to increased pricing pressures from customers that have greater volume purchasing power.

There has also been a recent move toward consolidation within the semiconductor test equipment market. This consolidation trend could change our interactions and relationships with semiconductor tester and prober companies and negatively impact our revenue and operating results.

Changes in customers' test strategies, equipment and processes could decrease customer demand for our products.

The demand for our products depends in large part upon the number of semiconductor designs, the pace of technology and architecture transitions in chip designs and overall semiconductor unit volume. The number of probe cards involved in a customer's wafer testing can depend upon the number of devices being tested, the complexity of these devices, the test software program, the test equipment itself, and the utilization of chip designs featuring design-for-testability capabilities. Customers may demand fewer probe cards or probing systems if they use test strategies that reduce the technical requirements on test equipment, improve available data on device performance earlier in the manufacturing process, or test devices later in the manufacturing process. Changes in the effectiveness of test technologies and test strategies used by customers may cause us to lose sales and revenues.

We may also lose sales if new semiconductor technologies or designs are implemented which cannot be efficiently tested using the products that we offer, or if semiconductor manufacturers reduce the amount or degree of testing that they perform. We may also incur significant research and development expenses in order to introduce new product architectures and platforms to serve the testing needs of new semiconductor technologies.

Cyclicality in the semiconductor industry may adversely impact our sales.

The semiconductor industry has historically been cyclical and is characterized by wide fluctuations in product supply and demand. From time to time, this industry has experienced significant downturns, often in connection with, or in anticipation of, maturing product and technology cycles, excess inventories and declines in general economic conditions. The global economic and semiconductor downturns have caused and may in the future cause our operating results to decline dramatically from one period to the next. Our business depends heavily upon the development and manufacture of new semiconductors, the rate at which semiconductor manufacturers make transitions to smaller

nanometer technology nodes and implement tooling cycles, the volume of production by semiconductor manufacturers and the overall financial strength of our customers, which, in turn, depend upon the current and anticipated market demand for semiconductors and products, such as servers, personal computers, automobiles and cell phones, that use semiconductors. During industry downturns, semiconductor

manufacturers sharply curtail their spending, including their spending on our products, which may adversely impact our revenues, gross margins and results of operations. Further, a protracted downturn could cause one or more of our customers to become insolvent, resulting in a loss of revenue and impacting our ability to collect on accounts receivable. The timing, length and severity of these cyclical downturns are difficult to predict and our business depends on our ability to plan for and react to these cyclical changes.

Because we generally do not have a sufficient backlog of unfilled orders to meet our quarterly revenue targets, revenues in any quarter are substantially dependent upon customer orders received and fulfilled in that quarter. Our revenues are difficult to forecast because we generally do not have sufficient backlog of unfilled orders to meet our quarterly revenue targets at the beginning of a quarter. Rather, a substantial percentage of our revenues in any quarter depend upon customer orders for our products that we receive and fulfill in that quarter. Because our expense levels are based in part on our expectations as to future revenues and to a large extent are fixed in the short term, we might be unable to adjust spending in time to compensate for any unexpected shortfall in revenues. Accordingly, any significant shortfall of revenues in relation to our expectations could hurt our operating results.

If our ability to forecast demand for our products or the predictability of our manufacturing yields deteriorates, we could incur high inventory losses.

Each semiconductor chip design requires a custom probe card. Because our products are design-specific, demand for our products is difficult to forecast. Due to our customers' short delivery time requirements, we often design and procure materials and, at times, produce our products in anticipation of demand for our products rather than in response to an order. Our manufacturing yields and inventory requirements, particularly for new probe card products or when we are operating at high output levels, have at times been unpredictable. If we do not obtain orders as we anticipate, if we suffer manufacturing errors, or if we build additional inventory to compensate for unpredictable manufacturing yields, we could have excess or obsolete inventory that we may not be able to sell, which would likely result in inventory write-offs or material charges for scrap.

If we are unable to efficiently manufacture our existing and new products, our business may be materially adversely affected.

We must continuously improve our manufacturing processes in an effort to increase yields and product performance, lower our costs and reduce the time required for us to design, manufacture and deliver our products in volume. If we cannot do these things, both our existing products and our new products may not be commercially successful, our revenues may be adversely affected, our customer relationships and our reputation may be harmed and our business may be materially adversely affected.

To improve our manufacturing processes, we have incurred, and may incur in the future, substantial costs in an effort to optimize capacity and yields, implement new manufacturing technologies, methods and processes, purchase new equipment, upgrade existing equipment and train technical personnel. We have experienced, and may experience in the future, manufacturing delays and other inefficiencies in connection with implementation of these improvements and customer qualifications of new processes, which have caused and could cause in the future, our operating results to decline.

We have also experienced, and may experience in the future, difficulties in manufacturing our complex products in volume on time, and at acceptable yields and cost and installation issues in the field due to the complexity of customer design requirements, including integration of probe cards with varying customer test cell environments and testing of semiconductor devices over a wide temperature range.

If we are unable to continue to reduce the time it takes for us to design and produce products, our growth could be impeded.

Our customers continuously seek to reduce the time it takes them to introduce new products to market. The cyclicality of the semiconductor industry, coupled with changing demands for semiconductor products, requires our customers to be flexible and highly adaptable to changes in the design, volume and mix of products they must produce. We may be unable to design and produce our products within the short cycle times required to respond to such rapid changes. We have lost sales in the past where we were unable to meet a customer's required delivery schedules. If we are unable to continue to reduce the time it takes for us to design, manufacture and ship our products in response to the needs of our customers, our competitive position could be harmed and we could lose sales.

Products that do not meet specifications or that contain defects could damage our reputation, decrease market acceptance of our technology, cause us to lose customers and revenues, and result in liability to us.

The complexity and ongoing development of our product designs and manufacturing processes could lead to design or manufacturing problems. Problems might result from a number of factors, including design defects, materials failure, failure of components manufactured by our suppliers to meet our specifications, contamination in the manufacturing environment,

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impurities in the materials used, and unknown sensitivities to process conditions such as temperature and humidity, and equipment failures. Any errors or defects could:

- cause lower than anticipated yields and lengthen delivery schedules;
- cause delays in product shipments;
- cause delays in new product introductions;
- cause us to incur warranty expenses;
- result in increased costs and diversion of development resources;
- cause us to incur increased charges due to unusable inventory;
- require design modifications; or
- decrease market acceptance or customer satisfaction with these products.

The occurrence of any one or more of these events could adversely affect our business, reputation and operating results.

As part of our sales process, we could incur substantial sales and engineering expenses that do not result in revenues. Our customers generally expend significant efforts evaluating and qualifying our products prior to placing an order. While our customers are evaluating our products, we might incur substantial sales, marketing, and research and development expenses. For example, we typically expend significant resources educating our prospective customers regarding the uses and benefits of our probe cards and developing probe cards customized to the potential customer's needs, for which we might not be reimbursed. Although we commit substantial resources to our sales efforts, we might never receive any revenues from a customer. For example, many semiconductor chip designs never reach production, including designs for which we may have expended design effort and expense. In addition, prospective customers might decide not to use our products or use our products for a relatively small percentage of their requirements after we have expended significant effort and expense toward product design, development, and/or manufacture.

We obtain some of the components and materials we use in our products from a sole source or a limited group of suppliers, and the partial or complete loss of one of these suppliers could cause production delays.

We obtain some of the components and materials used in our products, such as printed circuit board assemblies, plating materials and ceramic substrates, from a sole source or a limited group of suppliers, and in some cases alternative sources are not currently available. Because we rely on purchase orders rather than long-term contracts with the majority of our suppliers, we cannot guarantee our ability to obtain components and materials in the long term. A sole or limited source supplier could increase prices, which could lead to a decline in our gross profit. Our dependence upon sole or limited source suppliers exposes us to several other risks, including inability to obtain an adequate supply of materials, late deliveries, poor component quality, and business disruptions while we seek to identify and qualify alternative suppliers. The occurrence of any of these risks could adversely impact our business, results of operations and financial condition.

The use of cash and incurrence of substantial indebtedness in connection with the financing of our acquisition of Cascade Microtech may have an adverse impact on our liquidity, limit our flexibility in responding to other business opportunities and increase our vulnerability to adverse economic and industry conditions.

Our acquisition of Cascade Microtech was financed in part by the use of cash on hand and the incurrence of a significant amount of indebtedness. As of December 31, 2016, we had approximately \$101.4 million of cash and cash equivalents, approximately \$7.5 million of short-term investments and \$138.2 million term loan debt outstanding, net of debt-related issuance costs. In connection with our acquisition of Cascade Microtech, we entered into a new senior secured term loan facility with an aggregate principal amount of \$150 million to finance part of the cash portion of the transaction consideration. Our use of cash on hand and indebtedness to finance the cash portion of the transaction consideration reduced our liquidity. We must generate cash from operations to pay principal and interest on our debt, thereby reducing the availability of cash flow for working capital and capital expenditure needs or to pursue other initiatives. The senior secured term loan facility contains financial covenants requiring us to maintain a certain leverage ratio of consolidated total indebtedness to EBITDA and a fixed charge coverage ratio. In addition, it also imposes limitations on our ability to incur liens and indebtedness or to pay dividends, make certain investments, or dispose of assets (in each case, subject to customary exceptions). Our ability to comply with these financial and



restrictive covenants can be affected by events beyond our control. The indebtedness and restrictive covenants will also have the effect, among other things, of limiting our ability to obtain additional financing, if needed, which may limit our flexibility in the conduct of our business and makes us more vulnerable to economic downturns and adverse competitive

and industry conditions. In addition, a breach of the financial or restrictive covenants, among other things, could result in an event of default with respect to the senior secured term loan facility, which, if not cured or waived, could result in the obligations under the facility becoming immediately due and payable.

Because we conduct most of our business internationally, we are subject to operational, economic, financial and political risks abroad.

Sales of our products to customers outside North America have accounted for a significant part of our revenues. Our international sales as a percentage of our revenues were 67%, 77% and 72% for fiscal 2016, 2015 and 2014, respectively. Additionally, certain of our South Korean customers purchase through their North American subsidiaries. In the future, we expect international sales, particularly in Japan, South Korea and Taiwan, to continue to account for a significant percentage of our revenues. Accordingly, we will be subject to risks and challenges that we would not otherwise face if we conducted our business solely in North America.

These risks and challenges include:

- compliance with a wide variety of foreign laws and regulations;
- legal uncertainties regarding taxes, tariffs, quotas, export controls, export licenses and other trade barriers;
- political and economic instability or foreign conflicts that involve or affect the countries of our customers;
- difficulties in collecting accounts receivable and longer accounts receivable payment cycles;
- difficulties in staffing and managing personnel, distributors and representatives;
- reduced protection for intellectual property rights in some countries;
- currency exchange rate fluctuations, which could affect the value of our assets denominated in local currency, as well as the price of our products relative to locally produced products;
- seasonal fluctuations in purchasing patterns in other countries; and
- fluctuations in freight rates and transportation disruptions.

Any of these factors could harm our existing international operations, impair our ability to continue expanding into international markets or materially adversely affect our operating results. Additionally, we are required to comply with foreign import and export requirements, customs and value added tax standards. Our failure to meet these requirements and standards could negatively impact our business operations.

Our increased foreign operations expose us to additional risks relating to currency fluctuations.

Our international operations are significant to our revenues and net income, and we plan to continue to grow internationally. We acquired significant business operations located in Germany as part of our acquisition of Cascade Microtech and generate a substantial portion of our revenues outside of the United States. Since we incur certain costs in currencies other than U.S. dollars, and have certain foreign currency denominated assets and liabilities, but report our financial results in U.S. dollars, we face exposure to fluctuations in currency exchange rates. Although we hedge a portion of our international currency exposure, significant fluctuations in exchange rates between the U.S. dollar and foreign currencies may adversely affect our revenues and earnings. Additionally, hedging programs are inherently risky and could expose us to additional risks that could adversely affect our financial condition and results of operations.

If we fail to protect our proprietary rights, our competitors might gain access to our technology, which could adversely affect our ability to compete successfully in our markets.

If we choose not to protect our proprietary rights or fail in our efforts to protect our proprietary rights, our competitors might gain access to our technology. Unauthorized parties might attempt to copy aspects of our products or to obtain and use information that we regard as proprietary. Others might independently develop similar or competing technologies or methods or design around our patents. In addition, the laws of many foreign countries in which we or our customers do business do not protect our intellectual property rights to the same extent as the laws of the United States. As a result, our proprietary rights could be compromised, our competitors might offer products similar to ours and we might not be able to compete successfully. We also cannot assure that:

- our means of protecting our proprietary rights will be adequate;

patents will be issued from our pending or future applications;  
our existing or future patents will be sufficient in scope or strength to provide any meaningful protection or commercial advantage to us;  
our patents or other intellectual property will not be invalidated, circumvented or successfully challenged in the United States or foreign countries; or  
others will not misappropriate our proprietary technologies or independently develop similar technologies, duplicate our products or design around any of our patents or other intellectual property, or attempt to manufacture and sell infringing products in countries that do not strongly enforce intellectual property rights.  
We have spent and may be required to spend in the future, significant resources to monitor and protect our intellectual property rights. Any litigation, whether or not resolved in our favor, and whether initiated by us or by a third party, could result in significant and possibly material expense to us and divert the efforts of our management and technical personnel.

We might be subject to claims of infringement of other parties' proprietary rights.

In the future, as we have in the past, we might receive claims that we are infringing intellectual property rights of others and inquiries about our interest in a license or assertions that we need a license to such intellectual property. The semiconductor industry is characterized by uncertain and conflicting intellectual property claims and vigorous protection and pursuit of these rights. The resolution of any claims of this nature, with or without merit, could be time consuming, result in costly litigation or cause product shipment delays. In the event of an adverse ruling or settlement, we might be required to pay substantial damages, cease the use or sale of infringing products, spend significant resources to develop non-infringing technology, discontinue the use of certain technology and/or enter into license agreements. License agreements, if required, might not be available on terms acceptable to us or at all. The loss of access to any of our intellectual property or the ability to use any of our technology could harm our business. Finally, certain of our customer contracts contain provisions that require us to defend or indemnify our customers for third party intellectual property infringement claims, which would increase the cost to us of an adverse ruling or settlement. We have recorded significant restructuring, inventory write-offs and asset impairment charges in the past and may do so again in the future, which could have a material negative impact on our business.

We recorded restructuring charges in fiscal 2016, 2015 and 2014, and impairment charges related to our long-lived assets in fiscal 2016 and fiscal 2014. We may implement restructuring plans in the future, which would require us to take additional, potentially material, restructuring charges related to employee terminations, asset disposal or exit costs. We may also be required to write off additional inventory if our product build plans or usage of inventory experience declines, and such additional write-offs could constitute material charges. In addition, significant adverse changes in market conditions could require us to take additional material impairment charges related to our long-lived assets if the changes impact the critical assumptions or estimates that we use in our assessment of the recoverability of our long-lived assets. Any such additional charges, whether related to restructuring, asset impairment or factory underutilization may have a material negative impact on our operating results and related financial statements.

We rely on the security and integrity of our electronic data systems and our business could be damaged by a disruption, security breach or other compromise of these systems.

We rely on electronic data systems to operate and manage our business and to process, maintain, and safeguard information, including information belonging to our customers, partners, and personnel. These systems may be subject to failures or disruptions as a result of, among other things, natural disasters, accidents, power disruptions, telecommunications failures, new system implementations, acts of terrorism or war, physical security breaches, computer viruses, or other cyber security attacks. Such system failures or disruptions could subject us to downtimes and delays, compromise or loss of sensitive or confidential information or intellectual property, destruction or corruption of data, financial losses from remedial actions, liabilities to customers or other third parties, or damage to our reputation or customer relationships. Any of the foregoing could have a material adverse effect on our business, operating results and financial condition.

We may not be able to recruit or retain qualified personnel.

We believe our ability to manage successfully and grow our business and to develop new products depends, in large part, on our ability to recruit and retain qualified employees, particularly highly skilled technical, sales, management,

and key staff personnel. Competition for qualified resources is intense and other companies may have greater resources available to provide substantial inducements to lure key personnel away from us or to offer more competitive compensation packages to individuals we are trying to hire. Our employees may also experience uncertainty about the effect of our acquisition of Cascade Microtech on their future roles within the combined business, which may impair our ability to retain and motivate certain valuable

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personnel during the integration process. While we implement programs to attract employees, and we may grant additional equity compensation to certain employees outside of our annual equity grant program for retention purposes or implement retention bonus programs for certain employees, there can be no assurance that we will be able to successfully recruit and retain the qualified personnel we require.

Our failure to comply with environmental laws and regulations could subject us to significant fines and liabilities, and new laws and regulations or changes in regulatory interpretation or enforcement could make compliance more difficult and costly.

We are subject to various U.S. Federal, state and local, and foreign governmental laws and regulations relating to the protection of the environment, including those governing the discharge of pollutants into the air and water, the management and disposal of hazardous substances and wastes, the cleanup of contaminated sites and the maintenance of a safe workplace. We could incur substantial costs, including cleanup costs, civil or criminal fines or sanctions and third-party claims for property damage or personal injury, as a result of violations of or liabilities under environmental laws and regulations or non-compliance with the environmental permits required at our facilities.

These laws, regulations and permits also could require the installation of costly pollution control equipment or operational changes to limit pollution emissions or decrease the likelihood of accidental releases of hazardous substances. In addition, changing laws and regulations, new laws and regulations, stricter enforcement of existing laws and regulations, the discovery of previously unknown contamination at our or others' sites or the imposition of new cleanup requirements could require us to curtail our operations, restrict our future expansion, subject us to liability and cause us to incur future costs that could harm our operations, thereby adversely impacting our operating results and cash flow.

Natural and manmade disasters may negatively impact our business.

Our business is vulnerable to the direct and indirect impact of natural and manmade disasters, such as floods, earthquakes, volcanic eruptions, nuclear accidents, and acts of terrorism. Material parts of our manufacturing and research and development operations are located in areas of California that are prone to earthquakes and could be substantially disrupted in the event of an earthquake. It is also possible that future natural and manmade disasters could negatively impact the sales of our products as a result of impacts upon our customer's ability to make or sell their products, or impacts upon our suppliers' ability to supply components to us on a timely basis.

#### Risks Relating to Our Acquisitions

We may fail to realize the anticipated benefits and cost savings from our acquisition of Cascade Microtech.

The success of our acquisition of Cascade Microtech will depend, in part, on our ability to realize the anticipated benefits and cost savings from combining that business with ours. Our ability to realize these anticipated benefits and cost savings is subject to certain risks including:

- whether the combined businesses will perform as expected;
- the possibility that we paid more for the acquisition of Cascade Microtech than the value we will derive from the acquisition; and
- the reduction of our cash available for operations and other uses and the incurrence of indebtedness to finance the acquisition.

Issues that must be addressed to successfully integrate the operations of Cascade Microtech with our operations include combining the companies' sales, manufacturing, marketing, distribution, purchasing, operations and research and development functions; integrating the companies' technologies, products and services; identifying and eliminating redundant or underperforming operations and assets; consolidating the companies' corporate, administrative and information technology infrastructure and multiple enterprise resource planning systems; coordinating sales, distribution and marketing efforts; and coordinating the combined organization across dispersed geographic locations. In addition, at times, the attention of certain members of our management and resources may be focused on the integration of the businesses of the two companies and diverted from day-to-day business operations or other strategic planning, which may be detrimental to our ongoing business.

We may make additional acquisitions and investments in the future, which could put a strain on our resources, cause ownership dilution to our stockholders and adversely affect our financial results.

We may in the future make other acquisitions or investments, which may subject us to new or heightened risks. Integrating any newly acquired businesses, products or technologies into our company could put a strain on our resources, could be expensive and time consuming, could substantially reduce our cash reserves, could cause delays in product delivery

and might not be successful. Future acquisitions and investments could divert management's attention from other business concerns and expose our business to unforeseen liabilities or risks associated with entering new markets. In addition, we might lose key employees while integrating new organizations. We might not be successful in integrating any acquired businesses, products or technologies, and might not achieve anticipated revenues and cost benefits. Investments that we make may not result in a return consistent with our projections upon which such investments are made, or may require additional investment that we did not originally anticipate. In addition, future acquisitions could result in customer dissatisfaction, performance problems with an acquired company, potentially dilutive issuances of equity securities or the incurrence of debt and restrictive debt covenants, contingent liabilities, possible impairment charges related to goodwill or other intangible assets or other unanticipated events or circumstances. If any of these risks were to come about, our business, financial results and stock price could be materially and adversely affected. If goodwill or other intangible assets that we recorded in connection with the Cascade Microtech and/or MicroProbe acquisition become impaired, we could be required to take significant charges against earnings.

In connection with the accounting for the Cascade Microtech and MicroProbe acquisitions, we have recorded a significant amount of goodwill and other intangible assets. Under U.S. generally accepted accounting principles, or GAAP, we must assess, at least annually and potentially more frequently, whether the value of goodwill and other indefinite-lived intangible assets have been impaired. Finite-lived intangible assets will be assessed for impairment in the event of an impairment indicator. Any reduction or impairment of the value of goodwill or other intangible assets will result in a charge against earnings, which could materially adversely affect our results of operations and stockholders' equity in future periods. Refer to note 10 to Notes to Consolidated Financial Statements - Goodwill and Intangible Assets for further details relating to our annual goodwill impairment assessment.

#### Risks Relating to Owning Our Stock

If we fail to maintain an effective system of internal and disclosure controls and procedures, we may not be able to accurately report our financial results or prevent fraud.

Effective internal and disclosure controls and procedures are necessary for us to provide reliable financial reports, to prevent fraud and to operate successfully as a public company. If we cannot provide reliable financial reports or prevent fraud, our business and reputation may be harmed. We regularly review and assess our internal controls over financial reporting and our disclosure controls and procedures. As part of that process, we may discover material weaknesses or significant deficiencies in our internal controls. If we fail to maintain effective controls or timely effect any necessary improvement of our internal and disclosure controls, we may not have accurate information to make management decisions, our operating results could be harmed or we may fail to meet our reporting obligations. Ineffective internal and disclosure controls could also cause stockholders to lose confidence in our reported financial information and our ability to manage our business, which would likely have a negative effect on the trading price of our securities.

The trading price of our common stock has been and is likely to continue to be volatile, and you might not be able to sell your shares at or above the price that you paid for them.

The trading prices of the securities of technology companies have been highly volatile, and from January 1, 2017, the first business day of our fiscal 2017, through March 13, 2017, our stock price (NASDAQ Global Market close price) has ranged from \$10.65 a share to \$12.70 a share. The trading price of our common stock is likely to continue to be subject to wide fluctuations. Factors affecting the trading price of our common stock could include:

- variations in our operating results;
- our forecasts and financial guidance for future periods;
- announcements of technological innovations, new products or product enhancements, new product adoptions at semiconductor customers or significant agreements by us or by our competitors;
- reports regarding our ability to bring new products into volume production efficiently;
- the gain or loss of significant orders or customers;
- changes in the estimates of our operating results or changes in recommendations by any securities analysts that elect to follow our common stock;
- rulings on litigations and proceedings;
- seasonality, principally due to our customers' purchasing cycles;





market and competitive conditions in our industry, the entire semiconductor industry and the economy as a whole; recruitment or departure of key personnel; and announcements of mergers and acquisition transactions and the ability to successfully integrate the business activities of the acquired/merged company.

In addition, if the market for technology stocks or the stock market in general experiences loss of investor confidence, the trading price of our common stock could decline for reasons unrelated to our business, operating results or financial condition. The trading price of our common stock also might decline in reaction to events that affect other companies in our industry even if these events do not directly affect us.

Provisions of our certificate of incorporation and bylaws or Delaware law might discourage, delay or prevent a change of control of our company or changes in our management and, therefore, depress the trading price of our common stock.

Delaware corporate law and our certificate of incorporation and bylaws contain provisions that could discourage, delay or prevent a change in control of our company or changes in our management that the stockholders of our company may deem advantageous. These provisions:

- establish a classified board of directors so that not all members of our board are elected at one time;
- provide that directors may only be removed “for cause” and only with the approval of 66.7% of our stockholders;
- require super-majority voting to amend some provisions in our certificate of incorporation and bylaws;
- authorize the issuance of “blank check” preferred stock that our board could issue to increase the number of outstanding shares and to discourage a takeover attempt;
- limit the ability of our stockholders to call special meetings of stockholders;
- prohibit stockholder action by written consent, which requires all stockholder actions to be taken at a meeting of our stockholders;
- provide that the board of directors is expressly authorized to make, alter or repeal our bylaws; and
- establish advance notice requirements for nominations for election to our board or for proposing matters that can be acted upon by stockholders at stockholder meetings.

In addition, Section 203 of the Delaware General Corporation Law may discourage, delay or prevent a change in control of our company. In addition, each of our named executive officers and certain other officers of the company have entered into change of control severance agreements, which were approved by our Compensation Committee, which could increase the costs associated with a change of control and thus, potentially deter such a transaction.

Item 1B: Unresolved Staff Comments

None.

## Item 2: Properties

Our corporate headquarters, which includes sales, marketing, administration, manufacturing, engineering, and research and development facilities, is located in Livermore, California, United States. Our corporate headquarters comprises a campus of four buildings totaling approximately 169,000 square feet. We presently lease those four buildings. In addition, we lease office, repair and service, manufacturing and/or research and development space both inside and outside of the United States. The leases expire at various times through 2027. We believe that our existing and planned facilities are suitable for our current needs.

Information concerning our properties as of December 31, 2016 is set forth below:

Location	Principal Use	Square Footage	Ownership
Livermore, California, United States	Corporate headquarters, sales, marketing, administration, product design, manufacturing, service and repair, distribution, research and development	168,636	Leased
Beaverton, Oregon, United States	Sales, marketing, administration, product design, manufacturing, service and repair, distribution, research and development	98,946	Leased
Carlsbad, California, United States	Product design, administration, manufacturing, service and repair, distribution, research and development	30,876	Leased
San Jose, California, United States	Administration, product design, manufacturing, service and repair, distribution, research and development	23,680	Leased
St. Paul, Minnesota, United States	Marketing and design	9,122	Leased
Thiendorf, Germany	Sales, marketing, manufacturing, administration, service and repair, distribution, sales, research and development	44,713	Leased
Munich, Germany	Manufacturing, service and repair, distribution, sales, research and development	10,656	Leased
Singapore	Sales, administration, product design, service, and field service	30,088	Leased
Jubei City, Hsinchu, Taiwan	Sales office, administration, product design, field service and repair center	20,430	Leased
Bundang, South Korea	Sales office, administration, product design, field service, and repair center	15,310	Leased
Yokohama City, Japan	Sales office, administration, marketing, product design, research and development, field service, and repair center, manufacturing and distribution	15,210	Leased
Tokyo, Japan	Sales and service	1,862	Leased
Hiroshima, Japan	Repair center	1,615	Leased
Suzhou, China	Sales, marketing, administration, manufacturing, product design, service and repair, distribution, research and development	15,177	Leased
Shanghai, China	Sales and service	1,865	Leased

## Item 3: Legal Proceedings

From time to time, we may be subject to legal proceedings and claims in the ordinary course of business. As of December 31, 2016 and as of the filing of this Annual Report on Form 10-K, we were not involved in any material legal proceedings other than the proceeding summarized below. In the future, we may become a party to additional legal proceedings that may require us to spend significant resources, including proceedings designed to protect our intellectual property rights. Litigation can be expensive and disruptive to normal business operations. Moreover, the results of legal proceedings are difficult to predict, and the costs incurred in litigation can be substantial, regardless of outcome.

On April 8, 2016, an individual plaintiff filed a putative class action lawsuit on behalf of Cascade Microtech's shareholders against Cascade Microtech, its directors, FormFactor and Cascade Merger Sub, in connection with the acquisition



of Cascade Microtech by the Company. The lawsuit, captioned Solak v. Cascade Microtech, Inc., et al., No. 16CV11809, was filed in Multnomah County Circuit Court in the State of Oregon.

The Solak lawsuit alleges that the individual members of Cascade Microtech's board of directors breached their fiduciary duties owed to Cascade Microtech's shareholders by approving the proposed merger for inadequate consideration; approving the merger to obtain unique benefits not shared equally with Cascade Microtech's other shareholders; failing to take steps to maximize the value paid to Cascade Microtech shareholders; failing to take steps to ensure a fair process leading up to the proposed merger; and agreeing to preclusive deal protection devices in the merger agreement. The lawsuit also alleges claims against FormFactor and one of its subsidiaries for aiding and abetting the alleged breaches of fiduciary duties by the individual members of Cascade Microtech's board of directors.

Under a memorandum of understanding signed by the parties and filed with the court in the Solak case, Cascade Microtech and the Company agreed with the plaintiff's counsel to supplement the disclosures made in connection with the merger. The supplemental disclosures were made on June 14, 2016. The court in the Solak lawsuit has granted preliminary approval of a stipulated settlement, including an award of the plaintiffs' attorneys' fees and expenses. The final resolution of the proceedings under the stipulation of settlement is subject to customary conditions, including final court approval of the class settlement following notice to Cascade Microtech's former shareholders within the proposed class.

There can be no assurance that the court will approve the final settlement. In such event, the proposed settlement may be terminated.

In August 2013, a former employee filed a class action lawsuit against the Company in the Superior Court of California, alleging violations of California's wage and hour laws and other claims on behalf of himself and all other similarly situated current and former employees at the Company's Livermore facilities from August 21, 2009, to the present. On January 4, 2016, the court certified the plaintiff class. The parties have signed a stipulation dated March 3, 2017, regarding the settlement of the class action under which the parties have agreed to settle the lawsuit, subject court approvals and other conditions. The stipulation provides for payment by the Company of \$1.5 million in settlement of the lawsuit.

Item 4: Mine Safety Disclosures  
Not applicable.

PART II

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

Price Range of Common Stock

Our common stock is listed on the NASDAQ Global Market under the symbol "FORM". The following table sets forth the range of high and low closing sales prices per share as reported on the Nasdaq Global Market for the periods indicated.

Fiscal 2016	High	Low
First Quarter	\$9.33	\$6.34
Second Quarter	9.09	6.51
Third Quarter	10.86	8.72
Fourth Quarter	\$11.95	\$8.65
Fiscal 2015	High	Low
First Quarter	\$10.26	\$7.55
Second Quarter	9.51	7.97
Third Quarter	9.20	5.93
Fourth Quarter	\$9.13	\$6.49

The closing sales price of our common stock on the NASDAQ Global Market was \$10.95 per share on March 13, 2017. As of March 13, 2017, there were 205 registered holders of record of our common stock.

Repurchase of Common Stock

On April 16, 2015, our Board of Directors authorized a program to repurchase up to \$25.0 million of outstanding common stock which expired on April 15, 2016. During fiscal 2016, we did not repurchase any shares under this program.

In February 2017, our Board of Directors authorized a new program to repurchase up to \$25 million of outstanding common stock to offset potential dilution from sales of common stock under our employee stock purchase plan and exercises of stock options. The share repurchase program will expire on February 1, 2020.

Dividend Policy

We have never declared or paid cash dividends on our common stock and we do not currently anticipate declaring or paying cash dividends on our common stock.

Stock Price Performance Graph

The following graph shows the total stockholder return of an investment of \$100 in cash on December 31, 2011 through December 31, 2016, for (1) our common stock, (2) the S&P 500 Index and (3) the RDG Semiconductor Composite Index. All values assume reinvestment of the full amount of all dividends. No cash dividends have been declared on shares of our common stock. Stockholder returns over the indicated period are based on historical data and are not necessarily indicative of future stockholder returns.

COMPARISON OF 5 YEAR CUMULATIVE TOTAL RETURN\*

Among FormFactor, Inc., the S&P 500 Index, and the RDG Semiconductor Composite Index

\*\$100 invested on 12/31/11 in stock or index, including reinvestment of dividends.

Fiscal year ended December 31.

	Cumulative Total Return					
	December 31, 2011	December 31, 2012	December 31, 2013	December 31, 2014	December 31, 2015	December 31, 2016
FormFactor, Inc.	\$ 100.00	\$ 90.12	\$ 118.77	\$ 169.96	\$ 177.87	\$ 221.34
S&P 500	100.00	116.00	153.58	174.60	177.01	198.18
RDG Semiconductor Composite	100.00	101.55	137.33	170.90	153.05	206.30

Item 6: Selected Financial Data

The following selected consolidated financial data is derived from our consolidated financial statements. This data should be read in conjunction with our consolidated financial statements and the related notes, and "Item 7:

Management's Discussion and Analysis of Financial Condition and Results of Operations" contained elsewhere in this Annual Report on Form 10-K.

	Fiscal 2016 (1)(2)(7)(8)	Fiscal 2015 (3)	Fiscal 2014 (1)(2)	Fiscal 2013 (1)(2)(4)	Fiscal 2012 (1)(2)(5)(6)
Consolidated Statements of Operations Data:					
Revenues	\$383,881	\$282,358	\$268,530	\$231,533	\$178,535
Gross profit	102,682	85,738	77,439	42,284	25,331
Net loss	(6,557 )	(1,523 )	(19,185 )	(57,683 )	(35,546 )
Basic and diluted net loss per share	\$(0.10 )	\$(0.03 )	\$(0.34 )	\$(1.06 )	\$(0.7 )
Consolidated Balance Sheets Data:					
Cash, cash equivalents and marketable securities	\$108,905	\$187,589	\$163,837	\$151,091	\$165,788
Working capital	172,002	214,437	196,412	173,881	194,125
Total assets	618,982	342,723	344,243	340,708	395,682
Term loan, net of current portion	125,475	—	—	—	—
Capital leases, net of current portion	—	—	—	—	340
Total stockholders' equity	\$401,056	\$294,681	\$289,436	\$294,086	\$339,258
Number of employees	1,571	958	907	961	1,021

Fiscal 2016, 2015, 2014, 2013 and 2012 net losses include restructuring charges, net of \$7.3 million, \$0.6 million, (1) \$2.7 million, \$4.7 million and \$2.9 million, respectively, relating to our global restructuring and reorganization actions. See Note 6—Restructuring Charges of the Notes to the Consolidated Financial Statements.

Fiscal 2016, 2014, 2013 and 2012 net losses include impairment charges of \$12.4 million, \$1.2 million, \$0.8 (2) million and \$0.4 million, respectively. See Note 7—Impairment of Long-lived Assets of the Notes to the Consolidated Financial Statements.

Fiscal 2015 includes the following: a) a \$1.5 million gain from a business interruption insurance claim relating to a (3) factory fire at a customer. See Note-18, Business Interruption Insurance Claim Recovery of the Notes to the Consolidated Financial Statements, and b) a \$1.0 million net gain from the sale of intellectual property.

(4) Fiscal 2013 net loss includes \$0.3 million attributable to loss on sale of a subsidiary.

Fiscal 2012 includes a \$25.5 million tax benefit from the release of deferred tax asset valuation allowances due to (5) deferred tax liabilities established on the acquired identifiable intangible assets from our acquisition of MicroProbe.

Fiscal 2012 includes the following as a result of the MicroProbe acquisition: \$19.8 million in revenue, \$5.4 million (6) in the amortization of intangibles expense, \$2.6 million release of pre-existing backlog, \$0.2 million charge for step-up depreciation on the fair value of fixed assets, resulting in a \$6.4 million net loss. As part of the MicroProbe Acquisition, a patent lawsuit was settled with a benefit of \$3.3 million.

Fiscal 2016 includes a \$44.0 million tax benefit from the release of deferred tax asset valuation allowances due to (7) deferred tax liabilities established on the acquired identifiable intangible assets from our acquisition of Cascade Microtech. See Note 14—Income Taxes of the Notes to the Consolidated Financial Statements.

Fiscal 2016 includes the following as a result of the Cascade Microtech acquisition: \$82.6 million in revenue, (8) \$27.8 million in the amortization of intangibles expense and \$7.6 million charge for inventory-related step-up amortization, resulting in a \$36.4 million loss.

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

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our consolidated financial statements and the related notes included elsewhere in this Annual Report on Form 10-K. In addition to historical consolidated financial information, the following discussion and analysis contains forward-looking statements that involve risks, uncertainties and assumptions as described under the "Note Regarding Forward-Looking Statements" that appears earlier in this Annual Report on Form 10-K. Our actual results could differ materially from those anticipated by these forward-looking statements as a result of many factors, including those discussed under "Item 1A: Risk Factors" and elsewhere in this Annual Report on Form 10-K.

Overview

On June 24, 2016, we acquired Cascade Microtech, Inc., a leading provider of advanced wafer probing, thermal and reliability solutions. Our consolidated financial statements as of December 31, 2016 included the consolidated balance sheet of Cascade Microtech as of December 31, 2016 whereas our consolidated statements of operations for the fiscal year ended December 31, 2016 included the financial results of Cascade Microtech only for the third and fourth quarters of fiscal 2016. We excluded the financial results of Cascade Microtech for the second quarter of fiscal 2016 as the one-day stub period between the acquisition of Cascade Microtech on June 24, 2016 and the end of our second quarter of fiscal 2016 on June 25, 2016 was immaterial. See Note 4 to the Notes to Consolidated Financial Statements - Acquisition, for further details.

Therefore, our consolidated financial results for the twelve months ended December 31, 2016 may not be directly comparable to our consolidated financial results for the twelve months ended December 26, 2015 due to the exclusion of Cascade Microtech's pre-acquisition financial results for fiscal 2015 and half (first and second quarter) of fiscal 2016.

To finance a portion of the Cascade Microtech acquisition consideration, we entered into a senior secured term loan facility in an aggregate amount of \$150 million. We also entered into an interest-rate swap agreement to hedge the interest payments on our term loan. See Note 5 to the Consolidated Financial Statements - Debt, for further details. Also, see Contractual Obligations and Commitments in this section of the Management's Discussion and Analysis of Financial Condition and Results of Operations for further details of our contractual commitments as of December 31, 2016.

During fiscal 2016, revenues increased by \$101.5 million or 36% to \$383.9 million from \$282.4 million in 2015. Our net loss increased by \$5.0 million or 331% to \$6.6 million from \$1.5 million in 2015. The net loss for fiscal 2016 included acquisition-related amortization charges of \$45.5 million, restructuring and impairment charges of \$19.7 million including the write-off of our intangible in-process research and development asset of \$12.4 million and acquisition and integration costs related to our acquisition activities of \$7.5 million. This was partially offset by the release the of valuation allowance on a portion of our deferred tax assets as a result of the acquisition of Cascade Microtech resulting in an income tax benefit of approximately \$44.0 million, as well as additional post-acquisition revenues and associated net income generated from Cascade Microtech's operations during fiscal 2016. The net loss for fiscal 2015 included restructuring charges of \$0.6 million, gain from a business interruption insurance claim of \$1.5 million and a net gain from sale of intellectual property of \$1.0 million.

Our cash and cash equivalents, marketable securities and restricted cash totaled \$110.1 million as of December 31, 2016, as compared to \$188.0 million at December 26, 2015. The decrease was primarily due to the cash consideration paid for the acquisition of Cascade Microtech of \$228 million (net of cash acquired) partially offset by the \$150 million term loan used to fund the acquisition. We believe we will meet our working capital requirements for at least the next twelve months with the liquidity provided by our existing cash and cash equivalents and marketable securities. If we are unsuccessful in maintaining or growing our revenues, or maintaining or reducing our cost structure in an industry downturn, or increasing our available cash through financing, our cash and cash equivalents and marketable securities could decline in future periods.



## Summary of Segments and Products

Subsequent to the acquisition of Cascade Microtech, we determined that we now operate in two reportable segments consisting of Probe Cards Segment and Systems Segment.

### Probe Cards Segment

Our Probe Cards Segment consists of probe card products and analytical probes. Probe cards are used in the semiconductor manufacturing industry to perform wafer test, which is the testing of the semiconductor die, or chips, while those die are still constituted on the semiconductor wafer. Wafer test enables semiconductor manufacturers to determine

whether chips will meet specifications and be saleable before the wafer is diced, and the die are singulated and individually packaged. Analytical probes are used in semiconductor engineering device characterization.

Our probe products are used to test a variety of semiconductor device types, including “system on a chip” products, mobile application processors, microprocessors, microcontrollers, graphic processors, radio frequency, analog, mixed signal, image sensors, electro-optical, DRAM, NAND flash memory and NOR flash memory devices. In both engineering and production use, the analytical probes and probe cards serve as the critical electrical and mechanical interface between the chip(s) being tested and the test instrument that generates the electrical signal used to evaluate the device performance.

### Systems Segment

Our Systems Segment consists of advanced wafer probing, thermal and reliability products to enable precision on-wafer measurement of integrated circuits. Our Systems products are often used in the early phases of the development and characterization of semiconductor processes where the accuracy and repeatability of measurements is critical to achieving yield from advanced process nodes or new device types such as magnetic memory or silicon photonic chips. Many of our Systems products are also used in production applications to test semiconductor devices prior to completion of the manufacturing process and include probe stations, thermal subsystems, and reliability test systems.

### Use of Estimates and Fiscal Year

Preparation of our financial statements requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues and expenses. Management bases its estimates on historical experience and on various other assumptions that it believes to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

**Fiscal Year.** We operate on a 52/53 week fiscal year, whereby the fiscal year ends on the last Saturday of December. The fiscal years ended December 31, 2016, December 26, 2015 and December 27, 2014 included 53 weeks (with an extra week falling in the fourth quarter), 52 weeks and 52 weeks, respectively.

### Critical Accounting Policies and Estimates

Our discussion and analysis of our financial condition and results of operations are based upon our consolidated financial statements, which have been prepared in accordance with generally accepted accounting principles (GAAP). The preparation of these financial statements requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities at the date of the financial statements and the reported amounts of net revenue and expenses in the reporting period. Our accounting policies are fundamental to understanding our financial condition and results of operations reported in our financial statements and related disclosures. We have identified the following accounting policies as being critical because they require our management to make particularly difficult, subjective and/or complex judgments about the effect of matters that are inherently uncertain. We evaluate our estimates and assumptions on an ongoing basis and we base these estimates and assumptions on current facts, historical experiences and various other factors and assumptions that are believed to be reasonable under the circumstances. Actual results may differ materially and adversely from our estimates. Our management has discussed the development, selection, application and disclosure of these critical accounting policies with the Audit Committee of our Board of Directors.

**Revenue Recognition:** We recognize revenue when persuasive evidence of an arrangement exists, title and risk of loss has transferred to the customer, the selling price is fixed or determinable and collection of the related receivable is reasonably assured. In instances where final acceptance of the deliverable is specified by the customer, revenue is deferred until all acceptance criteria have been met. Revenues from the licensing of our design and manufacturing technology, which have not been material to date, are recognized over the term of the license agreement or when the

significant contractual obligations have been fulfilled.

Our transactions may involve the sale of systems and services under multiple element arrangements. Revenue under multiple element arrangements is allocated based on the fair value of each element. A typical multiple element arrangement may include some or all of the following components: products, accessories, installation services and extended warranty contracts. The total sales price is allocated based on the relative fair value of each component. Historically, most of our products are delivered complete and the impact of the relative fair value by component has not been significant. We record deferred revenue for service contracts, extended warranties and customer deposits. Deferred revenue related to service contracts

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and extended warranties is recognized over the life of the contract based on the stated contractual price, typically one to two years.

We account for tax assessed by a governmental authority that is directly imposed on a revenue-producing transaction (i.e., sales, use, value added) on a net (excluded from revenue) basis.

Goodwill: Goodwill represents the excess of the purchase price over the fair value of identifiable assets acquired and liabilities assumed. For fiscal 2015, we determined that our reporting unit, for purposes of our goodwill impairment analysis, was comprised of one entity-wide reporting unit associated with the design, development, manufacture, sale and support of precision, high performance advanced semiconductor wafer probe card products and solutions. Upon the acquisition of Cascade Microtech on June 24, 2016, we determined that we now operate in two reportable segments consisting of the Probe Cards Segment and Systems Segment, and three operating segments consisting of FormFactor Probes, Cascade Microtech Probes and Systems. We further determined that for purposes of our goodwill impairment analysis, we now have four reporting units consisting of FormFactor Probes, Cascade Microtech Probes, Systems, and ATT.

We first assess qualitative factors to determine whether it is necessary to perform a two-step quantitative goodwill impairment test. If an entity determines as a result of the qualitative assessment that it is more likely than not that the fair value of a reporting unit is less than its carrying amount, then the quantitative impairment test is required.

Otherwise, no further testing is required.

The performance of the quantitative impairment test involves a two-step process. The first step of the impairment test involves comparing the fair value of the applicable reporting unit with its aggregate carrying value, including goodwill. We generally determine the fair value of our reporting unit using a combination of the income approach (that includes the use of the discounted cash flow method) and the market approach (guideline company approach) valuation methodologies. If the carrying amount of a reporting unit exceeds the fair value of that reporting unit, we perform the second step of the quantitative impairment test to determine the amount of impairment loss. The second step of the goodwill impairment test involves comparing the implied fair value of the affected reporting unit's goodwill with the carrying value of that goodwill.

During the fourth quarter of fiscal 2016, we performed our annual goodwill impairment test by assessing qualitative factors and we concluded that our goodwill was not impaired as of December 31, 2016. Our qualitative review included, among other factors, an assessment of our market capitalization which was significantly higher than our book value. The evaluation of goodwill for impairment requires the exercise of significant judgment. In the event of future changes in business conditions, we will be required to reassess and update our forecasts and estimates used in future impairment analyses. If the results of these analyses are lower than current estimates, a material impairment charge may result at that time. Refer to note 10 to Notes to Consolidated Financial Statements - Goodwill and Intangible Assets for further details.

When we acquire businesses, we allocate the purchase price to the tangible assets, liabilities and identifiable intangible assets acquired. Any residual purchase price is recorded as goodwill. The allocation of the purchase price requires management to make significant estimates in determining the fair value of acquired assets and assumed liabilities, especially with respect to intangible assets. These estimates are based on information obtained from management of the acquired companies, market participant data and historical experience. These estimates can include, but are not limited to: the time and expenses that would be necessary to recreate the asset; the profit margin a market participant would receive; cash flows that an asset is expected to generate in the future; and discount rates.

These estimates are inherently uncertain and unpredictable. A change in these estimates could impact our allocation of purchase price to the acquired assets and assumed liabilities. During the measurement period, which is not to exceed one year from the acquisition date, we may record adjustments to the assets acquired and liabilities assumed, with the corresponding offset to goodwill based on updated estimate information or facts and circumstances existing as of the acquisition date. Following the earlier of 1) receipt of all necessary information to determine the fair value of assets acquired and liabilities assumed, or 2) one year from the acquisition date, any subsequent adjustments are recorded to earnings.

Impairment of Long-Lived Assets: We test long-lived assets or asset groups such as property, plant and equipment and intangibles for recoverability when events or changes in circumstances indicate that their carrying amounts may not be recoverable. Circumstances that could trigger a review include, but are not limited to: significant decreases in the market price of the asset; significant adverse changes in the business climate or legal factors; accumulation of costs significantly in excess of the amount originally expected for the acquisition or construction of the asset; current period cash flow or operating losses combined with a history of losses or a forecast of continuing losses associated with the use of the asset; and current expectation that the asset will more likely than not be sold or disposed of significantly before the end of its estimated useful life.

Recoverability is assessed based on the carrying amounts of the asset or asset group and the sum of the undiscounted cash flows expected to result from the use and the eventual disposal of the asset. An impairment loss is recognized when the carrying amount is not recoverable and exceeds fair value.

Significant judgments and assumptions are required in the forecast of future operating results used in the preparation of the estimated future cash flows, including profit margins, long-term forecasts of the amounts and timing of overall market growth and our percentage of that market, groupings of assets, discount rates and terminal growth rates. In addition, significant estimates and assumptions are required in the determination of the fair value of our intangible assets and tangible long-lived assets, including replacement cost, economic obsolescence, and the value that could be realized in an orderly liquidation. Changes in these estimates could have a material adverse effect on the assessment of our long-lived assets, thereby requiring us to write down the assets.

**Restructuring Charges:** Restructuring charges include costs related to employee termination benefits, long-lived assets impaired or abandoned, and contract termination costs. The determination of when we accrue for employee termination benefits depends on whether the termination benefits are provided under a one-time benefit arrangement or under an on-going benefit arrangement. For restructuring charges recorded as an on-going benefit arrangement, a liability for post-employment benefits is recorded when payment is probable, the amount is reasonably estimable, and the obligation relates to rights that have vested or accumulated. For restructuring charges recorded as a one-time benefit arrangement, we recognize a liability for employee termination benefits when a plan of termination, approved by management and establishing the terms of the benefit arrangement, has been communicated to employees. The timing of the recognition of one-time employee termination benefits is dependent upon the period of time the employees are required to render service after communication. If employees are not required to render service in order to receive the termination benefits or if employees will not be retained to render service beyond the minimum legal notification period, a liability for the termination benefits is recognized at the communication date. In instances where employees will be retained to render service beyond the minimum legal notification period, the liability for employee termination benefits is measured initially at the communication date based on the fair value of the liability as of the termination date and is recognized ratably over the future service period. We continually evaluate the adequacy of the remaining liabilities under our restructuring initiatives.

We record charges related to long-lived assets to be abandoned when the assets cease to be used. When we cease using a building or other asset with remaining non-cancelable lease payments continuing beyond our use period, we record a liability for remaining payments under lease arrangements, as well as for contract termination costs, that will continue to be incurred under a contract for its remaining term without economic benefit to us at the cease-use date. Given the significance of, and the timing of the execution of such activities, this process is complex and involves periodic reassessments of estimates made at the time the original decisions were made, including evaluating real estate market conditions for expected vacancy periods and sub-lease rents. Although we believe that these estimates accurately reflect the costs of our restructuring plans, actual results may differ, thereby requiring us to record additional provisions or reverse a portion of such provisions.

**Inventory Valuation:** We state our inventories at the lower of cost (principally standard cost which approximates actual cost on a first in, first out basis) or market value. We continually assess the value of our inventory and will periodically write down its value for estimated excess inventory and product obsolescence based upon assumptions about forecasted future sales, past usage, and market conditions. On a quarterly basis, we review inventory quantities on hand and on order under non-cancelable purchase commitments in comparison to our past usage and estimated forecast of product demand for the next six to twelve months to determine what inventory quantities, if any, may not be sellable. Based on this analysis, we write down the affected inventory value for estimated excess and obsolescence charges. At the point of loss recognition, a new, lower cost basis for that inventory is established, and subsequent changes in facts and circumstances do not result in the restoration or increase in that newly established cost basis. Market conditions are subject to change, and demand for our products can fluctuate significantly. Actual consumption of inventories could differ from forecasted demand and this difference could have a material impact on our gross profit and inventory balances based on additional provisions for excess or obsolete inventories or a benefit from the sale of inventories previously written down.



## Results of Operations

The following table sets forth our operating results as a percentage of revenues:

	Fiscal 2016	Fiscal 2015	Fiscal 2014
Revenues	100.0 %	100.0 %	100.0 %
Cost of revenues	73.3	69.6	71.2
Gross profit	26.7	30.4	28.8
Operating expenses:			
Research and development	15.0	15.6	15.9
Selling, general and administrative	19.1	16.0	19.0
Restructuring and impairment charges, net	5.1	0.2	1.5
Total operating expenses	39.2	31.8	36.4
Operating loss	(12.5 )	(1.4 )	(7.6 )
Interest income, net	0.1	0.1	0.1
Other income (expense), net	(0.7 )	0.9	0.1
Loss before income taxes	(13.1 )	(0.4 )	(7.4 )
Provision (benefit) from income taxes	(11.4 )	0.1	(0.3 )
Net loss	(1.7 )%	(0.5 )%	(7.1 )%

Fiscal Years Ended December 31, 2016 and December 26, 2015

## Revenues by Segment

	Fiscal 2016	Fiscal 2015
(In thousands)		
Probe Cards	\$337,970	\$282,358
Systems	45,911	—
Total	\$383,881	\$282,358

The increase in Probe Cards Segment and Systems Segment revenues for fiscal 2016 was primarily due to additional revenues generated during the second half of fiscal 2016 from sale of probe cards (approximately \$36.7 million) and probe stations, services and thermal sub-systems (approximately \$45.9 million) products as a result of our acquisition of Cascade Microtech on June 24, 2016, and strong demand for our Foundry & Logic products. Prior to the acquisition of Cascade Microtech, we only operated in the Probe Cards Segment and did not generate any Systems Segment revenue. Further, fiscal year 2016 consisted of 53 weeks compared to 52 weeks in fiscal year 2015.

## Revenues by Market

Our product revenues by market was as follows for the periods indicated:

	Fiscal 2016	% of Revenues	Fiscal 2015	% of Revenues	Change \$	%
(In thousands, except percentages)						
Probe Cards Markets:						
Foundry & Logic	\$237,591	61.9 %	\$145,839	51.7 %	\$91,752	62.9 %
DRAM	86,910	22.6	125,512	44.4	(38,602 )	(30.8 )
Flash	13,469	3.5	11,007	3.9	2,462	22.4
Systems Market:						
Systems	45,911	12.0	—	—	45,911	100.0
Total revenues	\$383,881	100.0 %	\$282,358	100.0 %	\$101,523	36.0 %



During fiscal 2016, our Foundry & Logic products experienced strong demand across all our applications including radio-frequency, mobile, industrial and automotive and microprocessors, where our significant microprocessor customer doubled its demand compared to fiscal 2015. In addition, the overall increase in Foundry & Logic revenues in Fiscal 2016 was also due to additional revenues generated during the second half of fiscal 2016 as a result of our acquisition of Cascade Microtech. All of Cascade Microtech's probe card revenues are included in our Foundry and Logic revenues.

The decrease in our DRAM revenues in fiscal 2016 was due to lower probe card demand driven by a volatile DRAM market as DRAM manufacturers continued their technology node transitions. The overall increase in Flash memory revenues was due to several 3-D NAND design wins on our Vector and TouchMatrix product architectures.

The increase in Systems Segment revenues in fiscal 2016 was due to the acquisition of Cascade Microtech on June 24, 2016. Prior to the acquisition, we only operated in the Probe Cards Segment and did not generate any Systems Segment revenue.

#### Revenues by Geographic Region

The following table sets forth our revenues by geographic region for the periods indicated:

	Fiscal 2016	% of Revenues	Fiscal 2015	% of Revenues
(In thousands, except percentages)				
United States	\$127,641	33.3 %	\$66,051	23.4 %
South Korea	65,508	17.1	71,120	25.2
Taiwan	57,331	14.9	61,711	21.9
Europe	49,445	12.9	25,542	9.0
Asia-Pacific (1)	43,659	11.4	31,389	11.1
Japan	38,650	10.0	26,418	9.4
Rest of the world	1,647	0.4	127	—
Total Revenues	\$383,881	100.0 %	\$282,358	100.0 %

(1) Asia-Pacific includes all countries in the region except Taiwan, South Korea, and Japan, which are disclosed separately.

Geographic revenue information is based on the location to which we ship the product. For example, if a certain South Korean customer purchases through their North American subsidiary and requests the products to be shipped to an address in South Korea, this sale will be reflected in the revenue for South Korea rather than North America.

The overall increase in geographical revenues across the regions except for South Korea and Taiwan was primarily attributable to additional revenues generated in the second half of fiscal 2016 as a result of our acquisition of Cascade Microtech. In addition, North America revenues benefitted from the increased demand from our significant microprocessor customer. South Korea and Taiwan revenues decreased primarily due to the reduced demand for our DRAM products.

#### Cost of Revenues and Gross Margins

Cost of revenues consists primarily of manufacturing materials, payroll, shipping and handling costs, manufacturing-related overhead and amortization of certain intangible assets. Our manufacturing operations rely on a limited number of suppliers to provide key components and materials for our products, some of which are a sole source. We order materials and supplies based on backlog and forecasted customer orders. Tooling and setup costs related to changing manufacturing lots at our suppliers are also included in the cost of revenues. We expense all warranty costs, inventory provisions and amortization of certain intangible assets as cost of revenues. Cost of revenues

was affected primarily by our Cascade Microtech acquisition and additional factors as discussed below.

Corporate and other includes unallocated expenses relating to amortization of intangible assets, share-based compensation expense, acquisition-related costs, including charges related to inventory stepped up to fair value, and other costs, which are not used in evaluating the results of, or in allocating resources to, our reportable segments.

Acquisition-related costs include transaction costs and any costs directly related to the acquisition and integration of acquired businesses.

Our gross profit and gross margin by segment for fiscal 2016 and 2015 is as below (in thousands, except percentages):

	Fiscal 2016			
	Probe Cards	Systems	Corporate and Other	Total
Gross profit	\$121,407	\$23,925	\$(42,650)	\$102,682
Gross margin	35.9 %	52.1 %	— %	26.7 %

	Fiscal 2015			
	Probe Cards	Systems	Corporate and Other	Total
Gross profit	\$99,199	\$ —	\$(13,461)	\$85,738
Gross margin	35.1 %	— %	— %	30.4 %

#### Probe Cards

For fiscal 2016, gross profit and gross margin in the Probe Cards Segment increased due to the inclusion of the Cascade Microtech acquisition for its product sales, and improvements in overall gross margin were driven by a more favorable product mix and improved manufacturing efficiency in our Foundry & Logic factories. These benefits to gross profit and gross margin were partially offset by investments made in additional production capacity in our San Jose factory, late delivery fees on probe cards that missed our customer's required delivery date in the first quarter of fiscal 2016 and lower DRAM factory utilization in the first half of fiscal 2016.

#### Systems

Fiscal 2016 was the first year we recorded gross profit and gross margin in the Systems Segment as a result of our acquisition of Cascade Microtech on June 24, 2016. Prior to the acquisition, we operated in the Probe Cards Segment only.

#### Overall

The overall gross profit and gross margin for fiscal 2016 and 2015 is as below:

	Fiscal 2016	Fiscal 2015
	(In thousands, except percentages)	
Gross profit	\$102,682	\$85,738
Gross margin	26.7 %	30.4 %

Gross profit and margin fluctuates with revenue levels, product mix, selling prices, factory loading and material costs. For fiscal 2016, gross margins decreased when compared to the corresponding period in the prior year primarily due to the impact of lower factory utilization in certain of our factories and inclusion of the intangible asset amortization expenses from our Cascade Microtech acquisition. In addition, we made investments in additional production capacity in our San Jose factory in the first half of fiscal 2016 to support a sales increase of our Foundry & Logic probe cards to our most significant microprocessor customer. We also incurred late delivery fees on probe cards that missed our customer's required delivery date in the first quarter of fiscal 2016. This impact was partially offset by strong sales and gross margin in the second half of fiscal 2016 resulting from our acquisition of Cascade Microtech.

Stock-based compensation expense included in gross margin for fiscal 2016 and 2015 was \$2.5 million and \$2.7 million, respectively.

Future gross margins may be adversely impacted by lower levels of revenues and lower factory utilization even though we have taken significant steps to reduce our operating cost structure. Our gross margins may also be adversely affected if we are required to record additional inventory provision charges and inventory write-downs if estimated average selling prices of products held in finished goods and work in process inventories are below the manufacturing cost of those products.

## Research and Development

	Fiscal 2016	Fiscal 2015	
	(In thousands, except percentages)		
Research and development	\$57,453	\$44,184	
% of revenues	15.0	% 15.6	%

The increase in research and development expenses for fiscal 2016 when compared to fiscal 2015 was primarily due to our Cascade Microtech acquisition. Including the impact of the acquisition, we experienced an increase of \$8.3 million in employee compensation costs, \$3.1 million in project material and services costs and \$1.6 million in general operating expenses. Stock-based compensation expense included within research and development expenses was \$3.3 million and \$3.5 million, respectively, for fiscal 2016 and 2015.

## Selling, General and Administrative

	Fiscal 2016	Fiscal 2015	
	(In thousands, except percentages)		
Selling, general and administrative	\$73,444	\$45,090	
% of revenues	19.1	% 16.0	%

The increase in selling, general and administrative expenses for fiscal 2016 when compared to fiscal 2015 was primarily due to our Cascade Microtech acquisition. Including the impact of the acquisition, we experienced an increase of \$12.4 million in employee compensation costs, \$7.3 million in acquisition and integration costs, \$2.7 million in depreciation and amortization charges, \$2.1 million in general operating costs, \$2.0 million in travel related costs and \$1.8 million in consulting fees. Stock-based compensation expense included within selling, general and administrative expenses was \$4.9 million and \$5.4 million, respectively for fiscal 2016 and 2015.

## Restructuring and Impairment Charges, net

	Fiscal 2016	Fiscal 2015	
	(In thousands, except percentages)		
Restructuring and impairment charges, net	\$19,692	\$567	
% of revenues	5.1	% 0.2	%

Restructuring and impairment charges, net increased \$19.1 million in fiscal 2016 from fiscal 2015.

## Restructuring Charges

The restructuring plans we implemented in fiscal 2016 and 2015 are discussed below.

## 2016 Restructuring Activities

During fiscal 2016, we recorded;

- approximately \$0.8 million of severance charges and \$0.3 million of stock-based compensation expense relating to the modification of certain equity-based awards as a result of the consolidation of our operations;
- approximately \$5.4 million of severance charges and \$0.7 million of stock-based compensation expense relating to the acceleration of certain equity-based awards of certain executives of Cascade Microtech who were terminated upon our acquisition of Cascade Microtech and in accordance with their contractual change of control agreements; and
- approximately \$0.1 million of cease use charges relating to abandoned facilities no longer to be used in our operations.



The cash payments associated with the restructuring activities are expected to be completed by the end of the second quarter of fiscal 2017.

#### 2015 Restructuring Activities

During fiscal 2015, we recorded restructuring charges of approximately \$0.6 million which included stock-based compensation expense of approximately \$0.5 million relating to the modification of an equity-based award.

#### Impairment of Long-Lived Assets

We test long-lived assets or asset groups for recoverability when events or changes in circumstances indicate that their carrying amounts may not be recoverable. In fiscal 2016, we recorded an impairment charge of \$12.4 million relating to an in-process research and development intangible asset acquired as part of our acquisition of Cascade Microtech. During the fourth quarter of fiscal 2016 and subsequent to the Cascade Microtech acquisition, we were informed by a customer that they had abandoned their project for which this intangible asset was being developed for, and therefore we fully impaired this intangible asset as it had no alternative future use to us. Long-lived asset impairment charges recorded in fiscal 2015 were insignificant.

#### Interest Income and Other Income (Expense), Net

	Fiscal 2016	Fiscal 2015		
	(In thousands, except percentages)			
Interest income, net	\$327	\$285		
% of revenues	0.1	% 0.1	%	
Other income (expense), net	\$(2,615)	\$2,547		
% of revenues	(0.7	)% 0.9	%	

Interest income is primarily earned on our cash, cash equivalents and marketable securities. The increase in interest income for fiscal 2016 as compared to fiscal 2015 was primarily the result of higher yields on our cash balances. The weighted-average yield on our cash and cash equivalents and marketable securities for fiscal 2016 and 2015 was 0.31% and 0.12%, respectively. Cash and cash equivalents, restricted cash and marketable securities were \$110.1 million at December 31, 2016 compared to \$188.0 million at December 26, 2015.

Other income (expense), net is comprised primarily of interest expense on our Term Loan and interest-rate swap derivative contracts, term loan issuance costs amortization charges, foreign currency impact and various other gains and losses. The decrease in other income (expense), net for fiscal 2016 as compared to fiscal 2015 was primarily due to approximately \$2.4 million of charges related to interest payments on our term loan and interest-rate swap derivative contracts and term loan issuance cost amortization charges, which was partially offset by the receipt of \$0.4 million of proceeds from the sale of intellectual property.

During fiscal 2015, we received \$1.5 million as a result of a payment from our insurer arising from a business interruption insurance claim related to a factory fire at a customer during the second half of fiscal 2013. In addition, we recognized a net gain of \$1.0 million from the sale of intellectual property.

#### Provision (Benefit) From Income Taxes

Fiscal 2016	Fiscal 2015
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(In thousands,  
except percentages)

Provision (benefit) from income taxes	\$(43,638)	\$252
Effective tax rate	86.9	% (19.8)%

We recorded an income tax benefit of \$43.6 million and a provision of \$0.3 million for fiscal 2016 and 2015, respectively. Income tax provisions reflect the tax on our operations in the US and foreign jurisdictions and the tax benefit from the lapsing of the statute of limitations in foreign jurisdictions.

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The income tax benefit for fiscal 2016 was primarily due to the release of valuation allowance on a portion of our deferred tax assets ("DTAs"). In connection with our acquisition of Cascade Microtech on June 24, 2016, deferred tax liabilities ("DTLs") were established on the acquired identifiable intangible assets. These DTLs exceeded the acquired DTAs by approximately \$44.0 million and created additional sources of income to realize a tax benefit for a portion of our DTAs. As such, authoritative guidance under United States GAAP requires the impact on the acquiring company's deferred tax assets and liabilities caused by an acquisition be recorded in the acquiring company's financial statements outside of acquisition accounting. Accordingly, the valuation allowance on a portion of our DTAs was released and resulted in a fiscal 2016 income tax benefit of approximately \$43.6 million.

We recognize interest (benefit) charges and penalties related to uncertain tax positions as part of the income tax provision. We recognized interest (benefit) charges and penalties of \$22 thousand, \$50 thousand and \$(0.1) million in fiscal 2016, 2015, and 2014, respectively. As of December 31, 2016 and December 26, 2015, we had accrued total interest charges and penalties of \$0.2 million and \$0.2 million, respectively, related to uncertain tax positions.

We anticipate that we will continue to record a valuation allowance against our U.S. deferred tax assets. We expect our future tax provisions, during the time such valuation allowances are recorded, will consist primarily of the tax provision of our profitable non-U.S. jurisdictions and state minimum tax. At December 31, 2016, we had Federal research and development tax credit, net operating loss, and foreign tax credit carryforwards of \$22.5 million, \$298.7 million and \$2.2 million, respectively, which will expire at various dates from 2017 through 2036. We had alternative minimum tax credits of \$2.4 million which do not expire. We had California and Oregon research credits of \$29.9 million and \$0.6 million, respectively. The California research credit can be carried forward indefinitely while Oregon research credits expire at various dates from 2017 through 2022. We had state net operating loss carryforwards of approximately \$271.7 million, which will expire at various dates from 2017 through 2036. We had Singapore net operating loss carryforwards of approximately \$9.7 million, which can be carried forward indefinitely.

Our effective tax rate may vary from period to period based on changes in estimated taxable income or loss by jurisdiction, changes to the valuation allowance, changes to U.S. Federal, state or foreign tax laws, future expansion into areas with varying country, state, and local income tax rates, deductibility of certain costs and expenses by jurisdiction.

Fiscal Years Ended December 26, 2015 and December 27, 2014

#### Revenues

	Fiscal 2015	% of Revenues	Fiscal 2014	% of Revenues	Change \$	%
(In thousands, except percentages)						
Revenues by Market:						
Foundry and Logic	\$145,839	51.7 %	\$142,360	53.0 %	\$3,479	2.4 %
DRAM	125,512	44.4	110,800	41.3	14,712	13.3
Flash	11,007	3.9	15,370	5.7	(4,363 )	(28.4)
Total revenues	\$282,358	100.0 %	\$268,530	100.0 %	\$13,828	5.1 %

Overall, our revenues increased by 5.1%, or \$13.8 million, in fiscal 2015 as compared to fiscal 2014. Our revenues increased 2.4% year-over-year in the Foundry and Logic market, increased 13.3% in DRAM and decreased 28.4% in Flash memory.

The increase in DRAM revenue was primarily driven by market share increases at a major South Korean memory producer, based on the adoption of our SmartMatrix product. The increase in Foundry and Logic revenue was primarily due to higher mobile processor demand and market share gains for our CMOS Image Sensor testing products at a European customer. The decrease in Flash memory revenue was primarily due to a weakening NOR Flash memory market, which was partially offset by increased demand for our TouchMatrix product to test NAND Flash devices at a South Korean memory producer.



## Revenues by Geographic Region

The following table sets forth our revenues by geographic region for the periods indicated:

	Fiscal 2015	% of Revenues	Fiscal 2014	% of Revenues
(In thousands, except percentages)				
South Korea	\$71,120	25.2 %	\$52,677	19.6 %
North America	66,178	23.4	75,393	28.1
Taiwan	61,711	21.9	49,395	18.4
Asia-Pacific (1)	31,389	11.1	34,705	12.9
Japan	26,418	9.4	25,683	9.6
Europe	25,542	9.0	30,677	11.4
Total Revenues	\$282,358	100.0 %	\$268,530	100.0 %

(1) Asia-Pacific includes all countries in the region except Taiwan, South Korea, and Japan, which are disclosed separately.

Geographic revenue information is based on the location to which we ship the customer product. For example, if a certain South Korean customer purchases through their North American subsidiary and requests the products to be shipped to an address in Asia-Pacific, this sale will be reflected in the revenue for Asia-Pacific rather than North America.

The change in revenues from our geographical regions for fiscal 2015, when compared to fiscal 2014, were primarily driven by the following factors:

South Korea revenues increased driven primarily by a combination of market share increases at a major South Korean customer based on the adoption of our SmartMatrix product for DRAM applications and increased Foundry and Logic product shipments related to mobile processor demand;

North America revenues decreased driven primarily by a shift of Foundry and Logic product shipments for personal computer processors to customers' test facilities in Europe;

Taiwan revenues increased driven primarily by a combination of increased Foundry and Logic product shipments and an increase in commodity or personal computer DRAM demand;

Asia-Pacific revenues decreased driven primarily by reduced sales of our SmartMatrix DRAM products;

Europe revenues decreased driven primarily due to reduced mobile processor related product demand, partially offset by a shift of Foundry and Logic product shipments for personal computer processors to customers' test facilities in Europe; and

Japan revenues were relatively flat year over year.

## Gross Profit

	Fiscal 2015	Fiscal 2014
(In thousands, except percentages)		
Gross profit	\$85,738	\$77,439
Gross margin	30.4 %	28.8 %

Gross margin fluctuates with revenue levels, product mix, selling prices, factory loading and material costs. For fiscal 2015, gross profit increased \$8.3 million when compared to fiscal 2014, primarily due to higher production volume driven by higher sales. Factory utilization, execution and operating efficiency improved. We also increased production yields and reduced obsolete inventory charges and acquisition-related intangible amortization expense. This was offset by price reductions due to competition at several customers.

Our net inventory provision charges declined by \$0.6 million in fiscal 2015 compared to fiscal 2014 due to increased demand levels. The value of previously reserved materials that were used in manufacturing and shipped for fiscal 2015 and 2014 was \$2.5 million and \$2.4 million, respectively.

Gross margin included intangible asset amortization expense of \$10.8 million and \$15.8 million in fiscal 2015 and 2014, respectively, related to the MicroProbe Acquisition. Stock-based compensation expense included in gross margin for fiscal 2015 and 2014 was \$2.7 million and \$2.4 million, respectively.

Future gross margins may be adversely impacted by lower levels of product revenues, even though we have taken significant steps to reduce our operating cost structure. Our gross margins may also be adversely affected if we are required to record additional inventory write-downs if estimated average selling prices of products held in finished goods and work in process inventories are below the manufacturing cost of those products.

#### Research and Development

	Fiscal 2015	Fiscal 2014
	(In thousands, except percentages)	
Research and development	\$44,184	\$42,725
% of revenues	15.6	% 15.9

Research and development expenses for fiscal 2015 increased \$1.5 million, or 3%, compared to the prior year and was primarily due to an increase of \$1.2 million in project and material costs, \$0.4 million in incentive compensation and \$0.3 million in personnel-related costs offset by a reduction of \$0.4 million in overall general operating expenses. Stock-based compensation expense included within research and development expenses was \$3.5 million and \$3.5 million, respectively, for fiscal 2015 and 2014.

Our research and development expenses fluctuate as projects transition from development to manufacturing, depending on the stage of completion and level of effort related to each project undertaken. We are continuing our strategic investments in research and development, including investments in new spring technologies, substrate architectures and new process technologies. We remain committed to product development in new and emerging technologies.

#### Selling, General and Administrative

	Fiscal 2015	Fiscal 2014
	(In thousands, except percentages)	
Selling, general and administrative	\$45,090	\$51,385
% of revenues	16.0	% 19.0

Selling, general and administrative expenses decreased \$6.3 million, or 12%, in fiscal 2015 compared to the prior year and was primarily due to decreases of \$2.1 million in personnel-related costs, \$1.9 million in stock compensation expense, \$1.2 million in legal expenses, \$0.9 million in overall general operating expenses and \$0.3 million in travel costs which was partially offset by an increase of \$0.2 million in consulting costs to support strategic corporate initiatives. Stock-based compensation expense included within selling, general and administrative expenses was \$5.4 million and \$7.3 million, respectively for fiscal 2015 and 2014.

#### Restructuring and Impairment Charges, net

Fiscal 2015	Fiscal 2014
(In thousands, except percentages)	

Restructuring and impairment charges, net	\$567	\$3,887
% of revenues	0.2 %	1.5 %

Restructuring charges decreased \$2.1 million, or 79%, in fiscal 2015 from fiscal 2014. The restructuring plans we implemented in fiscal 2015 and 2014 are discussed below.

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## 2015 Restructuring Activities

During fiscal 2015, we recorded restructuring charges of approximately \$0.6 million which included stock-based compensation expense of approximately \$0.5 million relating to the modification of an equity-based award. All other restructuring charges recorded in fiscal 2015 were insignificant.

## 2014 Restructuring Activities

On January 27, 2014, we announced a global organizational restructuring and cost reduction plan. As part of the plan, we eliminated 52 full-time employees. In addition, we reduced our temporary workforce by 9 positions. We recorded \$2.0 million of restructuring charges during the first quarter of fiscal 2014, which was comprised of \$1.4 million in severance and related benefits and \$0.6 million in impairment charges for certain equipment that would no longer be utilized. During the remainder of fiscal 2014, we further eliminated an additional 5 full-time positions and recorded \$0.7 million in severance charges. The activities comprising these restructuring activities were substantially completed in fiscal 2014 and the remaining cash payments associated with these activities were paid in fiscal 2015.

## Impairment of Long-Lived Assets

We test long-lived assets or asset groups for recoverability when events or changes in circumstances indicate that their carrying amounts may not be recoverable. In fiscal 2015, long-lived asset impairment charges recorded were insignificant. In fiscal 2014, we recorded impairment charges of \$1.2 million related to manufacturing assets we no longer utilize.

## Interest Income and Other Income (Expense), Net

	Fiscal 2015	Fiscal 2014
	(In thousands, except percentages)	
Interest income, net	\$285	\$302
% of revenues	0.1	% 0.1 %
Other income (expense), net	\$2,547	\$161
% of revenues	0.9	% 0.1 %

Interest income is primarily earned on our cash, cash equivalents and marketable securities. The decrease in interest income for fiscal 2015 as compared to fiscal 2014 was primarily the result of lower yields. Cash, cash equivalents, restricted cash and marketable securities were \$188.0 million at December 26, 2015 compared to \$164.3 million at December 27, 2014. The weighted-average yield on our cash, cash equivalents and marketable securities for fiscal 2015 and 2014 was 0.12% and 0.16%, respectively.

The increase in other income (expense), net, in fiscal 2015 as compared to fiscal 2014 was primarily due to approximately \$1.0 million net gain recognized from the sale of intellectual property to MarTek pursuant to a settlement agreement and approximately \$1.5 million cash received as a result of a payment from our insurer arising from a business interruption insurance claim related to a factory fire at a customer during the second half of fiscal 2013.

## Provision (Benefit) From Income Taxes

Fiscal 2015	Fiscal 2014
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(In thousands,  
except  
percentages)

Provision (benefit) from income taxes	\$252	\$(910)
Effective tax rate	(19.8)%	4.5 %

We recorded an income tax provision of \$0.3 million and a benefit of \$0.9 million for fiscal 2015 and 2014, respectively. Income tax provisions reflect the tax on our operations in the US and foreign jurisdictions and the tax benefit from the lapsing of the statute of limitations in foreign jurisdictions.

We recognize interest (benefit) charges and penalties related to uncertain tax positions as part of the income tax provision. We recognized interest (benefit) charges and penalties of \$50 thousand, \$(0.1) million and \$(0.2) million in fiscal

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2015, 2014, and 2013, respectively. As of December 26, 2015 and December 27, 2014, we had accrued total interest charges and penalties of \$0.2 million and \$0.1 million, respectively, related to uncertain tax positions.

We anticipate that we will continue to record a valuation allowance against our U.S. deferred tax assets. We expect our future tax provisions, during the time such valuation allowances are recorded, will consist primarily of the tax provision of our profitable non-U.S. jurisdictions and state minimum tax. At December 26, 2015, we had Federal research and development tax credit, net operating loss, and foreign tax credit carryforwards of \$21.0 million, \$298.7 million and \$2.0 million, respectively, which will expire at various dates from 2016 through 2035. We had alternative minimum tax credits of \$2.4 million which do not expire. We had California research credit and net operating loss carryforwards of \$28.4 million and \$270.7 million, respectively. The California research credit can be carried forward indefinitely while California net operating loss carryforwards will expire at various dates from 2016 through 2035. We had Japan and Singapore net operating loss carryforwards of approximately \$0.3 million and \$10.0 million, respectively.

Our effective tax rate may vary from period to period based on changes in estimated taxable income or loss by jurisdiction, changes to the valuation allowance, changes to U.S. Federal, state or foreign tax laws, future expansion into areas with varying country, state, and local income tax rates, deductibility of certain costs and expenses by jurisdiction.

#### Liquidity and Capital Resources

**Capital Resources:** Our working capital was \$172.0 million at December 31, 2016 and \$214.4 million at December 26, 2015. The decrease in working capital in fiscal 2016 was primarily due to the acquisition of Cascade Microtech. We reduced cash and cash equivalents and marketable securities and increased our current liabilities for the current portion of term loan as part of the consideration paid for Cascade Microtech. See Note 4 to the Notes to Consolidated Financial Statements - Acquisition, for further details.

Cash and cash equivalents consist of deposits held at banks, money market funds and U.S. government agency securities that at the time of purchase had maturities of 90 days or less. Marketable securities consist of U.S. government and agency securities. We typically invest in highly-rated securities with low probabilities of default. Our investment policy requires investments to be rated single-A or better, and limits the types of acceptable investments, issuer concentration and duration of the investment.

Our cash and cash equivalents and marketable securities totaled \$108.9 million at December 31, 2016 compared to \$187.6 million at December 26, 2015. Cash and cash equivalents and marketable securities included \$27.6 million held by our foreign subsidiaries as of December 31, 2016. We believe that we will be able to satisfy our working capital requirements for at least the next twelve months with the liquidity provided by our existing cash and cash equivalents and marketable securities. If we are unsuccessful in maintaining or growing our revenues, or maintaining or reducing our cost structure in an industry down-turn, or increasing our available cash through financing, our cash and cash equivalents and marketable securities may decline in fiscal 2017.

We utilize a variety of tax planning and financing strategies in an effort to manage our worldwide cash and deploy funds to locations where they are needed. As part of these strategies, we indefinitely reinvest a significant portion of our foreign earnings and our current plans do not demonstrate a need to repatriate these earnings. Should we require additional capital in the United States, we may elect to repatriate indefinitely reinvested foreign funds or raise capital in the United States. If we were to repatriate indefinitely reinvested foreign funds, we would be required to first reduce our U.S. tax net operating losses ("NOLs") and we would be required to accrue and pay additional U.S. taxes less applicable foreign tax credits for any repatriation in excess of our US NOL's.

**Day Sales Outstanding:** Days sales outstanding from receivables, or DSO, were 58 days at December 31, 2016 compared with 45 days at December 26, 2015. Our DSO calculation is determined using the count back method and is based on gross accounts receivable (including accounts receivable for amounts in deferred revenue). The increase in DSO in fiscal 2016 as compared to fiscal 2015 was primarily due to changes in customer mix and their payment terms.





	Fiscal 2016	Fiscal 2015	Fiscal 2014
	(In thousands)		
Net cash provided by operating activities	\$17,423	\$36,122	\$17,659
Net cash (used in) provided by investing activities	(206,318 )	1,129	37,339
Net cash provided by (used in) financing activities	\$143,614	\$(4,792 )	\$2,542

On June 24, 2016, we completed the acquisition of Cascade Microtech. Our consolidated financial statements as of December 31, 2016 included the consolidated balance sheet of Cascade Microtech as of December 31, 2016 whereas our consolidated statements of operations for the fiscal year ended December 31, 2016 included the financial results of Cascade Microtech only for the third and fourth quarters of fiscal 2016. We excluded the financial results of Cascade Microtech for the second quarter of fiscal 2016 as the one-day stub period between the acquisition of Cascade Microtech on June 24, 2016 and the end of our second quarter of fiscal 2016 on June 25, 2016 was immaterial. See Note 4 to Notes to Consolidated Financial Statements - Acquisition, for further details.

Cash flows from operating activities: Net cash provided by operating activities for fiscal 2016 was primarily attributable to our operations generating \$36.5 million (a net loss of \$6.6 million which included \$43.1 million of net non-cash expenses) offset by working capital using \$19.1 million of cash. Net non-cash expenses included \$46.8 million of depreciation and amortization, \$12.4 million in impairment charges relating to the write-off of an in-process research and development intangible asset, \$10.7 million of stock-based compensation, \$10.0 million of acquisition-related inventory step-up amortization, \$6.6 million of provision for excess and obsolete inventories, \$1.0 million of restructuring activities and \$0.4 million of loss on disposal and write-off of long-lived assets. These non-cash expenses were partially offset by \$45.0 million of deferred income tax benefit as a result of the release of valuation allowance and \$0.1 million gain on foreign currency transactions.

The net change in working capital for fiscal 2016 of \$19.1 million resulted primarily from the acquisition of Cascade Microtech. The change was comprised of cash used of \$11.7 million for inventory build, \$6.8 million in accounts receivable from higher sales and slower collections, an increase of \$3.3 million in prepaid expenses and other current assets, payments of \$1.1 million in income taxes, a decrease of \$0.3 million in deferred revenues due to recognition of previously deferred revenues for which the revenue recognition criteria have been met, and an increase of \$0.2 million in other assets. The above use of cash was partially offset by an increase of \$3.4 million in accounts payable driven by payment on vendor obligations and an increase of \$0.8 million in accrued liabilities due to incentive compensation.

Net cash provided by operating activities for fiscal 2015 was primarily attributable to improved operating results from increased revenues and decreased costs, and lower working capital necessary to support the increased revenues. The company had a net loss of \$1.5 million and non-cash expenses of \$41.1 million, including \$23.8 million of depreciation and amortization, \$11.6 million of stock-based compensation, \$6.5 million of provision for excess and obsolete inventories, \$0.5 million of restructuring activities and which was partially offset by \$1.0 million gain on disposal and write-off of long-lived assets and \$0.3 million gain on foreign currency transactions.

The net change in operating assets and liabilities for fiscal 2015 resulted in a net use of cash of \$3.4 million comprised of \$8.2 million of cash used for inventory build, a \$2.4 million decrease in deferred revenues due to recognition of previously deferred revenues for which the revenue recognition criteria have been met and a \$2.0 million decrease in accounts payable driven by the timing of our payments on vendor obligations. The above use of cash was offset in part by an increase of \$8.3 million in accounts receivable from strong collections, \$0.8 million in income tax refunds and a \$0.3 million decrease in other assets.

Cash flows from investing activities: Net cash used in investing activities for fiscal 2016 was primarily related to \$228.0 million paid (net of cash acquired) as part of the consideration for the acquisition of Cascade Microtech, cash used in the acquisition of property and equipment of \$11.5 million, purchases of marketable securities totaling \$10.6 million and an increase in restricted of \$0.8 million due to foreign subsidiary employee retirement obligations, which was partially offset by \$44.5 million of proceeds from maturities of marketable securities. We carefully monitor our

investments to minimize risks and have not experienced other than temporary investment losses.

Net cash provided by investing activities for fiscal 2015 was primarily related to \$74.8 million of proceeds from maturities of marketable securities and \$1.2 million of proceeds from sales of property, plant and equipment offset by purchases of marketable securities totaling \$66.2 million and cash used in the acquisition of property and equipment of \$8.6 million.

Cash flows from financing activities: Net cash provided by financing activities for fiscal 2016 primarily related to \$150.0 million of proceeds from Term Loan debt used to partially fund the acquisition of Cascade Microtech and \$5.7 million from proceeds received from purchases under our 2012 Employee Stock Purchase Plan and stock option exercises, partially offset by \$10.6 million of principal payments made towards the repayment of our Term Loan and \$1.5 million used to pay for Term Loan debt issuance costs.

Net cash used in financing activities for fiscal 2015 included \$8.2 million used for the repurchase and retirement of our common stock offset by \$3.4 million from proceeds received from purchases under our 2012 Employee Stock Purchase Plan and stock option exercises.

Our cash and cash equivalents and marketable securities decreased by \$78.7 million in fiscal 2016 primarily due to the cash portion of the consideration paid for the acquisition of Cascade Microtech partially offset by proceeds from the \$150 million Term Loan we entered into on June 24, 2016 to fund the acquisition. We continue to focus on improving our operating efficiency to increase operating cash flows. We believe that we will be able to satisfy our cash requirements for at least the next twelve months with the liquidity provided by our existing cash, cash equivalents and marketable securities. To the extent necessary, we may also consider entering into short and long-term debt obligations, raising cash through a stock issuance, or obtaining new financing facilities which may not be available on terms favorable to us. Our future capital requirements may vary materially from those now planned. However, if we are unsuccessful in maintaining or growing our revenues, or maintaining or reducing our cost structure in an industry down-turn, or increasing our available cash through financing, our cash and cash equivalents and marketable securities could decline in future fiscal years.

#### Contractual Obligations and Commitments

The following table summarizes our significant contractual commitments to make future payments in cash under contractual obligations as of December 31, 2016 (in thousands):

	Payments Due In Fiscal Years						Total
	2017	2018	2019	2020	2021	After 2021	
	(In thousands)						
Operating leases	\$6,279	\$5,789	\$4,882	\$3,581	\$3,236	\$15,734	\$39,501
Purchase obligations	33,696	4,550	515	—	—	—	38,761
Senior secured term loan facility-principal payments (1)	13,125	26,250	41,250	50,625	8,125	—	139,375
Senior secured term loan facility-interest payments (2)	2,828	2,400	1,739	821	41	—	7,829
Total	\$55,928	\$38,989	\$48,386	\$55,027	\$11,402	\$15,734	\$225,466

(1) On June 24, 2016, we entered into a senior secured term loan facility in an aggregate amount of \$150 million in order to finance a portion of the Cascade Microtech acquisition consideration. See Note 5 to Notes to Consolidated Financial Statements - Debt, for further details. (2) Represents our minimum interest payment commitments at 2.00% per annum.

Purchase obligations are primarily for purchases of inventory and manufacturing related service contracts. For the purposes of this table, purchase obligations are defined as agreements that are enforceable and legally binding and that specify all significant terms, including: fixed or minimum quantities to be purchased; fixed, minimum or variable price provisions; and the approximate timing of the transaction. The expected timing of payment of the obligations discussed above is estimated based on information available to us as of December 31, 2016. Timing of payments and actual amounts paid may be different depending on the timing of receipt of goods or services or changes to agreed-upon amounts for some obligations.

The table above excludes our gross liability for unrecognized tax benefits, which totaled approximately \$18.0 million as of December 31, 2016. The timing of any payments which could result from these unrecognized tax benefits will

depend upon a number of factors. Accordingly, the timing of payment cannot be estimated and has been excluded from the table above. As of December 31, 2016, the changes to our uncertain tax positions in the next 12 months that are reasonable and probable are not expected to have a significant impact on our financial position or results of operations.

#### Off-Balance Sheet Arrangements

Historically, we have not participated in transactions that have generated relationships with unconsolidated entities or financial partnerships, such as entities often referred to as structured finance or special purpose entities, which would have been established for the purpose of facilitating off-balance sheet arrangements or other contractually narrow or limited purposes. As of December 31, 2016, we were not involved in any off-balance sheet arrangements.

#### Indemnification Agreements

We have entered, and may, from time to time in the ordinary course of our business enter into contractual arrangements with third parties that include indemnification obligations. Under these contractual arrangements, we have agreed to defend, indemnify and/or hold the third party harmless from and against certain liabilities. These arrangements include indemnities in favor of customers in the event that our probe cards infringe a third party's intellectual property and our lessors in connection with facility leasehold liabilities that we may cause. In addition, we have entered into indemnification agreements with our directors and certain of our officers, and our bylaws contain indemnification obligations in favor of our directors, officers and agents. These indemnity arrangements may limit the type of the claim, the total amount that we can be required to pay in connection with the indemnification obligation and the time within which an indemnification claim can be made. The duration of the indemnification obligation may vary and, for most arrangements, survives the agreement term and is indefinite. We believe that substantially all of our indemnity arrangements provide either for limitations on the maximum potential future payments we could be obligated to make, or for limitations on the types of claims and damages we could be obligated to indemnify, or for both. However, it is not possible to determine or reasonably estimate the maximum potential amount of future payments under these indemnification obligations due to the varying terms of such obligations, the history of prior indemnification claims, the unique facts and circumstances involved in each particular contractual arrangement and in each potential future claim for indemnification, and the contingency of any potential liabilities upon the occurrence of events that are not reasonably determinable. We have not had any requests for indemnification under these arrangements. We have not recorded any liabilities for these indemnification arrangements on our consolidated balance sheet as of December 31, 2016.

#### Recent Accounting Pronouncements

In January 2017, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") 2017-01, "Business Combinations (Topic 805) - Clarifying the Definition of a Business" which clarifies the definition and provides a more robust framework to use in determining when a set of assets and activities constitutes a business. ASU 2017-01 is intended to provide guidance when evaluating whether transactions should be accounted for as acquisitions (or disposals) of assets or businesses. ASU 2017-01 will be effective for us at the beginning of the first quarter of fiscal year 2018 and is not expected to have a significant impact on our financial statements.

In November 2016, the FASB issued ASU 2016-18, "Statement of Cash Flows (Topic 230) - Restricted Cash" which requires that a statement of cash flows explain the change during the period in the total of cash, cash equivalents, and amounts generally described as restricted cash or restricted cash equivalents. Therefore, amounts generally described as restricted cash and restricted cash equivalents should be included with cash and cash equivalents when reconciling the beginning-of-period and end-of-period total amounts shown on the statement of cash flows. ASU 2016-18 will be effective for us at the beginning of the first quarter of fiscal year 2018 and is not expected to have a significant impact on our financial statements.

In April 2016, the FASB issued ASU 2016-10, "Revenue from Contracts with Customers (Topic 606): Identifying Performance Obligations and Licensing" and which was issued to clarify Accounting Standards Codification ("ASC") Topic 606, "Revenue from Contracts with Customers" related to (i) identifying performance obligations; and (ii) the licensing implementation guidance. The effective date and transition of ASU 2016-10 is the same as the effective date and transition of ASU 2014-09, "Revenue from Contracts with Customers (Topic 606)," as discussed below.

In March 2016, the FASB issued ASU 2016-09, "Improvements to Employee Share-Based Payment Accounting", which amends ASC Topic 718, "Compensation - Stock Compensation". The ASU includes provisions intended to

simplify various aspects related to how share-based payments are accounted for and presented in the financial statements and is effective for us beginning in our fiscal 2017 though early adoption is permitted. We are evaluating the effects of the adoption of this ASU on our financial statements.

In February 2016, the FASB issued ASU 2016-02, Leases. ASU 2016-02 requires that lease arrangements longer than twelve months result in an entity recognizing an asset and liability. The updated guidance is effective for interim and annual

periods beginning after December 15, 2018, and early adoption is permitted. We are evaluating the impact of the updated guidance on our consolidated financial statements.

In May 2014, the FASB issued ASU No. 2014-09, "Revenue from Contracts with Customers", and in August 2015 the FASB issued ASU 2015-14, "Revenue from Contracts with Customers (Topic 606): Deferral of the Effective Date," which defers the effective date of ASU 2014-09 by one year. ASU 2014-09 requires an entity to recognize revenue to depict the transfer of goods or services to customers in an amount that reflects the consideration to which an entity expects to be entitled in exchange for those goods or services. The guidance also requires expanded disclosures relating to the nature, amount, timing, and uncertainty of revenue and cash flows arising from contracts with customers. Additionally, qualitative and quantitative disclosures are required about customer contracts, significant judgments and changes in judgments, and assets recognized from the costs to obtain or fulfill a contract. The standard permits the use of either the retrospective or cumulative effect transition methods. This guidance will replace most existing revenue recognition guidance in United States GAAP when it becomes effective, which for us will be at the beginning of the first quarter of fiscal year 2018 using one of the two prescribed transition methods. Early adoption of one year prior to the required effective date is permitted.

We do not plan to early adopt the guidance. We have substantially completed our evaluation of the impact of this ASU on our Systems and Probes Cards Segments. Depending on the results of our review, there could be changes to the timing of recognition of revenues. We expect to complete our assessment process, including selecting a transition method for adoption, by the end of the third quarter of our fiscal 2017 along with our implementation process prior to the adoption of this ASU on January 1, 2018.

#### Item 7A: Quantitative and Qualitative Disclosures about Market Risk

**Foreign Currency Exchange Risk.** We conduct certain operations in foreign currencies. We enter into currency forward exchange contracts to hedge a portion, but not all, of existing foreign currency denominated amounts. Gains and losses on these contracts are generally recognized in "Other income (expense) net" in our Consolidated Statements of Operations. Because the effect of movements in currency exchange rates on the currency forward exchange contracts generally offsets the related effect on the underlying items being hedged, these financial instruments are not expected to subject us to risks that would otherwise result from changes in currency exchange rates. We do not use derivative financial instruments for trading or speculative purposes. We recognized a net loss of \$0.7 million and \$2.1 million, respectively for fiscal 2016 and 2015, from the fluctuation in foreign exchange rates and the valuation of these hedge contracts.

**Interest Rate Sensitivity.** Our exposure to market risk for changes in interest rates relates primarily to our investment portfolio. We invest in a number of securities including U.S. agency discount notes, money market funds and commercial paper. We attempt to ensure the safety and preservation of our invested principal funds by limiting default risk, market risk and reinvestment risk. We mitigate default risk by investing in high grade investment securities. By policy, we limit the amount of credit exposure to an issuer, except U.S. Treasuries and U.S. agencies.

Our exposure to interest rate risk arising from our Term Loan debt (See Note 5 to Notes to Consolidated Financial Statements - Debt for further details) is insignificant as a result of the interest-rate swap agreement (See Note 8 to Notes to Consolidated Financial Statements - Derivative Financial Instruments for further details) that we entered into with HSBC and other lenders to hedge the interest payments on our term loan entered into on June 24, 2016.

We use interest rate derivative instruments to manage interest rate exposures. We do not use derivative instruments for trading or speculative purposes. The fair market value of our fixed rate securities may be adversely impacted by increases in interest rates while income earned on floating rate securities may decline as a result of decreases in interest rates. A hypothetical 100 basis-point (one percentage point) increase or decrease in interest rates compared to rates at December 31, 2016 and December 26, 2015 would have affected the fair value of our investment portfolio by less than \$0.1 million and \$0.2 million, respectively.

#### Item 8: Financial Statements and Supplementary Data

##### Consolidated Financial Statements

The consolidated financial statements and supplementary data of FormFactor required by this item are included in the section entitled "Consolidated Financial Statements" of this Annual Report on Form 10-K. See Item 15(a)(1) for a list of our consolidated financial statements.



Item 9: Changes in and Disagreements with Accountants on Accounting and Financial Disclosure  
None.

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## Item 9A: Controls and Procedures

### Evaluation of Disclosure Controls and Procedures

Based on our management's evaluation (with the participation of our Principal Executive Officer and Principal Financial Officer), as of the end of the period covered by this report, our Principal Executive Officer and Principal Financial Officer have concluded that our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended, (the "Exchange Act")) were effective to ensure that information required to be disclosed by us in reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in SEC rules and forms and is accumulated and communicated to our management, including our Principal Executive Officer and Principal Financial Officer, as appropriate to allow timely decisions regarding required disclosure.

### Changes in Internal Control over Financial Reporting

There was no change in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) except as described below under Management's Report on Internal Control over Financial Reporting that occurred during the period covered by this Annual Report on Form 10-K that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

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

Our management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act. Internal control over financial reporting is a process designed by, or under the supervision of, our Principal Executive Officer and Principal Financial Officer, and effected by our board of directors, management and other personnel and consultants, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles, and includes those policies and procedures that:

- (i) pertain to the maintenance of records that in reasonable detail accurately and fairly reflect our transactions and dispositions of assets;
- (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that our receipts and expenditures are being made only in accordance with the authorization of our management and directors; and
- (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

We acquired Cascade Microtech on June 24, 2016, and we have not yet completed the process of integrating the acquired business' internal control over financial reporting into our overall internal control over financial reporting process. Accordingly, we excluded from our assessment of internal control over financial reporting as of December 31, 2016, the internal control over financial reporting of Cascade Microtech. Associated with Cascade Microtech are total assets of \$351.0 million and net revenues of \$82.6 million included in our consolidated financial statements as of and for the fiscal year ended December 31, 2016.

Under the supervision and with the participation of our management, including our Principal Executive Officer and Principal Financial Officer, we conducted an assessment of the effectiveness of our internal control over financial reporting as of December 31, 2016. In making this assessment, our management used the criteria set forth in Internal Control-Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO"). Based on the results of this assessment, management has concluded that, our internal control over financial reporting was effective as of December 31, 2016, based on the criteria in Internal Control-Integrated Framework (2013) issued by the COSO.

The effectiveness of our internal control over financial reporting as of December 31, 2016 has been audited by KPMG LLP, an independent registered public accounting firm, as stated in their report which appears in this Annual Report on Form 10-K.

Limitations on the Effectiveness of Controls

Control systems, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the control systems' objectives are being met. Further, the design of any control systems must reflect the fact that there are resource constraints, and the benefits of all controls must be considered relative to their costs. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances

of fraud, if any, within our company have been detected. These inherent limitations include the realities that judgments in decision making can be faulty and that breakdowns can occur because of simple error or mistake. Control systems can also be circumvented by the individual acts of some persons, by collusion of two or more people, or by management override of the controls. The design of any system of controls is based, in part, on certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions. Over time, controls may become inadequate because of changes in conditions or deterioration in the degree of compliance with policies or procedures.

CEO and CFO Certifications

We have attached as exhibits to this Annual Report on Form 10-K the certifications of our Chief Executive Officer and Chief Financial Officer, which are required in accordance with the Exchange Act. We recommend that this Item 9A be read in conjunction with the certifications for a more complete understanding of the subject matter presented.

Item 9B: Other Information

None.

**PART III**

**Item 10: Directors, Executive Officers and Corporate Governance**

The information required by this item is incorporated by reference to the proxy statement for our 2017 Annual Meeting of Stockholders.

**Item 11: Executive Compensation**

The information required by this item is incorporated by reference to the proxy statement for our 2017 Annual Meeting of Stockholders.

**Item 12: Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters**

The information required by this item is incorporated by reference to the proxy statement for our 2017 Annual Meeting of Stockholders.

**Item 13: Certain Relationships and Related Transactions, and Director Independence**

The information required by this item is incorporated by reference to the proxy statement for our 2017 Annual Meeting of Stockholders.

**Item 14: Principal Accounting Fees and Services**

The information required by this item is incorporated by reference to the proxy statement for our 2017 Annual Meeting of Stockholders.

**PART IV**

**Item 15: Exhibits, Financial Statement Schedules**

(a) The following documents are filed as part of this Annual Report on Form 10-K:

(1) Consolidated Financial Statements:

Report of Independent Registered Public Accounting Firm

Consolidated Balance Sheets

Consolidated Statements of Operations

Consolidated Statements of Comprehensive Loss

Consolidated Statements of Stockholders' Equity

Consolidated Statements of Cash Flows

Notes to Consolidated Financial Statements

(2) Exhibits:

The exhibits listed in the accompanying Index to Exhibits are filed or incorporated by reference as part of this Annual Report on Form 10-K.

(b) Financial Statement Schedules:

All schedules have been omitted because they are not required, not applicable, or the required information is included in the consolidated financial statements or notes thereto.

(c) Exhibits:

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Exhibit Number	Exhibit Description	Incorporated by Reference			Exhibit Number	Filed Herewith
		Form	File No	Date of First Filing		
2.01***	Agreement and Plan of Merger, dated February 3, 2016, by and among Cascade Microtech, Inc., FormFactor, Inc. and Cardinal Merger Subsidiary, Inc.	8-K	000-50307	2/9/2016	2.1	
3.01	Amended and Restated Certificate of Incorporation of the Registrant as filed with the Delaware Secretary of State on June 17, 2003	S-1	333-109815	10/20/2003	3.01	
3.02	Amended and Restated Bylaws of the Registrant	8-K	000-50307	7/22/2016	3.2	
4.01	Specimen Common Stock Certificate	S-1/A	333-86738	5/28/2002	4.01	
10.01	Credit Agreement among FormFactor, Inc. as Borrower, the Guarantors that are from time to time parties thereto, HSBC Bank USA, National Association, as Administrative Agent, Lead Lender, Co-Lead Arranger, Sole Bookrunner, Syndication Agent and Lender, the Lenders that are from time to time parties thereto, and Silicon Valley Bank, as Co-Lead Arranger and Documentation Agent, dated as of June 24, 2016	8-K	000-50307	6/28/2016	10.1	
10.02+	Form of Indemnity Agreement	S-1/A	333-86738	5/28/2002	10.01	
10.03+	Form of Change of Control Severance Agreement	10-K	000-50307	3/14/2005	10.48	
10.04+	1996 Stock Option Plan, and form of option grant	S-1	333-86738	4/22/2002	10.03	
10.05+	Incentive Option Plan, and form of option grant	S-1	333-86738	4/22/2002	10.04	
10.06+	Management Incentive Option Plan, and form of option grant	S-1	333-86738	4/22/2002	10.05	
10.07+	2002 Equity Incentive Plan, as amended, and forms of plan agreements	10-Q	000-50307	5/4/2011	10.06	
10.08+	2002 Employee Stock Purchase Plan, as amended	10-Q	000-50307	8/7/2007	10.01	
10.09+	Key Employee Bonus Plan, as amended	10-Q	000-50307	5/7/2007	10.01	
10.10+	Equity Incentive Plan, as amended and restated effective April 18, 2012, and forms of plan agreements	10-K	000-50307	3/13/2013	10.09	
10.11+	Employee Stock Purchase Plan, as amended and restated April 18, 2012	10-K	000-50307	3/13/2013	10.1	
10.12	Pacific Corporate Center Lease (Building 1) by and between Greenville Holding Company LLC (successor to Greenville Investors, L.P.) ("Greenville") and the Registrant dated May 3, 2001	S-1/A	333-86738	6/10/2003	10.18	
10.13	First Amendment to Pacific Corporate Center Lease (Building 1) by and between Greenville and the Registrant dated January 31, 2003	S-1/A	333-86738	5/7/2003	10.18.1	
10.14	Pacific Corporate Center Lease (Building 2) by and between Greenville and the Registrant dated May 3, 2001	S-1/A	333-86738	6/10/2003	10.19	
10.15	First Amendment to Pacific Corporate Center Lease (Building 2) by and between Greenville and the Registrant dated January 31, 2003	S-1/A	333-86738	5/7/2003	10.19.1	
10.16	Pacific Corporate Center Lease (Building 3) by and between Greenville and the Registrant dated May 3, 2001	S-1/A	333-86738	6/10/2003	10.20	

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10.17+	First Amendment to Pacific Corporate Center Lease (Building 3) by and between Greenville and the Registrant dated January 31, 2003	S-1/A	333-86738	5/7/2003	10.20.1
10.18	Third Amendment, dated December 19, 2016, between FormFactor, Inc. and MOHR PCC, LP, to Pacific Corporate Center Leases (Buildings 1, 2 and 3), dated May 3, 2001, by and between Greenville Investors, L.P. and FormFactor, Inc., as amended	8-K	000-50307	12/23/2016	10.2
10.19+	Pacific Corporate Center Lease by and between Greenville and the Registrant dated September 7, 2004., as amended by First Amendment to Building 6 Lease dated August 16, 2006	10-Q	000-50307	11/7/2006	10.01
10.20	Second Amendment, dated December 19, 2016, between FormFactor, Inc. and MOHR PCC, LP, to Pacific Corporate Center Lease, dated October 5, 2004, by and between Greenville Investors, L.P. and FormFactor, Inc., as amended	8-K	000-50307	12/23/2016	10.1
10.21	Lease Agreements I and II between Amberjack, Ltd. And Cascade Microtech, Inc. dated August 20, 1997, and Amendment No. 2 to Lease Agreement I dated July 23, 1998, and Amendment No. 2 to Lease Agreement II dated April 12, 1999.	8-K	333-47100	10/2/2000	10.9
10.22	Third Amendment dated August 11, 2006 to Lease Agreement I dated August 20, 1997 between Amberjack, LTD. and Cascade Microtech, Inc.	10-Q	000-51072	11/9/2006	10.2

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Exhibit Number	Exhibit Description	Incorporated by Reference		Exhibit Number	Filed Herewith
		Form File No	Date of First Filing		
10.23	Third Amendment dated August 11, 2006 to Lease Agreement II dated August 20, 1997 between Amberjack, LTD. and Cascade Microtech, Inc.	10-Q	000-51072	11/9/2006	10.3
10.24	Assignment, Assumption and Amendment of Lease dated as of September 22, 2011 by and among Cascade Microtech, Inc. and R&D Sockets, Inc.	8-K	000-51072	9/26/2011	10.1
10.25	Rental Agreement by and between Cascade Microtech Dresden GmbH and Süß Grundstücksverwaltungs GbR dated as of June 17, 2011.	10-Q	000-51072	8/10/2011	10.3
10.26	Lease dated April 2, 1999 between Spieker Properties, L.P. and Cascade Microtech, Inc.	8-K	333-47100	10/2/2000	10.8
10.27	First amendment to Lease dated January 10, 2007, between Nimbus Center LLC (as successor in interest to Spieker Properties, L.P.) and Cascade Microtech, Inc.	10-Q	000-51072	5/9/2014	10.1
10.28	Second amendment to Lease dated February 25, 2013, between Nimbus Center LLC and Cascade Microtech, Inc.	10-Q	000-51072	5/8/2013	10.2
10.29	Third amendment to Lease dated January 23, 2014, between Nimbus Center LLC and Cascade Microtech, Inc.	10-Q	000-51072	5/9/2014	10.2
10.30	Fourth amendment to Lease dated March 31, 2014, between Nimbus Center LLC and Cascade Microtech, Inc.	10-Q	000-51072	5/9/2014	10.3
10.31	Fifth amendment to Lease dated September 24, 2014, between Nimbus Center LLC and Cascade Microtech, Inc.	10-K	000-51072	3/7/2016	10.22
10.32	Sixth amendment to Lease dated July 8, 2015, between Nimbus Center LLC and Cascade Microtech, Inc.	10-K	000-51072	3/7/2016	10.23
10.33+	Employment Offer Letter, dated August 29, 2012 to Mike Slessor	10-K	000-50307	3/13/2013	10.19+
10.34+	Tax withholding reimbursement letter between Mike Slessor and the Registrant dated December 30, 2013	10-K	000-50307	3/6/2015	10.2
10.35+	CEO Change of Control and Severance Agreement, dated April 28, 2016 by and between Mike Slessor and the Registrant	—	—	—	— X
10.36+	Change of Control and Severance Agreement, dated April 28, 2016 by and between Michael Ludwig and the Registrant	—	—	—	— X
21.01	List of Registrant's subsidiaries	—	—	—	— X
23.01	Consent of Independent Registered Public Accounting Firm - KPMG	—	—	—	— X
24.01	Power of Attorney (included on the signature page of this Form 10-K)	—	—	—	— X
31.01	Certification of Chief Executive Officer pursuant to 15 U.S.C. Section 7241, as adopted pursuant to	—	—	—	— X



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	Section 302 of the Sarbanes-Oxley Act of 2002					
31.02	Certification of Chief Financial Officer pursuant to 15 U.S.C. Section 7241, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002	—	—	—	—	X
32.01*	Certification of Chief Executive Officer and Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002	—	—	—	—	X
101.INS**	XBRL Instance Document	—	—	—	—	X
101.SCH**	XBRL Taxonomy Extension Schema Document	—	—	—	—	X
101.CAL**	XBRL Taxonomy Extension Calculation Linkbase Document	—	—	—	—	X
101.DEF**	XBRL Taxonomy Extension Definition Linkbase Document	—	—	—	—	X
101.LAB**	XBRL Taxonomy Extension Label Linkbase Document	—	—	—	—	X
101.PRE**	XBRL Taxonomy Extension Presentation Linkbase Document	—	—	—	—	X

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This exhibit shall not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934 or otherwise subject to the liabilities of that section, nor shall it be deemed incorporated by reference in any filing under the Securities Act of 1933 or the Securities Exchange Act of 1934, whether made before or after the date hereof and irrespective of any general incorporation language in any filings.

Pursuant to Rule 406T of Regulation S-T, these interactive data files are deemed not filed or part of a registration statement or prospectus for purposes of Sections 11 or 12 of the Securities Act of 1933 or Section 18 of the Securities Exchange Act of 1934 and otherwise are not subject to liability.

Confidential treatment has been requested for portions of this document. The schedules, exhibits, and annexes to this exhibit have been omitted in reliance on Item 601(b)(2) of Regulation S-K and will be furnished supplementally to the SEC upon request.

+Indicates a management contract or compensatory plan or arrangement.

Item 16: Form 10-K Summary

None.

**SIGNATURES**

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Livermore, State of California, on the 15<sup>th</sup> day of March 2017.

FORMFACTOR, INC.

By: /s/ MICHAEL M. LUDWIG

Michael M. Ludwig  
 Chief Financial Officer  
 (Principal Financial Officer and Principal  
 Accounting Officer)

**POWER OF ATTORNEY**

KNOW BY ALL PERSONS BY THESE PRESENTS, that each of the undersigned whose signature appears below constitutes and appoints Michael M. Ludwig and Jason Cohen, and each of them, the undersigned's true and lawful attorneys in-fact and agents with full power of substitution, for the undersigned and in the undersigned's name, place and stead, in any and all capacities, to sign any and all amendments to this Annual Report on Form 10-K and any other documents in connection therewith, and to file the same, with all exhibits thereto, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act requisite and necessary to be done with respect to this Annual Report on Form 10-K, including amendments, as fully to all intents and purposes as the undersigned might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or his or their substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

IN WITNESS WHEREOF, each of the undersigned has executed this Power of Attorney as of the date indicated below.

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

Signature	Title	Date
Principal Executive Officer: /s/ MICHAEL D. SLESSOR Michael D. Slessor	Chief Executive Officer and Director	March 15, 2017
Principal Financial Officer and Principal Accounting Officer: /s/ MICHAEL M. LUDWIG Michael M. Ludwig	Chief Financial Officer	March 15, 2017

Signature	Title	Date
Additional Directors:		
/s/ LOTHAR MAIER Lothar Maier	Director	March 15, 2017
/s/ EDWARD ROGAS, JR Edward Rogas, Jr	Director	March 15, 2017
/s/ KELLEY STEVEN-WAISS Kelley Steven-Waiss	Director	March 15, 2017
/s/ MICHAEL W. ZELLNER Michael W. Zellner	Director	March 15, 2017
/s/ RAYMOND LINK Raymond Link	Director	March 15, 2017
/s/ RICHARD DELATEUR Richard DeLateur	Director	March 15, 2017
/s/ THOMAS ST. DENNIS Thomas St. Dennis	Director	March 15, 2017

Report of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders  
FormFactor, Inc.:

We have audited the accompanying consolidated balance sheets of FormFactor, Inc. and subsidiaries as of December 31, 2016 and December 26, 2015, and the related consolidated statements of operations, comprehensive loss, stockholders' equity, and cash flows for each of the years in the three-year period ended December 31, 2016. We also have audited the Company's internal control over financial reporting as of December 31, 2016, based on criteria established in Internal Control - Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control over Financial Reporting appearing under Item 9A. Our responsibility is to express an opinion on these consolidated financial statements and an opinion on the Company's internal control over financial reporting based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement and whether effective internal control over financial reporting was maintained in all material respects. Our audits of the consolidated financial statements included examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

The Company acquired Cascade Microtech, Inc. on June 24, 2016, and management excluded from its assessment of the effectiveness of the Company's internal control over financial reporting as of December 31, 2016, Cascade Microtech, Inc.'s internal control over financial reporting associated with total assets of \$351.0 million and net revenues of \$82.6 million included in the consolidated financial statements of the Company as of and for the year ended December 31, 2016. Our audit of internal control over financial reporting of FormFactor, Inc. also excluded an evaluation of the internal control over financial reporting of Cascade Microtech, Inc.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of FormFactor, Inc. and subsidiaries as of December 31, 2016 and December 26, 2015, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2016, in conformity with U.S. generally accepted accounting principles. Also in our opinion, FormFactor, Inc. maintained, in all material respects, effective internal control over financial reporting as of December 31, 2016, based on criteria established in Internal Control - Integrated Framework issued by the COSO.

/s/ KPMG LLP  
Santa Clara, California  
March 15, 2017

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FORMFACTOR, INC.  
CONSOLIDATED BALANCE SHEETS

	December 31, 2016	December 26, 2015
	(In thousands, except share and per share data)	
<b>ASSETS</b>		
Current assets:		
Cash and cash equivalents	\$101,408	\$ 146,264
Marketable securities	7,497	41,325
Accounts receivable, net	70,225	36,725
Inventories, net	59,806	27,223
Restricted cash	106	—
Refundable income taxes	1,391	—
Prepaid expenses and other current assets	14,276	6,481
Total current assets	254,709	258,018
Restricted cash	1,082	435
Property, plant and equipment, net	42,663	23,853
Goodwill	188,010	30,731
Intangibles, net	126,608	25,552
Deferred tax assets	3,310	3,281
Other assets	2,600	853
Total assets	\$618,982	\$ 342,723
<b>LIABILITIES AND STOCKHOLDERS' EQUITY</b>		
Current liabilities:		
Accounts payable	\$34,075	\$ 18,072
Accrued liabilities	30,184	21,507
Current portion of term loan	12,701	—
Income taxes payable	442	110
Deferred revenue	5,305	3,892
Total current liabilities	82,707	43,581
Long-term income taxes payable	1,315	1,069
Term loan, less current portion	125,475	—
Deferred tax liabilities	3,703	—
Deferred rent and other liabilities	4,726	3,392
Total liabilities	217,926	48,042
Commitments and contingencies (Note 11)		
Stockholders' equity:		
Preferred stock, \$0.001 par value:		
10,000,000 shares authorized; no shares issued and outstanding at December 31, 2016 and December 26, 2015	—	—
Common stock, \$0.001 par value:		
250,000,000 shares authorized; 70,907,847 and 58,088,969 shares issued and outstanding at December 31, 2016 and December 26, 2015, respectively	71	58
Additional paid-in capital	833,341	718,904
Accumulated other comprehensive loss	(3,740 )	(2,222 )
Accumulated deficit	(428,616 )	(422,059 )

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Total stockholders' equity	401,056	294,681
Total liabilities and stockholders' equity	\$618,982	\$ 342,723

The accompanying notes are an integral part of these consolidated financial statements.

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FORMFACTOR, INC.  
CONSOLIDATED STATEMENTS OF OPERATIONS

	Fiscal Year Ended		
	December 31, 2016	December 26, 2015	December 27, 2014
	(In thousands, except per share data)		
Revenues	\$383,881	\$ 282,358	\$ 268,530
Cost of revenues	281,199	196,620	191,091
Gross profit	102,682	85,738	77,439
Operating expenses:			
Research and development	57,453	44,184	42,725
Selling, general and administrative	73,444	45,090	51,385
Restructuring and impairment charges, net	19,692	567	3,887
Total operating expenses	150,589	89,841	97,997
Operating loss	(47,907 )	(4,103 )	(20,558 )
Interest income, net	327	285	302
Other income (expense), net	(2,615 )	2,547	161
Loss before income taxes	(50,195 )	(1,271 )	(20,095 )
Provision (benefit) from income taxes	(43,638 )	252	(910 )
Net loss	\$(6,557 )	\$(1,523 )	\$(19,185 )
Net loss per share:			
Basic and diluted	\$(0.10 )	\$(0.03 )	\$(0.34 )
Weighted-average number of shares used in per share calculations:			
Basic and diluted	64,941	57,850	55,908

The accompanying notes are an integral part of these consolidated financial statements.

FORMFACTOR, INC.

CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS

	Fiscal Year Ended		
	December 2016	December 26, 2015	December 27, 2014
	(In thousands)		
Net loss	\$ (6,557)	\$ (1,523)	\$ (19,185)
Other comprehensive loss, net of tax:			
Foreign currency translation adjustments	(2,042)	(397)	(1,502)
Unrealized gains (losses) on available-for-sale marketable securities	29	(64)	(10)
Unrealized gains on derivative instruments	495	—	—
Other comprehensive loss, net of tax	(1,518)	(461)	(1,512)
Comprehensive loss	\$ (8,075)	\$ (1,984)	\$ (20,697)

The accompanying notes are an integral part of these consolidated financial statements.

## FORMFACTOR, INC.

## CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY

	Common Stock Shares	Common Stock Amount	Additional Paid-in Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Total
	(In thousands, except shares)					
Balances, December 28, 2013	54,649,600	\$ 55	\$ 695,631	\$ (249 )	\$ (401,351 )	\$ 294,086
Issuance of common stock pursuant to vesting of restricted stock units, net of stock withheld	1,282,442	1	—	—	—	1
Issuance of common stock under the Employee Stock Purchase Plan	586,386	1	2,811	—	—	2,812
Stock-based compensation	—	—	13,234	—	—	13,234
Components of other comprehensive loss:						
Change in unrealized gain (loss) on marketable securities, net of tax	—	—	—	(10 )	—	(10 )
Currency translation adjustments	—	—	—	(1,502 )	—	(1,502 )
Net loss	—	—	—	—	(19,185 )	(19,185 )
Balances, December 27, 2014	56,518,428	57	711,676	(1,761 )	(420,536 )	289,436
Issuance of common stock pursuant to exercise of options for cash	24,607	—	209	—	—	209
Issuance of common stock pursuant to vesting of restricted stock units, net of stock withheld	1,993,603	2	—	—	—	2
Issuance of common stock under the Employee Stock Purchase Plan	565,493	—	3,206	—	—	3,206
Purchase and retirement of common stock	(1,013,162 )	(1 )	(8,210 )	—	—	(8,211 )
Stock-based compensation	—	—	12,023	—	—	12,023
Components of other comprehensive loss:						
Change in unrealized gain (loss) on marketable securities, net of tax	—	—	—	(64 )	—	(64 )
Currency translation adjustments	—	—	—	(397 )	—	(397 )
Net loss	—	—	—	—	(1,523 )	(1,523 )
Balances, December 26, 2015	58,088,969	58	718,904	(2,222 )	(422,059 )	294,681
Issuance of common stock pursuant to exercise of options for cash	232,190	—	2,003	—	—	2,003
Issuance of common stock pursuant to vesting of restricted stock units, net of stock withheld	1,579,218	2	—	—	—	2
Issuance of common stock under the Employee Stock Purchase Plan	557,281	1	3,740	—	—	3,741
Issuance of common stock pursuant to Cascade Microtech acquisition	10,450,189	10	97,069	—	—	97,079
Stock-based compensation	—	—	11,625	—	—	11,625
Components of other comprehensive loss:	—	—	—	29	—	29

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Change in unrealized gain (loss) on marketable securities, net of tax						
Currency translation adjustments	—	—	—	(2,042	) —	(2,042 )
Unrealized Gain (loss) on derivative instruments, net of tax	—	—	—	495	—	495
Net loss	—	—	—	—	(6,557 )	(6,557 )
Balances, December 31, 2016	70,907,847	\$ 71	\$833,341	\$ (3,740	) \$(428,616 )	\$401,056

The accompanying notes are an integral part of these consolidated financial statements.

FORMFACTOR, INC.  
CONSOLIDATED STATEMENTS OF CASH FLOWS

	Fiscal Year Ended		
	December 31, 2016	December 26, 2015	December 27, 2014
	(In thousands)		
Cash flows from operating activities:			
Net loss	\$(6,557 )	\$ (1,523 )	\$ (19,185 )
Adjustments to reconcile net loss to net cash used in operating activities:			
Depreciation and amortization	46,798	23,771	30,491
(Accretion) amortization of discount on investments	(31 )	(10 )	208
Stock-based compensation expense	10,722	11,575	13,279
Amortization of debt issuance costs	307	—	—
Deferred income tax (benefit) provision	(45,022 )	(14 )	230
Provision for doubtful accounts receivable	15	18	1
Provision for excess and obsolete inventories	6,631	6,493	7,127
Acquired inventory step-up amortization	10,022	—	—
(Gain) loss on disposal and write-off of long-lived assets	361	(1,009 )	(10 )
Impairment of long-lived assets	12,400	8	1,219
Non-cash restructuring	964	500	600
Foreign currency transaction (gains) losses	(77 )	(275 )	2,489
Gain on derivative instruments	(51 )	—	—
Changes in assets and liabilities:			
Accounts receivable	(6,847 )	8,261	(15,949 )
Inventories	(11,733 )	(8,167 )	(11,975 )
Prepaid expenses and other current assets	(3,292 )	173	(822 )
Refundable income taxes	126	782	—
Other assets	(248 )	250	25
Accounts payable	3,433	(2,036 )	4,155
Accrued liabilities	786	(333 )	7,765
Income taxes payable	(1,127 )	19	(1,511 )
Deferred rent and other liabilities	126	52	248
Deferred revenues	(283 )	(2,413 )	(726 )
Net cash provided by operating activities	17,423	36,122	17,659
Cash flows from investing activities:			
Acquisition of property, plant and equipment	(11,521 )	(8,640 )	(5,670 )
Acquisition of Cascade Microtech, net of cash acquired	(228,031 )	—	—
Proceeds from sale of subsidiary	47	53	115
Proceeds from sale of intellectual property and property, plant and equipment	53	1,200	1,114
Purchases of marketable securities	(10,587 )	(66,234 )	(31,693 )
Proceeds from maturities of marketable securities	44,500	74,750	73,473
Change in restricted cash	(779 )	—	—
Net cash (used in) provided by investing activities	(206,318 )	1,129	37,339
Cash flows from financing activities:			
Proceeds from issuances of common stock	5,745	3,418	2,813
Purchase and retirement of common stock	—	(8,210 )	—
Proceeds from term loan debt	150,000	—	—
Payments on term loan debt	(10,625 )	—	—

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Payments of term loan debt issuance costs	(1,506	) —	—
Payments made on capital leases	—	—	(271 )
Net cash provided by (used in) financing activities	143,614	(4,792	) 2,542
Effect of exchange rate changes on cash and cash equivalents	425	(135	) (2,796 )
Net increase (decrease) in cash and cash equivalents	(44,856	) 32,324	54,744
Cash and cash equivalents, beginning of year	146,264	113,940	59,196
Cash and cash equivalents, end of year	\$ 101,408	\$ 146,264	\$ 113,940

FORMFACTOR, INC.  
CONSOLIDATED STATEMENTS OF CASH FLOWS

	Fiscal Year Ended		
	December 31, 2016	December 26, 2015	December 27, 2014
	(In thousands)		
Non-cash investing and financing activities:			
Fair value of stock issued in connection with the acquisition of Cascade Microtech	\$97,080	\$ —	\$ —
Changes in accounts payable and accrued liabilities related to property, plant and equipment purchases	\$(732 )	\$ 361	\$ (122 )
Supplemental disclosure of cash flow information:			
Income and property taxes paid, net	\$3,667	\$ 27	\$ 950
Cash paid for interest	\$2,110	\$ —	\$ —
The accompanying notes are an integral part of these consolidated financial statements.			

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FORMFACTOR, INC.  
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Note 1—Formation and Business of the Company

FormFactor, Inc. ("FormFactor" or the "Company" and also referred to as "we" or "our") was incorporated in Delaware on April 15, 1993 and is headquartered in Livermore, California. We are a leading provider of test and measurement solutions. We provide a broad range of high-performance probe cards, analytical probes, probe stations, thermal sub-systems and reliability test systems to both semiconductor companies and scientific institutions. Our products provide electrical information from a variety of semiconductor and electro-optical devices and integrated circuits (devices) from development to production. Customers use our products and services to lower production costs, improve yields, and enable development of complex next generation devices. We believe our technology leadership enables critical roadmap advances for our customers.

On June 24, 2016, we acquired Cascade Microtech Inc. ("Cascade Microtech") which designs, develops, manufactures and markets advanced wafer probing, thermal and reliability solutions for the electrical measurement and testing of high performance semiconductor devices. Design, development and manufacturing operations are located in Beaverton, Oregon, United States and Munich and Thierdorf, Germany, and sales, service and support operations are located in the United States, Germany, Japan, Taiwan, China and Singapore. The acquisition of Cascade Microtech transforms our business into a broader test and measurement market leader with significant scale and increased diversification and demand for the combined company's products and technologies.

Fiscal Year

Our fiscal year ends on the last Saturday in December. The fiscal years ended on December 31, 2016, December 26, 2015 and December 27, 2014 consisted of 53 weeks, 52 weeks and 52 weeks, respectively. The first three fiscal quarters in our fiscal year ended December 31, 2016 contained 13 weeks, and the fourth fiscal quarter contained 14 weeks.

Note 2—Summary of Significant Accounting Policies

Basis of Consolidation and Foreign Currency Translation

The consolidated financial statements include our accounts and those of our wholly-owned subsidiaries. All intercompany balances and transactions have been eliminated.

Our consolidated financial statements as of December 31, 2016 included the consolidated balance sheet of Cascade Microtech as of December 31, 2016 whereas our consolidated statements of operations for the fiscal year ended December 31, 2016 included the financial results of Cascade Microtech only for the third and fourth quarters of fiscal 2016. We excluded the financial results of Cascade Microtech for the second quarter of fiscal 2016 as the one-day stub period between the acquisition of Cascade Microtech on June 24, 2016 and the end of our second quarter of fiscal 2016 on June 25, 2016 was immaterial. See Note 4 to the Consolidated Financial Statements - Acquisition, for further details.

The functional currencies of certain of our foreign subsidiaries are the local currencies and, accordingly, all assets and liabilities of these foreign operations are translated to U.S. Dollars at current period-end exchange rates, and revenues and expenses are translated to U.S. Dollars using average exchange rates in effect during the period. The gains and losses from the foreign currency translation of these subsidiaries' financial statements are included as a separate component of stockholders' equity under "Accumulated other comprehensive income (loss)."

Certain other of our foreign subsidiaries use the U.S. Dollar as their functional currency. Accordingly, monetary assets and liabilities in non-functional currencies of these subsidiaries are remeasured using exchange rates in effect at the end of the period. Revenues and costs in local currency are remeasured using average exchange rates for the period, except for costs related to those balance sheet items that are remeasured using historical exchange rates. The resulting remeasurement gains and losses are included in the Consolidated Statements of Operations as incurred.

Use of Estimates

The preparation of consolidated financial statements in conformity with accounting principles generally accepted in the United States of America ("GAAP") requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses during the reporting period. Estimates may change as



new information is obtained. We believe that the estimates, assumptions and judgments involved in revenue recognition, fair value of marketable securities, fair value of derivative financial instruments used to hedge both foreign currency and interest rate exposures, allowance for

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## FORMFACTOR, INC.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

doubtful accounts, reserves for product warranty, valuation of obsolete and slow moving inventory, assets acquired and liabilities assumed in business combinations, legal contingencies, valuation of goodwill, the assessment of recoverability of long-lived assets, valuation and recognition of stock-based compensation, provision for income taxes and valuation of deferred tax assets have the greatest potential impact on our consolidated financial statements. Actual results could differ from those estimates.

**Business Acquisitions**

Our consolidated financial statements include the operations of acquired businesses after the completion of their respective acquisitions. We account for acquired businesses using the acquisition method of accounting. The acquisition method of accounting for acquired businesses requires, among other things, that assets acquired and liabilities assumed be recognized at their estimated fair values as of the acquisition date, and that the fair value of acquired intangibles including in-process research and development (IPR&D) be recorded on the balance sheet. Also, transaction costs are expensed as incurred. Any excess of the purchase price over the assigned fair values of the net assets acquired is recorded as goodwill.

**Cash and Cash Equivalents and Marketable Securities**

Cash and cash equivalents consist of deposits and financial instruments which are readily convertible into cash and have original maturities of 90 days or less at the time of acquisition. Marketable securities consist primarily of highly liquid investments with maturities of greater than 90 days when purchased. We generally classify our marketable securities at the date of acquisition as available-for-sale. These securities are reported at fair value with the related unrealized gains and losses included in "Accumulated other comprehensive income (loss)", a component of stockholder's equity, net of tax. Any unrealized losses which are considered to be other-than-temporary impairments are recorded in "Other income (expense), net" in the Consolidated Statements of Operations. Realized gains (losses) on the sale of marketable securities are determined using the specific-identification method and recorded in "Other income (expense), net" in the Consolidated Statements of Operations.

All of our available-for-sale investments are subject to a periodic impairment review. We record a charge to earnings when a decline in fair value is significantly below cost basis and judged to be other-than-temporary, or have other indicators of impairments. If the fair value of an available-for-sale investment is less than its amortized cost basis, an other-than-temporary impairment is triggered in circumstances where (1) we intend to sell the instrument, (2) it is more likely than not that we will be required to sell the instrument before recovery of its amortized cost basis or (3) a credit loss exists where we do not expect to recover the entire amortized cost basis of the instrument. If we intend to sell or it is more likely than not that we will be required to sell the available-for-sale investment before recovery of its amortized cost basis, we recognize an other-than-temporary impairment charge equal to the entire difference between the investment's amortized cost basis and its fair value.

**Fair Value of Financial Instruments**

We have evaluated the estimated fair value of financial instruments using available market information and valuations as provided by third-party sources. The use of different market assumptions and/or estimation methodologies could have a significant effect on the estimated fair value amounts. The fair value of the Company's cash and cash equivalents, accounts receivable, accounts payable and other current liabilities approximate their carrying amounts due to the relatively short maturity of these items. Estimates of fair value of our marketable securities are based on quoted market prices from active markets or third party, market-based pricing sources which we believe to be reliable. These estimates represent the third parties' good faith opinion as to what a buyer in the marketplace would pay for a security in a current sale.

Whenever possible, the fair values of our financial assets and liabilities are determined using quoted market prices of identical assets or quoted market prices of similar assets from active markets. The three levels of inputs that may be used to measure fair value are as follows:

- Level 1 valuations are obtained from real-time quotes for transactions in active exchange markets involving identical assets;

- Level 2 inputs other than Level 1 that are observable, either directly or indirectly, such as quoted prices for similar assets or liabilities, quoted prices near the reporting date in markets that are less active, or other inputs that are

observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities;  
and

Level 3 valuations are based on unobservable inputs to the valuation methodology and include our own data about assumptions market participants would use in pricing the asset or liability based on the best information available under the circumstances.

Each level of input has different levels of subjectivity and difficulty involved in determining fair value.

FORMFACTOR, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Foreign Exchange Management

We transact business in various foreign currencies. We enter into forward foreign exchange contracts in an effort to mitigate the risks associated with currency fluctuations on certain foreign currency balance sheet exposures and certain operational costs denominated in local currency impacting our statement of operations. Gains and losses resulting from the impact of currency exchange rate movements on forward foreign exchange contracts designated to offset certain foreign currency balance sheet exposures and certain operational exposures are recognized as "Other income (expense), net" in the Consolidated Statements of Operations in the period in which the exchange rates change. These gains and losses are intended to partially offset the foreign currency exchange gains and losses on the underlying exposures being hedged. We record the fair value of these contracts as of the end of our reporting period in the Consolidated Balance Sheet. We do not use derivative financial instruments for trading or speculative purposes.

Restricted Cash

As of December 31, 2016 and December 26, 2015, restricted cash included in our Consolidated Balance Sheets were \$1.2 million and \$0.4 million, respectively. Restricted cash is comprised of security provided to one of our facility landlords in the form of letters of credit and for a foreign subsidiary employee retirement obligations.

Inventories

Inventories are stated at the lower of cost (principally standard cost which approximates actual cost on a first-in, first-out basis) or market value. The provision for potentially excess and obsolete inventory is made based on management's analysis of inventory levels and forecasted future sales. On a quarterly basis, we review inventory quantities on hand and on order under non-cancelable purchase commitments in comparison to our past usage and estimated forecast of product demand for the next six to twelve months to determine what inventory quantities, if any, may not be sellable. Based on this analysis, we write down the affected inventory value for estimated excess and obsolescence charges. Once the value is adjusted, the original cost of our inventory less the related inventory write-down represents the new cost basis of such products. Reversal of these write downs is recognized only when the related inventory has been scrapped or sold. Shipping and handling costs are classified as a component of "Cost of revenues" in the Consolidated Statements of Operations.

We design, manufacture and sell a fully custom product into a market that has been subject to cyclicity and significant demand fluctuations. Our products are complex, custom to a specific chip design and have to be delivered on short lead-times. Probe cards are manufactured in low volumes, but for certain materials, the purchases are often subject to minimum order quantities in excess of the actual underlying probe card demand. It is not uncommon for us to acquire production materials and commence production activities based on estimated production yields and forecasted demand prior to or in excess of actual demand for our probe cards. These factors result in normal recurring inventory valuation adjustments to cost of revenues. Aggregate inventory write downs were \$6.6 million, \$6.5 million and \$7.1 million for fiscal 2016, 2015 and 2014, respectively.

When our products have been delivered, but the revenue associated with that product is deferred because the related revenue recognition criteria have not been met, we may defer the related inventory costs. The deferred inventory costs do not exceed the deferred revenue amounts. The deferred inventory costs are classified as a component of "Prepaid expenses and other current assets" in the Consolidated Balance Sheet.

Property, Plant, and Equipment

Property and equipment is stated at cost less accumulated depreciation and amortization. Depreciation is provided on a straight-line method over the following estimated useful lives of the assets: 1 to 5 years for machinery and equipment, 1 to 5 years for computer equipment and software and 1 to 5 years for furniture and fixtures. Leasehold improvements are amortized over the shorter of the lease term or the estimated useful life of the related asset.

Construction-in-progress assets are not depreciated until the assets are placed in service. Upon sale or retirement of assets, the cost and related accumulated depreciation or amortization, are removed from the balance sheet and the resulting gain or loss is reflected in operations.

Goodwill

Goodwill represents the excess of the purchase price over the fair value of identifiable assets acquired and liabilities assumed. For fiscal 2015, we determined that our reporting unit, for purposes of our goodwill impairment analysis,

was comprised of one entity-wide reporting unit associated with the design, development, manufacture, sale and support of precision, high performance advanced semiconductor wafer probe card products and solutions. Upon the acquisition of Cascade Microtech on June 24, 2016, we determined that we now operate in two reportable segments consisting of the Probe Cards Segment and Systems Segment, and three operating segments consisting of FormFactor Probes, Cascade Microtech Probes and Systems. We further determined that for purposes of our goodwill impairment analysis, we now have four reporting units

FORMFACTOR, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

consisting of FormFactor Probes, Cascade Microtech Probes, Systems, and Advanced Temperature Test Systems GmbH ("ATT").

The Company first assesses qualitative factors to determine whether it is necessary to perform a two-step quantitative goodwill impairment test. If an entity determines as a result of the qualitative assessment that it is more likely than not that the fair value of a reporting unit is less than its carrying amount, then the quantitative impairment test is required. Otherwise, no further testing is required.

The performance of the quantitative impairment test involves a two-step process. The first step of the impairment test involves comparing the fair value of the applicable reporting unit with its aggregate carrying value, including goodwill. We generally determine the fair value of our reporting unit using a combination of the income approach (that includes the use of the discounted cash flow method) and the market approach (guideline company approach) valuation methodologies. If the carrying amount of a reporting unit exceeds the fair value of that reporting unit, we perform the second step of the quantitative impairment test to determine the amount of impairment loss. The second step of the goodwill impairment test involves comparing the implied fair value of the affected reporting unit's goodwill with the carrying value of that goodwill.

During the fourth quarter of fiscal 2016, we performed our annual goodwill impairment test by assessing qualitative factors and we concluded that our goodwill was not impaired as of December 31, 2016. Our qualitative review included, among other factors, an assessment of our market capitalization which was significantly higher than our book value. The evaluation of goodwill for impairment requires the exercise of significant judgment. In the event of future changes in business conditions, we will be required to reassess and update our forecasts and estimates used in future impairment analyses. If the results of these analyses are lower than current estimates, a material impairment charge may result at that time. Refer to Note 10 to Notes to Consolidated Financial Statements - Goodwill and Intangible Assets, for further details.

#### Intangible Assets

Intangible assets consist of acquisition related intangible assets and intellectual property. The intangible assets are being amortized over periods which reflect the pattern in which economic benefits of the assets are expected to be realized, over 1 to 10 years. We perform a review of intangible assets when facts and circumstances indicate that the useful life is shorter than originally estimated or that the carrying amount of assets may not be recoverable. Such facts and circumstances include significant adverse changes in the business climate or legal factors; current period cash flow or operating losses combined with a history of losses or a forecast of continuing losses associated with the use of the intangible assets; and current expectation that the intangible assets will more likely than not be sold or disposed of before the end of their estimated useful lives. We assess the recoverability of identified intangible assets by comparing the projected undiscounted net cash flows associated with the related asset or group of assets over their remaining lives against their respective carrying amounts. Impairments, if any, are based on the excess of the carrying amount over the fair value of those assets.

#### Impairment of Long-Lived Assets

We test long-lived assets or asset groups such as property, plant and equipment and intangible assets for recoverability when events or changes in circumstances indicate that their carrying amounts may not be recoverable. Circumstances which could trigger a review include, but are not limited to: significant decreases in the market price of the asset; significant adverse changes in the business climate or legal factors; accumulation of costs significantly in excess of the amount originally expected for the acquisition or construction of the asset; current period cash flow or operating losses combined with a history of losses or a forecast of continuing losses associated with the use of the asset; and current expectation that the asset will more likely than not be sold or disposed of before the end of its estimated useful life. Recoverability is assessed based on the carrying amounts of the asset or asset group and the sum of the undiscounted cash flows expected to result from the use and the eventual disposal of the asset. An impairment loss is recognized when the carrying amount is not recoverable and exceeds fair value. Refer to Note 7 to Notes to Consolidated Financial Statements - Impairment of Long-lived Assets, for additional information.

#### Concentration of Credit Risk and Other Risks and Uncertainties

Financial instruments that potentially subject us to concentrations of credit risk consist primarily of cash equivalents, marketable securities and trade receivables. Our cash equivalents and marketable securities are held in safekeeping by large, credit worthy financial institutions. We invest our excess cash primarily in U.S. banks, government and agency bonds, money market funds and corporate obligations. We have established guidelines relative to credit ratings, diversification and maturities that seek to maintain safety and liquidity. Deposits in these banks may exceed the amounts of insurance provided on such deposits. To date, we have not experienced any losses on our deposits of cash and cash equivalents. We market and sell our products to a narrow base of customers and generally do not require collateral.

## FORMFACTOR, INC.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The following customers represented greater than 10% of our revenues in fiscal 2016, fiscal 2015 and fiscal 2014:

	Fiscal 2016	Fiscal 2015	Fiscal 2014
Intel	30.1 %	19.6 %	19.7 %
Samsung	*	14.6	*
SK hynix	*	14.3	16.9
Micron	*	11.7	15.0
Total revenues attributable to customers greater than 10%	30.1 %	60.2 %	51.6 %

\* Less than 10% of revenues

At December 31, 2016 and December 26, 2015, one customer accounted for 21% and 29% of gross accounts receivable, respectively. We operate in the competitive semiconductor industry, including the Dynamic Random Access Memory, or DRAM, Flash memory, and Foundry & Logic (previously referred to as System-on-Chip, or SoC) markets, which have been characterized by price erosion, rapid technological change, short product life cycles and heightened foreign and domestic competition. Significant technological changes in the industry could adversely affect our operating results.

We are exposed to non-performance risk by counterparties on our derivative instruments used in hedging activities. We seek to minimize risk by diversifying our hedging program across multiple financial institutions. These counterparties are large international financial institutions, and to date no such counterparty has failed to meet its financial obligations to us.

Certain components for our products that meet our requirements are available only from a limited number of suppliers. The rapid rate of technological change and the necessity of developing and manufacturing products with short life cycles may intensify our reliance on such suppliers. The inability to obtain components as required, or to develop alternative sources, if and as required in the future, could result in delays or reductions in product shipments, which in turn could have a material adverse effect on our business, financial condition, results of operations or cash flows.

#### Revenue Recognition

We recognize revenue when persuasive evidence of a sales arrangement exists, title and risk of loss has transferred to the customer, the selling price is fixed or determinable and collection of the related receivable is reasonably assured. In instances where final acceptance of the deliverable is specified by the customer, revenue is deferred until all acceptance criteria have been met. Revenues from the licensing of our design and manufacturing technology, which have not been material to date, are recognized over the term of the license agreement or when the significant contractual obligations have been fulfilled.

Our transactions may involve the sale of systems and services under multiple element arrangements. Revenue under multiple element arrangements is allocated based on the fair value of each element. A typical multiple element arrangement may include some or all of the following components: products, accessories, installation services and extended warranty contracts. The total sales price is allocated based on the relative fair value of each component. Historically, most of our products are delivered complete and the impact of the relative fair value by component has not been significant. We record deferred revenue for service contracts, extended warranties and customer deposits. Deferred revenue related to service contracts and extended warranties is recognized over the life of the contract based on the stated contractual price, typically one to two years.

We account for tax assessed by a governmental authority that is directly imposed on a revenue-producing transaction (i.e., sales, use, value added) on a net (excluded from revenue) basis.

#### Warranty Obligations

We offer warranties on certain products and record a liability for the estimated future costs associated with warranty claims at the time revenue is recognized. The warranty liability is based upon historical experience and our estimate of the level of future costs. While we engage in product quality programs and processes, our warranty obligation is affected by product failure rates, material usage and service delivery costs incurred in correcting a product failure. We



continuously monitor product returns for warranty and maintain a reserve for the related expenses based upon our historical experience and any specifically identified field failures. As we sell new products to our customers, we must exercise considerable judgment in estimating the expected failure rates. This estimating process is based on historical experience of similar products, as well as various other assumptions that we believe to be reasonable under the circumstances.

## FORMFACTOR, INC.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

We provide for the estimated cost of product warranties at the time revenue is recognized. Warranty costs are reflected in the Consolidated Statement of Operations as a cost of revenues.

A reconciliation of the changes in our warranty liability is as follows (in thousands):

	Fiscal Years Ended	
	December 31, 2016	December 26, 2015
Balance at beginning of year	\$ 1,116	\$ 1,592
Warranty reserve from acquisition-Cascade Microtech	795	—
Accruals	5,254	2,536
Settlements	(4,193 )	(3,012 )
Balance at end of year	\$ 2,972	\$ 1,116

## Research and Development

Research and development expenses include expenses related to product development, engineering and material costs. All research and development costs are expensed as incurred.

## Allowance for Doubtful Accounts

The majority of our trade receivables are derived from sales to large multinational semiconductor manufacturers throughout the world. In order to monitor potential credit losses, we perform ongoing credit evaluations of our customers' financial condition. An allowance for doubtful accounts is maintained based upon our assessment of the expected collectability of all accounts receivable. The allowance for doubtful accounts is reviewed and assessed for adequacy on a quarterly basis. We take into consideration (1) any circumstances of which we are aware of a customer's inability to meet its financial obligations and (2) our judgments as to prevailing economic conditions in the industry and their impact on our customers. If circumstances change, and the financial condition of our customers is adversely affected and they are unable to meet their financial obligations, we may need to take additional allowances, which would result in an increase in our operating expense.

The allowance for doubtful accounts receivable consisted of the following activity for fiscal years 2016, 2015 and 2014 (in thousands):

	Balance at Beginning of Year	Additions	Reductions	Balance at End of Year
Fiscal year ended December 27, 2014	\$ 265	\$ 5	\$ (4 )	\$ 266
Fiscal year ended December 26, 2015	266	20	(2 )	284
Fiscal year ended December 31, 2016	\$ 284	\$ 62	\$ (48 )	\$ 298

## Restructuring Charges

Restructuring charges are comprised of costs related to employee termination benefits, long-lived assets impaired or abandoned, and contract termination costs. The determination of when we accrue for employee termination benefits depends on whether the termination benefits are provided under a one-time benefit arrangement or under an on-going benefit arrangement. For restructuring charges recorded as an on-going benefit arrangement, a liability for post-employment benefits is recorded when payment is probable, the amount is reasonably estimable, and the obligation relates to rights that have vested or accumulated. For restructuring charges recorded as a one-time benefit arrangement, we recognize a liability for employee termination benefits when a plan of termination, approved by management and establishing the terms of the benefit arrangement, has been communicated to employees. The timing of the recognition of one-time employee termination benefits is dependent upon the period of time the employees are required to render service after communication. If employees are not required to render service in order to receive the termination benefits or if employees will not be retained to render service beyond the minimum legal notification period, a liability for the termination benefits is recognized at the communication date. In instances where employees will be retained to render service beyond the minimum legal notification period, the liability for employee termination benefits is measured initially at the communication date based on the fair value of the liability as of the termination date and is recognized ratably over the future service period. We continually evaluate the adequacy of the remaining

liabilities under our restructuring initiatives.

We record charges related to long-lived assets to be abandoned when the assets cease to be used. When we cease using a building or other asset with remaining non-cancelable lease payments continuing beyond our use period, we record a liability

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## FORMFACTOR, INC.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

for remaining payments under lease arrangements, as well as for contract termination costs, that will continue to be incurred under a contract for its remaining term without economic benefit to us at the cease-use date. Given the significance of, and the timing of the execution of such activities, this process is complex and involves periodic reassessments of estimates made at the time the original decisions were made, including evaluating real estate market conditions for expected vacancy periods and sub-lease rents. Although we believe that these estimates accurately reflect the costs of our restructuring plans, actual results may differ, thereby requiring us to record additional provisions or reverse a portion of such provisions.

The Company recorded restructuring charges of \$7.3 million, \$0.6 million and \$2.7 million for fiscal years 2016, 2015 and 2014, respectively. Refer to Note 6, Restructuring Charges, in Notes to Consolidated Financial Statements for further details.

#### Income Taxes

We utilize the asset and liability method of accounting for income taxes, under which deferred taxes are determined based on the temporary differences between the financial statement and tax basis of assets and liabilities using tax rates expected to be in effect during the years in which the basis differences reverse and for operating losses and tax credit carryforwards. We estimate our provision for income taxes and amounts ultimately payable or recoverable in numerous tax jurisdictions around the world. Estimates involve interpretations of regulations and are inherently complex. Resolution of income tax treatments in individual jurisdictions may not be known for many years after completion of any fiscal year. We are required to evaluate the realizability of our deferred tax assets on an ongoing basis to determine whether there is a need for a valuation allowance with respect to such deferred tax assets. A valuation allowance is recorded when it is more likely than not that some or all of the deferred tax assets will not be realized. Significant management judgment is required in determining any valuation allowance recorded against deferred tax assets. In evaluating the ability to recover deferred tax assets, we consider all available positive and negative evidence giving greater weight to our recent cumulative losses and our ability to carryback losses against prior taxable income and, commensurate with objective verifiability, the forecast of future taxable income including the reversal of temporary differences and the implementation of feasible and prudent tax planning strategies.

We recognize and measure uncertain tax positions taken or expected to be taken in a tax return if it is more likely than not that the tax position will be sustained on examination by the taxing authorities, based on the technical merits of the position. The tax benefits recognized in the consolidated financial statements from such positions are then measured based on the largest benefit that has a greater than 50 percent likelihood of being realized upon ultimate settlement. We report a liability for unrecognized tax benefits resulting from uncertain tax positions taken or expected to be taken in a tax return. We adjust these reserves in light of changing facts and circumstances, such as the closing of a tax audit or the refinement of an estimate. To the extent that the final tax outcome of these matters is different than the amounts recorded, such differences will impact the provision for income taxes in the period in which such determination is made. The provision for income taxes includes the impact of reserve provisions and changes to reserves that are considered appropriate, as well as the related net interest. We recognize interest and penalties related to unrecognized tax benefits within the income tax provision. Accrued interest and penalties are included within the related tax liability caption line in the consolidated balance sheet.

We file annual income tax returns in multiple taxing jurisdictions around the world. A number of years may elapse before an uncertain tax position is audited and finally resolved. While it is often difficult to predict the final outcome or the timing of resolution of any particular uncertain tax position, we believe that our reserves for income taxes reflect the most likely outcome. We adjust these reserves, as well as the related interest, in light of changing facts and circumstances. Settlement of any particular position could require the use of cash.

#### Stock-Based Compensation

We recognize compensation expense for all stock-based awards based on the grant-date estimated fair values, net of an estimated forfeiture rate. The value of the portion of the award that is ultimately expected to vest is recognized as expense ratably over the requisite service periods in our Consolidated Statement of Operations. The fair value of stock options is measured using the Black-Scholes option pricing model while the fair value for restricted stock awards and restricted stock units is measured based on the closing market price of our common stock on the date of grant. The fair

value of restricted stock awards based on certain market performance criteria is measured using the Monte Carlo simulation pricing model. Refer to note 12 to Notes to Consolidated Financial Statements - Stockholder's Equity, for further details.

#### Net Loss Per Share

Basic net loss per share is computed by dividing net loss by the weighted-average number of common shares outstanding for the period. Diluted net loss per share is computed giving effect to all potential dilutive common stock, including stock options, restricted stock units and common stock subject to repurchase. Diluted loss per share was based only on the weighted-average number of shares outstanding during that period as the inclusion of any common stock equivalents would have been anti-dilutive.

## FORMFACTOR, INC.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

A reconciliation of the numerator and denominator used in the calculation of basic and diluted net loss per share is as follows (in thousands):

	Fiscal Years Ended		
	December 31, 2016	December 26, 2015	December 27, 2014
Numerator:			
Net loss used in computing basic and diluted net loss per share	\$(6,557)	\$(1,523)	\$(19,185)
Denominator:			
Weighted-average shares used in computing basic net loss per share	64,941	57,850	55,908
Add potentially dilutive securities	—	—	—
Weighted-average shares used in computing basic and diluted net loss per share	64,941	57,850	55,908

The following securities were excluded from the calculation of diluted net loss per share because their effect would have been anti-dilutive for the periods presented (in thousands):

	Fiscal Years Ended		
	December 31, 2016	December 26, 2015	December 27, 2014
Options to purchase common stock	2,198	2,320	2,874
Restricted stock units	3,113	2,578	—
Employee stock purchase plan	10	8	28
Total potentially dilutive securities	5,321	4,906	2,902

## Accumulated Other Comprehensive Loss

Accumulated other comprehensive loss includes foreign currency translation adjustments, unrealized gains on derivative instruments and unrealized losses on available-for-sale securities, net of tax, the impact of which has been excluded from earnings and reflected as components of stockholders' equity as shown below (in thousands):

	December 31, 2016	December 26, 2015
Unrealized loss on marketable securities, net of tax of \$364 in fiscal 2016 and \$428 in fiscal 2015, respectively	\$(454)	\$(483)
Cumulative translation adjustments	(3,781)	(1,739)
Unrealized gains on derivative instruments	495	—
Accumulated other comprehensive loss	\$(3,740)	\$(2,222)

## Note 3—Balance Sheet Components

## Marketable Securities

Marketable securities at December 31, 2016 consisted of the following (in thousands):

	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
U.S. Treasuries	\$ 7,504	\$ —	\$(7)	\$7,497
	\$ 7,504	\$ —	\$(7)	\$7,497

## FORMFACTOR, INC.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Marketable securities at December 26, 2015 consisted of the following (in thousands):

	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
U.S. Treasuries	\$ 18,896	\$ 1	\$ (44 )	\$18,853
Agency securities (Federal)	22,484	—	(12 )	22,472
	\$ 41,380	\$ 1	\$ (56 )	\$41,325

We classify our marketable securities as available-for-sale. All marketable securities represent the investment of funds available for current operations, notwithstanding their contractual maturities. Such marketable securities are recorded at fair value and unrealized gains and losses are recorded in accumulated other comprehensive income until realized. We typically invest in highly-rated securities with low probabilities of default. Our investment policy requires investments to be rated single-A or better, limits the types of acceptable investments, concentration as to security holder and duration of the investment. The gross unrealized losses on the Company's investments in fiscal 2016 and 2015, respectively, were caused primarily by changes in interest rates.

Our investment portfolio consists of both corporate and government securities that have a maximum maturity of three years. The longer the duration of these securities, the more susceptible they are to changes in market interest rates and bond yields. As yields increase, those securities with a lower yield-at-cost show a mark-to-market unrealized loss. We anticipate recovering the full cost of the securities either as market conditions improve, or as the securities mature. Accordingly, we believe that the unrealized losses are not other-than-temporary. When evaluating the investments for other-than-temporary impairment, we review factors such as the length of time and extent to which fair value has been below the amortized cost basis, review of current market liquidity, interest rate risk, the financial condition of the issuer, as well as credit rating downgrades. As of December 31, 2016 and December 26, 2015, none of our investments had been in a continuous loss position for 12 months or more.

The contractual maturities of marketable securities as of December 31, 2016 and December 26, 2015 were as follows (in thousands):

	December 31, 2016		December 26, 2015	
	Amortized Cost	Fair Value	Amortized Cost	Fair Value
Due in one year or less	\$7,504	\$7,497	\$33,882	\$33,871
Due after one year to five years	—	—	7,498	7,454
	\$7,504	\$7,497	\$41,380	\$41,325

#### Asset Retirement Obligations

We account for the fair value of a liability for an asset retirement obligation to be recognized in the period in which it is incurred if a reasonable estimate of fair value can be made. The fair value of the liability is added to the carrying amount of the associated asset and this additional carrying amount is amortized over the life of the asset. Our asset retirement obligation is associated with our commitment to return property subject to operating leases in the People's Republic of China, Taiwan, South Korea, Singapore and Japan to their original condition upon lease termination. We have estimated that as of December 31, 2016, gross expected future cash flows of \$1.1 million would be required to fulfill these obligations.

The carrying amount of a majority of the leasehold improvements resulting from asset retirement obligations were fully amortized in prior years and over the original term of the related leases. Leasehold improvements amortization expense was immaterial for each of fiscal years 2016 and 2015.

## FORMFACTOR, INC.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The following is a reconciliation of the aggregate asset retirement liability associated with our commitment to return property to its original condition upon lease termination (in thousands):

	Fiscal Years Ended	
	December 31, 2016	December 31, 2015
Asset retirement obligation beginning balance	\$919	\$ 903
Initial amount recorded for new asset retirement obligation	34	10
Initial amount recorded for new asset retirement obligation upon acquisition of Cascade Microtech	165	—
Currency translation	11	6
Asset retirement obligation ending balance	\$1,129	\$ 919

The aggregate asset retirement liability was further classified in the Consolidated Balance Sheets as (in thousands):

Other accrued liabilities, current	\$165	\$212
Deferred rent and other liabilities, non-current	964	707
	\$1,129	\$919

## Inventories

Net inventories consisted of the following (in thousands):

	Fiscal Years Ended	
	December 31, 2016	December 31, 2015
Raw materials	\$27,402	\$ 12,996
Work-in-progress	20,390	12,492
Finished goods	12,014	1,735
	\$59,806	\$ 27,223

## Property, Plant and Equipment

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

	Fiscal Years Ended	
	December 31, 2016	December 31, 2015
Machinery and equipment	\$169,056	\$ 150,983
Computer equipment and software	30,640	27,951
Furniture and fixtures	6,060	5,380
Leasehold improvements	72,954	67,121
Sub-total	278,710	251,435
Less: Accumulated depreciation and amortization	(241,943 )	(232,005 )
Net long-lived assets	36,767	19,430
Construction-in-progress	5,896	4,423
Total	\$42,663	\$ 23,853

In fiscal 2016 and 2015, we ceased use of fully depreciated assets with an acquired cost of \$1.7 million and \$1.6 million, respectively.

As discussed in Note 7 to the Notes to Consolidated Financial Statements - Impairment of Long-lived Assets, in fiscal 2016, we recorded an impairment charge of \$12.4 million relating to an in-process research and development intangible asset acquired as part of our acquisition of Cascade Microtech. During the fourth quarter of fiscal 2016 and subsequent to the



## FORMFACTOR, INC.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Cascade Microtech acquisition, we were informed by a customer that they had abandoned their project for which this intangible asset was being developed for, and therefore we fully impaired this intangible asset as it had no alternative future use to us.

In fiscal 2015, long-lived asset impairment charges recorded were insignificant. In fiscal 2014, we recorded impairment charges of \$1.0 million for manufacturing assets and software that we no longer utilize.

Depreciation and amortization of property, plant and equipment, excluding the impairments charges discussed above, for the fiscal years 2016, 2015 and 2014 was \$11.3 million, \$10.6 million and \$11.7 million, respectively.

## Accrued Liabilities

Accrued liabilities consisted of the following (in thousands):

	Fiscal Years Ended	
	December 31, 2016	December 26, 2015
Accrued compensation and benefits	\$ 16,516	\$ 12,286
Accrued indirect and other taxes	3,634	2,189
Accrued commissions	792	366
Accrued warranty	2,972	1,116
Deferred rent	160	325
Accrued restructuring	434	2
Other accrued expenses	5,676	5,223
	\$30,184	\$ 21,507

## Note 4—Acquisition

On June 24, 2016, we acquired Cascade Microtech pursuant to the Agreement and Plan of Merger dated as of February 3, 2016 (the “Merger Agreement”) between Cascade Microtech and Cardinal Merger Subsidiary, Inc., an Oregon corporation and our wholly owned subsidiary. Cascade Microtech designs, develops, manufactures and markets advanced wafer probing, thermal and reliability solutions for the electrical measurement and testing of high performance semiconductor devices. Design, development and manufacturing operations are located in Beaverton, Oregon, United States and Munich and Thiendorf, Germany, and sales, service and support operations are located in the United States, Germany, Japan, Taiwan, China and Singapore.

In accordance with the terms of the Merger Agreement, each outstanding share of Cascade Microtech common stock was canceled and converted into the right to receive \$16.00 in cash, without interest, and 0.6534 of a share of FormFactor common stock. At the effective time of the merger (the “Effective Time”), each in-the-money Cascade Microtech stock option which was outstanding and vested prior to the Effective Time (or that vested as a result of the consummation of the merger) was canceled and converted into the right to receive an amount in cash equal to the excess, if any, of \$21.47 over the applicable per share exercise price of such option. Each out-of-the-money vested option to purchase shares of Cascade Microtech common stock was canceled without any cash payment. Also at the Effective Time, each Cascade Microtech restricted stock unit which was outstanding and vested immediately prior to the Effective Time (or that vested as a result of the consummation of the Merger) was canceled and converted into the right to receive an amount of cash (without interest) equal to \$21.47 per share underlying such restricted stock unit.

Additionally, all of the equity awards originally granted by Cascade Microtech which were outstanding and unvested immediately prior to the consummation of the merger (and that did not vest as a result of the consummation of the merger) were assumed by us on substantially the same terms at the Effective Time, except that the number of shares of our common stock that underlie the assumed award and the exercise price of any assumed option were determined pursuant to a formula intended to preserve the intrinsic value of the original award, resulting in the assumption of stock options exercisable for an aggregate of 152,276 shares of our common stock and restricted stock units representing 777,444 shares of our common stock as of the acquisition date. The fair value of the stock options assumed was determined using a Black-Scholes valuation model with market-based assumptions. The fair value of the

restricted stock units assumed was \$8.92 per unit, based on the FormFactor closing stock price on June 24, 2016. The fair value of unvested equity awards relating to future services, and not yet earned, will be recorded as operating expense over the remaining service periods. Option pricing models require the use of

FORMFACTOR, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

highly subjective market assumptions, including expected stock price volatility, which if changed can materially affect fair value estimates. See Note 12 to the Consolidated Financial Statements - Stockholder's Equity, for further details.

The acquisition was accounted for using the acquisition method of accounting in accordance with the Financial Accounting Standards Board ("FASB") Accounting Standards Codification ("ASC") Topic No. 805, Business Combinations, with FormFactor treated as the acquirer. The acquired assets and liabilities of Cascade Microtech were recorded at their respective fair values including an amount for goodwill representing the difference between the acquisition consideration and the fair value of the identifiable net assets. As a result of the acquisition, Cascade Microtech shares ceased to trade on the NASDAQ Global Market effective June 24, 2016.

The total acquisition consideration of \$325.1 million, net of cash acquired of \$40.7 million was determined based on the terms of the Merger Agreement which consisted of the a) payment of \$255.9 million in cash to former shareholders of Cascade Microtech, b) issuance of 10,450,189 shares of FormFactor's common stock to former shareholders of Cascade Microtech which was valued at the closing market price of \$8.92 per share on June 24, 2016 and amounted to \$93.2 million in the aggregate, c) payment of \$12.8 million at the commencement of the third quarter of fiscal 2016, in cash, to Cascade Microtech outstanding and vested equity award holders, and d) \$3.9 million attributable to the fair value of the assumed unvested equity awards for services performed by Cascade Microtech employees for the period leading up to the effective date of the acquisition.

During fiscal 2016, we incurred approximately \$6.5 million in transaction costs related to the acquisition, which primarily consisted of investment banking, legal, accounting and valuation-related expenses. These expenses were recorded in selling, general and administrative expense in the accompanying Consolidated Statements of Operations.

Our consolidated financial statements as of December 31, 2016 included the consolidated balance sheet of Cascade Microtech as of December 31, 2016 whereas our consolidated statements of operations for the fiscal year ended December 31, 2016 included the financial results of Cascade Microtech only for the third and fourth quarters of fiscal 2016. We excluded the financial results of Cascade Microtech for the second quarter of fiscal 2016 as the one-day stub period between the acquisition of Cascade Microtech on June 24, 2016 and the end of our second quarter of fiscal 2016 on June 25, 2016 was immaterial.

To finance a portion of the acquisition consideration, we entered into a credit agreement with certain lenders to provide a senior secured term loan facility in an aggregate amount of \$150 million. See Note 5 to the to the Notes to Consolidated Financial Statements - Debt, for further details.

The acquisition price was allocated to the tangible and identified intangible assets acquired and liabilities assumed as of the closing date of the acquisition based upon their respective fair values. Asset categories acquired included working capital, long-term assets and liabilities and identifiable intangible assets, including in-process research and development ("IPR&D"). The allocation of the acquisition price has been prepared on a preliminary basis and changes to that allocation may occur as additional information becomes available.

The fair values assigned to assets acquired and liabilities assumed are based on management's best estimates and assumptions as of the reporting date and are considered preliminary pending finalization of valuation analyses pertaining to intangible assets acquired, liabilities assumed and tax liabilities assumed including calculation of deferred tax assets and liabilities. Changes to amounts recorded as assets or liabilities may result in corresponding adjustments to goodwill, restructuring and impairment charges, recognized deferred tax assets and liabilities including changes to release of valuation allowance during the measurement period (up to one year from the acquisition date). Any such revisions or changes may be material as we finalize the fair values of the tangible and intangible assets acquired and liabilities assumed.

During the year ended December 31, 2016 and subsequent to the acquisition of Cascade Microtech, we made adjustments to certain identifiable intangible assets (order backlog and customer relationships amounting to \$(0.1) million) and accrued liabilities (amounting to \$0.5 million) resulting in a net increase to goodwill of approximately \$0.4 million.

## FORMFACTOR, INC.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The table below summarizes the assets acquired and liabilities assumed, as of December 31, 2016 (in thousands):

	Amount
Cash and cash equivalents	\$40,681
Accounts receivable	27,112
Inventory	38,315
Prepaid expenses and other current assets	6,249
Property, plant and equipment	19,875
Other long-term assets	818
Deferred revenue	(1,829 )
Accounts payable and accrued liabilities	(23,370 )
Deferred tax liabilities	(48,993 )
Other long-term liabilities	(960 )
Total tangible assets acquired and liabilities assumed	57,898
Intangible assets	149,753
Goodwill	158,141
Total acquisition price	\$365,792

The intangible assets as of the closing date of the acquisition included (in thousands):

	Amount	Weighted Average Useful Life (in years)
Developed technologies	\$91,100	4.7
Customer relationships	23,053	6.8
Order backlog	15,600	0.5
Trade names	7,600	3.5
In-process research and development	12,400	
Total intangible assets	\$149,753	

Indications of fair value of the intangible assets acquired in connection with the acquisition were determined using either the income, market or replacement cost methodologies. The intangible assets are being amortized over periods which reflect the pattern in which economic benefits of the assets are expected to be realized. Order backlog is expected to be fully amortized by the second quarter of fiscal 2017.

#### Identifiable intangible assets

Developed technology acquired primarily consists of Cascade Microtech's existing technologies related to engineering and production probes used in testing wafers, manufacturing wafer testing stations, thermal chuck systems, and reliability test systems. A Multi-Period Excess Earnings (MPEE) Method was used to value the developed technologies. Along with the cash flow forecast associated with each developed technology, other key assumptions in MPEE method are remaining life of technology, technology migration pattern (or technology decay curve), level of R&D required to maintain the technology, discount rate and applicable tax rate. Using this approach, the estimated fair values were calculated using expected future cash flows from specific products discounted to their net present values at an appropriate risk-adjusted rate of return that resulted in a value of \$91.1 million and will be amortized over their useful lives.

Customer relationships represent the fair value of future projected revenues that will be derived from the sale of products to existing customers of the acquired company. The fair value of the customer relationships is determined based on the With and Without Method and resulted in a value of \$23.1 million which will be amortized over their useful lives. The With and Without Method is appropriate for valuing non-primary customer-related assets for which

reasonable estimates can be made for both the time and resources required to recreate those assets, as well as the economic impact over the period of time in which the assets are recreated. The Without scenario incorporates lost revenue and lost profits over the period necessary to retain the

FORMFACTOR, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

asset. Key assumptions in this valuation are attrition rate, time to recreate customer relationships, composition of costs into fixed versus variable costs, tax rates and discount rates.

Trade names and trademarks are considered a type of guarantee of a certain level of quality or performance represented by the brands owned including the Cascade Microtech brand. Trade names and trademarks were valued using the "relief-from-royalty income" approach. This method is based on the assumption that in lieu of ownership, a market participant would be willing to pay a royalty in order to exploit the related benefits of this asset. Key assumptions involved in valuation of trade names include royalty rate, expected utilization of the trade names, tax rates and discount rates. The value of the trade names acquired was determined to be \$7.6 million and will be amortized over their useful lives.

IPR&D represents the estimated fair values of incomplete Cascade Microtech research and development projects that had not reached commercialization stage and meet the criteria for recognition as IPR&D as described in the American Institute of Certified Public Accountants IPR&D guide as of the date of the acquisition. In the future, the fair value of each project at the acquisition date will be either amortized or impaired depending on whether the projects are completed or abandoned. The fair value of IPR&D was determined using the MPEE method. For IPR&D, costs to complete the project and expected commercialization timeline are considered as key assumptions. This method reflects the present value of the projected cash flows that are expected to be generated by the IPR&D less charges representing the contribution of other assets to those cash flows. The value of the IPR&D was determined to be \$12.4 million and the amortization will commence upon completion of the IPR&D projects. In the fourth quarter of fiscal 2016, we fully impaired this \$12.4 million IPR&D intangible asset. See Note 7, Impairment of Long-lived Assets, to the Notes to Consolidated Financial Statements for further details.

#### Goodwill

The excess of purchase price over the fair value amounts assigned to the assets acquired and liabilities assumed represents the amount of goodwill resulting from the acquisition. We believe the factors that contributed to goodwill include synergies that are specific to our consolidated business such as cost savings and operational efficiencies and the acquisition of a talented workforce that expands our expertise in business development and commercializing semiconductor test products, none of which qualify for recognition as a separate intangible asset. We do not expect any portion of this goodwill to be deductible for tax purposes. The goodwill attributable to the acquisition has been recorded as a non-current asset and is not amortized, but is subject to an annual review for impairment.

The goodwill arising from the acquisition was preliminarily allocated to our reporting units based on the relative fair values of the expected incremental cash flows that the acquisition is expected to provide to each reporting unit within our reportable segments. The allocation of goodwill, which was prepared on a preliminary basis, may be subject to changes as additional information becomes available as the allocation was based on estimates and assumptions made by management at the time of acquisition.

#### Operating and reporting segments, and reporting units

Upon acquisition of Cascade Microtech, we re-evaluated our operating and reportable segments as well as our reporting units for goodwill impairment consideration in accordance with Financial Accounting Standards Board's Accounting Standards Codification ("ASC") Topics Nos. 280, Segment Reporting and 350, Intangibles-Goodwill and Other. See Note 16 to the Notes to Condensed Consolidated Financial Statements - Operating Segments and Geographic Information, for further details.

#### Pro forma consolidated results of operations

The following unaudited pro forma results of operations for the year ended December 31, 2016 and December 26, 2015 presents the combined results of operations of FormFactor and Cascade Microtech as if the acquisition had been completed at the beginning of fiscal 2015. The pro forma information includes adjustments to amortization and depreciation for intangible assets and property, plant and equipment, adjustments to stock-based compensation expense, interest expense for the incremental indebtedness incurred, and interest income for the cash paid in connection with the transaction. The pro forma results for the year ended December 26, 2015 include non-recurring adjustments related to deferred tax asset valuation allowance release of \$44.0 million which increases pro-forma net income, and acquisition-related transaction costs of \$14.4 million and restructuring charges of \$7.3 million which decreases pro-forma net income.

The pro forma results also include utilization of the net increase in the cost basis of acquired inventory and acquisition related expenses. The pro forma data are for informational purposes only and are not necessarily indicative of the consolidated results of operations of the combined business had the acquisition actually occurred at the beginning of fiscal year 2015 and



## FORMFACTOR, INC.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

2016 or of the results of future operations of the combined business. Consequently, actual results may differ from the unaudited pro forma information presented below (in thousands, except per share data):

	Twelve Months Ended	
	December 31, 2016	December 26, 2015
Revenues	\$455,713	\$ 426,336
Net loss	(20,641 )	(15,469 )
Net loss per share - basic	\$(0.27 )	\$( 0.23 )
Net loss per share - diluted	\$(0.27 )	\$( 0.23 )

## Note 5—Debt

## Senior Secured Term Loan Facility

Our debt as of December 31, 2016 consisted of the following (in thousands):

	December 31, 2016
Senior secured term loan	\$ 139,375
Less debt issuance costs	(1,199 )
Total debt less debt issuance costs	\$ 138,176

On June 24, 2016, we entered into a Credit Agreement (the “Credit Agreement”) with HSBC Bank USA, National Association (“HSBC”), as administrative agent, co-lead arranger, sole bookrunner and syndication agent, other lenders that may from time-to-time be a party to the Credit Agreement, and certain guarantors. Pursuant to the Credit Agreement, the lenders have provided us with a senior secured term loan facility of \$150 million (the “Term Loan”). The proceeds of the Term Loan were used to finance a portion of the purchase price paid in connection with the Cascade Microtech acquisition and to pay related bank fees and expenses.

The Term Loan bears interest at a rate equal to, at our option, (i) the applicable London Interbank Offered Rate (“LIBOR”) rate plus 2.00% per annum or (ii) Base Rate (as defined in the Credit Agreement) plus 1.00% per annum. We have initially elected to pay interest at 2.00% over the one-month LIBOR rate. Interest payments are payable in quarterly installments over a five-year period. The Term Loan will amortize in equal quarterly installments, beginning June 30, 2016, in an annual amount equal to 5% for year one, 10% for year two, 20% for year three, 30% for year four and 35% for year five.

On July 25, 2016, we entered into an interest-rate swap agreement with HSBC and other lenders to hedge the interest payments on our Term Loan entered into on June 24, 2016. See Note 8 to Notes to Consolidated Financial Statements - Derivative Financial Instruments, for further details.

The obligations under the Term Loan are and will be fully and unconditionally guaranteed by certain of our existing and subsequently acquired or organized direct and indirect domestic subsidiaries and are secured by a perfected first priority security interest in substantially all of our assets and the assets of those guarantors, subject to certain customary exceptions. See Note 11 to Notes to Consolidated Financial Statements - Commitments and Contingencies, for a schedule of our principal and interest payment commitments under the Term Loan.

The Credit Agreement contains negative covenants customary for financing of this type, including covenants that place limitations on the incurrence of additional indebtedness, the creation of liens, the payment of dividends; dispositions; fundamental changes, including mergers and acquisitions; loans and investments; sale leasebacks; negative pledges; transactions with affiliates; changes in fiscal year; sanctions and anti-bribery laws and regulations,

and modifications to charter documents in a manner materially adverse to the Lenders. The Credit Agreement also contains affirmative covenants and representations and warranties customary for financing of this type.

In addition, the Credit Agreement contains financial maintenance covenants requiring, at the end of, and for, each period of four consecutive fiscal quarters, beginning as of June 30, 2016, (a) a ratio of total debt to earnings before interest, taxes, depreciation and amortization ("EBITDA") not in excess of 2.75 to 1.00, stepping down to 2.50 to 1.00 at the end of the fiscal

FORMFACTOR, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

quarter ending June 30, 2017; and (b) a fixed charge coverage ratio of not less than 1.50 to 1.00, stepping down to 1.30 to 1.00 at the end of the fiscal quarter ending June 30, 2018 and to 1.20 to 1.00 at the end of the fiscal quarter ending June 30, 2019. As of December 31, 2016, the Company was in compliance with all of the financial covenants under the senior secured term loan facility.

The Credit Agreement contains customary events of default, including (subject to certain materiality thresholds and grace periods) payment default, failure to comply with covenants, material inaccuracy of representation or warranty, bankruptcy or insolvency proceedings, change of control, certain material Employee Retirement Security Act ("ERISA") events and cross event of default and cross-acceleration in respect of other material debt.

The foregoing description of the Credit Agreement does not purport to be complete and is subject to and qualified in its entirety by reference to the full text of the Credit Agreement, which is filed as Exhibit 10.1 to our Current Report on Form 8-K filed on June 28, 2016.

#### Note 6—Restructuring Charges

Restructuring charges are comprised of costs related to employee termination benefits, cost of long-lived assets abandoned or impaired, as well as contract termination costs. Restructuring charges are included in "Restructuring and impairment charges, net" in the Consolidated Statements of Operations. A summary of the actions we have taken during fiscal 2016, 2015, and 2014, the purpose of which were to improve operating efficiency, streamline and simplify our operations and reduce our operating costs, are discussed below.

#### 2016 Restructuring Activities

During fiscal 2016, we recorded;

- approximately \$0.8 million of severance charges and \$0.3 million of stock-based compensation expense relating to the modification of certain equity-based awards as a result of the consolidation of our operations;
- approximately \$5.4 million of severance charges and \$0.7 million of stock-based compensation expense relating to the acceleration of certain equity-based awards of certain executives of Cascade Microtech who were terminated upon our acquisition of Cascade Microtech and in accordance with their contractual change of control agreements; and
- approximately \$0.1 million of cease use charges relating to abandoned facilities no longer to be used in our operations.

The cash payments associated with the restructuring activities are expected to be completed by the end of the second quarter of fiscal 2017.

#### 2015 Restructuring Activities

During fiscal 2015, we recorded restructuring charges of approximately \$0.6 million which included stock-based compensation expense of approximately \$0.5 million relating to the modification of an equity-based award.

#### 2014 Restructuring Activities

On January 27, 2014, we announced a global organizational restructuring and cost reduction plan. As part of the plan, the Company eliminated 52 full-time employees. In addition, we reduced our temporary workforce by 9 positions. We recorded \$2.0 million of restructuring charges during the first quarter of fiscal 2014, which was comprised of \$1.4 million in severance and related benefits and \$0.6 million in impairment charges for certain equipment that would no longer be utilized. During the remainder of fiscal 2014, we further eliminated an additional 5 full-time positions and

recorded \$0.7 million in severance charges.

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## FORMFACTOR, INC.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The following table summarizes the activities related to the restructuring actions from fiscal 2014 to 2016 (in thousands):

	Employee Severance and Benefits	Property and Equipment Impairment	Contract Termination and Other Costs	Stock-based Compensation	Total
Accrual at December 28, 2013	\$ 138	\$ —	\$ —	\$ —	\$ 138
Restructuring charges	2,068	600	—	—	2,668
Asset impairments	—	(600 )	—	—	(600 )
Cash payments	(1,620 )	—	—	—	(1,620 )
Non-cash settlements	(2 )	—	—	—	(2 )
Accrual at December 27, 2014	584	—	—	—	584
Restructuring charges	59	—	500	—	559
Cash payments	(641 )	—	—	—	(641 )
Non-cash settlements	—	—	(500 )	—	(500 )
Accrual at December 26, 2015	2	—	—	—	2
Restructuring charges	6,220	—	104	964	7,288
Cash payments	(5,892 )	—	—	—	(5,892 )
Non-cash settlements	—	—	—	(964 )	(964 )
Accrual at December 31, 2016	\$ 330	\$ —	\$ 104	\$ —	\$ 434

## Note 7—Impairment of Long-lived Assets

The following table summarizes the components of the impairments that we recorded in fiscal 2016, 2015 and 2014 (in thousands):

	Fiscal Years Ended		
	December 31, 2016	December 26, 2015	December 27, 2014
Impairment of long-lived assets:			
Assets held for sale	\$—	\$ —	\$ 191
Assets to be disposed of other than by sale	12,400	8	1,028
Total	\$12,400	\$ 8	\$ 1,219

## Assets held for sale

In fiscal 2016 and 2015, we did not record any impairment charge on assets held for sale and there were no long-lived assets classified as held for sale as of December 31, 2016 and December 26, 2015.

During fiscal 2014, we reclassified \$0.6 million of building and \$0.5 million of machinery and equipment from "Property, plant and equipment, net" to "Prepaid expenses and other current assets" in our Consolidated Balance Sheet as these assets were identified as held for sale. In the same fiscal year, we recorded a gain of \$0.2 million and \$52.0 thousand on the sale of the building and machinery and equipment, respectively. In addition, we also recorded a \$0.2 million impairment charge related to machinery and equipment which was held for sale. There were no long-lived assets classified as held for sale as of December 27, 2014.

These impairments were included within "Restructuring and Impairment Charges, net" in the Consolidated Statement of Operations for their respective periods.

## Assets to be disposed of other than by sale

We test long-lived assets or asset groups for recoverability when events or changes in circumstances indicate that their carrying amounts may not be recoverable. In fiscal 2016, we recorded an impairment charge of \$12.4 million relating to an in-process research and development intangible asset acquired as part of our acquisition of Cascade Microtech. During the fourth quarter of fiscal 2016 and subsequent to the Cascade Microtech acquisition, we were informed by a customer that they had



FORMFACTOR, INC.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

abandoned their project for which this intangible asset was being developed for, and therefore we fully impaired this intangible asset as it had no alternative future use to us.

In fiscal 2015, long-lived asset impairment charges recorded were insignificant. In fiscal 2014, we recorded impairment charges of \$1.0 million for manufacturing assets and software that we no longer utilize.

All of these charges are included in "Restructuring and Impairment Charges, net" in the Consolidated Statements of Operations for their respective periods.

Refer to Note 10 to the Notes to Consolidated Financial Statements - Goodwill and Intangible Assets for further details relating to our intangible long-lived assets.

## Note 8—Derivative Financial Instruments

## Foreign Currency Derivatives

We operate and sell our products in various global markets. As a result, we are exposed to changes in foreign currency exchange rates. We utilize foreign currency forward contracts to hedge against future movements in foreign exchange rates that affect certain existing foreign currency denominated assets and liabilities and forecasted foreign currency revenue and expense transactions. Under this program, our strategy is to have increases or decreases in our foreign currency exposures offset by gains or losses on the foreign currency forward contracts to mitigate the risks and volatility associated with foreign currency transaction gains or losses. We do not use derivative financial instruments for speculative or trading purposes. For accounting purposes, our foreign currency forward contracts are not designated as hedging instruments as defined under ASC 815, Derivatives and Hedging. We record the fair value of these contracts as of the end of our reporting period to our Consolidated Balance Sheets with changes in fair value recorded within "Other income (expense), net" in our Consolidated Statement of Operations for both realized and unrealized gains and losses.

The following table provides information about our foreign currency forward contracts outstanding as of December 31, 2016 (in thousands):

Currency	Contract Position	Contract Amount (Local Currency)	Contract Amount (U.S. Dollars)
Taiwan Dollar	Buy	(42,660 )	\$(1,326 )
Korean Won	Buy	(1,806,386)	(1,508 )
Euro	Buy	(2,500 )	(2,774 )
Japanese Yen	Sell	1,548,535	13,252
Euro	Sell	2,732	2,876
Euro	Sell	15,877	17,852
Japanese Yen	Sell	136,000	1,288
Total USD notional amount of outstanding foreign exchange contracts			\$29,660

The contracts were entered into during the fourth quarter of fiscal 2016 and will mature during the first quarter of fiscal 2017. Our foreign currency contracts are classified within Level 2 of the fair value hierarchy as they are valued using pricing models that utilize observable market inputs.

The location and amount of gains (losses) related to non-designated derivative instruments that matured in fiscal 2016 and 2015 in the Consolidated Statements of Operations are as follows (in thousands):

Derivatives Not Designated as Hedging Instruments	Location of Gain (Loss) Recognized on Derivatives	Fiscal Years Ended	
		December 31, 2016	December 26, 2015
Foreign exchange forward contracts	Other income (expense), net	\$ 139	\$ (310 )





## FORMFACTOR, INC.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

## Interest Rate Swaps

Pursuant to our interest rate and risk management strategy, on July 25, 2016, we entered into interest-rate swap agreements with HSBC and other lenders to hedge the interest payments on our Term Loan entered into on June 24, 2016. The Term Loan has a LIBOR based floating interest rate and matures on March 31, 2021. As future levels of LIBOR over the life of the loan are uncertain, we entered into these interest-rate swap agreements to hedge the exposure in interest rate risks associated with movement in LIBOR rates. See Note 5 to Notes to Consolidated Financial Statements - Debt, for further details of the Term Loan.

For accounting purposes, the interest-rate swap contracts qualify for and are designated as cash flow hedges as defined under ASC 815, Derivatives and Hedging. All hedging relationships are formally documented, and the hedges are designed to offset changes to future cash flows on hedged transactions. We recognize derivative instruments from hedging activities as either assets or liabilities on the balance sheet and measure them at fair value on a quarterly basis. We record changes in the effective portion of our cash flow hedges in accumulated other comprehensive income on the Consolidated Balance Sheets, until the forecasted transaction occurs. Amounts expected to be reclassified from other comprehensive income into earnings in the next twelve months were insignificant. We evaluate hedge effectiveness at hedge inception and on an ongoing basis, and record any ineffective portion of the hedge in "Other income (expense), net" in our Consolidated Statement of Operations. We recorded approximately \$51 thousand of hedge ineffectiveness for fiscal 2016. The cash flows associated with the interest rate swaps are reported in net cash provided by operating activities on the Consolidated Statements of Cash Flows.

The estimated fair value of the interest rate swaps as of December 31, 2016 was reported as a derivative asset of approximately \$0.8 million, recorded within other assets (non-current) on the Company's Consolidated Balance Sheet.

The impact of the cash flow hedges on the consolidated financial statements is depicted below (in thousands):

## The Effect of Derivative Instruments on the Statement of Financial Performance

For the Twelve Months Ended

Derivatives in ASC 815 Cash Flow Hedging Relationships	Amount of Gain or (Loss) Recognized in OCI on Derivative (Effective Portion)		Location of Gain or (Loss) Reclassified from Accumulated OCI into Income (Effective Portion)		Amount of Gain or (Loss) Reclassified from Accumulated OCI into Income (Effective Portion)		Location of Gain or (Loss) Recognized in Income on Derivative (Ineffective Portion )		Amount of Gain or (Loss) Recognized in Income on Derivative (Ineffective Portion )	
	December 31, 2016	December 26, 2015	December 31, 2016	December 26, 2015	December 31, 2016	December 26, 2015	December 31, 2016	December 26, 2015	December 31, 2016	December 26, 2015
Interest rate contracts	\$ 628	\$ —	Other income (expense), net	\$ (160 )	\$ —	Other income (expense), net	\$ 51	\$ —	\$ 51	\$ —
Total	\$ 628	\$ —		\$ (160 )	\$ —		\$ 51	\$ —	\$ 51	\$ —

## Note 9—Fair Value

We use fair value measurements to record adjustments to certain financial and non-financial assets and to determine fair value disclosures. The carrying amounts of certain of our financial instruments, including cash and cash equivalents, accounts receivable, accounts payable, accrued compensation and other accrued liabilities, approximate fair value because of their short maturities. Our marketable securities are financial assets recorded at fair value on a

recurring basis.

The accounting standards for fair value defines fair value, establishes a framework for measuring fair value and requires disclosures about fair value measurements. Fair value is defined as the price that would be received from selling an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. When determining the fair value measurements for assets and liabilities required to be recorded at fair value, we consider the principal or most advantageous market in which we would transact and consider assumptions that market participants would use when pricing the asset or liability, such as inherent risk, transfer restrictions and risk of nonperformance. The accounting standard establishes a fair value hierarchy that requires an entity to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value. A financial instrument's categorization within the fair value hierarchy is based upon the lowest level of input that is significant to the fair value measurement. The standard describes a fair value hierarchy based on three levels of inputs, the first two of which are considered observable and the last unobservable. We apply the following fair value hierarchy, which prioritizes the inputs used in measuring fair value as follows:

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## FORMFACTOR, INC.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Level 1—Quoted prices in active markets for identical assets or liabilities;

Level 2—Inputs, other than the quoted prices in active markets, such as quoted prices for similar assets or liabilities, quoted prices near the reporting date in markets that are less active, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities; and

Level 3—Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

We obtain the fair value of our Level 1 investments in certain money market funds, at the expected market price. These investments are expected to maintain a net asset value of \$1 per share.

We determine the fair value of our Level 2 financial instruments from several third-party asset managers, custodian banks, and the accounting service providers. Independently, these service providers use professional pricing services to gather pricing data, which may include quoted market prices for identical or comparable instruments or inputs other than quoted prices that are observable either directly or indirectly.

We utilize the market approach to measure the fair value of our fixed income securities. The market approach is a valuation technique that uses prices and other relevant information generated by market transactions involving identical or comparable assets or liabilities. The fair value of our fixed income securities is obtained using readily-available market prices from a variety of industry standard data providers, large financial institutions and other third-party sources for the identical underlying securities.

Our fair value processes include controls that are designed to ensure appropriate fair values are recorded. Such controls include model validation, review of key model inputs, analysis of period-over-period fluctuations and independent recalculation of prices.

#### Assets Measured at Fair Value on a Recurring Basis

We measure and report certain assets and liabilities at fair value on a recurring basis, including money market funds, U.S. Treasury securities, agency securities and derivatives comprised of foreign currency forward contracts and interest-rate swap contracts (see Note 8 to the Notes to Consolidated Financial Statements - Derivative Financial Instruments, for further details).

Assets measured on a recurring basis as of December 31, 2016 (in thousands):

	Level 1	Level 2	Total
Assets:			
Cash equivalents			
Money market funds	\$19,350	\$—	\$19,350
Marketable securities			
U.S. Treasuries	—	7,497	7,497
Foreign exchange derivative contracts	—	1,137	1,137
Interest rate swap derivative contracts	—	838	838
Total	\$19,350	\$9,472	\$28,822

Assets measured on a recurring basis as of December 26, 2015 (in thousands):

	Level 1	Level 2	Total
Assets:			
Cash equivalents			
Money market funds	\$82,935	\$—	\$82,935
Marketable securities			

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U.S. Treasuries	—	18,853	18,853
Agency securities (Federal)	—	22,472	22,472
Total	\$82,935	\$41,325	\$124,260

The Level 1 assets consist of our money market fund deposits. The Level 2 assets consist of our available-for-sale investment portfolio, which are valued utilizing a market approach. Our investments are priced by pricing vendors who provided observable inputs for their pricing without applying significant judgment. Broker pricing is used mainly when a

FORMFACTOR, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

quoted price is not available, the investment is not priced by our pricing vendors or when a broker price is more reflective of fair values in the market in which the investment trades. Our broker-priced investments are labeled as Level 2 investments because fair values of these investments are based on similar assets without applying significant judgments. In addition, all of our investments have a sufficient level of trading volume to demonstrate that the fair values used are appropriate for these investments.

Derivative assets and liabilities include foreign currency forward contracts and interest rate swap contracts. The fair value of foreign currency forward contracts represents the estimated amount required to settle the contracts using current market exchange rates, and is based on the current foreign currency exchange rates and forward points. The fair value of interest rate swaps is estimated based on valuation models that use interest rate yield curves as inputs. The inputs used to estimate the fair value of the Company's derivatives are classified as Level 2.

We did not have any transfers of assets measured at fair value on a recurring basis to or from Level 1 and Level 2 during fiscal 2016 and 2015.

Assets Measured at Fair Value on a Non-recurring Basis

We measure and report goodwill and intangible assets at fair value on a non-recurring basis if we determine these assets to be impaired or in the period when we make a business acquisition. Refer to Note 10 to Notes to Consolidated Financial Statements-Goodwill and Intangible Assets, for further details. The only assets that were measured at fair value on a nonrecurring basis during fiscal 2016 related to the Cascade Acquisition. See Note 4 to Notes to Consolidated Financial Statements - Acquisition, for further details. There were no assets measured at fair value on a non-recurring basis during fiscal 2015.

Note 10—Goodwill and Intangible Assets

Goodwill recorded from the acquisition of Cascade Microtech on June 24, 2016 was \$158.1 million as of December 31, 2016. The Company determined the total consideration paid for its acquisition of Cascade Microtech as well as the fair value of the assets acquired and liabilities assumed as of the acquisition date. The fair values assigned to assets acquired and liabilities assumed are based on management's best estimates and assumptions as of the reporting date and are considered preliminary pending finalization of valuation analyses pertaining to intangible assets acquired, liabilities assumed and tax liabilities assumed including calculation of deferred tax assets and liabilities. Changes to amounts recorded as assets or liabilities may result in corresponding adjustments to goodwill, recognized deferred tax assets and liabilities including changes to release of valuation allowance during the measurement period (up to one year from the acquisition date). Any such revisions or changes may be material as we finalize the fair values of the tangible and intangible assets acquired and liabilities assumed. See Note 4 to Notes to Consolidated Financial Statements - Acquisition, for further details.

Goodwill recorded from the acquisition of MicroProbe Inc. on October 16, 2012 was \$30.7 million as of December 31, 2016 and remained unchanged from the amounts recorded as of December 26, 2015.

Upon the acquisition of Cascade Microtech on June 24, 2016 and for purposes of our goodwill impairment analysis, we determined that we now have four reporting units consisting of FormFactor Probes, Cascade Microtech Probes, Systems, and Advanced Temperature Test Systems GmbH ("ATT").

During the fourth quarter of fiscal 2016, we performed our annual goodwill impairment test by assessing qualitative factors and we concluded that our goodwill was not impaired as of December 31, 2016. Our qualitative review included, among other factors, an assessment of our market capitalization which was significantly higher than our book value. Furthermore, the Company has not recorded any historical goodwill impairments as of December 31, 2016. The evaluation of goodwill for impairment requires the exercise of significant judgment. In the event of future changes in business conditions, we will be required to reassess and update our forecasts and estimates used in future impairment analyses. If the results of these analyses are lower than current estimates, a material impairment charge may result at that time.

## FORMFACTOR, INC.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The changes in intangible assets for fiscal 2016 and the net book value of intangible assets at December 31, 2016 and December 26, 2015 were as follows (in thousands):

Other Intangible Assets (1)	Intangible Assets, Gross Amount			Accumulated Amortization			Intangible Assets, Net		Weight Average Useful Life
	December 26, 2015	Additions/Disposals	December 31, 2016	December 26, 2015	Expense, net	December 26, 2016	December 26, 2015	December 31, 2016	
Existing developed technologies	\$52,200	\$90,501	\$142,701	\$39,581	\$16,550	\$56,131	\$12,619	\$86,569	4.4
Trade name	4,388	7,533	11,921	1,409	1,580	2,989	2,979	8,932	4.0
Customer relationships	17,000	22,869	39,869	7,046	3,808	10,854	9,954	29,015	5.8
Backlog	—	15,581	15,581	—	13,489	13,489	—	2,092	0.2
Total finite-lived intangible assets	73,588	136,484	210,072	48,036	35,427	83,463	25,552	126,608	
IPR&D-addition (2)	—	12,400	12,400	—	—	—	—	12,400	
Total intangible assets	73,588	148,884	222,472	48,036	35,427	83,463	25,552	139,008	
IPR&D-disposal (2)	—	(12,400)	(12,400)	—	—	—	—	(12,400)	
Total intangible assets	\$73,588	\$136,484	\$210,072	\$48,036	\$35,427	\$83,463	\$25,552	\$126,608	

(1) Excludes fully amortized intangible assets.

In the fourth quarter of fiscal 2016, we recorded an impairment charge of \$12.4 million relating to an in-process (2) research and development intangible asset acquired as part of our acquisition of Cascade Microtech. See Note 7, Impairment of Long-lived Assets, to the Notes to Consolidated Financial Statements for further details.

Intangible asset additions during fiscal 2016 related to Cascade Microtech acquisition—see Note 4 to Notes to Consolidated Financial Statements - Acquisition, for further details.

We recorded \$35.4 million, \$13.1 million and \$18.8 million, in amortization expense related to our intangible assets in fiscal 2016, 2015, and 2014, respectively. Of the total amortization expense for fiscal 2016, 2015, and 2014, \$30.0 million, \$10.4 million, and \$16.1 million were charged to cost of revenues, respectively, and \$5.4 million, \$2.7 million and \$2.7 million were charged to selling, general and administrative expenses, respectively.

Based on the carrying value of the finite-lived intangible assets recorded as of December 31, 2016, and assuming no subsequent additions to or impairment of the underlying assets, the remaining estimated annual amortization expense is expected to be as follows (in thousands):

Fiscal Year	Amount
2017	\$30,672
2018	28,303
2019	25,639
2020	23,570
2021	12,915
and thereafter	5,509

Total \$126,608

As of the Effective Date of the acquisition of Cascade Microtech, we began operating under two reportable segments consisting of Probe Cards Segment and Systems Segment. See Note 16 to Notes to Consolidated Financial Statements - Operating Segments and Geographic Information, for further details. The following table summarizes the changes in the

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## FORMFACTOR, INC.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

carrying amount of goodwill, by reportable segments, for fiscal 2016, applying the segment changes as of June 24, 2016, which was the date when we acquired Cascade Microtech.

	Probe Cards	Systems	Total
	(in thousands)		
Goodwill, gross, as of December 27, 2014 and December 26, 2015	\$30,731	\$—	\$30,731
Additions-Cascade Microtech	141,751	16,390	158,141
Foreign currency translation	—	(862 )	(862 )
Balance as of December 31, 2016	\$172,482	\$15,528	\$188,010

## Note 11—Commitments and Contingencies

## Leases

We lease facilities under non-cancellable operating leases with various expiration dates through 2027. The facilities generally require us to pay property taxes, insurance and maintenance costs. Further, several lease agreements contain rent escalation clauses or rent holidays. For purposes of recognizing minimum rental expenses on a straight-line basis over the terms of the leases, we use the date of initial possession to begin amortization. We have the option to extend or renew most of our leases which may increase the future minimum lease commitments.

Rent expense for the fiscal years 2016, 2015, and 2014 was \$6.5 million, \$4.9 million and \$4.8 million, respectively. Future minimum payments under our non-cancelable operating leases are as follows as of December 31, 2016 (in thousands):

	Operating Leases
Fiscal years:	
2017	\$ 6,279
2018	5,789
2019	4,882
2020	3,581
2021	3,236
Thereafter	15,734
Total	\$ 39,501

## Other Contractual Obligations

The following table sets forth our commitments to settle other contractual obligations in cash as of December 31, 2016 (in thousands):

	Payments Due In Fiscal Years					Total
	2017	2018	2019	2020	2021	
	(In thousands)					
Purchase obligations	\$33,696	\$4,550	\$515	\$—	\$—	\$38,761
Senior secured term loan facility-principal payments (1)	13,125	26,250	41,250	50,625	8,125	139,375
Senior secured term loan facility-interest payments (2)	2,828	2,400	1,739	821	41	7,829
Total	\$49,649	\$33,200	\$43,504	\$51,446	\$8,166	\$185,965

(1) On June 24, 2016, we entered into a senior secured term loan facility in an aggregate amount of \$150 million in order to finance a portion of the Cascade Microtech acquisition consideration. See Note 5 to Notes to Consolidated Financial Statements - Debt, for further details. (2) Represents our minimum interest payment commitments at 2.00% per annum.



FORMFACTOR, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Purchase obligations are primarily for purchases of inventory and manufacturing related service contracts. For the purposes of this table, purchase obligations are defined as agreements that are enforceable and legally binding and that specify all significant terms, including: fixed or minimum quantities to be purchased; fixed, minimum or variable price provisions; and the approximate timing of the transaction. The expected timing of payment of the obligations discussed above is estimated based on information available to us as of December 31, 2016. Timing of payments and actual amounts paid may be different depending on the time of receipt of goods or services or changes to agreed-upon amounts for some obligations.

The table above excludes our gross liability for unrecognized tax benefits, which totaled \$18.0 million as of December 31, 2016. The timing of any payments which could result from these unrecognized tax benefits will depend upon a number of factors. Accordingly, the timing of payment cannot be estimated and has been excluded from the table above. As of December 31, 2016, the changes to our uncertain tax positions in the next 12 months, that are reasonably possible, are not expected to have a significant impact on our financial position or results of operations.

**Environmental Matters**

We are subject to U.S. Federal, State, local, and foreign governmental laws and regulations relating to the protection of the environment, including those governing the discharge of pollutants into the air and water, the management and disposal of hazardous substances and wastes, the clean-up of contaminated sites and the maintenance of a safe workplace. We believe that we comply in all material respects with the environmental laws and regulations that apply to us. We did not receive any notices of violations of environmental laws and regulations in fiscal 2016, 2015 or 2014. In the future, we may receive notices of violations of environmental regulations, or otherwise learn of such violations. Environmental contamination or violations may negatively impact our business.

**Indemnification Arrangements**

We have entered, and may from time to time in the ordinary course of our business enter, into contractual arrangements with third parties that include indemnification obligations. Under these contractual arrangements, we have agreed to defend, indemnify and/or hold the third party harmless from and against certain liabilities. These arrangements include indemnities in favor of customers in the event that our products or services infringe a third party's intellectual property or cause property or other indemnities in favor of our lessors in connection with facility leasehold liabilities that we may cause. In addition, we have entered into indemnification agreements with our directors and certain of our officers, and our bylaws contain indemnification obligations in favor of our directors, officers and agents. These indemnity arrangements may limit the type of the claim, the total amount that we can be required to pay in connection with the indemnification obligation and the time within which an indemnification claim can be made. The duration of the indemnification obligation may vary, and for most arrangements, survives the agreement term and is indefinite. We believe that substantially all of our indemnity arrangements provide either for limitations on the maximum potential future payments we could be obligated to make, or for limitations on the types of claims and damages we could be obligated to indemnify, or both. However, it is not possible to determine or reasonably estimate the maximum potential amount of future payments under these indemnification obligations due to the varying terms of such obligations, a lack of history of prior indemnification claims, the unique facts and circumstances involved in each particular contractual arrangement and in each potential future claim for indemnification, and the contingency of any potential liabilities upon the occurrence of events that are not reasonably determinable. We have not had any material requests for indemnification under these arrangements. We have not recorded any liabilities for these indemnification arrangements on our condensed consolidated balance sheet as of December 31, 2016.

**Legal Matters**

From time to time, we may be subject to legal proceedings and claims in the ordinary course of business. As of December 31, 2016 and as of the filing of this Annual Report on Form 10-K, we were not involved in any material legal proceedings other than the proceeding summarized below. In the future, we may become a party to additional legal proceedings that may require us to spend significant resources, including proceedings designed to protect our intellectual property rights. Litigation can be expensive and disruptive to normal business operations. Moreover, the

results of legal proceedings are difficult to predict, and the costs incurred in litigation can be substantial, regardless of outcome.

On April 8, 2016, an individual plaintiff filed a putative class action lawsuit on behalf of Cascade Microtech's shareholders against Cascade Microtech, its directors, FormFactor and Cascade Merger Sub, in connection with the acquisition of Cascade Microtech by the Company. The lawsuit, captioned Solak v. Cascade Microtech, Inc., et al., No. 16CV11809, was filed in Multnomah County Circuit Court in the State of Oregon.

The Solak lawsuit alleges that the individual members of Cascade Microtech's board of directors breached their fiduciary duties owed to Cascade Microtech's shareholders by approving the proposed merger for inadequate consideration; approving the merger to obtain unique benefits not shared equally with Cascade Microtech's other shareholders; failing to take steps to

FORMFACTOR, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

maximize the value paid to Cascade Microtech shareholders; failing to take steps to ensure a fair process leading up to the proposed merger; and agreeing to preclusive deal protection devices in the merger agreement. The lawsuit also alleges claims against FormFactor and one of its subsidiaries for aiding and abetting the alleged breaches of fiduciary duties by the individual members of Cascade Microtech's board of directors.

Under a memorandum of understanding signed by the parties and filed with the court in the Solak case, Cascade Microtech and the Company agreed with the plaintiff's counsel to supplement the disclosures made in connection with the merger. The supplemental disclosures were made on June 14, 2016. The court in the Solak lawsuit has granted preliminary approval of a stipulated settlement, including an award of the plaintiffs' attorneys' fees and expenses. The final resolution of the proceedings under the stipulation of settlement is subject to customary conditions, including final court approval of the class settlement following notice to Cascade Microtech's former shareholders within the proposed class.

There can be no assurance that the court will approve the final settlement. In such event, the proposed settlement may be terminated.

In August 2013, a former employee filed a class action lawsuit against the Company in the Superior Court of California, alleging violations of California's wage and hour laws and other claims on behalf of himself and all other similarly situated current and former employees at the Company's Livermore facilities from August 21, 2009, to the present. On January 4, 2016, the court certified the plaintiff class. The parties have signed a stipulation dated March 3, 2017, regarding the settlement of the class action under which the parties have agreed to settle the lawsuit, subject court approvals and other conditions. The stipulation provides for payment by the Company of \$1.5 million in settlement of the lawsuit. As of December 31, 2016, we have accrued in our Consolidated Financial Statements \$1.5 million in respect of the potential payment under the stipulation of settlement.

#### Note 12—Stockholders' Equity

##### Preferred Stock

We have authorized 10,000,000 shares of undesignated preferred stock, \$0.001 par value, none of which is issued and outstanding. Our Board of Directors shall determine the rights, preferences, privileges and restrictions of the preferred stock, including dividends rights, conversion rights, voting rights, terms of redemption, liquidation preferences, sinking fund terms and the number of shares constituting any series or the designation of any series.

##### Common Stock

Each share of common stock has the right to one vote. The holders of common stock are also entitled to receive dividends whenever funds are legally available and when declared by the Board of Directors, subject to the prior rights of holders of all classes of stock outstanding having priority rights as to dividends. No dividends have been declared or paid as of December 31, 2016.

##### Common Stock Repurchase Program

On April 16, 2015, our Board of Directors authorized a program to repurchase up to \$25.0 million of outstanding common stock on the open market and which expired on April 15, 2016. During fiscal 2016, we did not repurchase any shares under this program. During fiscal 2015, we repurchased and retired 1,013,162 shares of common stock for approximately \$8.2 million.

In February 2017, our Board of Directors authorized a new program to repurchase up to \$25 million of outstanding common stock to offset potential dilution from sales of common stock under our employee stock purchase plan and exercises of stock options. The share repurchase program will expire on February 1, 2020.

Repurchased shares are retired upon the settlement of the related trade transactions. Our policy related to repurchases of our common stock is to charge the excess of cost over par value to additional paid-in capital. All repurchases were

made in compliance with Rule 10b-18 under the Securities Exchange Act of 1934, as amended.

Equity Incentive Plan

We currently grant equity-based awards under our Equity Incentive Plan (the "2012 Plan") which was approved by our stockholders at our Annual Meeting of Stockholders on April 18, 2012. On May 1, 2015, at our Annual Meeting of Stockholders, our stockholders further approved the amended and restated 2012 Plan which increased the maximum number of

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## FORMFACTOR, INC.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

shares of common stock authorized for issuance by an additional 4.5 million shares and prohibited the cashing out of stock appreciation rights.

Restricted stock and restricted stock units granted under the 2012 Plan will generally vest over three years in annual tranches though we also have granted and will continue to grant such awards over a shorter vest term for employee retention purposes. Additionally, restricted shares reduce the shares available for issuance at 1.70 shares for every one share issued.

The 2012 Plan also provides for the grant of incentive stock options, nonqualified stock options and stock appreciation rights. The incentive stock options may be granted to our employees and the nonqualified stock options, and all awards other than incentive stock options, may be granted to employees, directors and consultants. The exercise price of incentive stock options must be at least equal to the fair market value of common stock on the date of grant. All options granted under the 2012 Plan will generally vest over four years and have a term of seven years, unless otherwise determined by the Compensation Committee of the Board of Directors. Stock appreciation rights granted under the 2012 Plan will generally vest over four years in annual tranches. We have not granted any incentive stock options or stock appreciation rights during fiscal 2016 and 2015.

At December 31, 2016, there were 3.5 million shares available for grant under the 2012 Plan.

## Stock Options

On June 24, 2016, pursuant to the Agreement and Plan of Merger with Cascade Microtech, we granted 152,276 stock options with a total grant date fair value of approximately \$0.8 million, of which approximately \$0.3 million was attributable to the fair value of the assumed unvested options for services performed by Cascade Microtech employees for the period leading up to the effective date of the acquisition and which was included as part of the purchase price consideration. See Note 4 to Notes to Consolidated Financial Statements - Acquisition, for further details.

Stock option activity is set forth below:

	Outstanding Options			
	Number of Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life in Years	Aggregate Intrinsic Value
Outstanding at December 26, 2015	2,320,195	\$ 9.40		
Options granted	152,276	4.42		
Options exercised	(232,190 )	8.63		
Options canceled	(42,250 )	9.87		
Outstanding at December 31, 2016	2,198,031	\$ 9.13	2.02	\$4,825,647
Vested and expected to vest at December 31, 2016	2,171,229	\$ 9.14	1.97	\$4,735,512
Exercisable at December 31, 2016	1,767,871	\$ 9.48	1.14	\$3,305,020

On February 9, 2015, we granted 450,000 non-qualified stock options to our Chief Executive Officer with a grant-date fair value of approximately \$1.7 million which will be recognized as stock compensation expense ratably over the service period. The following weighted average assumptions were used in the estimated grant-date fair value calculations using the Black-Scholes option pricing model:

## Stock Options:

Dividend yield	— %
Expected volatility	47.5 %
Risk-free interest rate	1.6 %
Expected term (in years)	5.5



## FORMFACTOR, INC.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

## Restricted Stock Units

Restricted stock units are converted into shares of our common stock upon vesting on a one-for-one basis. The vesting of restricted stock units is subject to the employee's continuing service to us. Restricted stock unit (RSU) activity is set forth below:

	Number of Shares	Weighted Average Grant Date Fair Value
Restricted stock units at December 28, 2013	2,929,639	\$ 5.88
Granted	1,900,000	6.52
Vested	(1,282,442)	6.30
Canceled	(297,151 )	6.17
Restricted stock units at December 27, 2014	3,250,046	6.07
Granted	1,540,250	8.64
Vested	(1,993,603)	6.00
Canceled	(218,555 )	6.36
Restricted stock units at December 26, 2015	2,578,138	7.63
Granted	2,296,210	8.20
Vested	(1,579,218)	6.60
Canceled	(182,509 )	6.44
Restricted stock units at December 31, 2016	3,112,621	\$ 8.65

On June 24, 2016, pursuant to the Agreement and Plan of Merger with Cascade Microtech, we granted 777,444 RSUs with a total grant date fair value of approximately \$6.9 million, of which approximately \$3.6 million was attributable to the fair value of the assumed unvested RSUs for services performed by Cascade Microtech employees for the period leading up to the effective date of the acquisition and which was included as part of the purchase price consideration. See Note 4 to Notes to Consolidated Financial Statements - Acquisition, for further details.

On August 19, 2016, we issued 155,000 RSUs to six senior executives which will vest based on certain market performance criteria. The performance criteria are based on a metric called our Total Shareholder Return (TSR) for the period from April 1, 2016 to March 31, 2019 relative to the TSR of the companies identified as being part of the S&P Semiconductor Select Industry Index (FormFactor peer companies), as of April 1, 2016. The total stock-based compensation cost of approximately \$1.7 million will be recognized ratably over the requisite service period.

On May 2, 2016, we issued 40,000 RSUs to a senior executive which will vest based on certain market performance criteria. The performance criteria are based on a metric called our TSR for the period from April 1, 2016 to March 31, 2019 relative to the TSR of the companies identified as being part of the S&P Semiconductor Select Industry Index (FormFactor peer companies), as of April 1, 2016. The total stock-based compensation cost of approximately \$0.3 million will be recognized ratably over the requisite service period.

On May 28, 2015, we issued 195,000 RSUs to seven senior executives of our company that will vest based on certain market performance criteria. The performance criteria are based on our TSR for the period from April 1, 2015 to March 31, 2017 relative to the TSR of the companies identified as being part of the S&P Semiconductor Select Industry Index (FormFactor peer companies), as of April 1, 2015. The total stock-based compensation cost of approximately \$1.5 million will be recognized ratably over the requisite service period.

On May 5, 2014, we issued 350,000 RSUs to seven senior executives of our company that will vest based on certain market performance criteria. The performance criteria are based on our TSR for the period from April 1, 2014 to March 31, 2016 relative to the TSR of the companies identified as being part of the S&P Semiconductor Select Industry Index (FormFactor peer companies), as of April 1, 2014. Upon the review of the market performance criteria on April 4, 2016, our Compensation Committee certified a total earn out of 328,600 RSUs which immediately vested as of that date.

The total fair value of restricted stock units vested during fiscal 2016, 2015 and 2014 was \$12.0 million, \$18.1 million and \$8.2 million, respectively.



FORMFACTOR, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

**Employee Stock Purchase Plan**

Under the 2012 Employee Stock Purchase Plan ("ESPP"), the offering periods are 12 months commencing on February 1 of each calendar year and ending on January 31 of the subsequent calendar year, and a six-month fixed offering period commencing on August 1 of each calendar year and ending on January 31 of the subsequent calendar year. The 12-month offering period consists of two six-month purchase periods and the six-month offering period consists of one six-month purchase period. The price of the common stock purchased is 85% of the lesser of the fair market value of the common stock on the first day of the applicable offering period or the last day of each purchase period.

During fiscal 2016, 2015, and 2014, employees purchased 557,281 shares, 565,493 shares and 586,386 shares under this program at a weighted average exercise price of \$6.71, \$5.67 and \$4.80, respectively.

**Note 13—Stock-Based Compensation**

We account for all stock-based compensation to employees and directors, including grants of RSUs and stock options, as stock-based compensation costs based on the fair value measured as of the date of grant. These costs are recognized as an expense in the Consolidated Statements of Operations over the requisite service period.

The table below shows the stock-based compensation expense included in the Consolidated Statement of Operations (in thousands):

	Fiscal Years Ended		
	December 31, 2016	December 26, 2015	December 27, 2014
Stock-based compensation expense included in:			
Cost of revenues	\$2,518	\$ 2,651	\$ 2,433
Research and development	3,329	3,490	3,529
Selling, general and administrative	4,875	5,434	7,317
Total stock-based compensation	10,722	11,575	13,279
Tax effect on stock-based compensation	—	—	—
Total stock-based compensation, net of tax	\$10,722	\$ 11,575	\$ 13,279

During fiscal 2016, we recorded approximately \$0.3 million of stock-based compensation expense relating to the modification of certain equity-based awards as a result of the consolidation of our operations. In addition, we also recorded approximately \$0.7 million of stock-based compensation expense relating to the acceleration of certain equity-based awards of an executive of Cascade Microtech who was terminated upon our acquisition of Cascade Microtech and in accordance with his contractual change of control agreement with Cascade Microtech.

During fiscal 2015, we recorded stock-based compensation expense of approximately \$0.5 million relating to the modification of an equity-based award.

We classified these stock-based compensation expenses as restructuring-related expenses. Refer to Note 6 to Notes to Consolidated Financial Statements - Restructuring Charges for further details.

**Restricted Stock Units**

The fair value of restricted stock units is determined using the market closing price of our common stock on the grant date and compensation cost is recognized over the vesting period on a straight-line basis. The restricted stock units generally vest over three years though we also have granted and will continue to grant such awards over a shorter vest term for employee retention purposes.

During fiscal 2016, 2015 and 2014, we granted 2,296,210 shares, 1,540,250 shares and 1,900,000 shares of restricted stock units with the weighted average grant-date fair values of \$8.20, \$8.64 and \$6.52 per share, respectively. As of December 31, 2016, the unamortized stock-based compensation balance related to restricted stock units was \$19.1 million after estimated forfeitures, which will be recognized over an estimated period of 2.20 years based on the weighted average days to vest.



## FORMFACTOR, INC.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

## Stock Options

The exercise price of each stock option equals the market price of our stock on the date of grant. Most options are scheduled to vest over three to four years and expire five to ten years from the grant date. The fair value of each option grant is estimated on the date of grant using the Black-Scholes option pricing model. In addition, we estimate forfeitures when recognizing compensation expense, and adjust our estimates of forfeitures over the requisite service period based on the extent to which actual forfeitures differ, or are expected to differ, from such estimates. Changes in estimated forfeitures are recognized as a change in estimate in the period of change and will also impact the amount of compensation expense to be recognized in future periods.

During fiscal 2016, we granted 152,276 stock options pursuant to the Agreement and Plan of Merger with Cascade Microtech acquired on June 24, 2016 with a weighted average grant-date fair value of \$4.42 per share. Our computation of expected volatility was based on a combination of historical and market-based implied volatility from traded options on our common stock. We believe that including market-based implied volatility in the calculation of expected volatility results in a more accurate measure of the volatility expected in future periods. Risk-free interest rates are yields for zero-coupon U.S. Treasury notes maturing approximately at the end of the expected option life. We determine the expected term by considering several factors, including historical option exercise behavior, post vesting turnover rates, contractual terms and vesting periods of the options granted.

As of December 31, 2016, the unamortized stock-based compensation balance related to stock options was \$1.1 million after estimated forfeitures, which will be recognized over an estimated period of 2.0 years based on the weighted average days to vest.

## Employee Stock Purchase Plan

During fiscal 2016, we issued 557,281 shares under our approved employee stock purchase plans. As of December 31, 2016, we had \$0.2 million of total unrecognized stock-based compensation expense, which will be recognized over the weighted average period of approximately one month. Compensation expense is calculated using the fair value of the employees' purchase rights under the Black-Scholes model.

The following assumptions were used in estimating the fair value of employees' purchase rights under the approved employee stock purchase plans:

	Fiscal Years Ended					
	December 31, 2016		December 26, 2015		December 27, 2014	
Employee Stock Purchase Plan:						
Dividend yield	—	%	—	%	—	%
Expected volatility	45.43	%	51.78	%	41.71	%
Risk-free interest rate	0.43	%	0.12	%	0.09	%
Expected life (in years)	0.8		0.7		0.7	

## Note 14—Income Taxes

The components of loss before income taxes were as follows (in thousands):

	Fiscal Years Ended		
	December 31, 2016	December 26, 2015	December 27, 2014
United States	\$(50,947)	\$ (3,069)	\$ (23,230)
Foreign	752	1,798	3,135
	\$(50,195)	\$ (1,271)	\$ (20,095)



## FORMFACTOR, INC.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

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

	Fiscal Years Ended		
	December 31, 2016	December 26, 2015	December 27, 2014
Current provision (benefit):			
Federal	\$—	\$ (3 )	\$ (983 )
State	120	72	(386 )
Foreign	1,804	198	234
	1,924	267	(1,135 )
Deferred provision (benefit):			
Federal	(42,150 )	—	—
State	(2,165 )	—	—
Foreign	(1,247 )	(15 )	225
	(45,562 )	(15 )	225
Total provision (benefit) from income taxes	\$(43,638)	\$ 252	\$ (910 )

The following is a reconciliation of the difference between income taxes computed by applying the federal statutory rate of 35% and the provision (benefit) from income taxes for fiscal 2016, 2015 and 2014 (in thousands):

	Fiscal Years Ended		
	December 31, 2016	December 26, 2015	December 27, 2014
U.S. statutory federal tax rate	\$(17,568)	\$ (445 )	\$ (7,033 )
State taxes and credits, net of Federal benefit	(975 )	17	(186 )
Amortization of stock-based compensation	1,256	907	686
Research and development credits	(1,654 )	(1,872 )	(1,183 )
Foreign taxes at rates different than the U.S.	504	(66 )	(84 )
Other permanent differences	2,048	238	(972 )
Change in valuation allowance	(27,120 )	1,457	7,886
Other	(129 )	16	(24 )
Total	\$(43,638)	\$ 252	\$ (910 )

## FORMFACTOR, INC.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Deferred tax assets and liabilities are recognized for the future tax consequences of differences between the carrying amounts of assets and liabilities and their respective tax bases using enacted tax rates in effect for the year in which the differences are expected to be reversed. Significant deferred tax assets and liabilities consist of the following (in thousands):

	Fiscal Years Ended	
	December 31, 2016	December 31, 2015
Tax credits	\$33,486	\$ 30,968
Inventory reserve	13,863	14,010
Unrealized investment gains	—	20
Other reserves and accruals	10,593	5,953
Non-statutory stock options	6,206	4,936
Depreciation and amortization	7,719	13,440
Net operating loss carryforwards	118,482	119,327
Gross deferred tax assets	190,349	188,654
Valuation allowance	(150,581)	(176,196)
Total deferred tax assets	39,768	12,458
Acquired intangibles & fixed assets	(39,801)	(9,177)
Unrealized investment gains	(289)	—
Tax on undistributed earnings	(71)	—
Total deferred tax liabilities	(40,161)	(9,177)
Net deferred tax assets (liabilities)	\$(393)	\$ 3,281

We are required to evaluate the realizability of our deferred tax assets in both our U.S. and non-U.S. jurisdictions on an ongoing basis to determine whether there is a need for a valuation allowance with respect to such deferred tax assets. During fiscal 2016 and 2015, we maintained a valuation allowance against our U.S. deferred tax assets. We intend to maintain a valuation allowance until sufficient positive evidence exists to support the realization of such deferred tax assets.

The valuation allowance against deferred tax assets consisted of the following activity for the fiscal years 2016, 2015 and 2014 (in thousands):

Description	Balance at Beginning of Year	Additions	Reduction	Balance at End of Year
Allowance against deferred tax assets				
Year ended December 31, 2016	\$ 176,196	\$ —	\$(25,615)	\$ 150,581
Year ended December 31, 2015	187,759	—	(11,563)	176,196
Year ended December 31, 2014	\$ 180,913	\$ 6,846	\$—	\$ 187,759

At December 31, 2016, we had Federal research and development tax credit, Federal net operating loss, and foreign tax credit carryforwards of \$22.5 million, \$298.7 million and \$2.2 million, respectively, which will expire at various dates from 2017 through 2036. We had alternative minimum tax credits of \$2.4 million which do not expire. We had California and Oregon research credits of \$29.9 million and \$0.6 million, respectively. The California research credit can be carried forward indefinitely while Oregon research credits expire at various dates from 2017 through 2022. We had state net operating loss carryforwards of approximately \$271.7 million, which will expire at various dates from 2017 through 2036. We had Singapore net operating loss carryforwards of approximately \$9.7 million, which can be carried forward indefinitely.

We have not provided U.S. Federal and State income taxes, nor foreign withholding taxes, on approximately \$20.2 million of undistributed earnings for certain non-US subsidiaries, because such earnings are intended to be indefinitely reinvested. If these earnings were distributed to the U.S. in the form of dividends or otherwise, or if the shares of the relevant foreign subsidiaries were sold or otherwise transferred, we would be subject to additional U.S. income taxes (subject to an adjustment for foreign tax credits) and foreign withholding taxes, of approximately \$0.4 million. Determination of the amount of unrecognized deferred tax liability for temporary differences related to investment in these non-U.S. subsidiaries that are essentially permanent in duration is not practicable.

## FORMFACTOR, INC.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

During fiscal 2016 and 2015, there were \$1.8 million and \$6.3 million, respectively, of unrecognized tax benefit associated with the exercise of employee stock options and other employee stock programs. During fiscal 2014, there were no tax benefits associated with the exercise of employee stock options and other employee stock programs. The following table reflects changes in the unrecognized tax benefits (in thousands):

	Fiscal Years Ended		
	December 31, 2016	December 26, 2015	December 27, 2014
Unrecognized tax benefit beginning balance	\$ 17,033	\$ 16,333	\$ 16,972
Additions based on tax positions related to the current year	614	667	498
Additions based on tax position from prior year	450	163	324
Reductions for tax positions of prior years	—	(18)	(1,109)
Reductions to unrecognized tax benefits due to lapse of the applicable statute of limitations	(119)	(112)	(352)
Unrecognized tax benefit ending balance	\$ 17,978	\$ 17,033	\$ 16,333

At December 31, 2016, we had total tax-effected unrecognized tax benefits of \$18.0 million of which \$1.3 million, if recognized, would impact the effective tax rate.

We recognize interest (benefit) charges and penalties related to uncertain tax positions as part of the income tax provision. We recognized interest (benefit) charges and penalties of \$22 thousand, \$50 thousand and \$(0.1) million in fiscal 2016, 2015, and 2014, respectively. As of December 31, 2016 and December 26, 2015, we have accrued total interest charges and penalties of \$0.2 million and \$0.2 million, respectively, related to uncertain tax positions.

The amount of income taxes we pay is subject to ongoing audits by Federal, State and foreign tax authorities which might result in proposed assessments. Our estimate for the potential outcome for any uncertain tax issue is judgmental in nature. However, we believe we have adequately provided for any reasonably foreseeable outcome related to those matters. Our future results may include favorable or unfavorable adjustments to our estimated tax liabilities in the period the assessments are made or resolved or when statutes of limitation on potential assessments expire. As of December 31, 2016, changes to our uncertain tax positions in the next 12 months that are reasonably possible are not expected to have a significant impact on our financial position or results of operations.

We and our subsidiaries file income tax returns in the U.S. Federal jurisdiction, various states and non U.S. jurisdictions. The material income tax jurisdictions are the United States (Federal), California, Germany, Singapore, China and Japan. The audit of income tax returns for Federal and California for the tax years 2010 to 2012 stub period and 2010 to 2011, respectively, have been settled. However, as a result of net operating loss carryforwards, we are subject to audit for tax years 2007 and forward for Federal purposes and 2008 and forward for California purposes. For Germany, Singapore, China and Japan purposes, we are subject to audit for tax years after 2012.

#### Note 15—Employee Benefit Plans

We have an employee savings plan that qualifies as a deferred salary arrangement under Section 401(k) of the Internal Revenue Code. The plan is designed to provide employees with an accumulation of funds for retirement on a tax-deferred basis and provide for annual discretionary employer contributions. The total charge to operations under the 401(k) plan for fiscal 2016, 2015 and 2014 aggregated \$0.5 million, \$1.1 million and \$1.0 million, respectively.

#### Note 16—Operating Segments and Geographic Information

Until the acquisition of Cascade Microtech, we operated in one reportable segment consisting of one operating segment relating to the design, development, manufacture and sale of high performance advanced probe cards. Our chief operating decision maker ("CODM") is our Chief Executive Officer, who reviews operating results to make decisions about allocating resources and assessing performance for the entire company.

Upon the acquisition of Cascade Microtech (See Note 4 to Notes to Consolidated Financial Statements - Acquisition, for further details), we re-evaluated our CODM's decision process for allocating resources and assessing performance for the company and determined that we now operate in two reportable segments consisting of the Probe Cards Segment and Systems Segment.





## FORMFACTOR, INC.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The following table summarizes the operating results by reportable segments for fiscal 2016 and 2015 (in thousands, except percentages):

	Fiscal 2016			
	Probe Cards	Systems	Corporate and Other	Total
Revenues	\$337,970	\$45,911	\$—	\$383,881
Gross profit	\$121,407	\$23,925	\$(42,650)	\$102,682
Gross margin	35.9 %	52.1 %	—	26.7 %
Operating income (loss)	\$49,382	\$8,968	\$(106,257)	\$(47,907)
	Fiscal 2015			
	Probe Cards	Systems	Corporate and Other	Total
Revenues	\$282,358	\$—	\$—	\$282,358
Gross profit	\$99,199	\$—	\$(13,461)	\$85,738
Gross margin	35.1 %	— %	—	30.4 %
Operating income (loss)	\$39,964	\$—	\$(44,067)	\$(4,103)

Operating results provide useful information to our management for assessment of our performance and results of operations. Certain components of our operating results are utilized to determine executive compensation along with other measures.

Corporate and other includes unallocated expenses relating to amortization of intangible assets, share-based compensation expense, acquisition-related costs, including charges related to inventory stepped up to fair value, and other costs, which are not used in evaluating the results of, or in allocating resources to, our reportable segments. Acquisition-related costs include transaction costs and any costs directly related to the acquisition and integration of acquired businesses.

The following table summarizes revenue, by geographic region, as a percentage of total revenues based upon ship-to location:

	Fiscal Years Ended		
	December 26, 2016	December 26, 2015	December 27, 2014
United States	33.3 %	23.4 %	28.1 %
South Korea	17.1	25.2	19.6
Taiwan	14.9	21.9	18.4
Europe	12.9	9.0	11.4
Asia-Pacific (1)	11.4	11.1	12.9
Japan	10.0	9.4	9.6
Rest of the world	0.4	—	—
Total Revenues	100.0%	100.0 %	100.0 %

(1) Asia-Pacific includes all countries in the region except Taiwan, Japan and South Korea, which are disclosed separately.

## FORMFACTOR, INC.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The following table summarizes revenue by product group (in thousands):

	Fiscal Years Ended		
	December 2016	December 26, 2015	December 27, 2014
Foundry & Logic	\$237,591	\$ 145,839	\$ 142,360
DRAM	86,910	125,512	110,800
Flash	13,469	11,007	15,370
Systems	45,911	—	—
Total revenues	\$383,881	\$ 282,358	\$ 268,530

The following customers represented greater than 10% of our revenues in fiscal 2016, fiscal 2015 and fiscal 2014:

	Fiscal 2016	Fiscal 2015	Fiscal 2014
Intel	30.1%	19.6%	19.7%
Samsung	*	14.6	*
SK hynix	*	14.3	16.9
Micron	*	11.7	15.0
Total revenues attributable to customers greater than 10%	30.1%	60.2%	51.6%

\* Less than 10% of revenues

Long-lived assets, comprising of net property, plant and equipment, goodwill and net intangibles assets are reported based on the location of the asset. Long-lived assets by geographic location are as follows (in thousands):

	December 31, December 26,	
	2016	2015
United States	\$ 323,369	\$ 77,257
Europe	30,903	655
Asia-Pacific (1)	1,709	689
South Korea	733	1,128
Japan	510	295
Singapore	57	112
Total	\$ 357,281	\$ 80,136

(1) Asia-Pacific includes all countries in the region except Taiwan, Japan and South Korea, which are disclosed separately.

#### Note 17—Selected Quarterly Financial Data (Unaudited)

The following selected quarterly financial data should be read in conjunction with our consolidated financial statements and the related notes and "Item 7: Management's Discussion and Analysis of Financial Condition and Results of Operations." This information has been derived from our unaudited consolidated financial statements that, in our opinion, reflect all recurring adjustments necessary to fairly present this information when read in conjunction with our consolidated financial statements and the related notes appearing in the section entitled "Consolidated Financial Statements." The results of operations for any quarter are not necessarily indicative of the results to be expected for any future period.

## FORMFACTOR, INC.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

	Fiscal Quarters Ended							
	Dec. 31, 2016 (3)	Sep. 24, 2016	June. 25, 2016 (1) (2)	March 26, 2016	Dec. 26, 2015	Sep. 26, 2015 (5)	June. 27, 2015	March 28, 2015 (4)
	(in thousands, except per share data)							
Revenues	\$123,888	\$123,299	\$83,083	\$53,611	\$71,782	\$65,862	\$73,885	\$70,829
Cost of revenues	83,613	96,111	57,656	43,819	50,591	47,407	50,582	48,040
Gross profit	40,275	27,188	25,427	9,792	21,191	18,455	23,303	22,789
Operating Expenses:								
Research and development	18,218	17,253	11,133	10,849	11,236	10,645	11,217	11,086
Selling, general and administrative	23,890	23,008	14,030	12,516	10,719	11,108	11,381	11,882
Restructuring and impairment charges, net	12,697	85	6,910	—	(3 )	59	8	503
Total operating expenses	54,805	40,346	32,073	23,365	21,952	21,812	22,606	23,471
Operating income (loss)	(14,530 )	(13,158 )	(6,646 )	(13,573 )	(761 )	(3,357 )	697	(682 )
Interest income, net	59	52	88	117	70	65	65	85
Other income (expense), net	(946 )	(1,042 )	(302 )	(314 )	(36 )	982	100	1,501
Income (loss) before income taxes	(15,417 )	(14,148 )	(6,860 )	(13,770 )	(727 )	(2,310 )	862	904
Provision (benefit) for income taxes	26	50	(43,744 )	30	(108 )	215	24	121
Net income (loss)	\$(15,443 )	\$(14,198 )	\$36,884	\$(13,800)	\$(619 )	\$(2,525 )	\$838	\$783
Net income (loss) per share:								
Basic	\$(0.22 )	\$(0.20 )	\$0.62	\$(0.24 )	\$(0.01 )	\$(0.04 )	\$0.01	\$0.01
Diluted	\$(0.22 )	\$(0.20 )	\$0.61	\$(0.24 )	\$(0.01 )	\$(0.04 )	\$0.01	\$0.01
Weighted average number of shares used in per share calculations:								
Basic	70,807	70,502	59,572	58,431	58,128	58,209	58,109	56,594
Diluted	70,807	70,502	59,988	58,431	58,128	58,209	59,094	58,838

In the second quarter of fiscal 2016, we recorded \$5.4 million of severance charges and \$0.7 million of stock-based compensation expense relating to the acceleration of certain equity-based awards of certain executives of Cascade (1)Microtech who were terminated upon our acquisition of Cascade Microtech and in accordance with their contractual change of control agreements. See Note 6, Restructuring Charges, to the Notes to Consolidated Financial Statements for further details.

In the second quarter of fiscal 2016, we recorded an income tax benefit of \$43.7 million primarily due to the (2)release of valuation allowance of our deferred tax assets in connection with our acquisition of Cascade Microtech. See Note 14, Income Taxes, to the Notes to Consolidated Financial Statements for further details.

In the fourth quarter of fiscal 2016, we recorded an impairment charge of \$12.4 million relating to an in-process (3)research and development intangible asset acquired as part of our acquisition of Cascade Microtech. See Note 7, Impairment of Long-lived Assets, to the Notes to Consolidated Financial Statements for further details.

In the first quarter of fiscal 2015, we recorded a \$1.5 million gain from a business interruption insurance claim (4)relating to a factory fire at a customer. See Note 18, Business Interruption Insurance Claim Recovery, to the Notes to Consolidated Financial Statements for further details.

(5) In the third quarter of fiscal 2015, we recorded a \$1.0 million net gain from the sale of intellectual property.

Note 18—Business Interruption Insurance Claim Recovery

During fiscal 2015, we received approximately \$1.5 million as a result of a payment from our insurer arising from a business interruption insurance claim related to a factory fire at a customer during the second half of fiscal 2013. We recorded this cash receipt within “Other income (expense), net” in our Consolidated Statements of Operations.

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INDEX TO EXHIBITS

Set forth below is a list of exhibits that are being filed or incorporated by reference into this Annual Report on Form 10-K:

Exhibit Number	Exhibit Description	Incorporated by Reference			
		Form	File No	Date of First Filing	Exhibit Number Filed Herewith
2.01***	Agreement and Plan of Merger, dated February 3, 2016, by and among Cascade Microtech, Inc., FormFactor, Inc. and Cardinal Merger Subsidiary, Inc.	8-K	000-50307	2/9/2016	2.1
3.01	Amended and Restated Certificate of Incorporation of the Registrant as filed with the Delaware Secretary of State on June 17, 2003	S-1	333-109815	10/20/2003	3.01
3.02	Amended and Restated Bylaws of the Registrant	8-K	000-50307	7/22/2016	3.2
4.01	Specimen Common Stock Certificate	S-1/A	333-86738	5/28/2002	4.01
10.01	Credit Agreement among FormFactor, Inc. as Borrower, the Guarantors that are from time to time parties thereto, HSBC Bank USA, National Association, as Administrative Agent, Lead Lender, Co-Lead Arranger, Sole Bookrunner, Syndication Agent and Lender, the Lenders that are from time to time parties thereto, and Silicon Valley Bank, as Co-Lead Arranger and Documentation Agent, dated as of June 24, 2016	8-K	000-50307	6/28/2016	10.1
10.02+	Form of Indemnity Agreement	S-1/A	333-86738	5/28/2002	10.01
10.03+	Form of Change of Control Severance Agreement	10-K	000-50307	3/14/2005	10.48
10.04+	1996 Stock Option Plan, and form of option grant	S-1	333-86738	4/22/2002	10.03
10.05+	Incentive Option Plan, and form of option grant	S-1	333-86738	4/22/2002	10.04
10.06+	Management Incentive Option Plan, and form of option grant	S-1	333-86738	4/22/2002	10.05
10.07+	2002 Equity Incentive Plan, as amended, and forms of plan agreements	10-Q	000-50307	5/4/2011	10.06
10.08+	2002 Employee Stock Purchase Plan, as amended	10-Q	000-50307	8/7/2007	10.01
10.09+	Key Employee Bonus Plan, as amended	10-Q	000-50307	5/7/2007	10.01
10.10+	Equity Incentive Plan, as amended and restated effective April 18, 2012, and forms of plan agreements	10-K	000-50307	3/13/2013	10.09
10.11+	Employee Stock Purchase Plan, as amended and restated April 18, 2012	10-K	000-50307	3/13/2013	10.1
10.12	Pacific Corporate Center Lease (Building 1) by and between Greenville Holding Company LLC (successor to Greenville Investors, L.P.) ("Greenville") and the Registrant dated May 3, 2001	S-1/A	333-86738	6/10/2003	10.18
10.13	First Amendment to Pacific Corporate Center Lease (Building 1) by and between Greenville and the Registrant dated January 31, 2003	S-1/A	333-86738	5/7/2003	10.18.1
10.14	Pacific Corporate Center Lease (Building 2) by and between Greenville and the Registrant dated May 3, 2001	S-1/A	333-86738	6/10/2003	10.19
10.15	First Amendment to Pacific Corporate Center Lease (Building 2) by and between Greenville and the Registrant dated January 31, 2003	S-1/A	333-86738	5/7/2003	10.19.1

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10.16	Pacific Corporate Center Lease (Building 3) by and between Greenville and the Registrant dated May 3, 2001	S-1/A	333-86738	6/10/2003	10.20
10.17+	First Amendment to Pacific Corporate Center Lease (Building 3) by and between Greenville and the Registrant dated January 31, 2003	S-1/A	333-86738	5/7/2003	10.20.1
10.18	Third Amendment, dated December 19, 2016, between FormFactor, Inc. and MOHR PCC, LP, to Pacific Corporate Center Leases (Buildings 1, 2 and 3), dated May 3, 2001, by and between Greenville Investors, L.P. and FormFactor, Inc., as amended	8-K	000-50307	12/23/2016	10.2
10.19+	Pacific Corporate Center Lease by and between Greenville and the Registrant dated September 7, 2004., as amended by First Amendment to Building 6 Lease dated August 16, 2006	10-Q	000-50307	11/7/2006	10.01
10.20	Second Amendment, dated December 19, 2016, between FormFactor, Inc. and MOHR PCC, LP, to Pacific Corporate Center Lease, dated October 5, 2004, by and between Greenville Investors, L.P. and FormFactor, Inc., as amended	8-K	000-50307	12/23/2016	10.1
10.21	Lease Agreements I and II between Amberjack, Ltd. And Cascade Microtech, Inc. dated August 20, 1997, and Amendment No. 2 to Lease Agreement I dated July 23, 1998, and Amendment No. 2 to Lease Agreement II dated April 12, 1999.	8-K	333-47100	10/2/2000	10.9
10.22	Third Amendment dated August 11, 2006 to Lease Agreement I dated August 20, 1997 between Amberjack, LTD. and Cascade Microtech, Inc.	10-Q	000-51072	11/9/2006	10.2

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Exhibit Number	Exhibit Description	Incorporated by Reference			Exhibit Number	Filed Herewith
		Form	File No	Date of First Filing		
10.23	Third Amendment dated August 11, 2006 to Lease Agreement II dated August 20, 1997 between Amberjack, LTD. and Cascade Microtech, Inc.	10-Q	000-51072	11/9/2006	10.3	
10.24	Assignment, Assumption and Amendment of Lease dated as of September 22, 2011 by and among Cascade Microtech, Inc. and R&D Sockets, Inc.	8-K	000-51072	9/26/2011	10.1	
10.25	Rental Agreement by and between Cascade Microtech Dresden GmbH and Süß Grundstücksverwaltungs GbR dated as of June 17, 2011.	10-Q	000-51072	8/10/2011	10.3	
10.26	Lease dated April 2, 1999 between Spieker Properties, L.P. and Cascade Microtech, Inc.	8-K	333-47100	10/2/2000	10.8	
10.27	First amendment to Lease dated January 10, 2007, between Nimbus Center LLC (as successor in interest to Spieker Properties, L.P.) and Cascade Microtech, Inc.	10-Q	000-51072	5/9/2014	10.1	
10.28	Second amendment to Lease dated February 25, 2013, between Nimbus Center LLC and Cascade Microtech, Inc.	10-Q	000-51072	5/8/2013	10.2	
10.29	Third amendment to Lease dated January 23, 2014, between Nimbus Center LLC and Cascade Microtech, Inc.	10-Q	000-51072	5/9/2014	10.2	
10.30	Fourth amendment to Lease dated March 31, 2014, between Nimbus Center LLC and Cascade Microtech, Inc.	10-Q	000-51072	5/9/2014	10.3	
10.31	Fifth amendment to Lease dated September 24, 2014, between Nimbus Center LLC and Cascade Microtech, Inc.	10-K	000-51072	3/7/2016	10.22	
10.32	Sixth amendment to Lease dated July 8, 2015, between Nimbus Center LLC and Cascade Microtech, Inc.	10-K	000-51072	3/7/2016	10.23	
10.33+	Employment Offer Letter, dated August 29, 2012 to Mike Slessor	10-K	000-50307	3/13/2013	10.19+	
10.34+	Tax withholding reimbursement letter between Mike Slessor and the Registrant dated December 30, 2013	10-K	000-50307	3/6/2015	10.2	
10.35+	CEO Change of Control and Severance Agreement, dated April 28, 2016 by and between Mike Slessor and the Registrant	—	—	—	—	X
10.36+	Change of Control and Severance Agreement, dated April 28, 2016 by and between Michael Ludwig and the Registrant	—	—	—	—	X
21.01	List of Registrant's subsidiaries	—	—	—	—	X
23.01	Consent of Independent Registered Public Accounting Firm - KPMG	—	—	—	—	X
24.01	Power of Attorney (included on the signature page of this Form 10-K)	—	—	—	—	X
31.01	Certification of Chief Executive Officer pursuant to 15 U.S.C. Section 7241, as adopted pursuant to Section 302	—	—	—	—	X



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	of the Sarbanes-Oxley Act of 2002					
31.02	Certification of Chief Financial Officer pursuant to 15 U.S.C. Section 7241, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002	—	—	—	—	X
32.01*	Certification of Chief Executive Officer and Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002	—	—	—	—	X
101.INS**	XBRL Instance Document	—	—	—	—	X
101.SCH**	XBRL Taxonomy Extension Schema Document	—	—	—	—	X
101.CAL**	XBRL Taxonomy Extension Calculation Linkbase Document	—	—	—	—	X
101.DEF**	XBRL Taxonomy Extension Definition Linkbase Document	—	—	—	—	X
101.LAB**	XBRL Taxonomy Extension Label Linkbase Document	—	—	—	—	X
101.PRE**	XBRL Taxonomy Extension Presentation Linkbase Document	—	—	—	—	X

This exhibit shall not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934 or otherwise subject to the liabilities of that section, nor shall it be deemed incorporated by reference in any filing under the Securities Act of 1933 or the Securities Exchange Act of 1934, whether made before or after the date hereof and irrespective of any general incorporation language in any filings.

Pursuant to Rule 406T of Regulation S-T, these interactive data files are deemed not filed or part of a registration statement or prospectus for purposes of Sections 11 or 12 of the Securities Act of 1933 or Section 18 of the Securities Exchange Act of 1934 and otherwise are not subject to liability.

Confidential treatment has been requested for portions of this document. The schedules, exhibits, and annexes to this exhibit have been omitted in reliance Item 601(b)(2) of Regulation S-K and will be furnished supplementally to the SEC upon request.

+Indicates a management contract or compensatory plan or arrangement.