

CABOT MICROELECTRONICS CORP  
Form 10-K  
November 16, 2016

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

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

FOR THE FISCAL YEAR ENDED SEPTEMBER 30, 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 00030205

CABOT MICROELECTRONICS CORPORATION  
(Exact name of registrant as specified in its charter)

DELAWARE 364324765  
(State of Incorporation) (I.R.S. Employer Identification No.)

870 NORTH COMMONS DRIVE 60504  
AURORA, ILLINOIS (Zip Code)  
(Address of principal executive offices)

Registrant's telephone number, including area code: (630) 3756631

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

Title of each class	Name of each exchange on which registered
Common Stock, \$0.001 par value	The NASDAQ Stock Market LLC

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

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

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

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

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

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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 definition of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act. (Check one):

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

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

The aggregate market value of the registrant's Common Stock held beneficially or of record by stockholders who are not affiliates of the registrant, based upon the closing price of the Common Stock on March 31 2016, as reported by the NASDAQ Global Select Market, was approximately \$955,537,100. For the purposes hereof, "affiliates" include all executive officers and directors of the registrant.

As of October 31, 2016, the Company had 24,617,841 shares of Common Stock outstanding.

**DOCUMENTS INCORPORATED BY REFERENCE**

Portions of the registrant's definitive Proxy Statement for the Annual Meeting of Stockholders to be held on March 7, 2017, are incorporated by reference in Part III of this Form 10-K to the extent stated herein.

This Form 10-K includes statements that constitute "forward-looking statements" within the meaning of federal securities regulations. For more detail regarding "forward-looking statements" see Item 7 of Part II of this Form 10-K.

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 FORM 10-K  
 FOR THE FISCAL YEAR ENDED SEPTEMBER 30, 2016

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PART I

ITEM 1. BUSINESS

OUR COMPANY

Cabot Microelectronics Corporation ("Cabot Microelectronics", "the Company", "us", "we", or "our"), which was incorporated in the state of Delaware in 1999, is the leading supplier of high-performance polishing slurries and a growing supplier of polishing pads used in the manufacture of advanced integrated circuit (IC) devices within the semiconductor industry, in a process called chemical mechanical planarization (CMP). CMP is a polishing process used by IC device manufacturers to planarize or flatten many of the multiple layers of material that are deposited upon silicon wafers in the production of advanced ICs. Our products play a critical role in the production of advanced IC devices, thereby helping to enable our customers to produce smaller, faster and more complex IC devices with fewer defects. Our mission is to create value by developing reliable and innovative solutions, through close customer collaboration, that solve today's challenges and help enable tomorrow's technology.

We currently operate predominantly in one industry segment – the development, manufacture and sale of CMP consumables products. We develop, produce and sell CMP slurries for polishing many of the conducting, insulating and isolating materials used in IC devices, and also for polishing the disk substrates and magnetic heads used in hard disk drives. We also develop, manufacture and sell CMP polishing pads, which are used in conjunction with slurries in the CMP process. In addition, we pursue demanding surface modification applications in other industries through our Engineered Surface Finishes (ESF) business.

On October 22, 2015, we completed the acquisition of NexPlanar Corporation ("NexPlanar"), a U.S. based company that had been privately held, which specialized in the development, manufacture and sale of advanced CMP pad solutions for the semiconductor industry. We believe the acquisition of NexPlanar provides an opportunity to expand our polishing pad product offerings with a complementary technology, and leverage our global infrastructure to better serve our customers on a global basis, including offering performance-advantaged slurry and pad consumable sets.

CMP PROCESS WITHIN IC DEVICE MANUFACTURING

IC devices, or "chips", are components in a wide range of electronic systems for computing, communications, manufacturing and transportation. Individual consumers most frequently encounter IC devices in mobile internet devices (MIDs) such as smart phones and tablets, microprocessors, application processors and memory chips in their desktop or laptop computers, and in automotive applications, gaming devices, and digital televisions. The multi-step manufacturing process for IC devices typically begins with a circular wafer of pure silicon, with the first manufacturing step referred to as a "wafer start". A large number of identical IC devices, or dies, are manufactured on each wafer at the same time. The initial steps in the manufacturing process build transistors and other electronic components on the silicon wafer. These are isolated from each other using a layer of insulating material, most often silicon dioxide, to prevent electrical signals from bridging from one transistor to another. These components are then wired together using conducting materials such as aluminum or copper in a particular sequence to produce a functional IC device with specific characteristics. When the conducting wiring on one layer of the IC device is completed, another layer of insulating material is added. The process of alternating insulating and conducting layers is repeated until the desired wiring within the IC device is achieved. At the end of the process, the wafer is cut into the individual dies, which are then packaged to form individual chips.

Demand for CMP consumables products, including slurries and pads, used in the production of IC devices is primarily based on the number of wafer starts by semiconductor manufacturers and the type and complexity of the IC devices they produce. To enhance the performance of IC devices, IC device manufacturers have progressively increased the number and density of electronic components and wiring layers in each IC device. This is typically done in

conjunction with shrinking the key dimensions on an IC device from one technology generation, or "node," to another. As a result, the number of transistors, wires and the number of discrete wiring layers have increased, increasing the complexity of the IC device and the related demand for CMP consumables products. As semiconductor technology has advanced and performance requirements of IC devices have increased, the percentage of IC devices that utilize CMP in the manufacturing process has increased steadily over time. We believe that CMP is used in the majority of all IC devices made today, and we expect that the use of CMP will continue to increase in the future.

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In the CMP polishing process, CMP consumables are used to remove excess material that is deposited during the IC manufacturing process, and to level and smooth the surfaces of the layers of IC devices, via a combination of chemical reactions and mechanical abrasion, leaving minimal residue and defects on the surface, with only the material necessary for circuit integrity remaining. CMP slurries are liquid solutions generally composed of high-purity deionized water and a proprietary mix of chemical additives and engineered abrasives that chemically and mechanically interact at an atomic level with the surface material of the IC device. CMP pads are engineered polymeric materials designed to distribute and transport the slurry to the surface of the wafer and distribute it evenly across the wafer. Grooves are formed into the surface of the pad to facilitate distribution of the slurry. The CMP process is performed on a CMP polishing tool. During the CMP process, the wafer is held on a rotating carrier, which is pressed down against a CMP pad. The CMP pad is attached to a rotating polishing table that spins in a circular motion in the opposite direction from the rotating wafer carrier. A CMP slurry is continuously applied to the polishing pad to facilitate and enhance the polishing process. Hard disk drive and silicon wafer manufacturers use similar processes to smooth the surface of substrate disks.

An effective CMP process is achieved through technical optimization of the CMP consumables in conjunction with an appropriately designed CMP process. Prior to introducing new or different CMP slurries or pads into its manufacturing process, an IC device manufacturer generally requires the product to be qualified in its processes through an extensive series of tests and evaluations. These qualifications are intended to confirm that the CMP consumable product will function properly within the customer's overall manufacturing process. These tests and evaluations may require minor changes to the CMP process or the CMP slurry or pad. While this qualification process varies depending on numerous factors, it is generally quite costly and may take six months or longer to complete. IC device manufacturers usually take into account the cost, time required and impact on production when they consider implementing or switching to a new CMP slurry or pad.

CMP enables IC device manufacturers to produce smaller, faster and more complex IC devices with a greater density of transistors and other electronic components. With smaller IC devices, IC device manufacturers can increase the number of IC devices that fit on a wafer, which increases their throughput, or the number of IC devices that can be manufactured in a given time period. CMP also helps reduce the number of defective or substandard IC devices produced, which increases the device yield. Producing more complex and higher performing IC devices increases the value of the wafers processed. Improvements in throughput, yield, and value per wafer improve the return on an IC device manufacturer's significant investment in manufacturing capacity, which is a high priority. More broadly, sustained growth in the semiconductor industry traditionally has been fueled by enhanced performance and lower unit costs, making IC devices more affordable in an expanding range of applications. We believe CMP remains a critical process in leading-edge semiconductor technology, enabling IC device manufacturers to efficiently produce the complex chips, particularly where higher performance may now be accompanied by higher unit costs.

## PRECISION POLISHING

Through our ESF business, we are applying our technical expertise in polishing techniques to demanding applications in other industries where shaping, enabling and enhancing the performance of surfaces is critical to success, such as for precision optics and electronic substrates, including silicon and silicon-carbide wafers.

Many of the production processes currently used in precision machining and polishing have been based on traditional, labor-intensive techniques, which are being replaced by computer-controlled, deterministic processes. Our wholly-owned subsidiary, QED Technologies International, Inc. (QED), is a leading provider of deterministic finishing technology for the precision optics industry. We believe precision optics are pervasive, serving several large existing industries such as semiconductor equipment, aerospace, defense, biomedical, research and digital imaging.



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OUR PRODUCTS

CMP CONSUMABLES FOR IC DEVICES

We develop, produce and sell CMP slurries for polishing a wide range of materials that conduct electrical signals, including tungsten, copper, tantalum (commonly referred to as "barrier"), which is used in copper wiring applications, and aluminum. Slurries for polishing tungsten are used in the production of advanced memory and logic devices for a multitude of end use applications such as computers and servers, MIDs such as smart phones and tablets, gaming devices, and digital televisions, as well as in mature logic applications such as those used in automobiles and communication devices. Tungsten slurries are also used in some of the most advanced technologies, such as 3D memory and FinFET for advanced logic IC devices. Slurries for polishing copper and barrier materials are used in the production of advanced IC logic devices such as microprocessors for computers, and devices for graphic systems, gaming systems and communication devices, as well as in the production of advanced memory devices. These products include different slurries for polishing the copper film and the thin barrier layer used to separate copper from the adjacent insulating material. Slurries for polishing aluminum are used in certain advanced transistor gate structures. We offer multiple products for each technology node to enable different integration schemes depending on specific customer needs.

We also develop, manufacture and sell slurry products used to polish the dielectric insulating materials that separate conductive layers within logic and memory IC devices. Our slurry products for these materials are primarily used in mature, high volume polishing applications called Interlayer Dielectric, or ILD, in the production of both logic and memory devices. Our more advanced dielectrics products are designed to deliver higher performance and lower cost of ownership in traditional ILD applications, as well as to meet the more stringent and complex performance requirements of lower-volume, more specialized dielectrics polishing applications at advanced technology nodes. Some of the applications for advanced dielectrics slurries include shallow trench isolation (STI), "stop on poly" isolation, bulk oxide polishing, and polishing of various dielectrics in advanced transistor designs.

We develop, produce and sell CMP polishing pads, which are consumable materials that work in conjunction with CMP slurries in the CMP polishing process. We believe that CMP polishing pads represent a natural adjacency to our CMP slurry business, since both technologies are required by our customers to deliver their intended result and utilize the same technical, sales and support infrastructure. Our polishing pad product portfolio includes pads utilizing both thermoset and thermoplastic polyurethane pad material. We produce and sell pads that can be used on a variety of polishing tools, over a range of applications, including tungsten, copper, and dielectrics, over a range of technology nodes, and on both 300mm and 200mm wafers.

CMP CONSUMABLES FOR THE DATA STORAGE INDUSTRY

We develop, produce and sell CMP slurries for polishing certain materials that are used in the production of rigid disks and magnetic heads used in hard disk drives for computer and other data storage applications, which represent an extension of our core CMP slurry technology and manufacturing capabilities established for the semiconductor industry. We believe CMP significantly improves the surface finish of these rigid disk coatings, resulting in greater storage capacity of the hard disk drive systems, and also improves the production efficiency of manufacturers of hard disk drives.



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PRECISION OPTICS PRODUCTS

Through our QED subsidiary, we design and produce precision polishing and metrology systems for advanced optic applications that allow customers to attain near-perfect shape and surface finish on a range of optical components such as mirrors, lenses and prisms. Historically, advanced optics have been produced using labor-intensive artisanal processes, and variability has been common. QED has automated the polishing process for advanced optics to enable rapid, deterministic and repeatable surface correction to the most demanding levels of precision in dramatically less time than with traditional means. QED's polishing systems use Magneto-Rheological Finishing (MRF), a proprietary surface figuring and finishing technology that employs magnetic fluids and sophisticated computer technology to polish a variety of shapes and materials. QED's metrology systems use proprietary Subaperture Stitching Interferometry (SSI) technology, which captures precise metrology data for large and/or strongly curved optical parts. SSI technology includes proprietary Aspheric Stitching Interferometry (ASI), which is designed to measure increasingly complex shapes, including non-spherical surfaces, or aspheres. QED's products also include MRF polishing fluids and MRF polishing components, as well as optical polishing services and polishing support services.

STRATEGY

We collaborate closely with our customers to develop and manufacture products that offer innovative and reliable solutions to our customers' challenges, and we strive to consistently and reliably deliver and support these products around the world through what we believe is a robust global infrastructure and supply chain. We continue to focus on the execution of our primary strategies related to technology leadership, customer collaboration and supply chain excellence.

STRENGTHENING AND GROWING OUR CORE CMP CONSUMABLES BUSINESS

**Delivering Innovative and High-Performing Solutions:** We believe that technology and innovation are vital to success in our CMP consumables business, and we devote significant resources to research and development. We focus our research and development activity to deliver innovative CMP consumables products for advanced applications for our technology-leading customers. We have established facilities in Japan, Singapore, South Korea, Taiwan, and the United States, in order to meet our customers' technology needs on a global basis.

We believe an example of our ability to deliver innovative products for advanced applications is the growth we saw in revenues in fiscal 2016 from our tungsten and certain dielectrics slurry products used in 3D memory and FinFET for advanced logic. We believe our focused effort on advanced technologies with technology-leading customers will enable us to provide more compelling new products as technology continues to advance. In addition, we believe our polishing pads product area represents a promising opportunity for continued growth. We believe that combining pad technology and products from our NexPlanar acquisition with our organic pad technology and products will enable us to better serve the needs of our customers on a global basis, including the ability to offer performance-differentiated CMP slurry and pad consumable sets.

**Close Collaboration with Our Customers:** We believe that building close relationships with our customers is essential to achieving long-term success in our business. We collaborate with our customers to identify and deliver new and improved CMP solutions, to integrate our products into their manufacturing processes, and to assist them with supply, warehouse and inventory management. Our customers demand a highly reliable supply source, and we believe we have a competitive advantage because of our ability to timely deliver high-quality products and service from the early stages of product development through the high-volume commercial use of our products. We have strategically located our research and development and clean room facilities, manufacturing operations, and related technical and customer support teams to be responsive to our customers' needs. We believe our research and development facilities, in close proximity to our customers, provide a competitive advantage.



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We believe the three supplier excellence awards we received from our customers in fiscal 2016 are evidence of our commitment to, and success in, delivering high-performing and high-quality products to our customers through close collaboration with them. These awards recognized our product quality and reliability, as well as our customer support capabilities. Our global business teams are focused on a range of projects with our customers to address specific business opportunities for advanced technologies.

**Robust Global Supply Chain:** We believe that product and supply chain quality is critical to success in our business. Our customers demand continuous improvement in the performance of our products, in terms of product quality and consistency. We strive to reduce variation in our products and processes in order to increase quality, productivity and efficiency, and improve the uniformity and consistency of performance of our CMP consumables products.

Variability reduction becomes more important to our customers as technology advances. Our global manufacturing sites are managed to provide the people, training and systems needed to support stringent industry demands for product quality. To support our quality initiative, we practice the concepts of Six Sigma across our Company, which we believe has contributed to lower variability in our products and sustained improvement in productivity in our operations. Six Sigma is a systematic, data-driven approach and methodology for improving quality by reducing variability.

We also believe that continuous improvement and variation reduction in our global supply chain are critical to our success and the success of our customers. We believe our capabilities in supply chain management and quality systems differentiate us from our competitors. We believe our worldwide CMP consumables manufacturing plants and global network of suppliers also provide supply chain flexibility if needed.

## ENGINEERED SURFACE FINISHES

Beyond our core CMP consumables business, through our ESF business, we develop and provide products for demanding polishing applications in other industries, such as in precision optics and electronic substrates. Our QED subsidiary continues to be the technology leader in deterministic finishing for the precision optics industry. QED's polishing and metrology technology enables customers to replace manual processes with automated solutions that provide more precise and repeatable results. Another aspect of our ESF business is the polishing of electronic substrates, including silicon and silicon-carbide wafers. CMP is utilized in the production of these wafers to ensure they meet the stringent specifications required by IC manufacturers.

## INDUSTRY TRENDS

### SEMICONDUCTOR INDUSTRY

We believe the semiconductor industry continues to exhibit a number of trends: demand within the semiconductor business is driven primarily by MIDs, and secondarily by personal computers (PCs) and a wide range of other electronic applications; overall industry growth fluctuates; our customer base consolidates; there is pressure to reduce costs; and, the pace of technology advancement has slowed.

We have discussed the significant shift in semiconductor industry demand over the past several years from IC devices for PCs to MIDs. Demand for MIDs is largely consumer-based, versus more enterprise-based demand for PCs, so semiconductor industry demand fluctuates. For example, the semiconductor industry experienced soft demand conditions during the second half of our fiscal 2015 through the first half of fiscal 2016. Semiconductor demand strengthened during the second half of fiscal 2016, apparently driven by inventory replenishment and preparation for new product launches. A factor that could spur future industry growth is semiconductor industry development in China; significant domestic and international investment in both logic and memory capacity is ongoing, and more is

expected in the future. We continue to believe that semiconductor industry demand will grow over the long term based on increased usage of IC devices in existing applications, as well as future applications.

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Over a number of years, we have seen our customer base within the semiconductor industry consolidate as larger semiconductor manufacturers have generally grown faster than the smaller ones, through mergers and acquisitions as well as through alliances among and between different companies. Costs to achieve the required scale in manufacturing within the semiconductor industry continue to rise, along with the related costs of research and development, and larger manufacturers generally have greater access to the resources necessary to manage their businesses, than do smaller ones. This trend is particularly evident in capital spending within the industry, as the largest semiconductor companies account for an increasingly large portion of total capital spending in the industry compared to the past.

As demand for more advanced and lower cost electronic devices grows, there is continued pressure on IC device manufacturers to reduce their costs. Many manufacturers reduce costs by pursuing ever-increasing scale in their operations, while seeking to reduce their production costs by increasing their production yields, regardless of their scale. Thus, they look for CMP consumables products with quality and performance attributes that can help them reduce their overall cost of ownership, pursue ways to use smaller amounts of CMP materials, and also aggressively pursue price reductions for these materials. The pressure on IC device manufacturers to reduce costs has led to increased usage of foundries, which further drives increasing scale.

Manufacturers also have historically reduced cost, and simultaneously improved device performance, by migrating to smaller technology nodes. However, as the industry continues to shrink dimensions, leading edge technology node transitions are becoming more challenging due to technical and physical obstacles, and the pace of technology change has slowed. To achieve performance and cost improvements, semiconductor manufacturers are placing greater emphasis on new device architectures, including 3D memory and FinFET. 3D NAND for advanced memory is now more broadly ramping in high-volume manufacturing, and several manufacturers of logic applications are in high-volume manufacturing using FinFET. We believe semiconductor manufacturers will continue to depend upon highly engineered materials in these new architectures, requiring innovative CMP solutions.

## CMP CONSUMABLES INDUSTRY

Demand for CMP consumables is primarily driven by wafer starts, so the CMP consumables industry reflects semiconductor industry demand patterns in terms of cyclicity, seasonality and specific device types. Our revenue and net income for fiscal years 2012, 2013 and 2014 demonstrated seasonal swings in demand as we saw softer demand for our products in the first half of each of these fiscal years, followed by stronger demand during the second half. However, consistent with overall semiconductor industry demand, in fiscal 2015, we saw a departure from this trend as demand for our products was stronger during the first half of the fiscal year, but weaker in the second. In fiscal 2016, we saw a return to a more seasonal demand pattern as demand was softer during the first half of the fiscal year and stronger in the second half, which was consistent with the conditions experienced by a number of other participants in the semiconductor industry. Over the long term, we anticipate worldwide demand for CMP consumables used by IC device manufacturers will grow as a result of expected long-term growth in wafer starts, the trend to more advanced technologies and an associated increase in the number of CMP polishing steps required to produce these advanced devices, and the introduction of new materials that will require CMP.

We expect the anticipated long-term growth in demand will be partially mitigated by continued efficiency improvements in CMP consumable usage as customers seek to reduce their costs. As discussed above, semiconductor manufacturers look for ways to lower the cost of CMP consumables in their production operations, including improvements in technology, dilution of slurry, use of concentrated slurry products, or reduction of slurry flow rate, to reduce the total amount of slurry used, and to extend pad life. In addition, CMP demand also depends upon the specific mix of IC device demand, since the intensity of CMP usage varies by IC device type.



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We believe that CMP technical solutions are becoming more complex, with advanced technologies generally requiring greater customization by customer, tool set and process integration approach. As a result, we generally see customers selecting suppliers earlier in their development processes and maintaining preferred supplier relationships through production. Therefore, we believe that close collaboration with our customers early in the development cycle offers the best opportunity for optimal CMP solutions. We also believe that research and development programs with customers and suppliers continue to be vital to our success as we develop and commercialize innovative, high-performing and more cost-effective CMP solutions.

## COMPETITION

We compete in the CMP consumables industry, which is characterized by rapid advances in technology and demanding product quality and consistency requirements. We face competition from other CMP consumables suppliers. We also may face competition in the future from significant changes in technology or emerging technologies. However, we believe we are well-positioned to continue our leadership in CMP slurries, and to continue to grow our business in CMP pads. We believe we have the experience, scale, capabilities and infrastructure that are required for success, and we work closely with technology-leading customers in the semiconductor industry to meet their growing expectations as a trusted business partner.

Our CMP slurry competitors range from small companies that compete with a single product or in a single geographic region, to divisions of global companies with multiple lines of CMP products. However, we believe we are the leader in CMP slurries. In our view, we are the only CMP slurry supplier today that serves a broad range of customers by offering and supporting a full line of CMP slurry solutions for all major applications, with a proven track record of supplying these products globally in high volumes with the requisite high level of technical support services.

With respect to CMP polishing pads, a division of Dow Chemical has held the leading position in this area for many years. Subsequent to our acquisition of NexPlanar, we believe we are the second largest supplier of CMP polishing pads to the industry. A number of other companies also participate in this area of the CMP consumables business. We believe that the combination of our organic pad technology and products with those we acquired with NexPlanar enable us to meet our customers' needs for lower defectivity, greater pad consistency, and longer pad life. In addition, we believe that this combination will enable us to better serve our customers on a global basis, including offering performance-differentiated slurry and pad consumable sets.

Our QED subsidiary operates in the precision optics industry. There are few direct competitors of QED and we believe its technology is unique and provides a competitive advantage to customers in the precision optics industry, which still relies heavily on traditional artisanal methods of fabrication.

## CUSTOMERS, SALES AND MARKETING

Within the semiconductor industry, our customers are generally producers of logic or memory IC devices, or providers of IC foundry services. Some logic customers, and so-called "fabless" companies, outsource some or all of the production of their devices to foundries, which provide contract manufacturing services, in order to avoid the high cost of process development, construction and operation of a fab, or to provide additional capacity when needed. In fiscal 2016, excluding revenue attributable to data storage and ESF customers, approximately 42% of our revenue was from memory customers, 40% from foundry customers and 18% from logic customers.

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We believe the primary influences of our customers' CMP consumables buying decisions are: overall cost of ownership, which represents the cost to purchase, use and maintain a product; product quality and consistency; product performance and its impact on a customer's overall yield; engineering support; and, supply assurance. We believe that greater customer sophistication in the CMP process, more challenging integration schemes, additional and unique polishing materials, and cost pressures will continue to increase demands on CMP consumables suppliers like us.

We use a collaborative approach to build close relationships with our customers in a variety of areas, and we have customer-focused teams located in each major geographic region. Our sales process begins long before the actual sale of our products, and occurs on a number of levels. Due to the long lead times from research and development to product commercialization and sales, we have research teams that collaborate with technology-leading customers on emerging applications years before the products are required by the market. We also have development teams that interact closely with these customers, using our research and development facilities and capabilities to design CMP products tailored to their needs. Next, our applications engineers work with customers to integrate our products into their manufacturing processes. Finally, as part of our sales process, our logistics and sales personnel provide supply, warehouse and inventory management services for our customers.

We market our products primarily through direct sales to our customers, although we use distributors in certain areas. We believe this strategy of primarily direct sales provides us an additional means to collaborate with our customers, and provides our customers with the most efficient means by which to procure our products.

Our QED subsidiary supports customers in the semiconductor equipment, aerospace, defense, research, biomedical and digital imaging industries. QED counts among its worldwide customers leading precision optics manufacturers, major semiconductor original equipment manufacturers, research institutions, and contractors to the United States and other governments.

In fiscal 2016, our five largest customers accounted for approximately 54% of our revenue, with Taiwan Semiconductor Manufacturing Corporation and Samsung each accounting for approximately 15% of our revenue, respectively. For additional information on our customers, refer to Note 2 of "Notes to the Consolidated Financial Statements" included in Item 8 of Part II of this Form 10-K.

## RESEARCH, DEVELOPMENT AND TECHNICAL SUPPORT

We believe that technology is vital to success in our CMP and ESF businesses, and we plan to continue to devote significant resources to research, development and technical support (R&D), and balance our efforts between shorter-term market needs and longer-term investments required of us. We focus our R&D efforts on product innovation at leading-edge applications for our technology-leading customers. We develop new and enhanced CMP solutions tailored to these customers' requirements using our expertise in chemical formulation, materials science, product engineering and manufacturing technology. We work closely with these customers at their facilities to identify their specific technology and manufacturing challenges and to translate these challenges into viable CMP process solutions.

Our technology efforts are focused on five main areas that span the early stage of product development involving new materials, processes and designs several years in advance of commercialization, to continuous improvement of already commercialized products in daily use in our customers' manufacturing facilities:

Research related to fundamental CMP technology;



Development of new and enhanced CMP consumables products, including collaboration on joint development projects with technology-leading customers and suppliers;

Process development to support rapid and effective commercialization of new products;

Technical support of our CMP products in our customers' research, development and manufacturing facilities; and,

Development of polishing and metrology applications outside of the semiconductor industry.

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Our research in CMP slurries and pads addresses a breadth of complex and interrelated performance criteria that relate to the functional performance of the IC device, our customers' manufacturing yields, and their overall cost of ownership. We design slurries and pads that are capable of polishing one or more materials of differing hardness, sometimes at the same time, that comprise the semiconductor circuitry. In addition, our products must achieve the desired surface conditions at high polishing rates, high processing yields and low consumables costs in order to provide acceptable cost of ownership for our customers. As technology advances and materials and designs increase in complexity, these challenges require significant investments in R&D.

We also commit R&D resources to our ESF business. Products under development in this area include products used to polish silicon and silicon-carbide wafers to improve the surface quality of these wafers and reduce the customers' total cost of ownership.

We believe that technology provides us with a competitive advantage, and that our investments in R&D provide us with polishing and metrology capabilities that support the most advanced and challenging customer technology requirements. In fiscal years 2016, 2015 and 2014, we incurred approximately \$58.5 million, \$59.8 million and \$59.4 million, respectively, in R&D expenses. We believe our Six Sigma initiatives in our R&D efforts allow us to conduct more research at a lower cost than through other means. Investments in property, plant and equipment to support our R&D efforts are capitalized and depreciated over their useful lives.

Our global R&D team includes experts from the semiconductor industry and scientists from key disciplines required for the development of high-performance CMP consumable products. We operate an R&D facility in Aurora, Illinois, that features a Class 1 clean room and advanced equipment for product development, including 300mm polishing and metrology capabilities; a facility in Japan, which includes a Class 1 clean room with 300mm polishing, metrology and slurry development capabilities; a facility in Taiwan that includes a clean room with 300mm polishing capability; a facility in South Korea that provides slurry formulation capability and 300mm polishing capability; an R&D laboratory in Singapore that provides polishing, metrology and slurry development capabilities for the data storage industry; and, a research facility in Rochester, New York that supports our QED business. These facilities underscore our commitment to continuing to invest in our technology infrastructure to maintain our technology leadership and to be responsive to the needs of our customers.

## RAW MATERIALS SUPPLY

Engineered abrasive particles are significant raw materials we use in many of our CMP slurries. Our strategy is to secure various sources of different raw materials, as appropriate, to enable the desired performance of our products, and monitor those sources as necessary to provide supply assurance. Also, we have entered into multi-year supply agreements with a number of suppliers for the purchase of raw materials in the interest of supply assurance and to control costs. For additional information regarding these agreements, refer to "Tabular Disclosure of Contractual Obligations", included in "Management's Discussion and Analysis of Financial Condition and Results of Operations," in Item 7 of Part II of this Form 10-K.

## INTELLECTUAL PROPERTY

We believe our intellectual property is important to our success and ability to compete, and we also differentiate our products and technology by their high quality and reliability, and our quality systems, global supply chain and logistics. As of October 31, 2016, we had 1,285 active worldwide patents, of which 280 are U.S. patents, and 512 pending worldwide patent applications, of which 78 are in the U.S. Many of these patents are important to our continued development of new and innovative products for CMP and related processes, as well as for new businesses.

Our patents have a range of duration. We expect to lose worldwide patent coverage of a patent that has been material to some of our legacy business in approximately one year. However, we refresh our intellectual property on an ongoing basis through continued innovation, and have significant patents that protect this technology and other legacy and advanced technology with a range of duration. We attempt to protect our intellectual property rights through a combination of patent, trademark, copyright and trade secret laws, use of certain manufacturing technologies, exclusive contractual arrangements with suppliers, and with employee and third party nondisclosure and assignment agreements. We vigorously protect and defend our intellectual property, and have been successful in this regard.

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Most of our intellectual property has been developed internally, but we also may acquire intellectual property from others to enhance our intellectual property portfolio. These enhancements may be via licenses or assignments or we may acquire certain proprietary technology and intellectual property when we make acquisitions. We believe these technology rights can enhance our competitive advantage by providing us with future product development opportunities and expanding our intellectual property portfolio.

## ENVIRONMENTAL MATTERS

Our facilities are subject to various environmental, safety and health laws and regulations, including those relating to air emissions, wastewater discharges, the handling and disposal of solid and hazardous wastes, and occupational safety and health. We believe that our facilities are in substantial compliance with applicable environmental laws and regulations. Our major operations in the United States, Japan, Singapore, South Korea and Taiwan are ISO 14001 Environmental and OHSAS 18001 Safety and Health certified, which requires that we implement and operate according to various procedures that demonstrate waste reduction, energy conservation, injury reduction and other environmental, health and safety objectives. We have incurred, and will continue to incur, capital and operating expenditures and other costs in complying with environmental, safety and health laws and regulations in the United States and other countries in which we do business, but we do not expect these costs will be material.

## EMPLOYEES

We believe our employees are the foundation of our success. As of October 31, 2016, we employed 1,145 individuals, including 650 in operations, 259 in research and development and technical, 101 in sales and marketing and 135 in administration. In general, our employees are not covered by collective bargaining agreements. We have not experienced any work stoppages and consider our relations with our employees to be good.

## FINANCIAL INFORMATION ABOUT GEOGRAPHIC AREAS

We sell our products worldwide. We believe our geographic coverage allows us to utilize our business and technical expertise from a diverse, global workforce, strategically located in close proximity to our customers. For more financial information about geographic areas, see Note 20 of "Notes to the Consolidated Financial Statements" included in Item 8 of Part II of this Form 10-K.

## AVAILABLE INFORMATION

Our annual reports on Form 10-K, quarterly reports on Form 10-Q, definitive proxy statements on Form 14A, current reports on Form 8-K, and any amendments to those reports are made available free of charge on our Company website, [www.cabotcmp.com](http://www.cabotcmp.com), as soon as reasonably practicable after such reports are filed with the Securities and Exchange Commission (SEC). Any materials that the Company files with the SEC are also available to read and copy at the SEC's Public Reference Room at 100 F Street, NE, Washington, DC 20549. Information on the operation of the Public Reference Room may be obtained by calling the SEC at 1-800-SEC-0330. Statements regarding beneficial ownership of our securities by our executive officers and directors are made available on our Company website following the filing of such with the SEC. In addition, the SEC's website (<http://www.sec.gov>) contains reports, proxy statements, and other information that we file electronically with the SEC.



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ITEM 1A. RISK FACTORS

We do not believe there have been any material changes in our risk factors since the filing of our Annual Report on Form 10-K for the fiscal year ended September 30, 2015. However, we may update our risk factors, including adding or deleting them, in our SEC filings from time to time for clarification purposes or to include additional information, at management's discretion, even when there have been no material changes.

RISKS RELATING TO OUR BUSINESS

DEMAND FOR OUR PRODUCTS FLUCTUATES AND OUR BUSINESS MAY BE ADVERSELY AFFECTED BY WORLDWIDE ECONOMIC AND INDUSTRY CONDITIONS

Our business is affected by economic and industry conditions and our revenue is primarily dependent upon semiconductor demand. Historically, semiconductor demand has fluctuated due to economic and industry cycles and seasonal shifts in demand, which can affect our business, causing demand for our products to fluctuate. For example, we experienced some strengthening of demand conditions in the semiconductor industry during the second half of fiscal 2016, following relatively soft demand conditions during the second half of fiscal 2015 and the first half of fiscal 2016. Furthermore, competitive dynamics within the semiconductor industry may impact our business. Our limited visibility to future customer orders makes it difficult for us to predict industry trends. If the global economy or the semiconductor industry weakens, whether in general or as a result of specific factors, such as macroeconomic factors, or unpredictable events such as natural disasters, we could experience material adverse impacts on our results of operations and financial condition.

Adverse global economic and industry conditions could have other negative effects on our Company. For instance, we could experience negative impacts on cash flows due to the inability of our customers to pay their obligations to us, as evidenced by a customer that was placed into receivership in the fourth quarter of fiscal 2016, or our production process could be harmed if our suppliers cannot fulfill their obligations to us. We also might have to reduce the carrying value of goodwill and other intangible assets, which could harm our financial position and results of operations.

Some additional factors that affect demand for our products include: the types of electronic devices that are in demand, such as mobile internet devices (MIDs) versus PCs; products that our customers may produce, such as logic versus memory IC devices, or digital versus analog IC devices; the various technology nodes at which those products are manufactured; customers' efficiencies in the use of CMP consumables; customers' device architectures and specific manufacturing processes; the short order to delivery time for our products; quarter-to-quarter changes in customer order patterns; market share and competitive gains and losses; and pricing changes by us and our competitors.

WE HAVE A NARROW PRODUCT RANGE AND OUR PRODUCTS MAY BECOME OBSOLETE, OR TECHNOLOGICAL CHANGES MAY REDUCE OR LIMIT INCREASES IN THE CONSUMPTION OF CMP SLURRIES AND PADS

Our business is substantially dependent on a single class of products, CMP slurries, which account for the majority of our revenue. We also continue to develop our business in CMP pads, and we acquired NexPlanar Corporation (NexPlanar), a supplier of advanced CMP pad solutions, in the first quarter of fiscal 2016. Our business would suffer if these products became obsolete or if consumption of these products decreased. Our success depends on our ability to keep pace with technological changes and advances in the semiconductor industry and to adapt, improve and customize our products for advanced IC applications in response to evolving customer needs and industry trends. Since its inception, the semiconductor industry has experienced technological changes and advances in the design,

manufacture, performance and application of IC devices. Our customers continually pursue lower cost of ownership and higher quality and performance of materials consumed in their manufacturing processes, including CMP slurries and pads, as a means to reduce costs, increase the yield in their manufacturing facilities, and achieve desired performance of the IC devices they produce. We expect these technological changes, and this drive toward lower costs, higher quality and performance and higher yields, will continue in the future. Potential technology developments in the semiconductor industry, as well as our customers' efforts to reduce consumption of CMP consumables, including through use of smaller quantities, could render our products less important to the IC device manufacturing process.

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**A SIGNIFICANT AMOUNT OF OUR BUSINESS COMES FROM A LIMITED NUMBER OF LARGE CUSTOMERS AND OUR REVENUE AND PROFITS COULD DECREASE SIGNIFICANTLY IF WE LOST ONE OR MORE OF THESE CUSTOMERS**

Our CMP consumables customer base is concentrated among a limited number of large customers. The semiconductor industry has been consolidating as the larger semiconductor manufacturers have generally grown faster than the smaller ones, through business gains, mergers and acquisitions, and strategic alliances. Industry analysts predict that this trend will continue, which means the semiconductor industry will be comprised of fewer and larger participants in the future if their prediction is correct. One or more of these principal customers could stop buying CMP consumables from us or could substantially reduce the quantity of CMP consumables purchased from us. Our principal customers also hold considerable purchasing power, which can impact the pricing and terms of sale of our products. Any deferral or significant reduction in the quantity or price of CMP consumables sold to these principal customers could seriously harm our business, financial condition and results of operations.

In fiscal 2016, our five largest customers accounted for approximately 54% of our revenue, with Taiwan Semiconductor Manufacturing Company (TSMC) and Samsung each accounting for approximately 15% of our revenue. In fiscal year 2015, our five largest customers accounted for approximately 58% of our revenue, with TSMC and Samsung accounting for approximately 18% and 15%, respectively.

**OUR BUSINESS COULD BE SERIOUSLY HARMED IF OUR COMPETITORS DEVELOP COMPETITIVE CMP CONSUMABLES PRODUCTS, OFFER BETTER PRICING, SERVICE OR OTHER TERMS, OR OBTAIN CERTAIN INTELLECTUAL PROPERTY RIGHTS**

Competition from other CMP consumables manufacturers or any new entrants could seriously harm our business and results of operations, and this competition could continue to increase. Competition has and will likely continue to impact the prices we are able to charge for our CMP consumables products, as well as our overall business. In addition, our competitors could have or obtain intellectual property rights that could restrict our ability to market our existing products and/or to innovate and develop new products, could attempt to introduce products similar to ours following the expiration of our patents, as referenced above with respect to certain intellectual property material to some of our legacy business, or could attempt to introduce products that do not fall within the scope of our intellectual property rights.

**ANY PROBLEM OR DISRUPTION IN OUR SUPPLY CHAIN, INCLUDING SUPPLY OF OUR MOST IMPORTANT RAW MATERIALS, OR IN OUR ABILITY TO MANUFACTURE AND DELIVER OUR PRODUCTS TO OUR CUSTOMERS, COULD ADVERSELY AFFECT OUR RESULTS OF OPERATIONS**

We depend on our supply chain to enable us to meet the demands of our customers. Our supply chain includes the raw materials we use to manufacture our products, our production operations and the means by which we deliver our products to our customers. Our business could be adversely affected by any problem or interruption in our supply of the key raw materials we use in our CMP slurries and pads, including raw materials that do not meet the stringent quality and consistency requirements of our customers, any problem or interruption that may occur during production or delivery of our products, such as weather-related problems, natural disasters, or labor-related issues, or any difficulty in producing sufficient quantities of our products to meet growing demand from our customers. For example, in our third quarter of fiscal 2015, we incurred significant costs associated with raw material that did not meet our material quality requirements. Our supply chain may also be negatively impacted by unanticipated price



increases due to supply restrictions beyond the control of our Company or our raw materials suppliers.

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We believe it would be difficult to promptly secure alternative sources of key raw materials in the event one of our suppliers becomes unable to supply us with sufficient quantities of raw materials that meet the quality and technical specifications required by us and our customers. In addition, new contract terms, contractual amendments to existing agreements with, or non-performance by, our suppliers, including any significant financial distress our suppliers may suffer, could adversely affect us. Also, if we change the supplier or type of key raw materials we use to make our CMP slurries or pads, or are required to purchase them from a different manufacturer or manufacturing facility or otherwise modify our products, in certain circumstances our customers might have to requalify our CMP slurries and pads for their manufacturing processes and products. The requalification process could take a significant amount of time and expense to complete and could occupy technical resources of our customers that might otherwise be used to evaluate our new products, thus delaying potential revenue growth, or motivate our customers to consider purchasing products from our competitors, possibly interrupting or reducing our sales of CMP consumables to these customers.

## WE ARE SUBJECT TO RISKS ASSOCIATED WITH OUR FOREIGN OPERATIONS

We currently have operations and a large customer base outside of the United States. Approximately 86%, 86% and 88% of our revenue was generated by sales to customers outside of the United States for fiscal 2016, 2015 and 2014, respectively. We may encounter risks in doing business in certain foreign countries, including, but not limited to, adverse changes in economic and political conditions, fluctuation in exchange rates, compliance with a variety of foreign laws and regulations, as well as difficulty in enforcing business and customer contracts and agreements, including protection of intellectual property rights. We also may encounter risks that we may not be able to repatriate earnings from our foreign operations, derive anticipated tax benefits of our foreign operations or recover the investments made in our foreign operations.

## WE MAY PURSUE ACQUISITIONS OF, INVESTMENTS IN, AND MERGERS OR STRATEGIC ALLIANCES WITH OTHER ENTITIES, WHICH COULD DISRUPT OUR OPERATIONS AND HARM OUR OPERATING RESULTS IF THEY ARE UNSUCCESSFUL

We expect to continue to make investments in technologies, assets and companies, either through acquisitions, mergers, investments or alliances, in order to supplement our internal growth and development efforts. Acquisitions, mergers, and investments, including our acquisition of NexPlanar, which we completed on October 22, 2015, involve numerous risks, including the following: difficulties and risks in integrating the operations, technologies, products and personnel of acquired companies; diversion of management's attention from normal daily operations of the business; increased risk associated with foreign operations; potential difficulties and risks in entering markets in which we have limited or no direct prior experience and where competitors in such markets have stronger market positions; potential difficulties in operating new businesses with different business models; potential difficulties with regulatory or contract compliance in areas in which we have limited experience; initial dependence on unfamiliar supply chains or relatively small supply partners; insufficient revenues to offset increased expenses associated with acquisitions; potential loss of key employees of the acquired companies; or inability to effectively cooperate and collaborate with our alliance partners.

Further, we may never realize the perceived or anticipated benefits of a business combination or merger with, or asset or other acquisition of, or investments in, other entities. Transactions such as these could have negative effects on our results of operations, in areas such as contingent liabilities, gross profit margins, amortization charges related to intangible assets and other effects of accounting for the purchases of other business entities. Investments in and acquisitions of technology-related companies or assets are inherently risky because these businesses or assets may never develop, and we may incur losses related to these investments. For example, in fiscal 2016, we recorded \$1.0 million of impairment expense related to certain in-process technology, related to the NexPlanar acquisition. In

addition, we may be required to impair the carrying value of these acquisitions or investments to reflect other than temporary declines in their value, which could harm our business and results of operations.

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**BECAUSE WE RELY HEAVILY ON OUR INTELLECTUAL PROPERTY, OUR FAILURE TO ADEQUATELY OBTAIN OR PROTECT IT COULD SERIOUSLY HARM OUR BUSINESS**

Protection of intellectual property is particularly important in our industry because we develop complex technical formulas and processes for CMP products that are proprietary in nature and differentiate our products from those of our competitors. Our intellectual property is important to our success and ability to compete. We attempt to protect our intellectual property rights through a combination of patent, trademark, copyright and trade secret laws, as well as employee and third-party nondisclosure and assignment agreements. In addition, we protect our product differentiation through various other means, such as proprietary supply arrangements for the raw materials that are part of our formulations, and use of certain manufacturing technologies. Due to our international operations, we pursue protection in different jurisdictions, which may provide varying degrees of protection, and we cannot provide assurance that we can obtain adequate protection in each such jurisdiction. Our failure to obtain or maintain adequate protection of our intellectual property rights for any reason, including through the patent prosecution process or in the event of litigation related to such intellectual property, could seriously harm our business. In addition, certain types of intellectual property, such as patents, expire after a certain period of time, and products protected by our patents then lose such protection, so we refresh our intellectual property portfolio on an ongoing basis through continued innovation, and failure to do so could adversely affect our business. Also, the costs of obtaining or protecting our intellectual property could negatively affect our operating results.

**BECAUSE WE HAVE LIMITED EXPERIENCE IN BUSINESS AREAS OUTSIDE OF CMP CONSUMABLES, EXPANSION OF OUR BUSINESS INTO OTHER PRODUCTS AND APPLICATIONS MAY NOT BE SUCCESSFUL**

An element of our strategy has been to leverage our current customer relationships, technological expertise and other capabilities to expand our business beyond CMP consumables into other areas, such as other electronic materials. Additionally, in our Engineered Surface Finishes business, we are pursuing other surface modification applications. Expanding our business into new product areas could involve technologies, production processes and business models in which we have limited experience, and we may not be able to develop and produce products or provide services that satisfy customers' needs, or we may be unable to keep pace with technological or other developments. Also, our competitors may have or obtain intellectual property rights that could restrict our ability to market our existing products and/or to innovate and develop new products.

**OUR INABILITY TO ATTRACT AND RETAIN KEY PERSONNEL COULD CAUSE OUR BUSINESS TO SUFFER**

If we fail to attract and retain the necessary managerial, technical and customer support personnel, our business and our ability to maintain existing and obtain new customers, develop new products and provide acceptable levels of customer service could suffer. We compete with other industry participants for qualified personnel, particularly those with significant experience in the semiconductor industry. The loss of services of key employees could harm our business and results of operations.

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RISKS RELATING TO THE MARKET FOR OUR COMMON STOCK

THE MARKET PRICE MAY FLUCTUATE SIGNIFICANTLY AND RAPIDLY

The market price of our common stock has fluctuated and could continue to fluctuate significantly as a result of factors such as: economic and stock market conditions generally and specifically as they may impact participants in the semiconductor and related industries; changes in financial estimates and recommendations by securities analysts who follow our stock; earnings and other announcements by, and changes in market evaluations by securities analysts of, us or participants in the semiconductor and related industries; changes in business or regulatory conditions affecting us or participants in the semiconductor and related industries; announcements or implementation by us, our competitors, or our customers of technological innovations, new products or different business strategies; changes in our capital deployment strategy, or entering into a business combination; and trading volume of our common stock.

ANTI-TAKEOVER PROVISIONS UNDER OUR CERTIFICATE OF INCORPORATION AND BYLAWS MAY DISCOURAGE THIRD PARTIES FROM MAKING AN UNSOLICITED BID FOR OUR COMPANY

Our certificate of incorporation, our bylaws, and various provisions of the Delaware General Corporation Law may make it more difficult or expensive to effect a change in control of our Company. For instance, our amended and restated certificate of incorporation provides for the division of our Board of Directors into three classes as nearly equal in size as possible with staggered three-year terms.

We have adopted change in control arrangements covering our executive officers and other key employees. These arrangements provide for a cash severance payment, continued medical benefits and other ancillary payments and benefits upon termination of service of a covered employee's employment following a change in control, which may make it more expensive to acquire our Company.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

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ITEM 2. PROPERTIES

Our principal U.S. facilities that we own consist of:

- a global headquarters and research and development facility in Aurora, Illinois, comprising approximately 200,000 square feet;
- a commercial slurry manufacturing plant and distribution center in Aurora, Illinois, comprising approximately 175,000 square feet;
- a commercial polishing pad manufacturing plant and offices in Aurora, Illinois, comprising approximately 48,000 square feet;
- an additional 13.2 acres of vacant land in Aurora, Illinois; and,
- a facility in Addison, Illinois, comprising approximately 15,000 square feet.

Our principal U.S. facilities that we lease consist of:

- \* two commercial pad manufacturing plants and offices in Hillsboro, Oregon, comprising approximately 73,000 square feet; and,
- \* a development and technical support facility and business office in Rochester, New York, comprising approximately 23,000 square feet.

Our principal foreign facilities that we own consist of:

- \* a commercial slurry and pad manufacturing plant, automated warehouse, research and development facility and offices in Kaohsiung County, Taiwan, comprising approximately 170,000 square feet;
- \* a commercial slurry manufacturing plant and distribution center, and a development and technical support facility in Geino, Japan, comprising approximately 144,000 square feet; and,
- \* a commercial slurry manufacturing plant, development facility and offices in Oseong, South Korea, comprising approximately 56,000 square feet.

Our principal foreign facilities that we lease consist of:

- \* an office, laboratory and commercial polishing pad manufacturing plant in Hsin-Chu, Taiwan, comprising approximately 31,000 square feet; and,
- \* a commercial slurry manufacturing plant, research and development facility and business office in Singapore, comprising approximately 24,000 square feet.

We believe that our facilities are suitable and adequate for their intended purpose and provide us with sufficient capacity and capacity expansion opportunities and technological capability to meet our current and expected demand in the foreseeable future. For example, we are expanding our facilities in Oseong, South Korea to support future growth.

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ITEM 3. LEGAL PROCEEDINGS

While we are not involved in any legal proceedings that we believe will have a material impact on our consolidated financial position, results of operations or cash flows, we periodically become a party to legal proceedings in the ordinary course of business.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

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## EXECUTIVE OFFICERS OF THE REGISTRANT

Set forth below is information concerning our executive officers and their ages as of October 31, 2016.

NAME	AGE	POSITION
David H. Li	43	President and Chief Executive Officer
H. Carol Bernstein	56	Vice President, Secretary and General Counsel
Yumiko Damashek	60	Vice President, Operations and Quality
Richard Hui	41	Vice President, Global Sales
William S. Johnson	59	Executive Vice President and Chief Financial Officer
Thomas F. Kelly	51	Vice President, Corporate Development
Ananth Naman	46	Vice President and Chief Technology Officer
Lisa A. Polezoes	52	Vice President, Human Resources
Daniel D. Woodland	46	Vice President, Marketing
Thomas S. Roman	55	Principal Accounting Officer and Corporate Controller

DAVID H. LI has served as our President and Chief Executive Officer, and as a director of our Company, since January 2015. From June, 2008 through December 2014, Mr. Li served as our Vice President of the Asia Pacific Region. Prior to that role, Mr. Li held various leadership roles, including our Managing Director of China and Korea, and our Global Business Director for Tungsten and Advanced Dielectrics. Prior to that, he held a variety of leadership positions in operations, sourcing and investor relations since joining us in 1998. Mr. Li received a B.S. in Chemical Engineering from Purdue University and an M.B.A. from Northwestern University.

H. CAROL BERNSTEIN has served as our Vice President, Secretary and General Counsel since August 2000. From January 1998 until joining us, Ms. Bernstein served as the General Counsel and Director of Industrial Technology Development of Argonne National Laboratory, which is operated by the University of Chicago for the United States Department of Energy. From May 1985 until December 1997, she served in various positions with the IBM Corporation, culminating in serving as an Associate General Counsel, and was the Vice President, Secretary and General Counsel of Advantis Corporation, an IBM joint venture. Ms. Bernstein received her B.A. from Colgate University and her J.D. from Northwestern University; she is a member of the Bar of the States of Illinois and New York.

YUMIKO DAMASHEK has served as our Vice President of Operations and Quality since January 2015. From November 2005 through June 2008, Ms. Damashek served as our Vice President, Japan, and subsequently as Vice President, Japan and Asia Operations through December 2014. Prior to that, Ms. Damashek served as Managing Director of Japan since November 2005. Prior to joining us, Ms. Damashek served as President for Celerity Japan, Inc. Before that, she held various leadership positions at Global Partnership Creation, Inc. and Millipore Corporation. Ms. Damashek received her B.A. from the University of Arizona and her M.B.A. from San Diego State University.

RICHARD HUI has served as our Vice President of Global Sales since January 2015. From October 2013 through December 2014, Mr. Hui served as our Managing Director of Korea. Prior to that, Mr. Hui served as our Regional Sales Director of China from January 2011. Previously, Mr. Hui served as a Product Line Manager and held other sales leadership positions for us in Asia from March 2003 to January 2011. Before joining Cabot Microelectronics, Mr. Hui held management roles at Advanced Semiconductor Manufacturing Corp. and HHNEC. Mr. Hui received a B.S. in Electronics Engineering and an M.B.A. from JiaoTong University.

WILLIAM S. JOHNSON has served as our Vice President and Chief Financial Officer since April 2003, and was named Executive Vice President in April 2013. Prior to joining us, Mr. Johnson served as Executive Vice President and Chief Financial Officer for Budget Group, Inc. from August 2000 to March 2003. Before that, Mr. Johnson



worked for BP Amoco for 16 years in various senior finance and management positions, culminating in serving as President of Amoco Fabrics and Fibers Company. Mr. Johnson received his B.S. in Mechanical Engineering from the University of Oklahoma and his M.B.A. from the Harvard Business School. Mr. Johnson is also a director of CTS Corporation.

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THOMAS F. KELLY has served as our Vice President of Corporate Development since September 2016. From 2012 until joining us, Mr. Kelly served as the Director of Global Raw Materials Procurement for Celanese Corporation. Prior to that, he held various roles at Chemtura Corporation, culminating in serving as Vice President of New Business Development and the Program Management Organization from 2010 to 2012, and was Vice President of Product Management, Operations and Integration Planning from 2008 to 2010. Before that, Mr. Kelly held various senior business operations, product management, and supply chain assurance positions with us from 1999 through 2008. Mr. Kelly received his B.S. and M.S. degrees in Chemical Engineering from Villanova University, and his M.B.A. from Drexel University.

ANANTH NAMAN has served as our Vice President and Chief Technology Officer since January 2015. Previously, Dr. Naman was our Vice President of Research and Development since January 2011. Prior to that, Dr. Naman was our Director of Product Development starting in April 2009 and Director of Pads Technology from January 2006 through March 2009. Prior to joining us, Dr. Naman managed research and development efforts at Honeywell International from July 2000 to December 2005, and from 1997 to 2000 he held positions in research and development at Seagate Technology. Dr. Naman earned B.S., M.S. and Ph.D. degrees in Materials Science and Engineering from the University of Florida.

LISA A. POLEZOES has served as our Vice President of Human Resources since October 2012. Prior to that, Ms. Polezoes was our Global Director of Human Resources from August 2006, and previously had been our Director of Global Compensation and Benefits from 2005. Prior to joining us, Ms. Polezoes had various human resources and management positions at Praxair, Montgomery Ward and Hyatt Corporation. Ms. Polezoes received her B.S. in Institutional Management from Purdue University and her M.B.A. from Benedictine University.

DANIEL D. WOODLAND has served as our Vice President of Marketing since January 2015. From June 2009 through December 2014, Dr. Woodland served as our Global Business Director for Dielectrics, after having served as our Marketing Director since December 2006. Prior to that, Dr. Woodland served as Product Line Manager, and held various research and development positions after joining us in September 2003. Before joining Cabot Microelectronics, Dr. Woodland held management roles at OMNOVA Solutions. Dr. Woodland received a B.A. in Physics from the University of California – Berkeley, and a Ph.D. in Physics from the University of Maine.

THOMAS S. ROMAN has served as our Corporate Controller and Principal Accounting Officer since February 2004 and previously served as our North American Controller. Prior to joining us in April 2000, Mr. Roman was employed by FMC Corporation in various financial reporting, tax and audit positions. Before that, Mr. Roman worked for Gould Electronics and Arthur Andersen LLP. Mr. Roman is a C.P.A. and earned a B.S. in Accounting from the University of Illinois and an M.B.A. from DePaul University.

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## PART II

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

Our common stock has traded publicly under the symbol "CCMP" since our initial public offering in April 2000, currently on the NASDAQ Global Select Market, and formerly the NASDAQ National Market. The following table sets forth the range of quarterly high and low closing sales prices for our common stock.

	HIGH	LOW
Fiscal 2015		
First Quarter	49.38	39.52
Second Quarter	53.37	44.24
Third Quarter	51.40	44.19
Fourth Quarter	47.60	37.84
Fiscal 2016		
First Quarter	45.77	38.31
Second Quarter	44.00	34.53
Third Quarter	44.26	38.37
Fourth Quarter	53.45	41.12
Fiscal 2017 First Quarter (through October 31, 2016)	56.81	38.70

As of October 31, 2016, there were approximately 727 holders of record of our common stock. On January 7, 2016, we announced the initiation of a quarterly cash dividend program. In conjunction with this program, our Board of Directors declared cash dividends of \$0.18 per share, or approximately \$4.4 million, for each of the last three quarters of fiscal 2016. The declaration and payment of future dividends is subject to the discretion and determination of the Company's Board of Directors and management, based on a variety of factors, and the program may be suspended, terminated or modified at any time for any reason.

## ISSUER PURCHASES OF EQUITY SECURITIES

Period	Total Number of Shares Purchased	Average Price Paid Per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Approximate Dollar Value of Shares that May Yet Be Purchased Under the Plans or Programs (in thousands)
Jul. 1 through Jul. 31, 2016	-	\$ -	-	\$ 134,989
Aug. 1 through Aug. 31, 2016	8,538	50.12	8,500	\$ 134,563
Sep. 1 through Sep. 30, 2016	10,517	50.94	10,500	\$ 134,028
Total	19,055	\$ 50.57	19,000	\$ 134,028

In January 2016, our Board of Directors authorized an increase in the amount available under our share repurchase program from the previously remaining \$75.0 million to \$150.0 million. Under this program, we repurchased 636,839 shares for \$26.0 million in fiscal 2016. As of September 30, 2016, \$134.0 million remains available under our share repurchase program. The manner in which the Company repurchases its shares is discussed in Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations, under the heading "Liquidity and Capital Resources", of this Form 10-K. To date, we have funded share purchases under our share repurchase program from our available cash balance, and anticipate we will continue to do so.

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Separate from this share repurchase program, we purchased a total of 66,125 shares during fiscal 2016 pursuant to the terms of our Second Amended and Restated Cabot Microelectronics Corporation 2000 Equity Incentive Plan (EIP) and our 2012 Omnibus Incentive Plan (OIP) as shares withheld from award recipients to cover payroll taxes on the vesting of shares of restricted stock awarded under the EIP and OIP.

EQUITY COMPENSATION PLAN INFORMATION

See Part II, Item 12 of this Form 10-K for information regarding shares of common stock that may be issued under the Company's existing equity compensation plans.

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## STOCK PERFORMANCE GRAPH

The following graph illustrates the cumulative total stockholder return on our common stock during the period from September 30, 2011 through September 30, 2016 and compares it with the cumulative total return on the NASDAQ Composite Index and the Philadelphia Semiconductor Index. The comparison assumes \$100 was invested on September 30, 2011 in our common stock and in each of the foregoing indices and assumes reinvestment of the special cash dividend we paid to our stockholders in fiscal 2012 and the quarterly cash dividends declared in fiscal 2016. The performance shown is not necessarily indicative of future performance. See "Risk Factors" in Part I, Item 1A above.

	9/11	12/11	3/12	6/12	9/12	12/12	3/13	6/13	9/13	12/13	3/14
Cabot Microelectronics Corporation	100.00	137.39	161.29	121.17	145.77	147.31	144.16	136.94	159.75	189.58	182.53
NASDAQ Composite	100.00	109.59	129.51	123.62	131.89	127.75	139.35	145.87	163.47	181.85	183.27
Philadelphia Semiconductor	100.00	111.93	134.13	120.24	120.50	123.59	134.66	140.75	149.30	162.10	175.06
	6/14	9/14	12/14	3/15	6/15	9/15	12/15	3/16	6/16	9/16	
Cabot Microelectronics Corporation	185.22	171.95	196.30	207.29	195.43	160.71	181.62	170.48	177.17	222.16	
NASDAQ Composite	192.60	195.96	207.22	214.28	218.81	202.60	219.78	214.53	213.65	234.66	
Philadelphia Semiconductor	190.23	194.40	208.35	205.66	197.98	179.69	195.23	202.73	210.75	250.97	

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## ITEM 6. SELECTED FINANCIAL DATA

The following selected financial data for each year of the five-year period ended September 30, 2016, has been derived from the audited consolidated financial statements.

The information set forth below is not necessarily indicative of results of future operations and should be read in conjunction with Management's Discussion and Analysis of Financial Condition and Results of Operations and the consolidated financial statements and notes to those statements included in Items 7 and 8 of Part II of this Form 10-K, as well as Risk Factors included in Item 1A of Part I of this Form 10-K.

CABOT MICROELECTRONICS CORPORATION  
 SELECTED FINANCIAL DATA - FIVE YEAR SUMMARY  
 (Amounts in thousands, except per share amounts)

	Year Ended September 30,				
	2016	2015	2014	2013	2012 (1)
Consolidated Statement of Income Data:					
Revenue	\$430,449	\$414,097	\$424,666	\$433,131	\$427,657
Cost of goods sold	220,247	201,866	221,573	221,015	223,630
Gross profit	210,202	212,231	203,093	212,116	204,027
Operating expenses:					
Research, development and technical	58,532	59,778	59,354	61,373	58,642
Selling and marketing	27,717	24,983	26,513	27,985	29,516
General and administrative	49,445	52,430	45,418	46,287	49,345
Total operating expenses	135,694	137,191	131,285	135,645	137,503
Operating income	74,508	75,040	71,808	76,471	66,524
Interest expense	4,723	4,524	3,354	3,643	2,309
Other income (expense), net	653	681	140	1,392	(1,011 )
Income before income taxes	70,438	71,197	68,594	74,220	63,204
Provision for income taxes	10,589	15,051	17,843	21,642	23,110
Net income	\$59,849	\$56,146	\$50,751	\$52,578	\$40,094
Basic earnings per share	\$2.47	\$2.32	\$2.12	\$2.27	\$1.76
Weighted average basic shares outstanding	24,077	24,040	23,704	22,924	22,506
Diluted earnings per share	\$2.43	\$2.26	\$2.04	\$2.19	\$1.71
Weighted average diluted shares outstanding	24,477	24,632	24,611	23,760	23,244
Cash dividends per share	\$0.54	\$-	\$-	\$-	\$15.00
As of September 30,					
	2016	2015	2014	2013	2012 (1)
Consolidated Balance Sheet Data:					
Cash and cash equivalents	\$287,479	\$354,190	\$284,155	\$226,029	\$178,459

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Other current assets	149,612	140,318	143,838	136,769	135,906
Property, plant and equipment, net	106,496	93,743	100,821	111,985	125,020
Other assets	184,339	72,223	72,353	76,809	74,006
Total assets	\$727,926	\$660,474	\$601,167	\$551,592	\$513,391
Current liabilities	\$65,885	\$60,644	\$55,448	\$68,221	\$62,920
Long-term debt	147,657	155,313	164,063	150,937	161,875
Other long-term liabilities	16,736	15,553	9,654	8,992	9,058
Total liabilities	230,278	231,510	229,165	228,150	233,853
Stockholders' equity	497,648	428,964	372,002	323,442	279,538
Total liabilities and stockholders' equity	\$727,926	\$660,474	\$601,167	\$551,592	\$513,391

(1) In fiscal 2012, we completed a leveraged recapitalization and paid a special cash dividend of \$15.00 per share, or \$347,140 in the aggregate. The dividend was funded with a \$175,000 term loan and \$172,140 of existing Company cash balances.



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

The following "Management's Discussion and Analysis of Financial Condition and Results of Operations" (MD&A), as well as disclosures included elsewhere in this Form 10-K, include "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. This Act provides a safe harbor for forward-looking statements to encourage companies to provide prospective information about themselves so long as they identify these statements as forward-looking and provide meaningful cautionary statements identifying important factors that could cause actual results to differ from the projected results. All statements other than statements of historical fact we make in this Form 10-K are forward-looking. In particular, the statements herein regarding future sales and operating results; growth or contraction of, and trends in, the industry and markets in which the Company participates; the Company's management; various economic factors and international events; regulatory or legislative activity; product performance; the generation, protection and acquisition of intellectual property, and litigation related to such intellectual property; new product introductions; development of new products, technologies and markets; natural disasters; the Company's supply chain; natural disasters; the acquisition of or investment in other entities, including NexPlanar Corporation ("NexPlanar"); uses and investment of the Company's cash balance, including dividends and share repurchases, which may be suspended, terminated or modified at any time for any reason, based on a variety of factors; financing facilities and related debt, payment of principal and interest, and compliance with covenants and other terms; the Company's capital structure; the Company's current or future tax rate; the operation of facilities by the Company; and statements preceded by, followed by or that include the words "intends", "estimates", "plans", "believes", "expects", "anticipates", "should", "could" or similar expressions, are forward-looking statements. Forward-looking statements reflect our current expectations and are inherently uncertain. Our actual results may differ significantly from our expectations. We assume no obligation to update this forward-looking information. The section entitled "Risk Factors" describes some, but not all, of the factors that could cause these differences.

The following discussion and analysis should be read in conjunction with our historical financial statements and the notes to those financial statements which are included in Item 8 of Part II of this Form 10-K.

OVERVIEW

Cabot Microelectronics Corporation ("Cabot Microelectronics", "the Company", "us", "we", or "our") supplies high-performance polishing slurries and pads used in the manufacture of advanced integrated circuit (IC) devices within the semiconductor industry, in a process called chemical mechanical planarization (CMP). CMP polishes surfaces at an atomic level, thereby helping to enable IC device manufacturers to produce smaller, faster and more complex IC devices with fewer defects. We operate predominantly in one industry segment – the development, manufacture and sale of CMP consumables. We develop, produce and sell CMP slurries for polishing many of the conducting and insulating materials used in IC devices, and also for polishing the disk substrates and magnetic heads used in hard disk drives. We develop, manufacture and sell CMP polishing pads, which are used in conjunction with slurries in the CMP process. We also pursue other demanding surface modification applications through our Engineered Surface Finishes (ESF) business where we develop and provide products for demanding polishing applications in other industries.

On October 22, 2015, we completed our acquisition of 100% of the outstanding stock of NexPlanar, which was a privately held, U.S. based company that specialized in the development, manufacture and sale of advanced CMP pad solutions for the semiconductor industry. We acquired NexPlanar to expand our polishing pad portfolio and add a complementary pad technology for which we believe we can leverage our global infrastructure to better serve our customers, including offering performance-advantaged slurry and pad consumable sets. We paid a total of \$127.0 million, including total purchase consideration of \$142.3 million, less cash acquired of \$15.3 million. The purchase

consideration includes \$142.2 million paid at the date of acquisition and \$0.1 million for a post-closing adjustment. In addition, we paid \$0.1 million in compensation expense related to certain unvested NexPlanar stock options settled in cash at the acquisition date pursuant to the acquisition agreement. See Note 3 of the Notes to the Consolidated Financial Statements of this Form 10-K for more information regarding the acquisition.

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On January 7, 2016, we announced that our Board of Directors had authorized the initiation of a dividend program under which the Company intends to pay quarterly cash dividends on its common stock. Our Board of Directors declared quarterly cash dividends of \$0.18 per share during each of the last three quarters of fiscal 2016, or approximately \$4.4 million each quarter. On January 7, 2016, we also announced that our Board of Directors authorized an increase in the Company's existing share repurchase program to \$150.0 million, from the approximately \$75.0 million that was available as of December 31, 2015. The dividend and share repurchase programs, which can be suspended, modified or terminated at any time for any reason, are part of our balanced capital allocation strategy, including funding organic investments, dividends, share repurchases and acquisitions.

In fiscal 2016, demand patterns for our products reflected conditions within the overall semiconductor industry as demand was relatively soft during the first half of the fiscal year, followed by stronger demand during the second half. The demand patterns that we experienced appear to be consistent with those experienced by other participants in the semiconductor industry. Industry reports and some of our customers have indicated that inventories currently appear to be below normal levels in a number of areas, which appears to be driven by new product launches and stronger than normal seasonal demand. Based on this, industry analysts and some of our customers are forecasting continued solid demand in the first quarter of our fiscal 2017. Over the long-term, we continue to believe that semiconductor demand will grow, fueled by demand for mobile internet devices (MIDs), as well as a range of other electronic applications, including automotive and industrial, accompanied by the continued advancement of semiconductor technology, including growth of more complex device architectures such as 3D NAND and FinFET. However, there are many factors that make it difficult for us to predict future revenue trends for our business, including those discussed in Part I, Item 1A entitled "Risk Factors" in this Form 10-K.

Revenue for fiscal 2016 was \$430.4 million, which represented an increase of 3.9% from \$414.1 million reported for fiscal 2015. The increase in revenue from fiscal 2015 reflects \$23.5 million in revenue from NexPlanar pad products, partially offset by the impact of soft industry demand conditions in the first half of the fiscal year, and competitive dynamics in certain dielectrics and data storage applications, which we have disclosed previously. We achieved record annual revenue in our tungsten slurry and polishing pad product areas.

Gross profit for fiscal 2016 expressed as a percentage of revenue was 48.8%, including a 120 basis point adverse impact of acquisition-related costs and NexPlanar amortization expense, compared to 51.3% reported for fiscal 2015. The decrease in gross profit percentage from fiscal 2015 was primarily due to higher fixed manufacturing costs, including NexPlanar amortization expense and other NexPlanar-related costs, and higher material costs, partially offset by a higher-valued product mix, and lower costs associated with our annual cash incentive program (Short Term Incentive Program, or STIP, and previously, our Annual Incentive Program, or AIP). Our gross profit percentage was consistent with our revised fiscal 2016 guidance of around 49.0% of revenue. We expect our gross profit percentage for full fiscal year 2017 to be between 48.0% and 50.0% of revenue. We may experience fluctuations in our gross profit due to a number of factors, including the level of our revenue, the extent to which we utilize our manufacturing capacity, and changes in our product mix, which may cause our quarterly gross profit to be above or below this annual guidance range.

Operating expenses of \$135.7 million, which include research, development and technical, selling and marketing, and general and administrative expenses, decreased 1.1%, or \$1.5 million, from the \$137.2 million reported for fiscal 2015. The decrease in operating expenses was primarily due to lower costs associated with our STIP, lower clean room material costs, and the absence of costs associated with our CEO transition in fiscal 2015, partially offset by NexPlanar costs, including \$1.8 million of NexPlanar amortization expense, \$1.6 million of acquisition-related costs, and a \$1.0 million impairment charge on certain NexPlanar in-process technology. We expect total operating expenses for our full fiscal year 2017 to be in the range of \$137.0 million to \$142.0 million.

Diluted earnings per share in fiscal 2016 were \$2.43, including a \$0.25 adverse impact of NexPlanar amortization expense, acquisition-related costs and the impairment charge, and represented an increase of 7.5%, or \$0.17, from \$2.26 in fiscal 2015. The increase was primarily due to higher revenue and a lower effective tax rate, partially offset by a lower gross profit margin.

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CRITICAL ACCOUNTING POLICIES AND ESTIMATES

This MD&A, as well as disclosures included elsewhere in this Form 10-K, are based upon our audited consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States. The preparation of these financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses, and related disclosure of contingencies. On an ongoing basis, we evaluate the estimates used, including those related to bad debt expense, inventory valuation, valuation and classification of auction rate securities, impairment of long-lived assets and investments, business combinations, goodwill, other intangible assets, interest rate swaps, share-based compensation, income taxes and contingencies. We base our estimates on historical experience, current conditions and on various other assumptions that we believe 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, as well as for identifying and assessing our accounting treatment with respect to commitments and contingencies. Actual results may differ from these estimates under different assumptions or conditions. We believe the following critical accounting policies involve significant judgments and estimates used in the preparation of our consolidated financial statements.

ALLOWANCE FOR DOUBTFUL ACCOUNTS

We maintain an allowance for doubtful accounts for estimated losses resulting from the potential inability of our customers to make required payments. Our allowance for doubtful accounts is based on historical collection experience, adjusted for any specific known conditions or circumstances. While historical experience may provide a reasonable estimate of uncollectible accounts, actual results may differ from what was recorded. We will continue to monitor the financial solvency of our customers and, if global economic, or individual customer, conditions weaken, we may have to record additional increases to our allowance for doubtful accounts. As of September 30, 2016, our allowance for doubtful accounts represented 2.8% of gross accounts receivable, including \$0.5 million recorded in the fourth quarter of fiscal 2016 for a customer that was placed into receivership. If we had increased our estimate of bad debts by 100 basis points to 3.8% of gross accounts receivable, our general and administrative expenses would have increased by \$0.6 million.

INVENTORY VALUATION

We value inventory at the lower of cost or market and write down the value of inventory for estimated obsolescence or if inventory is deemed unmarketable. An inventory reserve is maintained based upon a historical percentage of actual inventories written off applied against the inventory value at the end of the period, adjusted for known conditions and circumstances. We exercise judgment in estimating the amount of inventory that is obsolete. For instance, we wrote off approximately \$1.4 million of inventory during the third quarter of fiscal 2015 related to raw material that did not meet our quality requirements. Should actual product marketability be affected by conditions that are different from those projected by management, revisions to the estimated inventory reserve may be required. If we had increased our reserve for obsolete inventory at September 30, 2016 by 10%, our cost of goods sold would have increased by \$0.2 million.

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VALUATION AND CLASSIFICATION OF AUCTION RATE SECURITIES

As of September 30, 2016, we owned two auction rate securities (ARS) recorded at cost with a par value of \$5.5 million and an estimated fair value of \$5.1 million, which are classified as other long-term assets on our Consolidated Balance Sheet and are considered held-to-maturity investments. In general, ARS investments are securities with long-term nominal maturities for which interest rates are intended to be reset through a Dutch auction every seven to 35 days. Historically, these periodic auctions provided a liquid market for these securities; however, beginning in 2008, general uncertainties in the global credit markets significantly reduced liquidity in the ARS market, and this illiquidity continues. Despite this lack of liquidity, there have been no defaults in payment of the underlying securities and interest income on these holdings continues to be received on scheduled interest payment dates. Our ARS, when purchased, were issued by A-rated municipalities. Although the credit ratings of both municipalities have been downgraded since our original investment, one of the ARS is credit enhanced with bond insurance, and the other has become an obligation of the bond insurer. Both ARS currently carry a credit rating of AA- by Standard & Poor's.

We classify these investments as held-to-maturity based on our intention and ability to hold the securities until maturity. Although there has been occasional trading activity on these securities, the ARS market is not considered active. Consequently, we determine the fair value of these securities using level 2 fair value inputs, including trading activity. The calculation of fair value and the balance sheet classification for our ARS requires critical judgments and estimates by management, including the probabilities that a security may be monetized through a future successful auction, of a refinancing of the underlying debt, or of a default in payment by the issuer or the bond insurance carrier.

An other-than-temporary impairment must be recorded when a credit loss exists; that is when the present value of the expected cash flows from a debt security is less than the amortized cost basis of the security. However, we believe the gross \$0.4 million unrecognized loss on these securities is due to illiquidity in the ARS market rather than credit loss. If illiquidity in the ARS market continues, if issuers of our ARS are unable to refinance the underlying securities, if the issuing municipalities are unable to pay their debt obligations and the bond insurance fails, or if credit ratings decline or other adverse developments occur in the credit markets, we may not be able to monetize our securities in the near term and may be required to adjust the carrying value of these instruments through an impairment charge that may be deemed other-than-temporary.

IMPAIRMENT OF LONG-LIVED ASSETS AND INVESTMENTS

We assess the recoverability of the carrying value of long-lived assets, including finite-lived intangible assets, whenever events or changes in circumstances indicate that the assets may be impaired. We perform a periodic review of our long-lived assets to determine if such impairment indicators exist. We must exercise judgment in assessing whether an event of impairment has occurred. For purposes of recognition and measurement of an impairment loss, long-lived assets are either individually identified or grouped with other assets and liabilities at the lowest level for which identifiable cash flows are largely independent of the cash flows of other assets and liabilities. We must exercise judgment in this grouping. If the sum of the undiscounted future cash flows expected to result from the identified asset group is less than the carrying value of the asset group, an impairment provision may be required. The amount of the impairment to be recognized is calculated by subtracting the fair value of the asset group from the net book value of the asset group. Determining future cash flows and estimating fair values require significant judgment and are highly susceptible to change from period to period because they require management to make assumptions about future sales and cost of sales generally over a long-term period. We recorded impairment expense on long-lived assets of \$2.3 million in fiscal 2014. We did not record any impairment expense in fiscal 2016 or 2015.

We evaluate the estimated fair value of investments annually, or more frequently if indicators of potential impairment exist, to determine if an other-than-temporary impairment in the value of the investment has taken place.



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BUSINESS COMBINATIONS

Our acquisition of NexPlanar, which we completed on October 22, 2015, was our first acquisition under the current standards of accounting for business combinations. These standards require assets and liabilities of an acquired business to be recognized at their estimated fair value. We engage independent third-party appraisal firms to assist us in determining the fair values of assets and liabilities acquired. This valuation requires management to make significant estimates and assumptions, especially with respect to long-lived and intangible assets. Goodwill represents the residual value of the purchase price over the fair value of net assets acquired, including identifiable intangible assets.

Critical estimates in valuing certain of the intangible assets include but are not limited to: future expected cash flows related to acquired developed technologies and patents and assumptions about the period of time the technologies will continue to be used in the Company's product portfolio; expected costs to develop the in-process technology into commercially viable products and estimated cash flows from the products when completed; and discount rates. Management's estimates of value are based upon assumptions believed to be reasonable, but which are inherently uncertain and unpredictable. Assumptions may be incomplete or inaccurate, and unanticipated events and circumstances may occur which may cause actual realized values to be different from management's estimates.

We recorded \$58.4 million of goodwill and \$55.0 million of intangible assets related to our acquisition of NexPlanar. The intangible assets included \$50.0 million with finite lives established and \$5.0 million of in-process technology. In the fourth quarter of fiscal 2016, we determined that one of the products under development was unlikely to meet our original cash flow projections based on information received subsequent to the date of acquisition. Consequently, we recorded a \$1.0 million impairment of this intangible asset.

GOODWILL AND INTANGIBLE ASSETS

Purchased intangible assets with finite lives are amortized over their estimated useful lives and are evaluated for impairment using a process similar to that used to evaluate other long-lived assets. Goodwill and indefinite lived intangible assets are not amortized and are tested annually in our fourth fiscal quarter or more frequently if indicators of potential impairment exist, using a fair-value-based approach.

The recoverability of goodwill is measured at the reporting unit level, which is defined as either an operating segment or one level below an operating segment. A component is a reporting unit when the component constitutes a business for which discreet financial information is available and segment management regularly reviews the operating results of the component. Components may be combined into one reporting unit when they have similar economic characteristics. We have four reporting units, all of which had goodwill and intangible assets as of September 30, 2016, the date of our annual impairment test. Two of the reporting units, CMP Slurries and CMP Pads, represent 94% of the goodwill balance on our Consolidated Balance Sheet as of September 30, 2016. The goodwill related to CMP Pads resulted from our acquisition of NexPlanar.

Accounting guidance provides an entity the option to assess the fair value of a reporting unit either using a qualitative analysis ("step zero") or a quantitative ("step one"). In fiscal 2014, 2015 and 2016, we chose to use a step one analysis for goodwill impairment.

Similarly, an entity has the option to use a step zero or step one approach to determine the recoverability of indefinite-lived intangible assets. In fiscal 2014, 2015 and 2016, we used a step one analysis to determine the recoverability of indefinite-lived intangible assets.



Factors requiring significant judgment include assumptions related to future growth rates, discount factors, royalty rates and tax rates, among others. Changes in economic and operating conditions that occur after the annual impairment analysis or an interim impairment analysis that impact these assumptions may result in future impairment charges. Our reporting units had a calculated fair value that was in excess of the carrying value between 41% and 390%. If the fair value of each of the reporting units decreased by 10%, the fair value would still exceed the carrying value by more than 25%. As a result of the review performed in the fourth quarter of fiscal 2016, and the related sensitivity analysis, we determined that there was no impairment of our goodwill and intangible assets as of September 30, 2016, other than the \$1.0 million impairment of certain NexPlanar in-process technology noted above.

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### INTEREST RATE SWAPS

In the first quarter of fiscal 2015, we entered into floating-to-fixed interest rate swap agreements to hedge the variability in LIBOR-based interest payments on a portion of our outstanding variable rate debt. The fair value of our interest rate swaps is estimated using standard valuation models and market-based observable inputs over the contractual term, including one-month LIBOR-based yield curves, among others. We consider the risk of nonperformance, including counterparty credit risk, in the calculation of the fair value. We have designated these swap agreements as cash flow hedges pursuant to ASC 815, "Derivatives and Hedging". As cash flow hedges, unrealized gains are recognized as assets and unrealized losses are recognized as liabilities. Unrealized gains and losses are designated as effective or ineffective based on a comparison of the changes in fair value of the interest rate swaps and changes in fair value of the underlying exposures being hedged. The effective portion is recorded as a component of accumulated other comprehensive income or loss, while the ineffective portion is recorded as a component of interest expense. Changes in the method by which we pay interest from one-month LIBOR to another rate of interest could create ineffectiveness in the swaps, and result in amounts being reclassified from other comprehensive income into net income. Hedge effectiveness is tested quarterly to determine if hedge treatment continues to be appropriate.

### SHARE-BASED COMPENSATION

We record share-based compensation expense for all share-based awards, including stock option grants, restricted stock and restricted stock unit awards and employee stock purchase plan purchases. We calculate share-based compensation expense using the straight-line approach based on awards ultimately expected to vest, which requires the use of an estimated forfeiture rate. Our estimated forfeiture rate is primarily based on historical experience, but may be revised in future periods if actual forfeitures differ from the estimate. We use the Black-Scholes option-pricing model to estimate the grant date fair value of our stock options and employee stock purchase plan purchases. This model requires the input of highly subjective assumptions, including the price volatility of the underlying stock, the expected term of our stock options, expected dividend yield, and the risk-free interest rate. We estimate the expected volatility of our stock options based on a combination of our stock's historical volatility and the implied volatilities from actively-traded options on our stock. We calculate the expected term of our stock options using historical stock option exercise data, and we add a slight premium to this expected term for employees who meet the definition of retirement eligible pursuant to their grants during the contractual term of the grant. The expected dividend yield represents our annualized dividend in dollars divided by the stock price on the date of grant. The risk-free rate is derived from the U.S. Treasury yield curve in effect at the time of grant.

The fair value of our restricted stock and restricted stock unit awards represents the closing price of our common stock on the date of award.

In fiscal 2016, pursuant to the Merger Agreement for our acquisition of NexPlanar, we granted incentive stock options (ISOs), as allowed under our current Omnibus Incentive Plan, to certain NexPlanar employees in substitution for unvested ISOs they had held in NexPlanar at the time of the closing of the acquisition. We used the Black-Scholes option-pricing model to estimate the grant date fair value of these ISOs to calculate share-based compensation expense in fiscal 2016 and for future periods.

### ACCOUNTING FOR INCOME TAXES

Current income taxes are determined based on estimated taxes payable or refundable on tax returns for the current year. Deferred income taxes are determined using enacted tax rates for the effect of temporary differences between the book and tax bases of recorded assets and liabilities. The effect on deferred tax assets and liabilities of changes in tax rates is recognized in income in the period that includes the enactment date. Provisions are made for both U.S.

and any foreign deferred income tax liability or benefit. We assess whether or not our deferred tax assets will ultimately be realized and record an estimated valuation allowance on those deferred tax assets that may not be realized. We recognize the tax benefit of an uncertain tax position only if it is more likely than not that the tax position will be sustained by the taxing authorities, based on the technical merits of the position. In fiscal 2014, 2015 and 2016, we elected to permanently reinvest the earnings of all of our foreign subsidiaries. See the section titled "Liquidity and Capital Resources" in this MD&A and Note 17 of the Notes to the Consolidated Financial Statements of this Form 10-K for additional information on income taxes and permanent reinvestment.

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## COMMITMENTS AND CONTINGENCIES

We have entered into certain unconditional purchase obligations, which include noncancelable purchase commitments and take-or-pay arrangements with suppliers. We review our agreements on a quarterly basis and make an assessment of the likelihood of a shortfall in purchases and determine if it is necessary to record a liability. In addition, we are subject to the possibility of various loss contingencies arising in the ordinary course of business, such as a legal proceeding or claim. An estimated loss contingency is accrued when it is probable that an asset has been impaired or a liability has been incurred and the amount of the loss can be reasonably estimated. We regularly evaluate information available to us to determine whether such accruals should be adjusted and whether new accruals are required.

## EFFECTS OF RECENT ACCOUNTING PRONOUNCEMENTS

See Note 2 to the Consolidated Financial Statements of this Form 10-K for a description of recent accounting pronouncements including the expected dates of adoption and effects on our results of operations, financial position and cash flows.

The following table sets forth, for the periods indicated, the percentage of revenue of certain line items included in our historical statements of income:

	Year Ended September 30,		
	2016	2015	2014
Revenue	100.0%	100.0%	100.0%
Cost of goods sold	51.2	48.7	52.2
Gross profit	48.8	51.3	47.8
Research, development and technical	13.6	14.5	14.0
Selling and marketing	6.4	6.0	6.2
General and administrative	11.5	12.7	10.7
Operating income	17.3	18.1	16.9
Interest expense	1.1	1.1	0.8
Other income, net	0.2	0.2	0.1
Income before income taxes	16.4	17.2	16.2
Provision for income taxes	2.5	3.6	4.2
Net income	13.9%	13.6%	12.0%

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YEAR ENDED SEPTEMBER 30, 2016, VERSUS YEAR ENDED SEPTEMBER 30, 2015

REVENUE

Revenue was \$430.4 million in fiscal 2016, which represented an increase of 3.9%, or \$16.4 million, from fiscal 2015. The increase in revenue was driven by a \$26.6 million increase due to favorable product mix, partially offset by a \$5.6 million decrease due to lower overall sales volume and a \$4.1 million decrease due to price changes. Revenue from polishing pads increased 62.5% from fiscal 2015, and included \$23.5 million from our NexPlanar acquisition. Revenue from tungsten slurries increased 3.7%, and revenue from dielectrics slurries increased 2.9% from last year. The decrease in overall sales volume was consistent with soft demand conditions seen in the global semiconductor industry during the first half of our fiscal year and competitive dynamics within dielectrics and data storage applications.

COST OF GOODS SOLD

Total cost of goods sold was \$220.2 million in fiscal 2016, which represented an increase of 9.1%, or \$18.4 million, from fiscal 2015, which reflects the addition of NexPlanar. The increase in cost of goods sold was primarily due to a \$13.5 million increase due to higher fixed manufacturing costs, including \$4.5 million of NexPlanar amortization expense, a \$10.1 million increase due to higher variable manufacturing costs, including higher material costs, and a \$3.0 million increase due to product mix. These increases were partially offset by a \$5.0 million decrease due to lower costs related to material quality, a \$2.0 million decrease due to lower logistics costs, and a \$1.6 million decrease due to lower sales volume.

Engineered abrasive particles are significant raw materials that we use in many of our CMP slurries. In an effort to mitigate our risk to rising raw material costs and to increase supply assurance and quality performance requirements, we have entered into multi-year supply agreements with a number of suppliers. For more information about our supply contracts, see "Tabular Disclosure of Contractual Obligations" included in Item 7 of Part II of this Form 10-K.

GROSS PROFIT

Our gross profit as a percentage of revenue was 48.8% in fiscal 2016 compared to 51.3% for fiscal 2015, and was consistent with our revised full year guidance of around 49.0%. The decrease in gross profit percentage from fiscal 2015 was primarily due to higher fixed manufacturing costs, including NexPlanar amortization expense and other NexPlanar costs, and higher material costs, partially offset by a higher-valued product mix, and lower STIP costs discussed above.

RESEARCH, DEVELOPMENT AND TECHNICAL

Total research, development and technical expenses were \$58.5 million in fiscal 2016, which represented a decrease of 2.1%, or \$1.2 million, from fiscal 2015. The decrease was primarily due to \$3.0 million in lower clean room material costs and \$0.8 million in lower staffing-related costs, including costs associated with our STIP, partially offset by \$1.1 million in higher professional and service fees, including costs of joint development arrangements, and a \$1.0 million impairment of a NexPlanar intangible asset for certain in-process technology under development at the acquisition date.

Our research, development and technical efforts are focused on the following main areas:

Research related to fundamental CMP technology;

Development of new and enhanced CMP consumable products, including collaboration on joint development projects with technology-leading customers and suppliers;

Process development to support rapid and effective commercialization of new products;

Technical support of CMP products in our customers' research, development and manufacturing facilities; and,

Development of polishing and metrology applications outside of the semiconductor industry.

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SELLING AND MARKETING

Selling and marketing expenses were \$27.7 million in fiscal 2016, which represented an increase of 10.9%, or \$2.7 million, from fiscal 2015. The increase was primarily due to \$1.8 million of NexPlanar amortization expense and \$0.9 million in higher product sample costs.

GENERAL AND ADMINISTRATIVE

General and administrative expenses were \$49.4 million in fiscal 2016, which represented a decrease of 5.7%, or \$3.0 million, from fiscal 2015. The decrease was primarily due to \$6.1 million in lower staffing-related costs, including costs associated with our STIP and the absence of costs associated with the fiscal 2015 executive officer transition. This decrease was partially offset by \$0.8 million in higher professional fees, \$0.7 million in higher bad debt expense, including \$0.5 million for a customer placed into receivership in the fourth quarter of fiscal 2016, the absence of \$0.6 million of certain foreign goods and services tax credits recorded in fiscal 2015, and \$0.5 million in higher information technology costs. General and administrative expenses in fiscal 2016 include \$1.3 million of acquisition-related costs.

INTEREST EXPENSE

Interest expense was \$4.7 million in fiscal 2016, and increased \$0.2 million from fiscal 2015. The increase was primarily due to higher variable interest rates on the portion of our outstanding debt on which we have not fixed the interest rate via interest rate swaps.

OTHER INCOME, NET

Other income was \$0.7 million in both fiscal 2016 and fiscal 2015.

PROVISION FOR INCOME TAXES

Our effective income tax rate was 15.0% in fiscal 2016 compared to 21.1% in fiscal 2015. The decrease in the effective tax rate during fiscal 2016 was primarily due to the absence of income taxes incurred in the first quarter of fiscal 2015 related to the restructuring of our operations in Taiwan, the reinstatement of the research and experimentation tax credit in December 2015, and the benefit of \$0.9 million related to domestic production deductions. This was partially offset by a change in the mix of earnings among various jurisdictions in which we operate, including a scheduled reduction in the benefit available under our tax holiday in South Korea from 100% to 50% of the statutory tax rate in effect in South Korea. See Note 17 of the Notes to the Consolidated Financial Statements for more information on our income tax provision. We expect our effective tax rate for full fiscal 2017 to be in the range of 17.0% to 20.0%.

NET INCOME

Net income was \$59.8 million in fiscal 2016, which represented an increase of 6.6%, or \$3.7 million, from fiscal 2015. The increase was primarily due to higher revenue and a lower effective tax rate, partially offset by higher production costs.



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YEAR ENDED SEPTEMBER 30, 2015, VERSUS YEAR ENDED SEPTEMBER 30, 2014

REVENUE

Revenue was \$414.1 million in fiscal 2015, which represented a decrease of 2.5%, or \$10.6 million, from fiscal 2014. The decrease in revenue was primarily due to a \$12.0 million decrease in sales volume, a \$7.5 million decrease due to the effect of foreign exchange rate changes, primarily due to the weakening of the Japanese yen and the Korean won versus the U.S. dollar, and \$1.9 million due to changes in average selling prices. These decreases were partially offset by a \$10.8 million increase due to product mix. The decrease in revenue from fiscal 2014 reflected softness of demand in the global semiconductor industry and the loss of approximately \$20.0 million in annualized legacy dielectrics slurry business for lower-performing applications for 200 millimeter wafers, discussed in our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2015 and June 30, 2015. We also generated lower revenue from our slurries for polishing aluminum and data storage applications, as well as from our polishing pads. These decreases were partially offset by increased revenue from our slurries for polishing tungsten, which generated record annual revenue, and increased revenue from our ESF products.

COST OF GOODS SOLD

Total cost of goods sold was \$201.9 million in fiscal 2015, which represented a decrease of 8.9%, or \$19.7 million, from fiscal 2014. The decrease in cost of goods sold was primarily due to a \$12.3 million decrease due to product mix, an \$8.9 million decrease due to foreign exchange fluctuations, primarily due to the weakening of the yen, and a \$3.7 million decrease due to lower sales volume. These decreases in cost of goods sold were partially offset by a \$4.7 million increase due to lower manufacturing yields, including \$1.4 million in costs related to raw material that did not meet our quality requirements that we recorded in the third quarter of fiscal 2015, and a \$1.2 million increase in sample costs.

GROSS PROFIT

Our gross profit as a percentage of revenue was 51.3% in fiscal 2015 as compared to 47.8% for fiscal 2014, and was slightly above our revised full year guidance range of 50.0% to 51.0%. The increase in gross profit percentage from fiscal 2014 was primarily due to product mix and foreign exchange benefits, partially offset by lower sales volume and lower manufacturing yields.

RESEARCH, DEVELOPMENT AND TECHNICAL

Total research, development and technical expenses were \$59.8 million in fiscal 2015, which represented an increase of 0.7%, or \$0.4 million, from fiscal 2014. The increase was primarily due to \$1.5 million in higher clean room material costs and \$0.4 million in higher staffing-related costs, partially offset by \$0.6 million in lower facility-related costs and \$0.5 million in lower depreciation expense.

SELLING AND MARKETING

Selling and marketing expenses were \$25.0 million in fiscal 2015, which represented a decrease of 5.8%, or \$1.5 million, from fiscal 2014. The decrease was primarily due to \$1.6 million in lower staffing-related costs, \$0.4 million in lower travel-related costs, and \$0.3 million in lower marketing costs, partially offset by \$1.2 million in separation

costs associated with the departure of three executive officers.

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GENERAL AND ADMINISTRATIVE

General and administrative expenses were \$52.4 million in fiscal 2015, which represented an increase of 15.4%, or \$7.0 million, from fiscal 2014. The increase was primarily due to \$8.0 million in higher staffing-related costs, including costs associated with our STIP and executive officer transitions, partially offset by a \$0.7 million decrease in certain foreign goods and services tax.

INTEREST EXPENSE

Interest expense was \$4.5 million in fiscal 2015, which represented an increase of \$1.2 million from fiscal 2014. The increase was primarily due to the higher fixed interest rate on the portion of our outstanding debt on which we have fixed the interest rate via interest rate swaps versus the variable interest rate on the rest of our outstanding debt.

OTHER INCOME, NET

Other income was \$0.7 million in fiscal 2015 compared to \$0.1 million in fiscal 2014. The increase in other income was primarily due to the reimbursement of overfunding of a foreign benefit plan, and higher interest income earned on higher cash and investment balances, partially offset by the negative impact of foreign currency fluctuations on monetary assets and liabilities denominated in currencies other than the functional currency.

PROVISION FOR INCOME TAXES

Our effective income tax rate was 21.1% in fiscal 2015 compared to 26.0% in fiscal 2014. The decrease in the effective tax rate was primarily due to higher taxable income in foreign jurisdictions with lower income tax rates and the reinstatement of the U.S. research and experimentation tax credit, retroactive to January 1, 2014, partially offset by income taxes incurred related to the restructuring of our operations in Taiwan.

NET INCOME

Net income was \$56.1 million in fiscal 2015, which represented an increase of 10.6%, or \$5.4 million, from fiscal 2014. The increase was primarily due to a higher gross profit percentage, and a lower effective income tax rate, partially offset by lower revenue and higher operating expenses.

LIQUIDITY AND CAPITAL RESOURCES

We had cash flows from operating activities of \$95.2 million in fiscal 2016, \$98.2 million in fiscal 2015 and \$67.5 million in fiscal 2014. Our cash provided by operating activities in fiscal 2016 represented \$99.4 million in net income and non-cash items and a \$4.2 million decrease in cash flow due to a net increase in working capital. The increase in working capital included higher accounts receivable due to higher sales in the fourth quarter of fiscal 2016 compared to the same period of fiscal 2015, and lower accrued liabilities, including payments related to our annual cash incentive bonus program. The cash payment made in the first quarter of fiscal 2016 pursuant to our AIP, related to our performance in fiscal 2015, was \$6.4 million higher than the cash incentive payment made in the first quarter of fiscal 2015, related to our performance in fiscal 2014. The decrease in cash flow from operations in fiscal 2016 from fiscal 2015 was primarily due to the increased working capital, partially offset by higher net income and non-cash

items. The increase in cash flow from operations in fiscal 2015 from fiscal 2014 was primarily due to higher net income, a decrease in accounts receivable due to lower revenue in the fourth quarter of fiscal 2015 compared to the same quarter of fiscal 2014, and changes in the timing and amount of payments for accrued expenses, including payments related to our AIP, partially offset by a larger increase in inventories, primarily due to higher raw material costs.

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In fiscal 2016, cash flows used in investing activities were \$144.4 million, representing \$127.0 million for the NexPlanar acquisition, which is net of \$15.3 million in cash acquired, and \$17.6 million for purchases of property, plant and equipment. We received \$0.2 million from other investing activities. In fiscal 2015, we used \$13.4 million in investing activities representing \$13.8 million in purchases of property plant and equipment, partially offset by \$0.4 million received from other investing activities. We used \$9.0 million in investing activities in fiscal 2014 representing \$12.6 million in purchases of property plant and equipment, partially offset by \$2.3 million received from the liquidation of a portion of our auction rate securities and \$1.3 million received from other investing activities. We estimate that our total capital expenditures in fiscal 2017 will be in the range of \$20.0 to \$25.0 million, primarily due to our ongoing facility expansion in South Korea.

In fiscal 2016, cash flows used in financing activities were \$24.4 million. We used \$26.0 million to repurchase common stock under our share repurchase program, and \$2.8 million to repurchase common stock pursuant to the terms of our Second Amended and Restated Cabot Microelectronics Corporation 2000 Equity Incentive Plan (EIP) and our 2012 Omnibus Incentive Plan (OIP) for shares withheld from award recipients to cover payroll taxes on the vesting of restricted stock awarded under these plans. We also used \$8.8 million to repay long-term debt, and we paid \$8.6 million in dividends on our common stock. We received \$19.5 million from the issuance of common stock related to the exercise of stock options granted under our EIP and our OIP and for the sale of shares to employees under our 2007 Employee Stock Purchase Plan, as amended and restated September 23, 2013 (ESPP), and we received \$2.3 million in tax benefits related to exercises of stock options and vesting of restricted stock awarded under the EIP and OIP. In fiscal 2015, cash flows used in financing activities were \$9.0 million. We used \$40.0 million to repurchase common stock under our share repurchase program, and \$2.2 million to repurchase common stock pursuant to the terms of our EIP and OIP for shares withheld from award recipients to cover payroll taxes on the vesting of restricted stock awarded under these plans. We also used \$8.8 million to repay long-term debt. We received \$35.8 million from the issuance of common stock related to the exercise of stock options granted under our EIP and our OIP and for the sale of shares to employees under our ESPP, and we received \$6.2 million in tax benefits related to exercises of stock options and vesting of restricted stock awarded under these plans. In fiscal 2014, cash flows provided by financing activities were \$1.2 million. We received \$43.1 million from the issuance of common stock related to the exercise of stock options granted under our EIP, our OIP and from the sale of shares to employees under our ESPP, \$17.5 million from the issuance of long-term debt under our amended credit agreement, and \$2.8 million in tax benefits related to exercises of stock options and vesting of restricted stock awarded under the EIP and OIP. We used \$53.0 million to repurchase common stock under our share repurchase program and \$2.1 million to repurchase common stock pursuant to the terms of our EIP and OIP for shares withheld from award recipients to cover payroll taxes on the vesting of restricted stock awarded under these plans. We also used \$6.6 million to repay long-term debt and paid \$0.6 million in debt issuance costs.

In January 2016, our Board of Directors authorized an increase in the amount available under our share repurchase program from the previously remaining \$75.0 million to \$150.0 million. Under this program, we repurchased 636,839 shares for \$26.0 million in fiscal 2016, 851,245 shares for \$40.0 million in fiscal 2015, and 1,229,494 shares for \$53.0 million in fiscal 2014. As of September 30, 2016, \$134.0 million remains available under our share repurchase program. Share repurchases are made from time to time, depending on market conditions. The timing, manner, price and amounts of repurchases are determined at the Company's discretion, and the share repurchase program may be suspended, terminated or modified at any time for any reason. The repurchase program does not obligate the Company to acquire any specific number of shares. To date, we have funded share purchases under our share repurchase program from our available cash balance, and anticipate we will continue to do so. In fiscal years 2015 and 2016, we entered into "10b5-1" stock purchase plan agreements with independent brokers to repurchase shares of our common stock in accordance with guidelines pursuant to Rule 10b5-1 of the Securities Exchange Act of 1934, as amended. A plan under Rule 10b5-1 allows a company to repurchase its shares at times when it otherwise might be prevented from doing so under insider trading laws or because of self-imposed trading blackout periods. Repurchases are subject to SEC regulations as well as certain conditions specified in the plan.

On January 7, 2016, we announced that our Board of Directors authorized the initiation of a regular dividend program under which the Company intends to pay quarterly cash dividends on our common stock. Pursuant to this announcement, our Board of Directors declared quarterly cash dividends of \$0.18 per share, or approximately \$4.4 million, during each of the last three quarters of fiscal 2016, the latest of which we paid on or about October 28, 2016 to shareholders of record as of October 3, 2016. The declaration and payment of future dividends is subject to the discretion and determination of the Company's Board of Directors and management, based on a variety of factors, and the program may be suspended, terminated or modified at any time for any reason.

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We entered into a Credit Agreement in February 2012, which provided us with a \$175.0 million Term Loan and a \$100.0 million Revolving Credit Facility, with sub-limits for multicurrency borrowings, letters of credit and swing-line loans. The Term Loan and Revolving Credit Facility are referred to as the "Credit Facilities". In June 2014, we entered into an amendment to the Credit Agreement (the "Amendment"), which provided for an additional \$17.5 million in Term Loan commitments to bring the total commitments to the same level as the original amount under the Credit Agreement at its inception in 2012, an extension of the maturity date of the Credit Facilities to June 27, 2019, and changes to certain pricing and other terms of the agreement, including a relaxed consolidated leverage ratio financial covenant. The Amendment also increased the uncommitted accordion feature that allows us to request the existing lenders or, if necessary, third-party financial institutions to provide additional capacity in the Revolving Credit Facility, from \$75.0 million to \$100.0 million. The Term Loan has periodic scheduled principal repayments; however, we may prepay the loan without penalty. The additional Term Loan commitments were drawn on June 27, 2014, and the Revolving Credit Facility remains undrawn. The Term Loan had \$155.3 million outstanding as of September 30, 2016. The Credit Agreement contains covenants that restrict the ability of the Company and its subsidiaries to take certain actions, including, among other things and subject to certain significant exceptions and according to certain terms: creating liens, incurring indebtedness, making investments, engaging in mergers, selling property, paying dividends or amending organizational documents. The Credit Agreement requires us to comply with certain financial ratio maintenance covenants. These include a maximum consolidated leverage ratio of 2.75 to 1.00 and a minimum consolidated fixed charge coverage ratio of 1.25 to 1.00 through the expiration of the Credit Agreement. As of September 30, 2016, our consolidated leverage ratio was 1.31 to 1.00 and our consolidated fixed charge coverage ratio was 3.76 to 1.00. The Credit Agreement also contains customary affirmative covenants and events of default. We believe we are in compliance with these covenants. See Note 10 of the Notes to the Consolidated Financial Statements of this Form 10-K for additional information regarding the Credit Agreement.

As of September 30, 2016, we had \$287.5 million of cash and cash equivalents, \$171.5 million of which was held in foreign subsidiaries in Japan, the Netherlands, Singapore, South Korea and Taiwan where we have elected to permanently reinvest the earnings rather than repatriate the earnings to the U.S. If we choose to repatriate these earnings in the future through dividends or loans to the U.S. parent company, the earnings could become subject to additional income tax expense.

We believe that our current balance of cash and long-term investments, cash generated by our operations and available borrowing capacity under our Credit Facilities will be sufficient to fund our operations, expected capital expenditures, merger and acquisition activities, dividend payments, and share repurchases for at least the next twelve months. However, in pursuit of corporate development initiatives, we may need to raise additional funds in the future through equity or debt financing, strategic relationships or other arrangements. Depending on future conditions in the capital and credit markets, we could encounter difficulty securing additional financing in the type or amount necessary to pursue these objectives.

**OFF-BALANCE SHEET ARRANGEMENTS**

At September 30, 2016 and 2015, we did not have any unconsolidated entities or financial partnerships, such as entities often referred to as structured finance or special purpose entities, which might have been established for the purpose of facilitating off-balance sheet arrangements.

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## TABULAR DISCLOSURE OF CONTRACTUAL OBLIGATIONS

The following summarizes our contractual obligations at September 30, 2016, and the effect such obligations are expected to have on our liquidity and cash flow in future periods.

CONTRACTUAL OBLIGATIONS (In millions)	Total	Less Than			
		1 Year	1-3 Years	3-5 Years	After 5 Years
Long-term debt	\$155.3	\$7.7	\$147.6	\$-	\$-
Interest expense and fees on long-term debt	10.2	3.8	6.4	-	-
Purchase obligations	30.6	26.7	3.5	0.4	-
Operating leases	10.1	2.4	3.1	1.7	2.9
Severance agreements	1.9	1.7	0.2	-	-
Other long-term liabilities *	16.1	1.4	3.0	-	11.7
Total contractual obligations	\$224.2	\$43.7	\$163.8	\$2.1	\$14.6

\* We have excluded deferred tax liabilities from the other long-term liability amounts presented, as the deferred taxes that will be settled in cash are not known and the timing of any such payments is uncertain. We have also excluded \$0.7 million related to the fair value of the long-term portion of our interest rate swaps as the expected interest payments are included in the table above under the caption "Interest expense and fees on long-term debt".

## INTEREST EXPENSE AND FEES ON LONG-TERM DEBT

Interest payments on long-term debt reflect interest rates in effect at September 30, 2016. The interest payments reflect LIBOR rates currently in effect on \$77.7 million of our outstanding debt, and reflect fixed interest rates on \$77.7 million of outstanding debt for which we have executed interest rate swaps. Commitment fees are based on our estimated consolidated leverage ratio in future periods. See Note 10 of the Notes to the Consolidated Financial Statements of this Form 10-K for additional information regarding our long-term debt.

## PURCHASE OBLIGATIONS

We have been operating under a multi-year supply agreement with Cabot Corporation, our former parent company which is not a related party, for the purchase of fumed silica, the current term of which runs through December 31, 2019. This agreement required us to purchase certain minimum quantities of fumed silica each year of the agreement, and to pay a shortfall if we purchased less than the minimum, and provides us the option to purchase fumed silica for the remaining term of the agreement beyond calendar year 2016, for which we will pay a fee of \$1.5 million in each of calendar years 2017, 2018 and 2019. The purchase obligations in the table above reflect management's expectation that we will meet the minimum purchase quantities in calendar 2016. Purchase obligations include an aggregate amount of \$7.9 million of contractual commitments related to our Cabot Corporation supply agreement for fumed silica. The \$1.5 million payment due in calendar year 2017 is included in accrued liabilities on our Consolidated Balance Sheet as of September 30, 2016, and the calendar 2018 and 2019 payments are included in other long-term liabilities in the table above.

## OPERATING LEASES

We lease certain vehicles, warehouse facilities, office space, machinery and equipment under cancelable and noncancelable operating leases, most of which expire within ten years of their respective commencement dates and



may be renewed by us.

#### SEVERANCE AGREEMENTS

Liabilities for severance agreements at September 30, 2016 represent payments to be made to former or to be former employees in accordance with individual agreements.

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OTHER LONG-TERM LIABILITIES

Other long-term liabilities at September 30, 2016 primarily consist of liabilities related to our foreign benefit plans in Japan and Korea, which represents approximately \$8.7 million, the \$4.5 million total contract fees noted above under "Purchase Obligations", our liability for future payments to be made under our Cabot Microelectronics Supplemental Employee Retirement Plan, and our liability for uncertain tax positions.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

EFFECT OF CURRENCY EXCHANGE RATES AND EXCHANGE RATE RISK MANAGEMENT

We conduct business operations outside of the United States through our foreign operations. Some of our foreign operations maintain their accounting records in their local currencies. Consequently, period to period comparability of results of operations is affected by fluctuations in exchange rates. The primary currencies to which we have exposure are the Japanese yen, the Korean won, and the New Taiwan dollar. Approximately 19% of our revenue is transacted in currencies other than the U.S. dollar. However, we also incur expenses in foreign countries that are transacted in currencies other than the U.S. dollar, which mitigates the exposure on the Consolidated Statement of Income. We periodically enter into forward contracts in an effort to manage foreign currency exchange exposure on our Consolidated Balance Sheet. However, we are unlikely to be able to hedge these exposures completely. We do not enter into forward exchange contracts or other derivative instruments for speculative or trading purposes.

The significant weakening of the Japanese yen against the U.S. dollar in fiscal years 2014 and 2015 adversely affected our revenue. The weakening of the yen had a net favorable impact on our gross profit percentage in fiscal years 2014 and 2015, as our yen-denominated cost of goods sold was greater than our yen-denominated revenue. To a lesser extent, we also saw a favorable foreign exchange impact on our yen-denominated operating expenses in fiscal years 2014 and 2015. Additionally, the fluctuations of the yen, won and New Taiwan dollar have had a significant impact on other comprehensive income on our Consolidated Balance Sheet. During fiscal 2016, we recorded \$16.0 million in currency translation gains, net of tax, that are included in other comprehensive income. During fiscal 2015, we recorded \$14.1 million in currency translation losses, net of tax, that are included in other comprehensive income. These gains and losses primarily relate to changes in the U.S. dollar value of assets and liabilities denominated in local currencies when these asset and liability amounts are translated at month-end exchange rates.

MARKET RISK AND SENSITIVITY ANALYSIS RELATED TO FOREIGN EXCHANGE RATE RISK

We have performed a sensitivity analysis assuming a hypothetical 10% additional adverse movement in foreign exchange rates. As of September 30, 2016, the analysis demonstrated that such market movements would not have a material adverse effect on our consolidated financial position, results of operations or cash flows over a one-year period. Actual gains and losses in the future may differ materially from this analysis based on changes in the timing and amount of foreign currency rate movements and our actual exposures.

INTEREST RATE RISK

At September 30, 2016, we had \$155.3 million in long-term debt outstanding on our Term Loan. In the first quarter of fiscal 2015, we entered into interest rate swap agreements to hedge the variability in LIBOR-based interest rate payments on half of our outstanding debt. The notional amount of the swaps decreases each quarter by an amount in

proportion to our scheduled quarterly principal payment to maintain a fixed rate of interest on half of our outstanding debt. As of September 30, 2016, the fair value of this cash flow hedge is a liability of \$1.3 million. At September 30, 2016, we had \$77.7 million of outstanding debt at a variable rate of interest. Assuming a hypothetical 100 basis point increase in our current variable interest rate, our interest expense would increase by approximately \$0.2 million per quarter.

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MARKET RISK RELATED TO INVESTMENTS IN AUCTION RATE SECURITIES

At September 30, 2016, we owned two auction rate securities (ARS) with a total estimated fair value of \$5.1 million and par value of \$5.5 million which were classified as other long-term assets on our Consolidated Balance Sheet. Beginning in 2008, general uncertainties in the global credit markets significantly reduced liquidity in the ARS market, and this illiquidity continues. For more information on our ARS, see "Critical Accounting Policies and Estimates" in MD&A in Part II, Item 7, and Notes 4 and 8 of the Notes to the Consolidated Financial Statements in Part II, Item 8 of this Form 10-K.

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ITEM 8. FINANCIAL STATEMENTS AND  
SUPPLEMENTARY DATA

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

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Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors of  
Cabot Microelectronics Corporation:

In our opinion, the consolidated financial statements listed in the accompanying index present fairly, in all material respects, the financial position of Cabot Microelectronics Corporation and its subsidiaries at September 30, 2016 and 2015, and the results of their operations and their cash flows for each of the three years in the period ended September 30, 2016 in conformity with accounting principles generally accepted in the United States of America. In addition, in our opinion, the financial statement schedule listed in the accompanying index presents fairly, in all material respects, the information set forth therein when read in conjunction with the related consolidated financial statements. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of September 30, 2016, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). The Company's management is responsible for these financial statements and financial statement schedule, for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in Management's Report on Internal Control Over Financial Reporting appearing under Item 9A. Our responsibility is to express opinions on these financial statements, on the financial statement schedule, and on the Company's internal control over financial reporting based on our integrated 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 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.

As discussed in Note 17 to the consolidated financial statements, the Company changed the manner in which it presents deferred taxes on the balance sheet in fiscal 2016.

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 (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (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 receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) 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.

As described in Management's Report on Internal Control over Financial Reporting appearing under Item 9A, management has excluded NexPlanar Corporation from its assessment of internal control over financial reporting as of September 30, 2016 because they were acquired by the Company in a purchase business combination during fiscal 2016. We have also excluded NexPlanar Corporation from our audit of internal control over financial reporting. NexPlanar Corporation is a wholly-owned subsidiary whose total assets and total revenues represent 3.1% and 4.9%, respectively, of the related consolidated financial statement amounts as of and for the year ended September 30, 2016.

PricewaterhouseCoopers LLP

Chicago, IL

November 16, 2016

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## CABOT MICROELECTRONICS CORPORATION

## CONSOLIDATED STATEMENTS OF INCOME

(In thousands, except per share amounts)

	Year Ended September 30,		
	2016	2015	2014
Revenue	\$430,449	\$414,097	\$424,666
Cost of goods sold	220,247	201,866	221,573
Gross profit	210,202	212,231	203,093
Operating expenses:			
Research, development and technical	58,532	59,778	59,354
Selling and marketing	27,717	24,983	26,513
General and administrative	49,445	52,430	45,418
Total operating expenses	135,694	137,191	131,285
Operating income	74,508	75,040	71,808
Interest expense	4,723	4,524	3,354
Other income, net	653	681	140
Income before income taxes	70,438	71,197	68,594
Provision for income taxes	10,589	15,051	17,843
Net income	\$59,849	\$56,146	\$50,751
Basic earnings per share	\$2.47	\$2.32	\$2.12
Weighted-average basic shares outstanding	24,077	24,040	23,704
Diluted earnings per share	\$2.43	\$2.26	\$2.04
Weighted-average diluted shares outstanding	24,477	24,632	24,611
Dividends per share	\$0.54	\$-	\$-

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



IndexCABOT MICROELECTRONICS CORPORATION  
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

(In thousands, except per share amounts)

	Year Ended September 30,		
	2016	2015	2014
Net income	\$59,849	\$56,146	\$50,751
Other comprehensive income (loss), net of tax:			
Foreign currency translation adjustments	15,996	(14,126)	(8,136)
Minimum pension liability adjustment	(434)	(318)	(196)
Net unrealized gain (loss) on cash flow hedges	84	(901)	-
Unrealized gain on investments	-	-	151
Other comprehensive income (loss), net of tax	15,646	(15,345)	(8,181)
Comprehensive income	\$75,495	\$40,801	\$42,570

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

IndexCABOT MICROELECTRONICS CORPORATION  
CONSOLIDATED BALANCE SHEETS

(In thousands, except share and per share amounts)

	September 30,	
	2016	2015
<b>ASSETS</b>		
Current assets:		
Cash and cash equivalents	\$287,479	\$354,190
Accounts receivable, less allowance for doubtful accounts of \$1,828 at September 30, 2016, and \$1,224 at September 30, 2015	62,830	49,405
Inventories	72,123	70,678
Prepaid expenses and other current assets	14,659	12,840
Deferred income taxes	-	7,395
Total current assets	437,091	494,508
Property, plant and equipment, net	106,496	93,743
Goodwill	100,639	40,442
Other intangible assets, net	50,476	4,565
Deferred income taxes	20,747	12,212
Other long-term assets	12,477	15,004
Total assets	\$727,926	\$660,474
<b>LIABILITIES AND STOCKHOLDERS' EQUITY</b>		
Current liabilities:		
Accounts payable	\$16,834	\$15,448
Current portion of long-term debt	7,656	8,750
Accrued expenses, income taxes payable and other current liabilities	41,395	36,446
Total current liabilities	65,885	60,644
Long-term debt, net of current portion	147,657	155,313
Deferred income taxes	75	76
Other long-term liabilities	16,661	15,477
Total liabilities	230,278	231,510
Commitments and contingencies (Note 18)		
Stockholders' equity:		
Common Stock: Authorized: 200,000,000 shares, \$0.001 par value; Issued: 34,261,304 shares at September 30, 2016, and 33,489,181 shares at September 30, 2015	34	33
Capital in excess of par value of common stock	530,840	495,673
Retained earnings	330,776	284,088
Accumulated other comprehensive income (loss)	9,556	(6,090 )
Treasury stock at cost, 9,744,642 shares at September 30, 2016, and 9,041,678 shares at September 30, 2015	(373,558)	(344,740)
Total stockholders' equity	497,648	428,964
Total liabilities and stockholders' equity	\$727,926	\$660,474

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



IndexCABOT MICROELECTRONICS CORPORATION  
CONSOLIDATED STATEMENTS OF CASH FLOWS

(In thousands)

	Year Ended September 30,		
	2016	2015	2014
Cash flows from operating activities:			
Net income	\$59,849	\$56,146	\$50,751
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization	26,031	18,719	19,941
Provision for doubtful accounts	588	(84 )	(170 )
Share-based compensation expense	13,787	16,445	14,042
Deferred income tax expense (benefit)	(1,757 )	869	(700 )
Non-cash foreign exchange (gain)/ loss	(1,144 )	1,391	943
(Gain)/Loss on disposal of property, plant and equipment	103	(28 )	(51 )
Impairment of assets	1,079	-	2,320
Other	815	(524 )	(724 )
Changes in operating assets and liabilities, excluding amounts related to acquisition:			
Accounts receivable	(8,017 )	9,013	(8,181 )
Inventories	3,351	(8,290 )	(3,794 )
Prepaid expenses and other assets	3,935	(3,662 )	576
Accounts payable	(478 )	801	(850 )
Accrued expenses, income taxes payable and other liabilities	(2,931 )	7,390	(6,625 )
Net cash provided by operating activities	95,211	98,186	67,478
Cash flows from investing activities:			
Additions to property, plant and equipment	(17,670 )	(13,812)	(12,551)
Proceeds from the sale of property, plant and equipment	17	201	202
Acquisition of business, net of cash acquired	(126,976)	-	-
Proceeds from the sale of investments	200	202	2,305
Other investing activities	-	-	1,062
Net cash used in investing activities	(144,429)	(13,409)	(8,982 )
Cash flows from financing activities:			
Issuance of long-term debt	-	-	17,500
Repayment of long-term debt	(8,750 )	(8,750 )	(6,562 )
Dividends paid	(8,658 )	-	-
Repurchases of common stock	(28,818 )	(42,247)	(55,072)
Net proceeds from issuance of stock			