

PHOTRONICS INC  
Form 10-K  
January 07, 2016

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UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549

FORM 10-K

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934  
For the fiscal year ended November 1, 2015

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 0-15451

PHOTRONICS, INC.  
(Exact name of registrant as specified in its charter)

Connecticut 06-0854886  
(State or other jurisdiction of incorporation or organization) (IRS Employer Identification No.)  
15 Secor Road, Brookfield, Connecticut 06804  
(Address of principal executive offices)(Zip Code)  
(203) 775-9000  
(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act:  
Title of each class Name of each exchange on which registered  
Common Stock, \$.01 par value NASDAQ Global Select Market

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

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

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 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

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Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files).

Yes No

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

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

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 Exchange Act).

Yes No

As of May 3, 2015, which was the last business day of the registrant's most recently completed second fiscal quarter, the aggregate market value of the shares of the registrant's common stock held by non-affiliates was approximately \$509,665,233 (based upon the closing price of \$8.87 per share as reported by the NASDAQ Global Select Market on that date).

As of December 29, 2015, 66,982,870 shares of the registrant's common stock were outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Proxy Statement for the 2016

Annual Meeting of Shareholders Incorporated into Part III  
to be held in March 2016 of this Form 10-K

## Forward-Looking Statements

The Private Securities Litigation Reform Act of 1995 provides a "safe harbor" for forward-looking statements made by or on behalf of Photronics, Inc. ("Photronics" or the "Company" or "we"). These statements are based on management's beliefs, as well as assumptions made by, and information currently available to, management. Forward-looking statements may be identified by words like "expect," "anticipate," "believe," "plan," "projects," "could," "estimate," "intend," "may," "will" and similar expressions, or the negative of such terms, or other comparable terminology. All forward-looking statements involve risks and uncertainties that are difficult to predict. In particular, any statement contained in this annual report on Form 10-K or in other documents filed with the Securities and Exchange Commission in press releases or in the Company's communications and discussions with investors and analysts in the normal course of business through meetings, phone calls, or conference calls regarding, among other things, the consummation and benefits of transactions and acquisitions, expectations with respect to future sales, financial performance, operating efficiencies, or product expansion, are subject to known and unknown risks, uncertainties, and contingencies, many of which are beyond the control of the Company. Various factors may cause actual results, performance, or achievements to differ materially from anticipated results, performance, or achievements expressed or implied by forward-looking statements. Factors that might affect forward-looking statements include, but are not limited to, overall economic and business conditions; economic and political conditions in international markets; the demand for the Company's products; competitive factors in the industries and geographic markets in which the Company competes; federal, state and international tax requirements (including tax rate changes, new tax laws and revised tax law interpretations); interest rate and other capital market conditions, including changes in the market price of the Company's securities; foreign currency exchange rate fluctuations; changes in technology; the timing, impact, and other uncertainties relating to transactions and acquisitions, divestitures and joint ventures as well as decisions the Company may make in the future regarding the Company's business, capital and organizational structure and other matters; the seasonal and cyclical nature of the semiconductor and flat panel display industries; management changes; damage or destruction to the Company's facilities, or the facilities of its customers or suppliers, by natural disasters, labor strikes, political unrest, or terrorist activity; the ability of the Company to (i) place new equipment in service on a timely basis; (ii) obtain additional financing; (iii) achieve anticipated synergies and cost savings; (iv) fully utilize its tools; (v) achieve desired yields, pricing, product mix, and market acceptance of its products and (vi) obtain necessary export licenses. Any forward-looking statements should be considered in light of these factors. Accordingly, there is no assurance that the Company's expectations will be realized. The Company does not assume responsibility for the accuracy and completeness of the forward-looking statements and does not assume an obligation to provide revisions to any forward-looking statements, except as otherwise required by securities and other applicable laws.

## PART I

### ITEM 1. BUSINESS

#### General

Photronics, Inc. (and its subsidiaries, collectively referred to herein as "Photronics" or the "Company" or "we") is one of the world's leading manufacturers of photomasks, which are high precision photographic quartz plates containing microscopic images of electronic circuits. Photomasks are a key element in the manufacture of semiconductors and flat panel displays ("FPDs"), and are used as masters to transfer circuit patterns onto semiconductor wafers and flat panel substrates during the fabrication of integrated circuits ("ICs") and a variety of FPDs and, to a lesser extent, other types of electrical and optical components. The Company currently operates principally from nine manufacturing facilities; two of which are located in Europe, three in Taiwan, one in Korea and three in the United States.

Photronics is a Connecticut corporation, organized in 1969. Its principal executive offices are located at 15 Secor Road, Brookfield, Connecticut 06804, telephone (203) 775-9000. The Company's website is located at <http://www.photronics.com>. The Company makes available, free of charge through its website, its Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, and any amendments to these reports as soon as reasonably practicable after such materials are electronically filed with or furnished to the Securities and Exchange Commission ("SEC"). The information found on or incorporated into the Company's website is not part of this or any other report the Company files with or furnishes to the SEC.

#### Products and Manufacturing Technology

The Company manufactures photomasks, which are used as masters to transfer circuit patterns onto semiconductor wafers and flat panel substrates. Photomasks are manufactured in accordance with circuit designs provided on a confidential basis by the Company's customers. IC and FPD photomask sets are manufactured in layers, each having a distinct pattern which is etched onto a different photomask. The resulting series of photomasks is then used to image the circuit patterns onto each successive layer of a semiconductor wafer or flat panel substrate. The typical manufacturing process for a photomask involves the receipt and conversion of circuit design data to manufacturing pattern data. A lithography system then exposes the circuit pattern onto the photomask blank. The exposed areas are developed and etched to produce that pattern on the photomask. The photomask is then inspected for defects and conformity to the customer's design data. After any defects are repaired, the photomask is cleaned using a proprietary process, any required pellicles (protective translucent cellulose membranes) are applied and, after final inspection, the photomask is shipped to the customer.

The Company currently supports customers across the full spectrum of IC production and FPD technologies by manufacturing photomasks using electron beam or optical (laser-based) systems, which are the predominant technologies used for photomask manufacturing, and are capable of producing the finer line resolution, tighter overlay and larger die size for the larger and more complex circuits currently being designed. Electron beam and laser generated photomasks can be used to produce the most advanced semiconductors and FPDs for use in an array of products. However, in the case of IC production, electron beam technologies fabricate the large majority of higher cost critical layer photomasks, while photomasks produced using laser-based systems are less expensive and less precise. End markets served with IC photomasks include devices used for microprocessors, memory, telecommunications and related applications. The Company currently owns a number of high-end and mature electron beam and laser-based systems.

The first several layers of photomasks are sometimes required to be delivered by the Company within 24 hours from the time it receives customers' design data. The ability to manufacture high quality photomasks within short time periods is dependent upon robust processes, efficient manufacturing methods, high production yield, available manufacturing capacity and high equipment reliability. The Company works to meet these requirements by making

significant investments in research and development, capital equipment, manufacturing, and data processing systems, and by utilizing statistical process control methods to optimize the manufacturing process and reduce cycle times.

3

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Quality control is an integral part of the photomask manufacturing process. Photomasks are manufactured in temperature, humidity, and particulate controlled clean rooms because of the high level of precision, quality and manufacturing yield required. Each photomask is inspected several times during the manufacturing process to ensure compliance with customer specifications. The Company continues to make substantial investments in equipment to inspect and repair photomasks to ensure that customer specifications are met.

The majority of IC photomasks produced for the semiconductor industry employ geometries of larger than 45 nanometers. At these geometries, the Company can produce full lines of photomasks and there is no significant technology employed by the Company's competitors that is not also available to the Company. The Company is also capable of producing full lines of photomasks for high-end IC and FPD applications. In the case of ICs, this includes photomasks at and below the 45 nanometer technology node and, for FPDs, at and above the Generation 8 technology node and active-matrix organic light-emitting diode (AMOLED) display screens. The Company has access to technology and customer qualified manufacturing capability that allows it to compete in high-end markets, serving both IC and FPD applications.

### Sales and Marketing

The market for photomasks primarily consists of domestic and international semiconductor and FPD manufacturers and designers. Photomasks are manufactured by independent merchant manufacturers like Photronics, and by semiconductor and FPD manufacturers that produce photomasks for their own use (captive manufacturers). In some instances, captive manufacturers also sell to other semiconductor or FPD manufacturers. Previously there was a trend towards the divestiture or closing of captive photomask operations by semiconductor manufacturers and an increase in the share of the market served by independent manufacturers. This trend was driven by the increased complexity and cost of capital equipment used in manufacturing photomasks and the lack of economy of scale for many semiconductor and FPD manufacturers to effectively utilize the equipment. However, more recently the remaining and largest captive mask facilities have started investing at faster rates than independent manufacturers to reach certain roadmap milestones, particularly in the foundry logic and memory spaces. Nevertheless, most captive manufacturers maintain business and technology relationships with independent photomask manufacturers for ongoing support.

Generally, the Company and each of its customers engage in a qualification and correlation process before the Company becomes an approved supplier. Thereafter, the Company typically negotiates pricing parameters for a customer's orders based on the customer's specifications. Some prices may remain in effect for an extended period of time. In some instances, the Company enters into sales arrangements with an understanding that, as long as the Company's performance is competitive, the Company will receive a specified percentage of that customer's photomask requirements. However, none of the Company's customers have entered into a significant long-term agreement with the Company requiring them to purchase the Company's products.

The Company conducts its sales and marketing activities primarily through a staff of full-time sales personnel and customer service representatives who work closely with the Company's management and technical personnel. In addition to the sales personnel at the Company's manufacturing facilities, the Company has sales offices in the United States, Europe and Asia.

The Company supports international customers through both its domestic and international facilities. The Company considers its presence in international markets to be an important factor in attracting new customers, as it provides global solutions to its customers, minimizes delivery time, and allows it to serve customers that utilize manufacturing foundries outside of the United States, principally in Asia. See Note 15 to the Company's consolidated financial statements for the amount of net sales and long-lived assets attributable to each of the Company's geographic areas of operations.



## Customers

The Company primarily sells its products to leading semiconductor and FPD manufacturers. The Company's largest customers (listed alphabetically) during the fiscal year ended November 1, 2015 ("fiscal 2015") included the following:

|                                      |  |
|--------------------------------------|--|
| AU Optronics Corp.                   | Micron Technology, Inc.  |
| Dongbu HiTek Co. Ltd.                | Nanya Technology Corporation                                   |
| Global Foundries, Inc.               | ON Semiconductor Corporation                                   |
| Himax Display, Inc.                  | Samsung Electronics Co., Ltd.                                  |
| IM Flash Technologies, LLC           | Semiconductor International Manufacturing Corp.                |
| Innolux Corporation                  | Shanghai Huahong Grace Semiconductor Manufacturing Corporation |
| Inotera Memories, Inc.               | ST Microelectronics, Inc.                                      |
| LG Electronics, Inc.                 | Texas Instruments Incorporated                                 |
| Macronix International Company, Ltd. | Tower Semiconductor, Ltd.                                      |
| MagnaChip Semiconductor Corporation  | United Microelectronics Corp.                                  |

During fiscal 2015, the Company sold its products and services to approximately 600 customers. Sales to one customer accounted for approximately 18%, 16% and 18% of the Company's total net sales in fiscal 2015, 2014 and 2013, respectively, and sales to another customer accounted for approximately 15% and 11% of the Company's total net sales in fiscal 2015 and 2014, respectively. The Company's five largest customers, in the aggregate, accounted for approximately 52%, 44% and 43% of net sales in fiscal 2015, 2014 and 2013, respectively. A significant decrease in the amount of sales to any of these customers could have a material adverse effect on the financial performance and business prospects of the Company.

## Seasonality

The Company's quarterly revenues can be affected by the seasonal purchasing of its customers. The Company is typically impacted during its first quarter by the North American and European holiday periods, as some customers reduce their effective workdays and orders during this period. Additionally, the Company can be impacted during its first or second fiscal quarter by the Asian New Year holiday period, which also may reduce customer orders.

## Research and Development

The Company conducts research and development activities for IC photomasks at its MP Mask Technology Center, LLC ("MP Mask"), a joint venture with Micron Technology, Inc. ("Micron") and at its U.S. nanoFab, both of which are located in Boise, Idaho, as well as at PK, Ltd. ("PKL"), its subsidiary in Korea and Photronics DNP Mask Corporation ("PDMC"), one of its subsidiaries in Taiwan. Research and development for FPD photomasks is conducted at PKL. Additionally, the Company conducts site-specific research and development programs to support strategic customers. These research and development programs and activities are undertaken to advance the Company's competitiveness in technology and manufacturing efficiency. The Company also conducts application oriented research and development activities to support the early adoption of new photomask or supporting data and services technology into the customers' applications. Currently, research and development photomask activities for ICs are focused on 20 nanometer node and below and, for FPDs, on Generation 8 resolution enhancement, substrates larger than Generation 8 and more complex masks for AMOLED type displays. The Company believes these core competencies will continue to be a critical part of semiconductor and FPD manufacturing, as optical lithography continues to scale capabilities on high-end devices. The Company has incurred research and development expenses of \$21.9 million in fiscal years 2015 and 2014 and \$20.8 million in fiscal year 2013. The Company believes that it owns, controls, or licenses valuable proprietary information that is necessary for its business as it is presently conducted. This includes trade secrets as well as patents. The Company also believes that its intellectual property and trade secret know-how will continue to be important to its maintaining technical leadership in the field of photomasks.



On March 24, 2015, the Company announced that the MP Mask joint venture would not be renewed after May 5, 2016, and concurrently, the Company announced that it entered into supply and technology license agreements with Micron. This technology license agreement commenced in March 2015 and continues through the earlier of one year from the termination of the initial technology license agreement on May 5, 2016, or when Micron certifies that it has transferred certain defined technology to the Company. The Company forevermore has the rights to use the technology obtained under these technology license agreements.

## Patents and Trademarks

The Company has ownership interests in approximately 50 issued U.S. patents. The subject matter of these patents, which are registered in various countries, generally relates to the manufacture of IC photomasks or the use of photomasks to manufacture other products. The expiration dates of these patents range from 2018 to 2030. Additionally, pursuant to a technology license agreement with Micron, the Company has access to certain technologies of Micron and MP Mask. The Company also has a number of trademarks and trademark registrations in the United States and in other countries.

While the Company believes that its intellectual property is, and will continue to be, important to its technical leadership in the field of photomasks, its operations are not dependent on any one individual patent. The Company protects its intellectual property rights and proprietary processes by utilizing patents and non-disclosure agreements with employees, customers and vendors.

## Materials, Supplies and Equipment

Raw materials used by the Company generally include: high precision quartz plates (including large area plates), which are used as photomask blanks and are primarily obtained from Japanese and Korean suppliers; pellicles and electronic grade chemicals, which are used in the manufacturing process; and compacts, which are durable plastic containers in which photomasks are shipped. These materials are generally sourced from several suppliers. The Company believes that its utilization of a select group of strategic suppliers enables it to access the most technologically advanced materials available. On an ongoing basis, the Company continues to consider additional supply sources.

The Company relies on a limited number of equipment suppliers to develop and supply the equipment used in the photomask manufacturing process. Although the Company has been able to obtain equipment on a timely basis, an inability to obtain equipment when required could adversely affect the Company's business and results of operations.

## Backlog

The first several layers of a set of photomasks for a circuit pattern are often required to be shipped within 24 hours of receiving a customer's designs. Because of the short period between order and shipment dates (typically from 1 day to 2 weeks) for a significant amount of the Company's sales, the dollar amount of current backlog is not considered to be a reliable indicator of future sales volume.

## International Operations

Sales from the Company's international operations were approximately 75%, 77% and 70% of the Company's net sales in fiscal 2015, 2014 and 2013, respectively. The Company believes that its ability to serve international markets is enhanced by it having, among other things, a local presence in the markets that it serves. This requires a significant investment in financial, managerial, operational, and other resources.

Operations outside of the United States are subject to inherent risks, including fluctuations in exchange rates, political and economic conditions in various countries, unexpected changes in regulatory requirements, tariffs and other trade barriers, difficulties in staffing and managing international operations, longer accounts receivable collection cycles, potential restrictions on transfers of funds and potentially adverse tax consequences. These factors may have a material adverse effect on the Company's ability to generate sales outside of the United States and to deploy resources where they could otherwise be used to their greatest advantage and, consequently, may adversely affect its financial condition and results of operations. Note 15 of the notes to the Company's consolidated financial statements presents net sales and long-lived assets by geographic area.



## Competition

The photomask industry is highly competitive and most of the Company's customers utilize multiple photomask suppliers. The Company's ability to compete depends primarily upon the consistency of its products' quality, timeliness of delivery, as well as pricing, technical capability and service, which the Company believes are the principal factors considered by customers in selecting their photomask suppliers. The Company also believes that proximity to customers is an important factor in certain markets where cycle time from order to delivery is critical. Some competitors have greater financial, technical, sales, marketing or other resources than the Company. An inability to meet these requirements could adversely affect the Company's financial condition, results of operations and cash flows. The Company believes that it is able to compete effectively because of its dedication to customer service, investment in state-of-the-art photomask equipment and facilities, and experienced technical employees.

The Company estimates that, for the types of photomasks it manufactures (IC and FPD), the size of the total market (captive and merchant) is approximately \$3.9 billion. Its competitors include Compugraphics International, Ltd., DNP (outside of Taiwan), Hoya Corporation, SK-Electronics Co. Ltd., Taiwan Mask Corporation and Toppan Printing Co., Ltd. The Company also competes with semiconductor manufacturers' captive photomask manufacturing operations that supply photomasks for internal use and, in some instances, also for external customers and foundries. The Company expects to face continued competition which, in the past, has led to pressure to reduce prices. The Company believes the pressure to reduce prices, coupled with the significant investment required in capital equipment to manufacture high-end photomasks, has contributed to the decrease in the number of independent manufacturers, and expects such pressure to continue in the future.

## Employees

As of November 1, 2015, the Company had approximately 1,550 employees. The Company believes it offers competitive compensation and other benefits and that its employee relations are good.

## ITEM 1A. RISK FACTORS

The Company's dependency on the microelectronics industry, which as a whole is volatile, could have a negative material impact on its business.

The Company sells substantially all of its photomasks to semiconductor or flat panel display designers, manufacturers and foundries, as well as to other high performance electronics manufacturers. The Company believes that the demand for photomasks depends primarily on design activity rather than sales volume from products using photomask technologies. Consequently, an increase in semiconductor or FPD sales does not necessarily result in a corresponding increase in photomask sales. In addition, the reduced use of customized ICs, a reduction in design complexity, other changes in the technology or methods of manufacturing or designing semiconductors or FPDs, or a slowdown in the introduction of new semiconductor or FPD designs could reduce demand for photomasks even if the demand for semiconductors and FPDs increases. Historically, the semiconductor industry has been volatile, with sharp periodic downturns and slowdowns. These downturns have been characterized by, among other things, diminished product demand, excess production capacity and accelerated erosion of selling prices.

The Company's results may suffer if the IC or FPD photomask market does not grow or if the Company is unable to serve these markets successfully. The Company believes that the demand for photomasks for both ICs and FPDs depends primarily on design activity and, to a lesser extent, upon an increase in the number of production facilities used to manufacture ICs or FPDs. As a result, an increase in IC or FPD sales will not necessarily lead to a corresponding increase in photomask sales. A slowdown in the development of new technologies for fabricating ICs or FPDs could reduce the demand for related photomasks even if the demand for ICs or FPDs increases.

The Company may incur future net losses.

Although the Company has been profitable since fiscal 2010, it has, in the past, incurred net losses. The net losses experienced in prior years were due, in part, to macroeconomic factors, which resulted in the Company incurring significant charges for restructurings and impairments of long-lived assets. The Company cannot provide assurance that it will not incur net losses in the future.

7

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The Company's quarterly operating results fluctuate significantly and may continue to do so in the future.

The Company has experienced fluctuations in its quarterly operating results and anticipates that such fluctuations will continue and could intensify in the future. Fluctuations in operating results may result in volatility in the prices of the Company's common stock and financial instruments linked to the value of the Company's common stock. Operating results may fluctuate as a result of many factors, including the size and timing of orders and shipments, the loss of significant customers, changes in product mix, the flow of customer design releases, technological change, fluctuations in manufacturing yields, competition and general economic conditions. The Company operates in a high fixed cost environment and, should its revenues and asset utilization decrease, its operating margins could be negatively impacted.

The Company's customers generally order photomasks on an as-needed basis, and the Company's net sales in any quarter are dependent on orders received during that quarter. Since the Company operates with little backlog and the rate of new orders may vary significantly from quarter to quarter, the Company's capital expenditures and, to some extent, expense levels are based primarily on sales forecasts and technological advancements in photomask manufacturing equipment. Consequently, if anticipated sales in any quarter do not occur when expected, capital expenditures could be higher than needed, resulting in underutilized capacity; and expense levels could be disproportionately high, causing operating results to be adversely affected. Due to the foregoing factors, the Company believes that quarter-to-quarter comparisons of its operating results cannot be relied upon as indicators of future performance. In addition, in future quarters the Company's operating results could be below guidance provided by the Company and the expectations of public market analysts and investors which, in turn, could have a material adverse effect on the market price of the Company's common stock.

The photomask industry is subject to rapid technological change and the Company might fail to remain competitive, which could have a material adverse effect on the Company's business and results of operations.

The photomask industry has been, and is expected to continue to be, characterized by technological change and evolving industry standards. In order to remain competitive, the Company will be required to continually anticipate, respond to and utilize changing technologies of increasing complexity in both traditional and emerging markets that it serves. In particular, the Company believes that, as semiconductor geometries continue to become smaller and FPDs become larger with improved performance, it will be required to manufacture increasingly complex photomasks. Additionally, the demand for photomasks has been, and could in the future be, adversely affected by changes in semiconductor and high performance electronics fabrication methods that affect the type or quantity of photomasks utilized, such as changes in semiconductor demand that favor field programmable gate arrays and other semiconductor designs that replace application-specific ICs. Furthermore, evidence of the viability and the corresponding market acceptance of alternative methods of transferring IC designs onto semiconductor wafers could reduce or eliminate the need for photomasks in the production of semiconductors. As of the end of fiscal 2015, one alternative method, direct-write lithography, has not been proven to be a commercially viable alternative to photomasks, as it is considered to be too slow for high volume semiconductor wafer production. However, should direct-write or any other alternative method of transferring IC or FPD designs without the use of photomasks achieve market acceptance, and if the Company is unable to anticipate, respond to or utilize these or other technological changes, due to resource, technological or other constraints, its business and results of operations could be materially adversely affected.

The Company's operations will continue to require substantial capital expenditures, for which it may be unable to obtain funding.

The manufacture of photomasks requires substantial investments by the Company in high-end manufacturing capability. The Company expects that it will be required to continue to make substantial capital expenditures to meet the technological demands of its customers and to position itself for future growth. The Company's capital expenditure payments for fiscal 2016 are expected to be in the range of \$50 million to \$75 million, of which \$26 million was included in accounts payable on its November 1, 2015, Consolidated Balance Sheet. The Company cannot provide

assurance that it will be able to obtain the additional capital required to fund its operations on reasonable terms, if at all, or that any such inability will not have a material adverse effect on its business and results of operations.

8

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The Company's agreements with Micron have several risks; should either company not comply or execute under these agreements it could significantly disrupt the Company's business and technological activities, which could have a material adverse effect on the Company's operations and cash flows.

In 2006 Photronics and Micron entered into a joint venture known as MP Mask. The joint venture, which will not be renewed after May 2016, develops and produces photomasks for leading-edge and advanced next generation semiconductors. As part of the formation of the joint venture, Micron contributed its existing photomask technology center located at its Boise, Idaho, headquarters to MP Mask and Photronics paid Micron \$135 million in exchange for a 49.99% interest in MP Mask, a license for photomask technology of Micron and certain supply agreements. Since the formation of the joint venture, the Company has, through November 1, 2015, made contributions to MP Mask of \$38 million and received returns of investments of \$10 million. On March 24, 2015, the Company announced that the MP Mask joint venture would not be renewed after May 5, 2016.

MP Mask is governed by a Board of Managers, appointed by Micron and the Company. Since MP Mask's inception, Micron, as a result of its majority ownership, has held majority voting power on the Board of Managers. The voting power held by each party is subject to change as ownership interests change. Under the MP Mask joint venture operating agreement, the Company may be required to make additional capital contributions to MP Mask up to the maximum amount defined in the operating agreement. However, should the Board of Managers determine that further additional funding is required, MP Mask would need to pursue its own financing. If MP Mask is unable to obtain its own financing, it may request additional capital contributions from the Company. Should the Company choose not to make a requested contribution to MP Mask, its ownership percentage may be reduced.

The failure of Photronics or Micron to comply or execute under any of these agreements, capitalize on the use of existing technology or further develop technology could result in a significant disruption to the Company's business and technological activities, and could adversely affect the Company's operations and cash flows.

The Company has been dependent on sales to a limited number of large customers; the termination of short-term supply agreements or the lack of performance under such arrangements or the loss of any of these customers or a significant reduction in orders from or delay in orders from these customers could have a material adverse effect on its sales and results of operations.

Historically, the Company has sold a significant proportion of photomasks to a limited number of IC and FPD manufacturers. During fiscal 2015, the Company's two largest customers accounted for 18% and 15% of its net sales. The Company's five largest customers accounted for 52%, 44% and 43% of net sales in fiscal 2015, 2014 and 2013, respectively. Among these customers, is the Company's joint venture partner, Micron, with whom the Company has an outsource supplier agreement to provide photomasks and related services, commencing on May 6, 2016 with a one-year term, subject to mutually agreeable renewals. None of the Company's customers have entered into significant long-term agreements with the Company requiring them to purchase the Company's products. The termination of short-term supply arrangements or the lack of performance under such arrangements or the loss of a significant customer or a significant reduction or delay in orders from any significant customer, (including reductions or delays due to customer departures from recent buying patterns), or an unfavorable change in competitive conditions in the semiconductor or FPD industries, could have a material adverse effect on the Company's financial performance and business prospects. The consolidation of semiconductor manufacturers or an economic downturn in the semiconductor industry may increase the likelihood of losing a significant customer and could also have an adverse effect on the Company's financial performance and business prospects.

The Company depends on a limited number of suppliers for equipment and raw materials and, if those suppliers do not deliver their products to the Company, it may be unable to fulfill orders from its customers, which could adversely affect its business and results of operations.



The Company relies on a limited number of photomask equipment manufacturers to develop and supply the equipment it uses. These equipment manufacturers currently require lead times of up to twelve months or longer between the order and the delivery of certain photomask imaging and inspection equipment. The failure of such manufacturers to develop or deliver such equipment on a timely basis could have a material adverse effect on the Company's business and results of operations. In addition, the manufacturing equipment necessary to produce advanced photomasks could become prohibitively expensive, which could similarly affect the Company.

The Company uses high precision quartz photomask blanks, pellicles, and electronic grade chemicals in its manufacturing processes. There are a limited number of suppliers of these raw materials and the Company has no long-term contracts with these suppliers. Any delays or quality problems in connection with significant raw materials, particularly photomask blanks, could cause delays in the shipments of photomasks, which could have a material adverse effect on the Company's business and results of operations. The fluctuation of foreign currency exchange rates, with respect to prices of equipment and raw materials used in manufacturing, could also have a material adverse effect on the Company's business and results of operations.

The Company faces risks associated with the use of sophisticated equipment and complex manufacturing processes and technologies. The inability of the Company to effectively utilize such equipment and technologies and perform such processes could have a material adverse effect on its business and results of operations.

The Company's complex manufacturing processes require the use of expensive and technologically sophisticated equipment and materials, and are continually modified in an effort to improve manufacturing yields and product quality. Minute impurities, defects or other difficulties in the manufacturing process can lower manufacturing yields and make products unmarketable. Moreover, manufacturing leading-edge photomasks is more complex and time consuming than manufacturing less advanced photomasks, and may lead to delays in the manufacturing of all levels of photomasks. The Company has, on occasion, experienced manufacturing difficulties and capacity limitations that have delayed the Company's ability to deliver products within the time frames contracted for by its customers. The Company cannot provide assurance that, under such circumstances, it will not experience these or other manufacturing difficulties, or be subject to increased costs or production capacity constraints in the future, any of which could result in a loss of customers or could otherwise have a material adverse effect on its business and results of operations.

The Company's debt agreements limit its ability to obtain financing and may obligate the Company to repay debt before its maturity.

Financial covenants related to the Company's credit facility, which was last amended in August 2014, include Total Leverage Ratio, a Minimum Interest Coverage Ratio, and Minimum Unrestricted Cash Balances. Existing covenant restrictions limit the Company's ability to obtain additional debt financing and, should Photronics be unable to meet one or more of these covenants, its lenders may require the Company to repay any outstanding balance prior to the expiration date of the agreements. The Company's ability to comply with the financial and other covenants in its debt agreements may be affected by worsening economic or business conditions, or other events. The Company cannot assure that, under such circumstances, additional sources of financing would be available to pay off any long-term borrowings, so as to avoid default. Should the Company default on certain of its long-term borrowings, a cross default would occur on other long-term borrowings, unless amended or waived.

Acquisitions, mergers or joint ventures by the Company may entail certain operational and financial risks.

The Company has made significant acquisitions throughout its history and it may make other acquisitions or participate in other joint ventures or mergers in the future. On April 4, 2014, DNP Photomask Technology Taiwan Co., Ltd. ("DPTT"), a wholly owned subsidiary of Dai Nippon Printing Co., Ltd. ("DNP"), merged into Photronics Semiconductor Mask Corporation ("PSMC"), a wholly owned subsidiary of Photronics, to form PDMC. As a result of the acquisition of DPTT, Photronics and DNP own 50.01 percent and 49.99 percent of PDMC, respectively. After the completion of such an acquisition the Company may be subject to various risks which could adversely affect its future earnings and cash flows. These may include risks such as: the cost of combining the operations of the acquired company with the Company's operations may exceed the Company's estimates; goodwill, if any, or other intangible assets recognized may be subject to impairment charges; the lives of intangible assets acquired may be reduced; contingent liabilities are identified or change; the unanticipated loss of sales due to an overlap of customers served by the Company and the acquiree occurs; and that greater than anticipated charges to maintain duplicate pre-merger activities and eliminate duplicative activities are experienced. Furthermore, the Company may need to utilize its cash reserves and/or issue new securities to fund future acquisitions, which could have a dilutive effect on its earnings per

share. Such transactions are subject to acquisition accounting, as prescribed in Accounting Standards Codification Topic No. 805 “Business Combinations”, under which identifiable assets acquired, liabilities assumed and any noncontrolling interests are generally recognized at their acquisition date fair values and separately from goodwill, if any, that may be required to be recognized. Goodwill, when recognizable, would be measured as the excess amount of any consideration transferred, which is generally measured at fair value, over the acquisition date fair values of the identifiable assets acquired and liabilities assumed. In cases of acquisitions that require the Company to estimate the fair values of assets acquired and liabilities assumed, such estimates, though based upon assumptions that the Company believes to be reasonable, are subject to uncertainty.

The Company's cash flows from operations and current holdings of cash may not be adequate for its current and long-term needs.

The Company's liquidity is highly dependent on its sales volume and the timing of its capital expenditures, (which can vary significantly from period to period), as it operates in a high fixed cost environment. Depending on conditions in the semiconductor and FPD markets, the Company's cash flows from operations and current holdings of cash may not be adequate to meet its current and long-term needs for capital expenditures, operations and debt repayments. Historically, in certain years, the Company has used external financing to fund these needs. Due to conditions in the credit markets and covenant restrictions on its existing debt, some financing instruments used by the Company in the past may not be available to it. Therefore, the Company cannot provide assurance that additional sources of financing would be available to it on commercially favorable terms, if at all, should its cash requirements exceed its cash available from operations, existing cash, and cash available under its credit facility.

The Company may incur unforeseen charges related to possible future facility closures or restructurings.

The Company cannot provide assurance that there will not be facility closures or restructurings in the near or long-term, nor can it assure that it will not incur significant charges should there be any future facility closures or restructurings.

The Company operates in a highly competitive environment and, should it be unable to meet its customers' requirements for product quality, timeliness of delivery or technical capabilities, its sales could be adversely affected.

The photomask industry is highly competitive, and most of the Company's customers utilize more than one photomask supplier. The Company's competitors include Compugraphics International, Ltd., DNP (outside of Taiwan), Hoya Corporation, SK-Electronics Co., Ltd., Taiwan Mask Corporation and Toppan Printing Co., Ltd. The Company also competes with semiconductor manufacturers' captive photomask manufacturing operations, some of which market their photomask manufacturing services to outside customers. The Company expects to face continued competition from these and other suppliers in the future. Some of the Company's competitors have substantially greater financial, technical, sales, marketing or other resources than it has. Also, when producing smaller geometry photomasks, some of the Company's competitors may be able to more rapidly develop, produce, and achieve higher manufacturing yields than the Company. The Company believes that consistency of product quality and timeliness of delivery, as well as price, technical capability, and service are the principal factors considered by customers in selecting their photomask suppliers. The Company's inability to meet these competitive requirements could have a material adverse effect on its business and results of operations. In the past, competition led to pressure to reduce prices and the need to invest in advanced manufacturing technology which, the Company believes, contributed to the decrease in the number of independent photomask suppliers. These pressures may continue in the future.

The Company's substantial international operations are subject to additional risks.

Sales from the Company's international operations were approximately 75%, 77% and 70% of the Company's net sales in fiscal 2015, 2014 and 2013, respectively. The Company believes that maintaining significant international operations requires it to have, among other things, a local presence in the geographic markets that it supplies. This requires significant investments in financial, managerial, operational, and other resources. Since 1996, the Company has significantly expanded its operations in international markets by acquiring existing businesses in Europe, acquiring majority equity interests in photomask manufacturing operations in Korea and Taiwan and building a manufacturing facility for FPD photomasks in Taiwan. The Company, in order to enable it to optimize its investments and other resources, closely monitors the semiconductor and FPD manufacturing markets for indications of geographic movement and, in conjunction with these efforts, continues to assess the locations of its manufacturing facilities. These assessments may result in the opening or closing of facilities.

Operations outside of the United States are subject to inherent risks, including fluctuations in exchange rates, unstable political and economic conditions in various countries, unexpected changes in regulatory requirements, tariffs and other trade barriers, difficulties in staffing and managing international operations, longer accounts receivable payment cycles and potentially adverse tax consequences. These factors may have a material adverse effect on the Company's ability to generate sales outside of the United States and, consequently, on its business and results of operations.

Changes in foreign currency exchange rates could have a material adverse effect on the Company's results of operations, financial condition or cash flows.

The Company's consolidated financial statements are prepared in accordance with accounting principles generally accepted in the United States of America (U.S. GAAP) and are reported in U.S. dollars. The Company's operations have transactions and balances denominated in currencies other than the U.S. dollar, primarily the Korean won, New Taiwan dollar, Japanese yen, Singapore dollar, euro, and the pound sterling. In fiscal 2015, the Company recorded a net gain from changes in foreign currency exchange rates of \$2.5 million in its statement of income, while its net assets were decreased by \$40.2 million as a result of the translation of foreign currency financial statements to U.S. dollars. In the event of significant foreign currency fluctuations, the Company's results of operations, financial condition or cash flows may be adversely affected.

The Company's business depends on managerial and technical personnel, who are in great demand, and its inability to attract and retain qualified employees could adversely affect the Company's business and results of operations.

The Company's success depends, in part, upon key managerial and technical personnel, as well as its ability to continue to attract and retain additional qualified personnel. The loss of certain key personnel could have a material adverse effect on the Company's business and results of operations. There can be no assurance that the Company can retain its key managerial, and technical employees, or that it can attract similar additional employees in the future.

The Company may be unable to enforce or defend its ownership and use of proprietary technology, and the utilization of unprotected Company developed technology by its competitors could adversely affect the Company's business, results of operations and financial position.

The Company believes that the success of its business depends more on its proprietary technology, information and processes, and know-how than on its patents or trademarks. Much of its proprietary information and technology related to manufacturing processes is not patented and may not be patentable. The Company cannot offer assurance that:

- it will be able to adequately protect its technology;
- competitors will not independently develop similar technology; or



·international intellectual property laws will adequately protect its intellectual property rights.

The Company may become the subject of infringement claims or legal proceedings by third parties with respect to current or future products or processes. Any such claims, with or without merit, or litigation to enforce or protect its intellectual property rights that require the Company to defend itself against claimed infringements of the rights of others, could result in substantial costs, diversion of resources, and product shipment delays or could force the Company to enter into royalty or license agreements, rather than dispute the merits of these claims. Any of the foregoing could have a material adverse effect on the Company's business, results of operations and financial position.

The Company may be unprepared for changes to environmental laws and regulations and may incur liabilities arising from environmental matters.

The Company is subject to numerous environmental laws and regulations that impose various environmental controls on, among other things, the discharge of pollutants into the air and water and the handling, use, storage, disposal and clean-up of solid and hazardous wastes. Changes in these laws and regulations may have a material adverse effect on the Company's financial position and results of operations. Any failure by the Company to adequately comply with these laws and regulations could subject it to significant future liabilities.

In addition, these laws and regulations may impose clean-up liabilities on current and former owners and operators of real property as well as parties who arrange for the disposal of hazardous substances at off-site locations owned or operated by others, without regard to fault, so that these liabilities may be joint and several with other parties. In the past, the Company has been involved in remediation activities related to its properties. The Company believes, based upon current information, that environmental liabilities relating to these activities or other matters are not material to its financial position or operations. However, there can be no assurances that the Company will not incur any material environmental liabilities in the future.

The Company's production facilities could be damaged or disrupted by a natural disaster or labor strike, either of which could adversely affect its financial position, results of operations and cash flows.

A major catastrophe, such as an earthquake or other natural disaster, labor strike, or work stoppage at any manufacturing facility of the Company, its suppliers, or its customers, could result in a prolonged interruption of the Company's business. A disruption resulting from any one of these events could cause significant delays in shipments of the Company's products and the loss of sales and customers, which could have a material adverse effect on the Company's financial position, results of operations, and cash flows. The Company's facilities in Taiwan are located in a seismically active area.

The Company's sales can be impacted by the health and stability of the general economy, which could adversely affect its results of operations and cash flows.

Unfavorable general economic conditions in the U.S. or other countries in which the Company or its customers conduct business may have the effect of reducing the demand for photomasks. Economic downturns may lead to a decrease in demand for end products whose manufacturing processes involve the use of photomasks, which may result in a reduction in new product design and development by semiconductor or FPD manufacturers, and adversely affect the Company's results of operations and cash flows.

Additional taxes could adversely affect the Company's financial results.

The Company's tax filings are subjected to audit by tax authorities in the various jurisdictions in which it does business. These audits may result in assessments of additional taxes that are subsequently resolved with the authorities or through the courts. Currently, the Company believes there are no outstanding assessments whose resolution would result in a material adverse financial result. However, the Company cannot offer assurances that unasserted or

potential future assessments would not have a material adverse effect on its financial condition or results of operations.

13

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The Company's business could be adversely impacted by global or regional catastrophic events.

The Company's business could be adversely affected by terrorist acts, major natural disasters, widespread outbreaks of infectious diseases, or the outbreak or escalation of wars, especially in the Asian markets, where the Company generates a significant portion of its sales, and in Japan where it purchases raw materials and capital equipment. Such events in the geographic regions in which the Company does business, including escalations of political tensions and military operations within the Korean Peninsula, where a major portion of the Company's foreign operations are located, could have material adverse impacts on its sales volume, cost and availability of raw materials, results of operations, cash flows and financial condition.

Technology failures or cyber security breaches could have a material adverse effect on the Company's operations.

The Company relies on information technology systems to process, transmit, store, and protect electronic information. For example, a significant portion of the communications between the Company's personnel, customers, and suppliers depends on information technology. Information technology systems of the Company may be vulnerable to a variety of interruptions due to events beyond its control including, but not limited to, natural disasters, terrorist attacks, telecommunications failures, computer viruses, hackers, and other security issues. The Company has technology and information security processes and disaster recovery plans in place to mitigate its risk to these vulnerabilities. However, these measures may not be adequate to ensure that its operations will not be disrupted, should such an event occur.

Servicing the Company's debt requires a significant amount of cash, and the Company may not have sufficient cash flows from its operations to pay its indebtedness.

The Company's ability to make scheduled payments of debt principal and interest or to refinance its indebtedness depends on its future performance, which is subject to economic, financial, competitive and other factors beyond the Company's control. The Company's business may not continue to generate sufficient cash flows from operations in the future to both service its debt and make necessary capital expenditures. If the Company is unable to generate such cash flows, it may be required to adopt one or more alternatives, such as selling assets, restructuring debt or obtaining additional equity capital on terms that may be onerous or highly dilutive. The Company's ability to refinance its indebtedness would depend upon the conditions in the capital markets and the Company's financial condition at such time. The Company may not be able to engage in any of these activities or engage in these activities on desirable terms, which could result in a default on its debt obligations.

#### ITEM 1B. UNRESOLVED STAFF COMMENTS

None

#### ITEM 2. PROPERTIES

The following table presents certain information about the Company's photomask manufacturing facilities:

| Location                | Type of Interest |
|-------------------------|------------------|
| Allen, Texas            | Owned            |
| Boise, Idaho            | Owned            |
| Brookfield, Connecticut | Owned            |
| Bridgend, Wales         | Leased           |
| Cheonan, Korea          | Owned            |
| Dresden, Germany        | Leased           |

|                  |        |     |
|------------------|--------|-----|
| Hsinchu, Taiwan  | Owned  | (1) |
| Hsinchu, Taiwan  | Leased |     |
| Taichung, Taiwan | Owned  | (1) |

(1) The Company owns its manufacturing facility in Taichung and one of its manufacturing facilities in Hsinchu however, it leases the related land.

The Company believes that its existing manufacturing facilities are suitable and adequate for its present purposes. The Company also leases various sales offices. The Company's administrative headquarters are located in Brookfield, Connecticut, in a building that it owns.

### ITEM 3. LEGAL PROCEEDINGS

The Company is subject to various claims that arise in the ordinary course of business. The Company believes such claims, individually or in the aggregate, will not have a material effect on the business of the Company.

### ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

## PART II

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

The Common Stock of the Company is traded on the NASDAQ Global Select Market ("NASDAQ") under the symbol PLAB. The table below shows the range of high and low sale prices per share of each quarter for fiscal years 2015 and 2014, as reported by the NASDAQ Global Select Market.

|                                     | High   | Low    |
|-------------------------------------|--------|--------|
| Fiscal Year Ended November 1, 2015: |        |        |
| Quarter Ended February 1, 2015      | \$9.18 | \$7.88 |
| Quarter Ended May 3, 2015           | 9.13   | 8.14   |
| Quarter Ended August 2, 2015        | 10.55  | 8.13   |
| Quarter Ended November 1, 2015      | 9.89   | 7.68   |
| Fiscal Year Ended November 2, 2014: |        |        |
| Quarter Ended February 2, 2014      | \$9.75 | \$7.42 |
| Quarter Ended May 4, 2014           | 8.95   | 7.72   |
| Quarter Ended August 3, 2014        | 9.38   | 7.92   |
| Quarter Ended November 2, 2014      | 9.20   | 7.11   |

On December 29, 2015, the closing sale price of the Common Stock per the NASDAQ Global Select Market was \$12.92. Based on information available to the Company, the Company believes it has approximately 9,000 shareholders.

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The Company, to date, has not paid any cash dividends on PLAB shares and, for the foreseeable future, anticipates that earnings will continue to be retained for use in its business. Further, the Company's credit facility precludes it from paying cash dividends.

Securities authorized for issuance under equity compensation plans

The information regarding the Company's equity compensation required to be disclosed by Item 201(d) of Regulation S-K is incorporated by reference from the Company's 2016 definitive Proxy Statement into Item 12 of Part III of this report. The 2016 Proxy Statement will be filed within 120 days after the Company's fiscal year ended November 1, 2015.

ITEM 6. SELECTED FINANCIAL DATA

The following selected financial data is derived from the Company's audited consolidated financial statements. The data should be read in conjunction with the audited consolidated financial statements and notes thereto and other financial information included elsewhere in this Annual Report on Form 10-K (in thousands, except per share amounts).

|  | Year Ended          |                     |                     |                     |                     |
|--|---------------------|---------------------|---------------------|---------------------|---------------------|
|  | November<br>1, 2015 | November<br>2, 2014 | November<br>3, 2013 | October<br>28, 2012 | October<br>30, 2011 |
| <b>OPERATING DATA:</b>                                   |                     |                     |                     |                     |                     |
| Net sales  | \$524,206           | \$455,527           | \$422,180           | \$450,439           | \$512,020           |
| Cost and expenses:                                       |                     |                     |                     |                     |                     |
| Cost of sales  | (381,070)           | (355,181)           | (322,540)           | (338,519)           | (375,806)           |
| Selling, general and administrative                      | (48,983 )           | (49,638 )(b)        | (48,213 )(d)        | (46,706 )           | (45,240 )           |
| Research and development                                 | (21,920 )           | (21,913 )           | (20,758 )           | (19,371 )           | (15,507 )           |
| Consolidation, restructuring and related charges         | -                   | -                   | -                   | (1,428 )(e)         | -                   |
| Operating income   | 72,233              | 28,795              | 30,669              | 44,415              | 75,467              |
| Other income (expense):                                  |                     |                     |                     |                     |                     |
| Gain on acquisition                                      | -                   | 16,372 (c)          | -                   | -                   | -                   |
| Interest expense   | (4,990 )            | (7,247 )            | (7,756 )            | (7,488 )            | (7,258 )            |
| Interest and other income (expense), net                 | 2,797 (a)           | 3,410               | 3,892               | 3,721 (f)           | 2,949 (g)           |
| Debt extinguishment loss                                 | -                   | -                   | -                   | -                   | (35,259 )(h)        |
| Income before income tax provision                       | 70,040              | 41,330              | 26,805              | 40,648              | 35,899              |
| Income tax provision                                     | (13,181 )           | (9,295 )            | (7,229 )            | (10,793 )           | (15,691 )           |
| Net income   | 56,859 (a)          | 32,035 (b)(c)       | 19,576 (d)          | 29,855 (e)(f)       | 20,208 (g)(h)       |
| Net income attributable to noncontrolling interests      | (12,234 )           | (6,039 )            | (1,610 )            | (1,987 )            | (3,979 )            |
| Net income attributable to Photronics, Inc. shareholders | \$44,625 (a)        | \$25,996 (b)(c)     | \$17,966 (d)        | \$27,868 (e)(f)     | \$16,229 (g)(h)     |
| <b>Earnings per share:</b>                               |                     |                     |                     |                     |                     |
| Basic  | \$0.67 (a)          | \$0.42 (b)(c)       | \$0.30 (d)          | \$0.46 (e)(f)       | \$0.28 (g)(h)       |

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|   |        |            |               |            |               |        |
|---|--------|------------|---------------|------------|---------------|--------|
| Diluted   | \$0.63 | (a) \$0.41 | (b)(c) \$0.29 | (d) \$0.44 | (e)(f) \$0.28 | (g)(h) |
| Weighted-average number of common shares outstanding: |        |            |               |            |               |        |
| Basic   | 66,331 | 61,779     | 60,644        | 60,055     | 57,030        |        |
| Diluted   | 78,383 | 66,679     | 61,599        | 76,464     | 58,458        |        |

## BALANCE SHEET DATA

|   | As of               |                     |                     |                     |                     |
|---|---------------------|---------------------|---------------------|---------------------|---------------------|
|   | November<br>1, 2015 | November<br>2, 2014 | November<br>3, 2013 | October<br>28, 2012 | October<br>30, 2011 |
| Working capital                             | \$ 171,422          | \$ 197,375          | \$ 213,879          | \$ 234,281          | \$ 209,306          |
| Property, plant and equipment, net          | 547,284             | 550,069             | 422,740             | 380,808             | 368,680             |
| Total assets                                | 1,045,555           | 1,029,183           | 885,929             | 849,234             | 817,854             |
| Long-term debt                              | 67,120              | 131,805             | 182,203             | 168,956             | 152,577             |
| Total Photronics, Inc. shareholders' equity | 646,555             | 628,050             | 585,314             | 551,386             | 511,047             |

- (a) Includes \$0.9 million of financing expenses related to the exchange of \$57.5 million of 3.25% convertible senior notes.
- (b) Includes \$2.5 million, net of tax, of expenses related to the acquisition of DPTT.
- (c) Includes non-cash gain of \$16.4 million, net of tax, on acquisition of DPTT.
- (d) Includes \$0.8 million, net of tax, of expenses related to the acquisition of DPTT.
- (e) Includes consolidation and restructuring charges of \$1.4 million in connection with the discontinuance of manufacturing operations at the Company's Singapore facility.
- (f) Includes non-cash gain of \$0.1 million in connection with subsequent measurement at fair value of warrants issued to purchase the Company's common stock.
- (g) Includes non-cash charge of \$0.4 million in connection with subsequent measurement at fair value of warrants issued to purchase the Company's common stock.
- (h) Includes losses recorded in connection with the acquisition of \$35.4 million face amount of the Company's 5.5% convertible senior notes, in exchange for 5.2 million shares of its common stock and cash of \$22.9 million.

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

Results of Operations for the Years Ended November 1, 2015, November 2, 2014 and November 3, 2013

## Overview

The Company sells substantially all of its photomasks to semiconductor designers and manufacturers, and manufacturers of FPDs. Photomask technology is also being applied to the fabrication of other higher performance electronic products such as photonics, micro-electronic mechanical systems and certain nanotechnology applications. The Company's selling cycle is tightly interwoven with the development and release of new semiconductor designs and flat panel applications, particularly as they relate to the semiconductor industry's migration to more advanced product innovation, design methodologies and fabrication processes. The Company believes that the demand for photomasks primarily depends on design activity rather than sales volumes from products manufactured using photomask technologies. Consequently, an increase in semiconductor or FPD sales does not necessarily result in a corresponding increase in photomask sales. However, the reduced use of customized ICs, reductions in design complexity, other changes in the technology or methods of manufacturing or designing semiconductors, or a slowdown in the introduction of new semiconductor or FPD designs could reduce demand for photomasks even if demand for semiconductors and FPDs increases. Advances in semiconductor, FPD and photomask design and semiconductor and FPD production methods that shift the burden of achieving device performance away from lithography could also reduce the demand for photomasks. Historically, the microelectronic industry has been volatile, experiencing periodic downturns and slowdowns in design activity. These downturns have been characterized by, among other things, diminished product demand, excess production capacity and accelerated erosion of selling prices.



The Company is typically required to fulfill its customer orders within a short period of time, sometimes within 24 hours. This results in the Company having a minimal level of backlog orders, typically one to two weeks for IC photomasks and two to three weeks for FPD photomasks.

The global semiconductor industry, including mobile display devices, is driven by end markets which have been closely tied to consumer driven applications of high performance semiconductor devices including, but not limited to, mobile communications and computing solutions.

The Company cannot predict the timing of the industry's transition to volume production of next generation technology nodes or the timing of up and down cycles with precise accuracy, but believes that such transitions and cycles will continue into the future, beneficially and adversely affecting its business, financial condition and operating results as they occur. The Company believes its ability to remain successful in these environments is dependent upon its achieving its goals of being a service and technology leader and efficient solutions supplier, which it believes should enable it to continually reinvest in its global infrastructure.

The Company is focused on improving its competitiveness by advancing its technology and reducing costs and, in connection therewith, has invested and plans to continue to invest in manufacturing equipment to serve the high-end market. As the Company continues to face challenges in the current and near term that require it to continue to make significant improvements in its competitiveness, it continues to evaluate further cost reduction initiatives.

As of December 2015 state-of-the-art production for semiconductor masks is considered to be 45 nanometer and lower for ICs and Generation 8 and above and AMOLED display based process technologies for FPDs. However, 65 nanometer and above geometries for semiconductors and Generation 7 and below, excluding AMOLED, process technologies for FPDs constitute the majority of designs currently being fabricated in volume. At these geometries, the Company can produce full lines of photomasks and there is no significant technology employed by the Company's competitors that is not available to the Company. The Company expects 45 nanometer and below designs to continue to move to wafer fabrication throughout fiscal 2016, and believes it is well positioned to service an increasing volume of this business as a result of its investments in manufacturing processes and technology in the global regions where its customers are located.

The photomask industry has been, and is expected to continue to be, characterized by technological change and evolving industry standards. In order to remain competitive, the Company will be required to continually anticipate, respond to, and utilize changing technologies. In particular, the Company believes that, as semiconductor geometries continue to become smaller, it will be required to manufacture even more complex optically-enhanced reticles, including optical proximity correction and phase-shift photomasks. Additionally, demand for photomasks has been, and could in the future be, adversely affected by changes in semiconductor and high performance electronics fabrication methods that affect the type or quantity of photomasks used, such as changes in semiconductor demand that favor field-programmable gate arrays and other semiconductor designs that replace application-specific ICs or the use of certain chip stacking methodologies that lessen the emphasis on conventional lithography technology. Furthermore, increased market acceptance of alternative methods of transferring circuit designs onto semiconductor wafers could reduce or eliminate the need for photomasks in the production of semiconductors. As of the end of fiscal 2015, one alternative method, direct-write lithography, has not been proven to be a commercially viable alternative to photomasks, as it is considered too slow for high volume semiconductor wafer production, and the Company has not experienced a significant loss of revenue as a result of this or other alternative semiconductor design methodologies. However, should direct-write or any other alternative method of transferring IC designs to semiconductor wafers without the use of photomasks achieve market acceptance, and the Company does not anticipate, respond to, or utilize these or other changing technologies due to resource, technological or other constraints, its business and results of operations could be materially adversely affected.

Both revenues and costs have been affected by the increased demand for high-end technology photomasks that require more advanced manufacturing capabilities, but generally command higher average selling prices ("ASPs"). The



Company's capital expenditure payments aggregated approximately \$259 million for the three fiscal years ended November 1, 2015, which has significantly contributed to the Company's operating expenses. The Company intends to continue to make the required investments to support the technological demands of its customers and position itself for future growth, and expects capital expenditure payments to be between \$50 million and \$75 million in fiscal 2016.

The manufacture of photomasks for use in fabricating ICs and other related products built using comparable photomask-based process technologies has been, and continues to be, capital intensive. The Company's integrated global manufacturing network, which consists of nine manufacturing sites, and its employees represent a significant portion of its fixed operating cost base. Should sales volumes decrease as a result of a decrease in design releases from the Company's customers, the Company may have excess or underutilized production capacity that could significantly impact operating margins, or result in write-offs from asset impairments.

In the second quarter of fiscal 2015 the Company announced that the MP Mask joint venture would not be renewed after May 5, 2016. The MP Mask operating agreement provides that Micron will make a payment to the Company to purchase the Company's equity interest in MP Mask based on the Company's ownership percentage of the net book value of MP Mask at that time, which, as of September 3, 2015, was approximately \$93 million. The Company does not expect that it will incur a significant gain or loss on this transaction. Concurrently, the Company announced that it entered into supply and technology license agreements with Micron. This supply agreement, which commences on May 6, 2016, with a one-year term subject to mutually agreeable renewals, provides that the Company will be the majority outsource supplier of Micron's photomasks and related services. The technology license agreement commenced in March 2015 and continues through the earlier of one year from the termination of the initial technology license agreement, which will occur on May 5, 2016, or when Micron certifies that it has transferred certain defined technology to the Company. The Company forevermore has the rights to use the technology obtained under these technology license agreements.

In the first quarter of fiscal 2015 the Company privately exchanged \$57.5 million in aggregate principal amount of its 3.25% convertible senior notes with a maturity date of April 1, 2016, for new 3.25% convertible senior notes with an aggregate principal amount of \$57.5 million with a maturity date of April 1, 2019. The conversion rate of the new notes is the same as that of the exchanged notes, which were issued in March 2011 with a conversion rate of approximately 96 shares of common stock per \$1,000 note principal, equivalent to a conversion price of \$10.37 per share of common stock, and is subject to adjustment upon the occurrence of certain events, which are described in the indenture dated January 22, 2015. Note holders may convert each \$1,000 principal amount of notes at any time prior to the close of business on the second scheduled trading day immediately preceding April 1, 2019, and the Company is not required to redeem the notes prior to their maturity date. Interest on the notes accrues in arrears, and is paid semiannually through the notes' maturity date.

In the second quarter of fiscal 2014 the Company acquired DPTT in a non-cash transaction that resulted in the Company owning 50.01% and DNP owning 49.99% of PDMC, whose financial results are included in the Company's consolidated financial statements. PDMC has generated sufficient cash flows to fund its operating and capital requirements. See Note 2 of the consolidated financial statements for more information.

In the fourth quarter of fiscal 2014 the Company amended its credit facility. The credit facility, which expires in December 2018, has a \$50 million limit with an expansion capacity to \$75 million, and is secured by substantially all of the Company's assets located in the United States and common stock the Company owns in certain of its foreign subsidiaries. The credit facility is subject to a minimum interest coverage ratio, total leverage ratio and minimum unrestricted cash balance financial covenants, all of which the Company was in compliance with at November 1, 2015. The Company had no outstanding borrowings against the credit facility at November 1, 2015, and \$50 million was available for borrowing. The interest rate on the credit facility (1.44% at November 1, 2015) is based on the Company's total leverage ratio at LIBOR plus a spread, as defined in the credit facility.

In the fourth quarter of fiscal 2013 a \$26.4 million principal amount, five year capital lease commenced to fund the purchase of a high-end lithography tool. Payments under the lease, which bears interest at 2.77% are \$0.5 million per month through July 2018. Under the terms of the lease agreement, the Company must maintain the equipment in good working order, and is subject to a cross default with a cross acceleration provision related to certain nonfinancial covenants incorporated in its credit facility. As of November 1, 2015, the total amount payable through the end of the lease term was \$16.0 million, of which \$15.3 million represents principal and \$0.7 million represents interest.

In the third quarter of fiscal 2013 the Company completed a tender offer for shares of PSMC. A total of 50.3 million shares were tendered at the offering price of 16.30 NTD (equivalent to a total of \$27.4 million), which increased the Company's ownership interest in PSMC from 75.11% to 98.13%. In the fourth quarter of fiscal 2013 the Company further increased its ownership interest in PSMC to 98.63% with the purchase of an additional 1.1 million shares of PSMC for \$0.7 million, and in the first quarter of fiscal 2014 the Company acquired all of the 3.0 million shares that were then held by noncontrolling interests at a cost of \$1.7 million. In April 2014 PSMC merged with DPTT to form PDMC.

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In the first quarter of fiscal 2013 PSMC completed a stock repurchase plan that had been authorized by its board of directors in fiscal 2012. The completion of this repurchase plan resulted in the Company acquiring an additional 9.2 million shares at a cost \$4.2 million, and increasing its ownership percentage in PSMC from 72.09% at October 28, 2012 to 75.11% as of January 27, 2013.

Results of Operations

The following table presents selected operating information expressed as a percentage of net sales:

|  | Year Ended |          |          |          |          |          |
|--|------------|----------|----------|----------|----------|----------|
|  | November   |          | November |          |          |          |
|  | 1,         | November | November | November | November | November |
|  | 2015       | 2, 2014  | 3, 2013  | 2015     | 2014     | 2013     |
| Net sales  | 100.0%     | 100.0    | %        | 100.0    | %        |          |
| Cost of sales  | (72.7 )    | (78.0 )  |          | (76.4 )  |          |          |
| Gross margin   | 27.3       | 22.0     |          | 23.6     |          |          |
| Selling, general and administrative expenses             | (9.3 )     | (10.9 )  |          | (11.4 )  |          |          |
| Research and development expenses                        | (4.2 )     | (4.8 )   |          | (4.9 )   |          |          |
| Operating income   | 13.8       | 6.3      |          | 7.3      |          |          |
| Gain on acquisition                                      | -          | 3.6      |          | -        |          |          |
| Interest expense   | (1.0 )     | (1.6 )   |          | (1.9 )   |          |          |
| Interest and other income (expense), net                 | 0.5        | 0.8      |          | 0.9      |          |          |
| Income before income tax provision                       | 13.3       | 9.1      |          | 6.3      |          |          |
| Income tax provision                                     | (2.5 )     | (2.1 )   |          | (1.7 )   |          |          |
| Net income   | 10.8       | 7.0      |          | 4.6      |          |          |
| Net income attributable to noncontrolling interests      | (2.3 )     | (1.3 )   |          | (0.3 )   |          |          |
| Net income attributable to Photronics, Inc. shareholders | 8.5 %      | 5.7 %    |          | 4.3 %    |          |          |

Note: All the following tabular comparisons, unless otherwise indicated, are for the fiscal years ended November 1, 2015 (2015), November 2, 2014 (2014) and November 3, 2013 (2013), in millions of dollars.

Net Sales

|                 | 2015    | 2014    | 2013    | Percent Change |              |
|-----------------|---------|---------|---------|----------------|--------------|
|                 |         |         |         | 2014 to 2015   | 2013 to 2014 |
| IC              | \$420.8 | \$352.7 | \$320.6 | 19.3%          | 10.0%        |
| FPD             | 103.4   | 102.8   | 101.6   | 0.5            | 1.2          |
| Total net sales | \$524.2 | \$455.5 | \$422.2 | 15.1%          | 7.9%         |

Net sales for 2015 increased 15.1% as compared with 2014. The increase was primarily a result of a full year impact of the acquisition of DPTT and increased high-end IC sales. High-end IC sales increased by \$62.9 million to \$166.9 million in 2015 as a result of increased high-end memory and logic demand, and high-end FPD sales increased by \$4.5 million to \$70.9 million in 2015. High-end photomasks, which typically have higher ASPs, include photomask sets for IC products using 45 nanometer and below technologies, and for FPD products using Generation 8 and above and AMOLED technologies. By geographic area, net sales in 2015 as compared with 2014 increased (decreased) by \$38.1 million or 22.8% in Taiwan, by \$7.5 million or 5.4% in Korea, by \$26.1 million or 24.4% in the United States

and by \$(2.9) million or (7.6)% in Europe. As a percent of total sales in 2015, sales were 39% in Taiwan, 28% in Korea, 25% in the United States, 7% in Europe, and 1% at other international locations.

Net sales for 2014 increased 7.9% to \$455.5 million as compared with \$422.2 million for 2013. The increase of \$33.3 million was primarily related to increased IC sales of \$32.1 million, principally associated with the acquisition of DPTT in Taiwan, as discussed in Note 2 to the consolidated financial statements. High-end IC sales increased \$24.1 million to \$104 million, principally related to increased units from Asian foundry business in Taiwan and Korea. Total IC sales increased by \$32.1 million or 10.0% in 2014 as compared with 2013, primarily due to the increased sales in Taiwan. Total FPD sales increased by \$1.2 million or 1.2% in 2014 as compared with 2013, primarily due to increased sales of mature units. By geographic area, net sales in 2014 as compared with 2013 increased (decreased) by \$6.1 million or 4.5% in Korea, by \$(20.3) million or (16.0)% in the United States, by \$49.7 million or 42.4% in Taiwan, by \$(2.4) million or (5.8)% in Europe and by \$0.2 million at other international locations. As a percent of total sales in 2014, sales were 31% in Korea, 23% in the United States, 37% in Taiwan, 8% in Europe, and 1% at other international locations.

#### Gross Margin

|                |         |         |        | Percent<br>Change  |                    |
|----------------|---------|---------|--------|--------------------|--------------------|
|                | 2015    | 2014    | 2013   | 2014<br>to<br>2015 | 2013<br>to<br>2014 |
| Gross profit   | \$143.1 | \$100.3 | \$99.6 | 42.6%              | 0.7 %              |
| Gross margin % | 27.3 %  | 22.0 %  | 23.6%  | -                  | -                  |

Gross profit and gross margin increased in 2015 compared with 2014, primarily due to increased high-end IC sales and reduced manufacturing costs. Gross margin decreased in 2014 compared with 2013 primarily due to increased equipment costs, including depreciation expense associated with additional high-end equipment. The Company operates in a high fixed cost environment and, to the extent that the Company's revenues and utilization increase or decrease, gross margin will generally be positively or negatively impacted.

#### Selling, General and Administrative Expenses

|                |        |        |        | Percent<br>Change  |                    |
|----------------|--------|--------|--------|--------------------|--------------------|
|                | 2015   | 2014   | 2013   | 2014<br>to<br>2015 | 2013<br>to<br>2014 |
| S,G&A expenses | \$49.0 | \$49.6 | \$48.2 | (1.3%)             | 2.9 %              |
| % of net sales | 9.3. % | 10.9%  | 11.4%  | -                  | -                  |

Selling, general and administrative expenses decreased by \$0.6 million in 2015, as compared with 2014, primarily due to expenses incurred in 2014 related to the acquisition of DPTT, offset in part by increased compensation and benefits expenses. Selling, general and administrative expenses increased by \$1.4 million in 2014, as compared with 2013, primarily as a result of increased expenses related to the acquisition of DPTT.

## Research and Development

|                | 2015   | 2014   | 2013   | Percent Change |              |
|----------------|--------|--------|--------|----------------|--------------|
|                |        |        |        | 2014 to 2015   | 2013 to 2014 |
| R&D expense    | \$21.9 | \$21.9 | \$20.8 | 0.0%           | 5.6%         |
| % of net sales | 4.2%   | 4.8%   | 4.9%   | -              | -            |

Research and development expenses consist primarily of global development efforts related to high-end process technologies. Research and development expenses were \$21.9 million in 2015 and 2014, and increased \$1.1 million in 2014 from \$20.8 million in 2013, primarily due to increased activities at advanced technology nodes for IC photomask applications.

## Other Income (Expense)

|  | 2015    | 2014   | 2013    |
|--|---------|--------|---------|
| Gain on acquisition                      | \$-     | \$16.4 | \$-     |
| Interest expense                         | (5.0)   | (7.2)  | \$(7.8) |
| Interest and other income (expense), net | 2.8     | 3.3    | 3.9     |
| Total other income (expense), net        | \$(2.2) | \$12.5 | \$(3.9) |

Interest expense decreased in 2015 as compared with 2014, primarily as a result of reduced average outstanding borrowings during the year. Interest and other income (expense), net decreased in 2015 as compared with 2014, primarily as a result of financing expenses incurred related to the exchange of convertible notes and reduced interest income, which were offset in part by increased foreign currency gains.

In April 2014 DNP Photomask Technology Taiwan Co., Ltd., a wholly owned subsidiary of DNP, merged into PSMC and operates under the name of Photronics DNP Mask Corporation. The acquisition resulted in the Company recording a gain of \$16.4 million in the second quarter of fiscal 2014. See Note 2 of the consolidated financial statements for more information.

Interest expense decreased in 2014 as compared with 2013, primarily as a result of reduced outstanding borrowing balances. Interest and other income (expense), net decreased in 2014 as compared with 2013, primarily as a result of reduced interest income, offset in part by increased foreign currency exchange gains.

## Income Tax Provision

|                           | 2015   | 2014  | 2013  |
|---------------------------|--------|-------|-------|
| Income tax provision      | \$13.2 | \$9.3 | \$7.2 |
| Effective income tax rate | 18.8%  | 22.5% | 27.0% |

The effective tax rate differs from the U.S. statutory rate of 35% in fiscal years 2015, 2014 and 2013 primarily due to earnings, including the fiscal year 2014 DPTT Acquisition gain, being taxed at lower statutory rates in foreign jurisdictions, the benefit of various investment credits claimed in a foreign jurisdiction as well as valuation allowances in jurisdictions with historic and continuing losses.





The Company considers all available evidence when evaluating the potential future realization of its deferred tax assets and when, based on the weight of all available evidence, it determines that it is more likely than not that some portion or all of its deferred tax assets will not be realized, it reduces its deferred tax assets by a valuation allowance. As a result of these considerations, including any changes in its deferred tax liability, the valuation allowance was increased (decreased) by (\$10.8 million), (\$7.1 million) and \$1.1 million as of the end of the fiscal years 2015, 2014 and 2013, respectively. During fiscal year 2015, the Company determined that sufficient positive evidence existed in two foreign jurisdictions that it was more likely than not that additional deferred taxes of \$2.4 million were realizable and, accordingly, reduced their related valuation allowances. The Company also regularly assesses the potential outcomes of ongoing and future tax examinations and, accordingly, has recorded accruals for such contingencies.

PKLT, the Company's FPD manufacturing facility in Taiwan, has been accorded a tax holiday which commenced in 2012 and expires in 2017. The availability of this tax holiday did not have a significant impact on the Company's decision to increase its Asian presence, which was in response to fundamental changes that took place in the semiconductor industry that the Company serves. This tax holiday had no dollar or per share effect on the 2015, 2014 and 2013 fiscal years.

PDMC acquired an IC manufacturing facility in Taiwan as a result of the DPTT Acquisition that has been accorded a tax holiday, which commenced in 2015 and expires in 2019. The availability of this tax holiday did not have a significant impact on the Company's decision to enter into the DPTT Acquisition and increase its Asian presence. The Company realized a \$0.2 million tax benefit from the PDMC tax holiday in 2015. The tax holiday had no per share effect in 2015.

#### Net Income Attributable to Noncontrolling Interests

Net income attributable to noncontrolling interests increased \$6.2 million to \$12.2 million in 2015, as compared with \$6.0 million in 2014, and increased \$4.4 million to \$6.0 million in 2014, as compared with \$1.6 million in 2013, primarily as a result of changes in the ownership structure of the Company's IC manufacturing facility located in Taiwan and increased net income at that facility. During 2014, the Company exchanged a 49.99% noncontrolling interest in this subsidiary in return for the net assets of an acquiree. See Notes 2 and 13 of the consolidated financial statements for further information.

#### Liquidity and Capital Resources

|   | November<br>1, 2015<br>(in<br>millions) | November<br>2, 2014<br>(in<br>millions) | November<br>3, 2013<br>(in<br>millions) |
|---|---|---|---|
| Cash and cash equivalents                 | \$ 205.9                                | \$ 192.9                                | \$ 215.6                                |
| Net cash provided by operating activities | \$ 133.2                                | \$ 96.4                                 | \$ 99.4                                 |
| Net cash used in investing activities     | \$ (104.3 )                             | \$ (87.5 )                              | \$ (66.2 )                              |
| Net cash used in financing activities     | \$ (7.1 )                               | \$ (29.5 )                              | \$ (39.8 )                              |

As of November 1, 2015, the Company had cash and cash equivalents of \$205.9 million compared with \$192.9 million as of November 2, 2014. The Company's working capital decreased \$26.0 million to \$171.4 million at November 1, 2015, as compared with \$197.4 million at November 2, 2014. The increase in cash in 2015 was primarily related to increased cash generated from operating activities, while the decrease in working capital was the

result of \$57.5 million 3.25% convertible senior notes due in April 2016 classified as a current liability at November 1, 2015, and as a long-term liability at November 2, 2014. The Company may use its cash available on hand for operations, capital expenditures, debt repayments, strategic opportunities, stock repurchases or other corporate uses, any of which may be material.

As of November 2, 2014, the Company had cash and cash equivalents of \$192.9 million compared with \$215.6 million as of November 3, 2013. The Company's working capital decreased \$16.5 million to \$197.4 million at November 2, 2014, as compared with \$213.9 million at November 3, 2013. The decrease in cash and working capital in 2014 was primarily related to the repayment of a term loan outstanding balance of \$21.3 million in December 2013.

As of November 1, 2015 and November 2, 2014, the Company's total cash and cash equivalents include \$102.9 million and \$105.9 million, respectively, held by its foreign subsidiaries. The majority of earnings of the Company's foreign subsidiaries are considered to be indefinitely reinvested. The repatriation of these funds to the U.S. may subject these funds to U.S. federal income taxes and local country withholding tax in certain jurisdictions. The Company's foreign subsidiaries continue to grow through the reinvestment of earnings in additional manufacturing capacity and capability, particularly in the high-end IC and FPD areas.

Net cash provided by operating activities increased to \$133.2 million in fiscal 2015, as compared with \$96.4 million in fiscal 2014, primarily due to increased net income in 2015, excluding the 2014 noncash gain on the acquisition of DPTT. Net cash provided by operating activities decreased to \$96.4 million in fiscal 2014, as compared with \$99.4 million in fiscal 2013, primarily due to reduced net income in 2014, less a noncash gain on the acquisition of DPTT discussed in Note 2 to the consolidated financial statements. Net cash provided by operating activities decreased to \$99.4 million in fiscal 2013, as compared with \$132.5 million in fiscal 2012, primarily due to reduced year-over-year net income and depreciation and amortization, and less cash generated from accounts receivable in 2013 than in 2012.

Net cash used in investing activities in fiscal 2015 increased to \$104.3 million, as compared with \$87.5 million in 2014, and in fiscal 2014 increased to \$87.5 million, as compared with \$66.2 million in 2013, primarily due to increased capital expenditure payments. Net cash used in investing activities in fiscal 2013 decreased to \$66.2 million, as compared with \$111.9 million in 2012, primarily due to less capital expenditure payments in 2013, and also due to no additional investments being made in the MP Mask joint venture in 2013, whereas \$13.4 million was invested in 2012. Capital expenditure payments for the 2015, 2014, and 2013 fiscal years were \$104.0 million, \$91.1 million and \$63.8 million, respectively. The Company expects capital expenditure payments for fiscal 2016 to range between \$50 million and \$75 million, primarily related to investment in high-end IC manufacturing capability.

Net cash used in financing activities was \$7.1 million in fiscal 2015, which was primarily comprised of repayments of borrowings offset, in part, by proceeds from share-based arrangements. Net cash used in financing activities was \$29.5 million in fiscal 2014, primarily comprised of repayments of borrowings, and was \$39.8 million in fiscal 2013 primarily comprised of payments to purchase common stock of a subsidiary and repayments of borrowings. In fiscal 2014 the Company repaid a term loan with an outstanding balance of \$21.3 million.

In March 2015 the Company announced that the MP Mask joint venture would not be renewed after May 5, 2016. The MP Mask operating agreement provides that Micron will make a payment to the Company to purchase the Company's equity interest in MP Mask based on the Company's ownership percentage of the net book value of MP Mask at that time, which, as of September 3, 2015, was approximately \$93 million. The Company does not expect that it will incur a significant gain or loss on this transaction. Concurrently, the Company announced that it entered into supply and technology license agreements with Micron. This supply agreement, which commences on May 6, 2016, with a one-year term subject to mutually agreeable renewals, provides that the Company will be the majority outsource supplier of Micron's photomasks and related services. The technology license agreement commenced in March 2015 and continues through the earlier of one year from the termination of the initial technology license agreement, which will occur on May 5, 2016, or when Micron certifies that it has transferred certain defined technology to the Company. The Company forevermore has the rights to use the technology obtained under these technology license agreements.

In January 2015 the Company privately exchanged \$57.5 million in aggregate principal amount of its 3.25% convertible senior notes with a maturity date of April 1, 2016, for new 3.25% convertible senior notes with an aggregate principal amount of \$57.5 million with a maturity date of April 1, 2019. The conversion rate of the new notes is the same as that of the exchanged notes, which were issued in March 2011 with a conversion rate of approximately 96 shares of common stock per \$1,000 note principal, equivalent to a conversion price of \$10.37 per share of common stock, and is subject to adjustment upon the occurrence of certain events, which are described in the indenture dated January 22, 2015. Note holders may convert each \$1,000 principal amount of notes at any time prior to the close of business on the second scheduled trading day immediately preceding April 1, 2019, and the Company

is not required to redeem the notes prior to their maturity date. Interest on the notes accrues in arrears, and is paid semiannually through the notes' maturity date.

In October 2014, in a non-cash transaction, the Company issued 4.3 million shares of its common stock in exchange for the fully matured, remaining outstanding \$22.1 million principal amount 5.5% convertible senior notes, which were issued in September 2009.

In April 2014 the Company acquired DPTT in a non-cash transaction that resulted in the Company owning 50.01% and DNP owning 49.99% of PDMC, whose financial results are included in the Company's consolidated financial statements. PDMC has generated sufficient cash flows to fund its operating and capital requirements. See Note 2 of the consolidated financial statements for more information.

In August 2014 the Company amended its credit facility. The credit facility, which expires in December 2018, has a \$50 million limit with an expansion capacity to \$75 million, and is secured by substantially all of the Company's assets located in the United States and common stock the Company owns in certain of its foreign subsidiaries. The credit facility is subject to minimum interest coverage, total leverage ratio and minimum unrestricted cash balance financial covenants, all of which the Company was in compliance with at November 1, 2015. The Company had no outstanding borrowings against the credit facility at November 1, 2015, and \$50 million was available for borrowing. The interest rate on the credit facility (1.44% at November 1, 2015) is based on the Company's total leverage ratio at LIBOR plus a spread, as defined in the credit facility.

In December 2013 the Company repaid the \$21.3 million outstanding balance of a term loan that it entered into in February 2012 to partially fund its purchase from Micron of the US nanoFab facility in Boise, Idaho, which it previously held under an operating lease. As a result of this purchase, the Company's operating lease commitments were reduced by a combined total of \$15 million in fiscal years 2013 and 2014.

In June 2013 the Company completed a tender offer for shares of PSMC, a former subsidiary of the Company. A total of 50.3 million shares were tendered at the offering price of 16.30 NTD, equivalent to a total of \$27.4 million. In September 2013 the Company purchased an additional 1.1 million shares of PSMC for \$0.7 million, and in January 2014 the Company acquired all of the 3.0 million shares that were then held by noncontrolling interests at a cost of \$1.7 million. In April 2014 PSMC merged with DPTT to form PDMC.

PSMC, through a series of repurchase programs which commenced in 2011 and ended in 2013, repurchased shares of its outstanding common stock. These repurchase programs resulted in 9.2 million shares being purchased for \$4.2 million in 2013, 35.9 million shares being purchased for \$15.6 million in 2012 and 21.6 million shares being purchased for \$9.9 million in 2011.

In August 2013 a \$26.4 million principal amount, five year capital lease commenced to fund the purchase of a high-end lithography tool. Payments under the lease, which bears interest at 2.77% are \$0.5 million per month through July 2018. Under the terms of the lease agreement, the Company must maintain the equipment in good working order, and is subject to a cross default with a cross acceleration provision related to certain nonfinancial covenants incorporated in its credit facility. As of November 1, 2015, the total amount payable through the end of the lease term was \$16.0 million, of which \$15.3 million represents principal and \$0.7 million represents interest.

The Company's liquidity is highly dependent on its sales volume, cash conversion cycle, and the timing of its capital expenditures (which can vary significantly from period to period), as it operates in a high fixed cost environment. Depending on conditions in the semiconductor and FPD markets, the Company's cash flows from operations and current holdings of cash may not be adequate to meet its current and long-term needs for capital expenditures, operations and debt repayments. Historically, in certain years, the Company has used external financing to fund these needs. Due to conditions in the credit markets and covenant restrictions on its existing debt, some financing instruments used by the Company in the past may not be currently available to it. The Company continues to evaluate further cost reduction initiatives. However, the Company cannot assure that additional sources of financing would be available to it on commercially favorable terms, should its cash requirements exceed cash available from operations, existing cash, and cash available under its credit facility.



At November 1, 2015, the Company had outstanding purchase commitments of \$14 million, which included \$3 million related to capital expenditures, primarily for investment in high-end IC photomask manufacturing capability. The Company intends to finance its capital expenditures with its working capital, cash generated from operations, and, if necessary, with additional borrowings.

#### Cash Requirements

The Company's cash requirements in fiscal 2016 will be primarily to fund its operations, including capital spending, and to service its debt. The Company believes that its cash on hand, cash generated from operations and amounts available under its credit facility will be sufficient to meet its cash requirements for the next twelve months. The Company regularly reviews the availability and terms on which it might issue additional equity or debt securities in the public or private markets. However, the Company cannot assure that additional sources of financing would be available to the Company on commercially favorable terms, should the Company's cash requirements exceed its cash available from operations, existing cash, and cash available under its credit facility.

#### Contractual Obligations

The following table presents the Company's contractual obligations as of November 1, 2015:

| Contractual Obligations            | Total     | Payment due by period |             |             |                   |
|------------------------------------|-----------|-----------------------|-------------|-------------|-------------------|
|                                    |           | Less Than 1 Year      | 1 – 3 Years | 3 – 5 Years | More Than 5 Years |
| Long-term borrowings               | \$115,000 | \$57,500              | \$-         | \$57,500    | \$-               |
| Operating leases                   | 6,677     | 2,172                 | 2,286       | 685         | 1,534             |
| Capital leases                     | 17,615    | 7,995                 | 9,620       | -           | -                 |
| Unconditional purchase obligations | 14,055    | 9,295                 | 4,602       | 158         | -                 |
| Interest                           | 8,499     | 3,331                 | 4,234       | 934         | -                 |
| Other noncurrent liabilities       | 15,233    | 484                   | 5,302       | 901         | 8,546             |
| Total                              | \$177,079 | \$80,777              | \$26,044    | \$60,178    | \$10,080          |

As of November 1, 2015, the Company had recorded accruals for uncertain tax positions of \$4.1 million which was not included in the above table due to the high degree of uncertainty regarding the timing of future payments related to such liabilities.

#### Off-Balance Sheet Arrangements

Under the MP Mask joint venture operating agreement, in order to maintain its 49.99% ownership interest, the Company may be required to make additional capital contributions to the joint venture up to the maximum amount defined in the operating agreement. Cumulatively, through November 1, 2015, the Company has contributed \$32.5 million to the joint venture, and has received distributions from the joint venture totaling \$10.0 million. The Company did not make any contributions and received no distributions from MP Mask during fiscal 2015. On March 24, 2015, the Company announced that the MP Mask joint venture would not be renewed after May 5, 2016. See Note 5 to the consolidated financial statements for further discussion.

Under the PDMC joint venture operating agreement the shareholders of PDMC may be requested to make additional contributions to PDMC. In the event that PDMC requests additional capital from its shareholders, the Company may be required to make additional capital contributions to the joint venture in order to maintain its 50.01% ownership. The PDMC operating agreement limits the amount of contributions that may be requested during both PDMC's first four years and during any individual year within those first four years. As of November 1, 2015, the Company had not been requested to and did not make any additional capital contributions to PDMC.

The Company leases certain office facilities and equipment under operating leases that may require it to pay taxes, insurance and maintenance expenses related to the properties. Certain of these leases contain renewal or purchase options exercisable at the end of the lease terms. See Note 8 to the consolidated financial statements for additional information on these operating leases.

#### Business Outlook

A majority of the Company's revenue growth is expected to continue to come from the Asian region as customers increase their use of manufacturing foundries located outside of North America and Europe. Additional revenue growth is also anticipated in North America, as the Company expects to continue to benefit from advanced technology it may utilize under its technology license with Micron.

The Company continues to assess its global manufacturing strategy and monitor its sales volume and related cash flows from operations. This ongoing assessment could result in future facility closures, asset redeployments, additional impairments of intangible or long-lived assets, workforce reductions, or the addition of increased manufacturing facilities, all of which would be based on market conditions and customer requirements.

The Company's future results of operations and the other forward-looking statements contained in this filing involve a number of risks and uncertainties. While various risks and uncertainties have been discussed, a number of other unforeseen factors could cause actual results to differ materially from the Company's expectations.

#### Critical Accounting Estimates

The Company's consolidated financial statements are based on the selection and application of accounting policies, which require management to make significant estimates and assumptions. The Company believes that the following are some of the more critical judgment areas in the application of the Company's accounting policies that affect its financial condition and results of operations.



## Estimates and Assumptions

The preparation of consolidated financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect amounts reported in them. Management bases its estimates on historical experience and on various assumptions that are believed to be reasonable under the circumstances. The Company's estimates are based on the facts and circumstances available at the time they are made. Changes in accounting estimates used are likely to occur from period to period, which may have a material impact on the presentation of the Company's financial condition and results of operations. Actual results reported by the Company may differ from such estimates. The Company reviews these estimates periodically and reflects the effect of revisions in the period in which they are determined.

## Fair Value of Financial Instruments

The fair value of the Company's 3.25% convertible senior notes is estimated by management based upon reference to quoted market prices and other available market information. The fair values of the Company's cash and cash equivalents, accounts receivable, accounts payable, certain other current assets and current liabilities, and variable rate borrowings approximate their carrying value due to their short-term maturities.

## Property, Plant and Equipment

Property, plant and equipment, except as explained below under "Impairment of Long-Lived Assets," are stated at cost less accumulated depreciation and amortization. Repairs and maintenance, as well as renewals and replacements of a routine nature, are charged to operations as incurred, while those that improve or extend the lives of existing assets are capitalized. Upon sale or other disposition, the cost of the asset and accumulated depreciation are removed from the accounts, and any resulting gain or loss is reflected in earnings.

Depreciation and amortization are computed using the straight-line method over the estimated useful lives of the related assets. Buildings and improvements are depreciated over 15 to 40 years, machinery and equipment over 3 to 10 years, and furniture, fixtures and office equipment over 3 to 5 years. Leasehold improvements are amortized over the life of the lease or the estimated useful life of the improvement, whichever is less. Judgment and assumptions are used in establishing estimated useful lives and depreciation periods. The Company also uses judgment and assumptions as it periodically reviews property, plant and equipment for any potential impairment in carrying values whenever events such as a significant industry downturn, plant closures, technological obsolescence or other changes in circumstances indicate that their carrying amounts may not be recoverable.

## Intangible Assets

Intangible assets consist primarily of a technology license agreement, a supply agreement and acquisition-related intangibles. These assets, except as explained below, are stated at fair value as of the date acquired less accumulated amortization. Amortization is calculated based on the estimated useful lives of the assets, which range from 3 to 15 years, using the straight-line method or another method that more fairly represents the utilization of the assets.

The Company periodically evaluates the remaining useful lives of its intangible assets to determine whether events or circumstances warrant a revision to the remaining periods of amortization. In the event that the estimate of an intangible asset's remaining useful life has changed, the remaining carrying amount of the intangible asset is amortized prospectively over that revised remaining useful life. If it is determined that an intangible asset has an indefinite useful life, that intangible asset would be subject to impairment testing annually or whenever events or circumstances indicate that the carrying value may not, based on future undiscounted cash flows or market factors, be recoverable, and an impairment loss would be recorded in the period so determined. The measurement of the impairment loss would be based on the fair value of the intangible asset.



### Impairment of Long-Lived Assets

Long-lived assets are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of such assets may not be recoverable. Determination of recoverability is based on the Company's judgment and estimates of undiscounted future cash flows resulting from the use of the assets and their eventual disposition. Measurement of an impairment loss for long-lived assets that management expects to hold and use is based on the fair value of the assets. The carrying values of assets determined to be impaired are reduced to their estimated fair values. Fair values of the impaired assets would generally be determined using a market or income approach.

### Business Combinations

When acquiring other businesses or participating in mergers or joint ventures in which the Company is deemed to be the acquirer, the Company generally recognizes identifiable assets acquired, liabilities assumed and any noncontrolling interests at their acquisition date fair values, and separately from any goodwill that may be required to be recognized. Goodwill, when recognizable, would be measured as the excess amount of any consideration transferred, which is generally measured at fair value, over the acquisition date fair values of the identifiable assets acquired and liabilities assumed.

Accounting for such transactions requires the Company's management to make significant assumptions and estimates. These include, among others, any estimates or assumptions that may be made for the amounts of future cash flows that will result from any identified intangible assets, the useful lives of such intangible assets, the amount of any contingent liabilities to record at the time of the acquisition, the extent of any restructuring charges expected to be incurred as a result of the business combination, and the fair values of any tangible assets acquired. Although the Company believes any estimates and assumptions it makes to be reasonable and appropriate at the time they are made, unanticipated events and circumstances may arise that affect their accuracy, causing actual results to differ from those estimated by the Company.

### Investments in Joint Ventures

The financial results of investments in joint ventures of which the Company has a controlling financial interest are included in the Company's consolidated financial statements. In the case of any investment in a joint venture that gave rise to goodwill, such goodwill would be tested for impairment annually or when an event occurred or circumstances changed that would more likely than not have reduced the fair value of the joint venture below its carry value. Goodwill would be tested for impairment using a two-step process. The Company might, at its option, assess qualitative factors to determine whether it was necessary to perform the two-step impairment test. If it was determined that the two-step test was necessary, the Company would use the test to identify potential goodwill impairment and to measure the amount of a goodwill impairment loss to be recognized (if any).

Investments in joint ventures over which the Company has the ability to exercise significant influence and that, in general, are at least 20 percent owned are accounted for under the equity method. An impairment loss would be recognized whenever a decrease in the value of such an investment below its carrying amount is determined to be other than temporary. In judging "other than temporary," the Company would consider the length of time and the extent to which the fair value of the investment has been less than the carrying amount of the investment, the near-term and longer-term operating and financial prospects of the investee, and the Company's longer-term intent of retaining its investment in the investee.

### Variable Interest Entities

The Company accounts for the investments it makes in certain legal entities in which equity investors do not have 1) sufficient equity at risk for the legal entity to finance its activities without additional subordinated financial support or, 2) as a group, the holders of the equity investment at risk do not have either the power, through voting or similar

rights, to direct the activities of the legal entity that most significantly impact the entity's economic performance or, 3) the obligation to absorb the expected losses of the legal entity or the right to receive expected residual returns of the legal entity. These certain legal entities are referred to as "variable interest entities", or "VIEs".

The Company would consolidate the results of any such entity in which it determined that it has a controlling financial interest. The Company would have a "controlling financial interest" in such an entity if the Company had both the power to direct the activities that most significantly affect the VIE's economic performance and the obligation to absorb the losses of, or right to receive the benefits from, the VIE that could be potentially significant to the VIE. On a quarterly basis, the Company reassesses whether it has a controlling financial interest in any investments it has in these certain legal entities.

The Company accounts for investments it makes in VIEs in which it has determined that it does not have a controlling financial interest but has significant influence over and holds at least a 20 percent ownership interest using the equity method. Any such investment not meeting the parameters to be accounted under the equity method would be accounted for using the cost method, unless the investment had a readily determinable fair value, at which it would then be reported.

#### Income Taxes

The income tax provision is computed on the basis of the various tax jurisdictions' income or loss before income taxes. Deferred income taxes reflect the tax effects of differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes, as well as the tax effects of net operating losses and tax credit carryforwards. The Company uses judgment and assumptions to determine if valuation allowances for deferred income tax assets are required, if their realization is not more likely than not, by considering future market growth, forecasted operations, future taxable income, and the amounts of earnings in the tax jurisdictions in which it operates.

The Company considers income taxes in each of the tax jurisdictions in which it operates in order to determine its effective income tax rate. Current income tax exposure is identified and temporary differences resulting from differing treatments of items for tax and financial reporting purposes are assessed. These differences result in deferred tax assets and liabilities, which are included in the Company's consolidated balance sheets. Additionally, the Company evaluates the potential realization of deferred income tax assets from future taxable income and establishes valuation allowances if their realization is deemed not more likely than not. Accordingly, income taxes charged against earnings may have been impacted by changes in the valuation allowances. Significant management estimates and judgment are required in determining any valuation allowances recorded against net deferred tax assets.

The Company accounts for uncertain tax positions by recording a liability for unrecognized tax benefits resulting from uncertain tax positions taken, or expected to be taken, in its tax returns. The Company includes any applicable interest and penalties related to uncertain tax positions in its income tax provision.

#### Revenue Recognition

The Company recognizes revenue when there is persuasive evidence that an arrangement exists, delivery has occurred, the sales price is fixed or determinable, and collectability is reasonably assured. Delivery is determined by the shipping terms of the individual sales transactions. For sales with FOB destination or similar shipping terms, delivery occurs when the Company's product reaches its destination and is received by the customer. For sales with FOB shipping point terms, delivery occurs when the Company's product is received by the common carrier. The Company uses judgment when estimating the effect on revenue of discounts and sales incentives, both of which are accrued when the related revenue is recognized.

Warranties and Other Post Shipment Obligations – For a 30-day period, the Company warrants that items sold will conform to customer specifications. However, the Company's liability is limited to the repair or replacement of the photomasks at its sole option. The Company inspects photomasks for conformity to customer specifications prior to shipment. Accordingly, customer returns of items under warranty have historically been insignificant. The Company's specific return policies include accepting returns of products with defects, or products that have not been produced to precise customer specifications.

#### Share-based Compensation

The Company recognizes share-based compensation expense over the service period that the awards are expected to vest. Share-based compensation expense includes the estimated effects of forfeitures, which are adjusted over the requisite service period to the extent actual forfeitures differ, or are expected to differ, from such estimates. Changes

in estimated forfeitures are recognized in the period of change and will also impact the amount of expense to be recognized in future periods. Determining the appropriate option pricing model, calculating the grant date fair value of share-based awards and estimating forfeiture rates requires considerable judgment, including the estimations of stock price volatility and the expected term of options granted.

30

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The Company uses the Black-Scholes option pricing model to value employee stock options. The Company estimates stock price volatility based on daily averages of its historical volatility over a term approximately equal to the estimated time period the grant will remain outstanding. The expected term of options and forfeiture rate assumptions are derived from historical data.

#### Recent Accounting Pronouncements

See “Item 8. Financial Statements and Supplementary Data – Notes to Consolidated Financial Statements – Note 21 – Recent Accounting Pronouncements” for recent accounting pronouncements that may affect the Company’s financial reporting.

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

The Company records derivatives in the consolidated balance sheets as assets or liabilities, measured at fair value. The Company does not engage in derivative instruments for speculative purposes. Gains or losses resulting from changes in the values of those derivatives are reflected in earnings, or as accumulated other comprehensive income or loss, a separate component of equity, depending on the use of the derivatives and whether they qualify for hedge accounting. In order to qualify for hedge accounting, among other criteria, a derivative must be a hedge of an interest rate, price, foreign currency exchange rate, or credit risk that is expected to be highly effective at the inception of the hedge, be highly effective in achieving offsetting changes in the fair value or cash flows of the hedged item during the term of the hedge and formally documented at the inception of the hedge. In general, the types of risks that the Company has hedged are those related to the variability of future cash flows caused by movements in foreign currency exchange and interest rates. The Company documents its risk management strategy and hedge effectiveness at the inception of, and during the term of, each hedge.

#### Foreign Currency Exchange Rate Risk

The Company conducts business in several major international currencies throughout its worldwide operations and its financial performance may be affected by fluctuations in the exchange rates of these currencies. Changes in exchange rates can positively or negatively affect the Company's sales, operating margins, assets, liabilities, and equity. The functional currencies of the Company's Asian subsidiaries are the Korean won, the New Taiwan dollar and the Singapore dollar. The functional currencies of the Company's European subsidiaries are the British pound and the euro. In addition, the Company has transactions and balances in Japanese yen.

The Company attempts to minimize its risk of foreign currency transaction losses by producing its products in the same country in which the products are sold (thereby generating revenues and incurring expenses in the same currency), and by managing its working capital. However, in some instances, the Company sells products in a currency other than the functional currency of the country where it was produced or purchases products in a currency that differs from the functional currency of the purchasing manufacturing facility. There can be no assurance that this approach will continue to be successful, especially in the event of a significant adverse movement in the value of any foreign currency against the U.S. dollar, the New Taiwan dollar or the Korean won.

The Company's primary net foreign currency exposures as of November 1, 2015, included the Korean won, the Japanese yen, the New Taiwan dollar, the Singapore dollar, the British pound, and the euro. As of November 1, 2015, a 10% adverse movement in the value of these currencies against the U.S. dollar would have resulted in a net unrealized pre-tax loss of \$4.8 million. The Company does not believe that a 10% change in the exchange rates of other non-U.S. dollar currencies would have a material effect on its consolidated financial position, results of operations, or cash flows.

#### Interest Rate Risk

At November 1, 2015, the Company did not have any variable rate borrowings. A 10% change in interest rates would not have had a material effect on the Company's consolidated financial position, results of operations, or cash flows in the year ended November 1, 2015.



Index

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

|  | Page |
|--|------|
| <u>Report of Independent Registered Public Accounting Firm</u>   | 33   |
| <u>Consolidated Balance Sheets at November 1, 2015 and November 2, 2014</u>  | 34   |
| <u>Consolidated Statements of Income for the years ended November 1, 2015, November 2, 2014 and November 3, 2013</u>               | 35   |
| <u>Consolidated Statements of Comprehensive Income for the years ended November 1, 2015, November 2, 2014 and November 3, 2013</u> | 36   |
| <u>Consolidated Statements of Equity for the years ended November 1, 2015, November 2, 2014 and November 3, 2013</u>               | 37   |
| <u>Consolidated Statements of Cash Flows for the years ended November 1, 2015, November 2, 2014 and November 3, 2013</u>           | 38   |
| <u>Notes to Consolidated Financial Statements</u>  | 39   |

Index

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Board of Directors and Shareholders  
Photronics, Inc.  
Brookfield, Connecticut

We have audited the accompanying consolidated balance sheets of Photronics, Inc. and subsidiaries (the "Company") as of November 1, 2015 and November 2, 2014, and the related consolidated statements of income, consolidated statements of comprehensive income, consolidated statements of equity, and consolidated statements of cash flows for each of the three fiscal years ended November 1, 2015, November 2, 2014 and November 3, 2013. We also have audited the Company's internal control over financial reporting as of November 1, 2015, based on criteria established in Internal Control — Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. The Company's management is responsible for these financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control over Financial Reporting in Item 9A. Our responsibility is to express an opinion on these financial statements and an opinion on the Company's internal control over financial reporting based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit 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.

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

Because of the inherent limitations of internal control over financial reporting, including the possibility of collusion or improper management override of controls, material misstatements due to error or fraud may not be prevented or detected on a timely basis. Also, projections of any evaluation of the effectiveness of the internal control over financial reporting to future periods are subject to the risk that the controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of Photronics, Inc. and subsidiaries as of November 1, 2015 and November 2, 2014, and the results of their operations and their cash flows for each of the three fiscal years ended November 1, 2015, November 2, 2014 and November 3, 2013, in conformity with accounting principles generally accepted in the United States of America. Also, in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of November 1, 2015, based on the criteria established in Internal Control — Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission.

/s/ Deloitte & Touche LLP

Hartford, Connecticut  
January 7, 2016

33

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Index

## PHOTRONICS, INC. AND SUBSIDIARIES

## Consolidated Balance Sheets

(in thousands, except per share amounts)

|   | November<br>1, 2015 | November<br>2, 2014 |
|---|---------------------|---------------------|
| <b>ASSETS</b>   |                     |                     |
| Current assets:   |                     |                     |
| Cash and cash equivalents   | \$205,867           | \$192,929           |
| Accounts receivable, net of allowance of \$3,301 in 2015 and \$3,078 in 2014  | 110,056             | 94,515              |
| Inventories   | 24,157              | 22,478              |
| Deferred income taxes   | 3,354               | 7,223               |
| Other current assets  | 20,680              | 19,347              |
| Total current assets  | 364,114             | 336,492             |
| Property, plant and equipment, net  | 547,284             | 550,069             |
| Investment in joint venture   | 93,021              | 93,122              |
| Intangible assets, net  | 24,616              | 30,294              |
| Deferred income taxes   | 11,908              | 11,036              |
| Other assets  | 4,612               | 8,170               |
| Total assets  | \$1,045,555         | \$1,029,183         |
| <b>LIABILITIES AND EQUITY</b>   |                     |                     |
| Current liabilities:  |                     |                     |
| Current portion of long-term borrowings   | \$65,495            | \$10,381            |
| Accounts payable  | 79,143              | 77,779              |
| Payables – related parties  | 8,840               | 8,716               |
| Accrued liabilities   | 39,214              | 42,241              |
| Total current liabilities   | 192,692             | 139,117             |
| Long-term borrowings  | 67,120              | 131,805             |
| Deferred income taxes   | 4,388               | 3,045               |
| Other liabilities   | 19,289              | 15,722              |
| Total liabilities   | 283,489             | 289,689             |
| Commitments and contingencies   |                     |                     |
| Equity:   |                     |                     |
| Preferred stock, \$0.01 par value, 2,000 shares authorized, none issued and outstanding   | -                   | -                   |
| Common stock, \$0.01 par value, 150,000 shares authorized, 66,602 shares issued and outstanding at November 1, 2015, and 65,930 shares issued and outstanding at November 2, 2014 | 666                 | 659                 |
| Additional paid-in capital  | 526,402             | 520,182             |
| Retained earnings   | 130,060             | 85,435              |
| Accumulated other comprehensive income (loss)   | (10,573 )           | 21,774              |
| Total Photronics, Inc. shareholders' equity   | 646,555             | 628,050             |
| Noncontrolling interests  | 115,511             | 111,444             |

|                              |             |             |
|------------------------------|-------------|-------------|
| Total equity                 | 762,066     | 739,494     |
| Total liabilities and equity | \$1,045,555 | \$1,029,183 |

See accompanying notes to consolidated financial statements.

Index

## PHOTRONICS, INC. AND SUBSIDIARIES

## Consolidated Statements of Income

(in thousands, except per share amounts)

|  | Year Ended          |                     |                     |
|--|---------------------|---------------------|---------------------|
|  | November<br>1, 2015 | November<br>2, 2014 | November<br>3, 2013 |
| Net sales  | \$524,206           | \$455,527           | \$422,180           |
| Cost and expenses:                                       |                     |                     |                     |
| Cost of sales  | (381,070)           | (355,181)           | (322,540)           |
| Selling, general and administrative                      | (48,983 )           | (49,638 )           | (48,213 )           |
| Research and development                                 | (21,920 )           | (21,913 )           | (20,758 )           |
| Operating income   | 72,233              | 28,795              | 30,669              |
| Other income (expense):                                  |                     |                     |                     |
| Gain on acquisition                                      | -                   | 16,372              | -                   |
| Interest expense   | (4,990 )            | (7,247 )            | (7,756 )            |
| Interest and other income (expense), net                 | 2,797               | 3,410               | 3,892               |
| Income before income tax provision                       | 70,040              | 41,330              | 26,805              |
| Income tax provision                                     | (13,181 )           | (9,295 )            | (7,229 )            |
| Net income   | 56,859              | 32,035              | 19,576              |
| Net income attributable to noncontrolling interests      | (12,234 )           | (6,039 )            | (1,610 )            |
| Net income attributable to Photronics, Inc. shareholders | \$44,625            | \$25,996            | \$17,966            |
| Earnings per share:                                      |                     |                     |                     |
| Basic  | \$0.67              | \$0.42              | \$0.30              |
| Diluted  | \$0.63              | \$0.41              | \$0.29              |
| Weighted-average number of common shares outstanding:    |                     |                     |                     |
| Basic  | 66,331              | 61,779              | 60,644              |
| Diluted  | 78,383              | 66,679              | 61,599              |

See accompanying notes to consolidated financial statements.

Index

PHOTRONICS, INC. AND SUBSIDIARIES  
 Consolidated Statements of Comprehensive Income  
 (in thousands)

|   | Year Ended          |                     |                     |
|---|---------------------|---------------------|---------------------|
|   | November<br>1, 2015 | November<br>2, 2014 | November<br>3, 2013 |
| Net income  | \$56,859            | \$ 32,035           | \$ 19,576           |
| Other comprehensive income (loss), net of tax of \$0:               |                     |                     |                     |
| Foreign currency translation adjustments                            | (40,154)            | (5,916 )            | 9,805               |
| Amortization of cash flow hedge                                     | 128                 | 128                 | 128                 |
| Other   | (381 )              | (41 )               | 54                  |
| Total other comprehensive income (loss), net of tax                 | (40,407)            | (5,829 )            | 9,987               |
| Comprehensive income  | 16,452              | 26,206              | 29,563              |
| Less: comprehensive income attributable to noncontrolling interests | 4,174               | 5,238               | 858                 |
| Comprehensive income attributable to Photronics, Inc. shareholders  | \$ 12,278           | \$ 20,968           | \$ 28,705           |

See accompanying notes to consolidated financial statements.

Index

## PHOTRONICS, INC. AND SUBSIDIARIES

## Consolidated Statements of Equity

Years Ended November 1, 2015, November 2, 2014 and November 3, 2013

(in thousands)

|  | Common Stock |        | Additional | Retained  | Accumulated   | Non-        | Total      |
|--|--------------|--------|------------|-----------|---------------|-------------|------------|
|  | Shares       | Amount | Paid-In    | Earnings  | Other         | Controlling | Equity     |
|  |              |        | Capital    |           | Comprehensive | Interests   |            |
|  |              |        |            |           | Income        |             |            |
|  |              |        |            |           | (Loss)        |             |            |
| Balance at October 28, 2012  | 60,213       | \$ 602 | \$ 493,411 | \$ 41,473 | \$ 15,900     | \$ 34,615   | \$ 586,001 |
| Net income   | -            | -      | -          | 17,966    | -             | 1,610       | 19,576     |
| Other comprehensive income   | -            | -      | -          | -         | 10,740        | (753 )      | 9,987      |
| Sale of common stock through employee stock option and purchase plan | 397          | 4      | 880        | -         | -             | -           | 884        |
| Restricted stock awards vestings and expense                         | 158          | 2      | 1,281      | -         | -             | -           | 1,283      |
| Share-based compensation expense                                     | -            | -      | 2,692      | -         | -             | -           | 2,692      |
| Common stock warrants exercised                                      | 315          | 3      | (3 )       | -         | -             | -           | -          |
| Repurchase of common stock of subsidiary                             | -            | -      | 600        | -         | (237 )        | (32,955 )   | (32,592 )  |
| Balance at November 3, 2013  | 61,083       | 611    | 498,861    | 59,439    | 26,403        | 2,517       | 587,831    |
| Net income   | -            | -      | -          | 25,996    | -             | 6,039       | 32,035     |
| Other comprehensive loss   | -            | -      | -          | -         | (5,028 )      | (801 )      | (5,829 )   |
| Sale of common stock through employee stock option and purchase plan | 337          | 3      | 1,424      | -         | -             | -           | 1,427      |
| Restricted stock awards vestings and expense                         | 172          | 2      | 1,295      | -         | -             | -           | 1,297      |
| Share-based compensation expense                                     | -            | -      | 2,774      | -         | -             | -           | 2,774      |
| Acquisition of DPTT  | -            | -      | (6,291 )   | -         | 410           | 105,403     | 99,522     |
| Conversion of debt to common stock                                   | 4,338        | 43     | 22,011     | -         | -             | -           | 22,054     |
| Repurchase of common stock of subsidiary                             | -            | -      | 108        | -         | (11 )         | (1,714 )    | (1,617 )   |
| Balance at November 2, 2014  | 65,930       | 659    | 520,182    | 85,435    | 21,774        | 111,444     | 739,494    |
| Net income   | -            | -      | -          | 44,625    | -             | 12,234      | 56,859     |
| Other comprehensive loss   | -            | -      | -          | -         | (32,347 )     | (8,060 )    | (40,407 )  |
| Sale of common stock through employee                                |              |        |            |           |               |             |            |



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|   |        |        |            |            |              |            |            |
|---|--------|--------|------------|------------|--------------|------------|------------|
| stock option and purchase plan                  | 513    | 5      | 2,505      | -          | -            | -          | 2,510      |
| Restricted stock awards vestings<br>and expense | 159    | 2      | 1,064      | -          | -            | -          | 1,066      |
| Share-based compensation<br>expense             | -      | -      | 2,623      | -          | -            | -          | 2,623      |
| Repurchase of common stock of<br>subsidiary     | -      | -      | 28         | -          | -            | (107 )     | (79 )      |
| Balance at November 1, 2015                     | 66,602 | \$ 666 | \$ 526,402 | \$ 130,060 | \$ (10,573 ) | \$ 115,511 | \$ 762,066 |

See accompanying notes to consolidated financial statements.

Index

## PHOTRONICS, INC. AND SUBSIDIARIES

## Consolidated Statements of Cash Flows

(in thousands)

|   | Year Ended             |                        |                        |
|---|------------------------|------------------------|------------------------|
|   | November<br>1,<br>2015 | November<br>2,<br>2014 | November<br>3,<br>2013 |
| Cash flows from operating activities:   |                        |                        |                        |
| Net income  | \$56,859               | \$32,035               | \$19,576               |
| Adjustments to reconcile net income to net cash provided by operating activities: |                        |                        |                        |
| Depreciation and amortization of property, plant and equipment                    | 75,684                 | 72,859                 | 65,994                 |
| Amortization of deferred financing costs and intangible assets                    | 6,729                  | 7,277                  | 6,948                  |
| Gain on acquisition   | -                      | (16,372 )              | -                      |
| Share-based compensation  | 3,689                  | 4,071                  | 3,975                  |
| Deferred income taxes   | 3,401                  | 4,215                  | (266 )                 |
| Changes in assets and liabilities:  |                        |                        |                        |
| Accounts receivable   | (21,815 )              | 5,271                  | 2,400                  |
| Inventories   | (2,893 )               | (2,552 )               | (891 )                 |
| Other current assets  | (2,557 )               | 1,781                  | (2,744 )               |
| Accounts payable, accrued liabilities and other                                   | 14,098                 | (12,224 )              | 4,409                  |
| Net cash provided by operating activities   | 133,195                | 96,361                 | 99,401                 |
| Cash flows from investing activities:   |                        |                        |                        |
| Purchases of property, plant and equipment  | (104,033 )             | (91,085 )              | (63,792 )              |
| Cash from acquisition   | -                      | 4,508                  | -                      |
| Purchases of intangible assets  | (771 )                 | (364 )                 | (2,173 )               |
| Other   | 499                    | (544 )                 | (272 )                 |
| Net cash used in investing activities   | (104,305 )             | (87,485 )              | (66,237 )              |
| Cash flows from financing activities:   |                        |                        |                        |
| Repayments of long-term borrowings  | (9,571 )               | (29,782 )              | (8,314 )               |
| Purchase of common stock of subsidiary  | -                      | -                      | (32,374 )              |
| Proceeds from share-based arrangements  | 2,651                  | 1,298                  | 884                    |
| Payments of deferred financing fees   | -                      | (346 )                 | (40 )                  |
| Other   | (179 )                 | (711 )                 | -                      |
| Net cash used in financing activities   | (7,099 )               | (29,541 )              | (39,844 )              |
| Effects of exchange rate changes on cash and cash equivalents                     | (8,853 )               | (2,021 )               | 4,252                  |
| Net increase (decrease) in cash and cash equivalents                              | 12,938                 | (22,686 )              | (2,428 )               |
| Cash and cash equivalents at beginning of year                                    | 192,929                | 215,615                | 218,043                |
| Cash and cash equivalents at end of year  | \$205,867              | \$192,929              | \$215,615              |
| Supplemental disclosure of non-cash information:                                  |                        |                        |                        |
| Accrual for property, plant and equipment purchased during year                   | \$25,858               | \$28,672               | \$17,502               |
| Noncash net assets from acquisition   | -                      | 110,211                | -                      |
| Conversion of debt to common stock  | -                      | 22,054                 | -                      |
| Capital lease obligation for purchases of property, plant and equipment           | -                      | -                      | 26,356                 |

See accompanying notes to consolidated financial statements.

Index

PHOTRONICS, INC. AND SUBSIDIARIES

Notes to Consolidated Financial Statements

Years Ended November 1, 2015, November 2, 2014 and November 3, 2013

(in thousands, except share amounts)

NOTE 1 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Business

Photronics, Inc. and its subsidiaries (the "Company" or "Photronics") is one of the world's leading manufacturers of photomasks, which are high precision photographic quartz plates containing microscopic images of electronic circuits. Photomasks are a key element in the manufacture of semiconductors and flat panel displays ("FPDs"), and are used as masters to transfer circuit patterns onto semiconductor wafers and flat panel substrates during the fabrication of integrated circuits ("ICs") and a variety of FPDs and, to a lesser extent, other types of electrical and optical components. The Company currently operates principally from nine manufacturing facilities; two of which are located in Europe, three in Taiwan, one in Korea, and three in the United States.

Consolidation

The accompanying consolidated financial statements include the accounts of Photronics, Inc. and its majority-owned subsidiaries that the Company controls. All intercompany balances and transactions have been eliminated in consolidation.

Estimates and Assumptions

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect amounts reported in them. Estimates are based on historical experience and on various assumptions that are believed to be reasonable under the circumstances. The Company's estimates are based on the facts and circumstances available at the time they are made. Actual results reported by the Company may differ from such estimates. The Company reviews these estimates periodically and reflects the effect of revisions in the period in which they are determined.

Derivative Instruments and Hedging Activities

The Company records derivatives in the consolidated balance sheets as assets or liabilities, measured at fair value. The Company does not engage in derivative instruments for speculative purposes. Gains or losses resulting from changes in the values of those derivatives are reflected in earnings, or as accumulated other comprehensive income or loss, a separate component of equity, depending on the use of the derivatives and whether they qualify for hedge accounting. In order to qualify for hedge accounting, among other criteria, a derivative must be a hedge of an interest rate, price, foreign currency exchange rate, or credit risk that is expected to be highly effective at the inception of the hedge, be highly effective in achieving offsetting changes in the fair value or cash flows of the hedged item during the term of the hedge and formally documented at the inception of the hedge. In general, the types of risks the Company has hedged are those related to the variability of future cash flows caused by movements in foreign currency exchange and interest rates. The Company documents its risk management strategy and hedge effectiveness at the inception of, and during the term of, each hedge.

Fiscal Year

The Company's fiscal year ends on the Sunday closest to October thirty-first, and, as a result, a 53-week year occurs every 5 to 6 years. Fiscal years 2015 and 2014 each included 52 weeks, while fiscal year 2013 included 53 weeks.



## Index

### Cash and Cash Equivalents

Cash and cash equivalents include cash and highly liquid investments purchased with an original maturity of 3 months or less. The carrying values of cash equivalents approximate their fair values due to the short-term maturities of these instruments.

### Inventories

Inventories are primarily comprised of raw materials and are stated at the lower of cost, determined under the first-in, first-out ("FIFO") method, or market.

### Property, Plant and Equipment

Property, plant and equipment, except as explained below under "Impairment of Long-Lived Assets," are stated at cost less accumulated depreciation and amortization. Repairs and maintenance, as well as renewals and replacements of a routine nature, are charged to operations as incurred, while those that improve or extend the lives of existing assets are capitalized. Upon sale or other disposition, the cost of the asset and accumulated depreciation are removed from the accounts, and any resulting gain or loss is reflected in earnings.

Depreciation and amortization are computed using the straight-line method over the estimated useful lives of the related assets. Buildings and improvements are depreciated over 15 to 40 years, machinery and equipment over 3 to 10 years and, furniture, fixtures and office equipment over 3 to 5 years. Leasehold improvements are amortized over the life of the lease or the estimated useful life of the improvement, whichever is less. Judgment and assumptions are used in establishing estimated useful lives and depreciation periods. The Company also uses judgment and assumptions as it periodically reviews property, plant and equipment for any potential impairment in carrying values whenever events such as a significant industry downturn, plant closures, technological obsolescence, or other change in circumstances indicate that their carrying amounts may not be recoverable.

### Intangible Assets

Intangible assets consist primarily of a technology license agreement, a supply agreement and acquisition-related intangibles. These assets, except as explained below, are stated at fair value as of the date acquired less accumulated amortization. Amortization is calculated based on the estimated useful lives of the assets, which range from 3 to 15 years, using the straight-line method or another method that more fairly represents the utilization of the assets.

The Company periodically evaluates the remaining useful lives of its intangible assets to determine whether events or circumstances warrant a revision to the remaining periods of amortization. In the event that the estimate of an intangible asset's remaining useful life has changed, the remaining carrying amount of the intangible asset is amortized prospectively over that revised remaining useful life. If it is determined that an intangible asset has an indefinite useful life, that intangible asset would be subject to impairment testing annually or whenever events or circumstances indicate that the carrying value may not, based on future undiscounted cash flows or market factors, be recoverable, and an impairment loss would be recorded in the period so determined. The measurement of the impairment loss would be based on the fair value of the intangible asset.

### Impairment of Long-Lived Assets

Long-lived assets are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of such assets may not be recoverable. Determination of recoverability is based on the Company's judgment and estimates of undiscounted future cash flows resulting from the use of the assets and their eventual disposition. Measurement of an impairment loss for long-lived assets that management expects to hold and use is based on the fair

value of the assets. The carrying values of assets determined to be impaired are reduced to their estimated fair values. Fair values of any impaired assets would generally be determined using a market or income approach.

## Index

### Business Combinations

When acquiring other businesses or participating in mergers or joint ventures in which the Company is deemed to be the acquirer, the Company generally recognizes identifiable assets acquired, liabilities assumed and any noncontrolling interests at their acquisition date fair values, and separately from any goodwill that may be required to be recognized. Goodwill, when recognizable, would be measured as the excess amount of any consideration transferred, which is generally measured at fair value, over the acquisition date fair values of the identifiable assets acquired and liabilities assumed.

Accounting for such transactions requires the Company's management to make significant assumptions and estimates and, although the Company believes any estimates and assumptions it makes to be reasonable and appropriate at the time they are made, unanticipated events and circumstances may arise that affect their accuracy, causing actual results to differ from those estimated by the Company. When required, the Company will adjust the values of the assets acquired and liabilities assumed against the acquisition gain or goodwill, as initially recorded, for a period of up to one year after the transaction.

Costs incurred to effect a merger or acquisition, such as legal, accounting, valuation and other third party costs, as well as internal general and administrative costs incurred are charged to expense in the periods incurred. Costs incurred to issue any debt and equity securities are recognized in accordance with other applicable generally accepted accounting principles.

### Investments in Joint Ventures

The financial results of investments in joint ventures of which the Company has a controlling financial interest are included in the Company's consolidated financial statements. Investments in joint ventures over which the Company has the ability to exercise significant influence and that, in general, are at least 20 percent owned are accounted for under the equity method. An impairment loss would be recognized whenever a decrease in the fair value of such an investment below its carrying amount is determined to be other than temporary. In judging "other than temporary," the Company would consider the length of time and the extent to which the fair value of the investment has been less than the carrying amount of the investment, the near-term and longer-term operating and financial prospects of the investee, and the Company's longer-term intent of retaining its investment in the investee.

### Variable Interest Entities

The Company accounts for the investments it makes in certain legal entities in which equity investors do not have 1) sufficient equity at risk for the legal entity to finance its activities without additional subordinated financial support or, 2) as a group, the holders of the equity investment at risk do not have either the power, through voting or similar rights, to direct the activities of the legal entity that most significantly impact the entity's economic performance or, 3) the obligation to absorb the expected losses of the legal entity or the right to receive expected residual returns of the legal entity. These certain legal entities are referred to as "variable interest entities", or "VIEs".

The Company would consolidate the results of any such entity in which it determined that it has a controlling financial interest. The Company would have a "controlling financial interest" in such an entity when the Company has both the power to direct the activities that most significantly affect the VIE's economic performance and the obligation to absorb the losses of, or right to receive the benefits from, the VIE that could be potentially significant to the VIE. On a quarterly basis, the Company reassesses whether it has a controlling financial interest in any investments it has in these certain legal entities.

The Company accounts for investments it makes in VIEs in which it has determined that it does not have a controlling financial interest but has significant influence over and holds at least a 20 percent ownership interest using the equity

method. Any such investment not meeting the parameters to be accounted under the equity method would be accounted for using the cost method unless the investment had a readily determinable fair value, at which it would then be reported.



## Index

### Income Taxes

The income tax provision is computed on the basis of the various tax jurisdictions' income or loss before income taxes. Deferred income taxes reflect the tax effects of differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes, as well as the tax effects of net operating losses and tax credit carryforwards. The Company uses judgment and assumptions to determine if valuation allowances for deferred income tax assets are required, if their realization is not more likely than not, by considering future market growth, forecasted operations, future taxable income, and the amount of earnings in the tax jurisdictions in which it operates.

The Company considers income taxes in each of the tax jurisdictions in which it operates in order to determine its effective income tax rate. Current income tax exposure is identified and temporary differences resulting from differing treatments of items for tax and financial reporting purposes are assessed. These differences result in deferred tax assets and liabilities, which are included in the Company's consolidated balance sheets. Additionally, the Company evaluates the potential realization of deferred income tax assets from future taxable income and establishes valuation allowances if their realization is deemed not more likely than not. Accordingly, income taxes charged against earnings may have been impacted by changes in the valuation allowance. Significant management estimates and judgment are required in determining any valuation allowances recorded against net deferred tax assets.

The Company accounts for uncertain tax positions by recording a liability for unrecognized tax benefits resulting from uncertain tax positions taken, or expected to be taken, in its tax returns. The Company includes any applicable interest and penalties related to uncertain tax positions in its income tax provision.

### Earnings Per Share

Basic earnings per share ("EPS") is based on the weighted-average number of common shares outstanding for the period, excluding any dilutive common share equivalents. Diluted EPS reflects the potential dilution that could occur if certain share-based payment awards or financial instruments were exercised, earned or converted.

### Share-Based Compensation

The Company recognizes share-based compensation expense over the service period that the awards are expected to vest. Share-based compensation expense includes the estimated effects of forfeitures, which are adjusted over the requisite service period to the extent actual forfeitures differ, or are expected to differ, from such estimates. Changes in estimated forfeitures are recognized in the period of change and will also impact the amount of expense to be recognized in future periods. Determining the appropriate option pricing model, calculating the grant date fair value of share-based awards and estimating forfeiture rates requires considerable judgment, including the estimations of stock price volatility and the expected term of options granted.

The Company uses the Black-Scholes option pricing model to value employee stock options. The Company estimates stock price volatility based on daily averages of its historical volatility over a term approximately equal to the estimated time period the grant will remain outstanding. The expected term of options and forfeiture rate assumptions are derived from historical data.

### Research and Development

Research and development costs are expensed as incurred, and consist primarily of global development efforts related to high-end process technologies for advanced sub-wavelength reticle solutions for IC photomask technologies. Research and development expenses also include the amortization of the carrying value of a technology license agreement with Micron Technology, Inc. ("Micron"). Under this technology license agreement, the Company has access

to certain photomask technology developed by Micron.

42

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Index

Foreign Currency Translation

The Company's international subsidiaries maintain their accounts in their respective local currencies. Assets and liabilities of such subsidiaries are translated to U.S. dollars at year-end exchange rates. Income and expenses are translated at average rates of exchange prevailing during the year. Foreign currency translation adjustments are accumulated and reported in accumulated other comprehensive income, a component of equity. The effects of changes in exchange rates on foreign currency transactions, which are included in interest and other income (expense), net were a net gain of \$2.5 million, \$1.4 million and \$0.5 million in fiscal years 2015, 2014 and 2013, respectively.

Noncontrolling Interests

Noncontrolling interests represents the minority shareholders' proportionate share in the equity of the Company's two majority-owned subsidiaries, Photronics DNP Mask Corporation ("PDMC") in Taiwan, of which noncontrolling interests owned 49.99% as of November 1, 2015 and November 2, 2014 and PK Ltd. ("PKL") in Korea of which noncontrolling shareholders owned approximately 0.2% and 0.3% as of November 1, 2015 and November 2, 2014, respectively. The effect on its equity of the change in the Company's ownership interest in these subsidiaries is presented in Note 13.

Revenue Recognition

The Company recognizes revenue when there is persuasive evidence that an arrangement exists, delivery has occurred, the sales price is fixed or determinable, and collectability is reasonably assured. Delivery is determined by the shipping terms of the individual sales transactions. For sales with FOB destination or similar shipping terms, delivery occurs when the Company's product reaches its destination and is received by the customer. For sales with FOB shipping point terms, delivery occurs when the Company's product is received by the common carrier. The Company uses judgment when estimating the effect on revenue of discounts and sales incentives, both of which are accrued when the related revenue is recognized.

Warranties and Other Post Shipment Obligations – For a 30-day period, the Company warrants that items sold will conform to customer specifications. However, the Company's liability is limited to the repair or replacement of the photomasks at its sole option. The Company inspects photomasks for conformity to customer specifications prior to shipment. Accordingly, customer returns of items under warranty have historically been insignificant. The Company's specific return policies include accepting returns of products with defects, or products that have not been produced to precise customer specifications.

Sales Taxes – The Company reports its revenues net of any sales taxes billed to its customers.

NOTE 2 – ACQUISITION OF DNP PHOTOMASK TECHNOLOGY TAIWAN CO., LTD.

On April 4, 2014, DPTT merged into PSMC, the Company's IC manufacturing subsidiary located in Taiwan, to form PDMC. Throughout this report the merger of DPTT into PSMC is referred to as the "DPTT Acquisition." In connection with the DPTT Acquisition, the Company transferred consideration with a fair value of \$98.3 million. The Company owns 50.01 percent of PDMC and includes its financial results in its consolidated financial statements, while DNP owns the remaining 49.99 percent of PDMC. The Company also has the ability to appoint the majority of the directors of PDMC, including the chairman of its board of directors, select its management responsible for implementing its policies and procedures, and establish its operating and capital decisions and policies. Photronics determined it has control of PDMC by virtue of its tie-breaking voting rights within PDMC's Board of Directors, thereby giving it the power to direct the activities of PDMC that most significantly impact its economic performance, including its decision making authority in the ordinary course of business. The DPTT Acquisition was the result of the Company's desire to combine the strengths in logic and memory photomask technologies of PSMC and DPTT in order to enhance its

capability with customers in the region.

43

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Index

The DPTT Acquisition met the conditions of a business combination as defined by Accounting Standards Codification (“ASC”) 805 and, as such, is accounted for under ASC 805 using the acquisition method of accounting. ASC 805 defines the three elements of a business as Input, Process and Output. As a result of the DPTT Acquisition, Photronics acquired the machinery and equipment utilized in the processes to manufacture product, the building that houses the entire operation and the processes needed to manufacture the product, all previously owned by DPTT. The former DPTT employees hired by Photronics in connection with the acquisition brought with them the skills, experience and know-how necessary to provide the operational processes that, when applied to the acquired assets, represent processes being applied to inputs to create outputs. Having met all three elements of a business as defined in ASC 805, the Company determined that the DPTT Acquisition should be accounted for as a business combination.

The following table summarizes the fair values of assets acquired and liabilities assumed of DPTT, the fair value of the noncontrolling interests and consideration for DPTT at the acquisition date.

|   |           |
|---|-----------|
| Cash and cash equivalents   | \$4,508   |
| Accounts receivable (gross amount of \$28,560, of which \$500 is estimated to be uncollectable) | 28,060    |
| Inventory   | 1,279     |
| Deferred tax asset  | 9,787     |
| Other current assets  | 11,517    |
| Property, plant and equipment   | 95,431    |
| Identifiable intangible assets  | 1,552     |
| Other long-term assets  | 1,328     |
| Accounts payable and accrued expenses   | (32,410 ) |
| Deferred tax liability  | (3,042 )  |
| Other long-term liabilities   | (3,291 )  |
| Total net assets acquired   | 114,719   |
| Noncontrolling interests retained by DNP  | 57,348    |
|   | 57,371    |
| Consideration – 49.99% of fair value of PSMC  | 40,999    |
| Gain on acquisition   | \$ 16,372 |

In addition to recording the fair values of the net assets acquired, the Company also recorded a gain on acquisition of \$16.4 million in the three month period ended May 4, 2014, in accordance with ASC 805 using the acquisition method of accounting. The gain on acquisition was primarily due to the difference between the market values of the acquired real estate and personal property exceeding the fair value of the consideration transferred. In addition, a deferred tax liability of \$3.0 million was recorded in the opening balance sheet, which had the effect of reducing the gain on acquisition to \$16.4 million. Prior to recording the gain, the Company reassessed whether it had correctly identified all of the assets acquired and all of the liabilities assumed. Additionally, the Company also reviewed the procedures used to measure the amounts of the identifiable assets acquired, liabilities assumed and consideration transferred.

The fair value of the first component of consideration represents 49.99 percent of the fair value of PSMC, and is based on recent prices paid by the Company to acquire outstanding shares of PSMC (prior to the acquisition). As a result of the merger, the Company acquired the net assets of DPTT having a fair value of \$114.7 million, less noncontrolling interests of \$57.3 million retained by DNP, and transferred consideration with a fair value of \$41.0 million, resulting in a gain of \$16.4 million. The fair value of the total consideration transferred as of the acquisition date was \$98.3 million, comprised of the 49.99% noncontrolling interest in DPTT of \$57.3 million, and 49.99% of the fair value of PSMC of \$41.0 million (112.9 million shares, or 49.99% of the outstanding common stock of PSMC).

Index

We estimated the \$114.7 million fair value of DPTT as of the acquisition date by applying an income approach as our valuation technique. Our income approach followed a discounted cash flow method, which applied our best estimates of future cash flows and an estimated terminal value discounted to present value at a rate of return taking into account the relative risk of the cash flows. To confirm the reasonableness of the value derived from the income approach, we also analyzed the values of comparable companies which are publicly traded. The acquisition date fair value of the property, plant and equipment of DPTT was \$95.4 million, which was determined by utilizing the cost and, to a lesser extent, the market approach, based on an in-use premise of value. Inputs utilized by the Company to determine fair values of DPTT's property, plant and equipment included a cost approach, which was adjusted for depreciation and condition for equipment, and adjusted for depreciation and local market conditions for real property. The noncontrolling interest of DPTT was calculated using the 49.99% of its total fair value of \$114.7 million. The Company also used a market approach to corroborate the enterprise value of DPTT. This fair value measurement is based on significant inputs that are not observable in the market and thus represents a fair value measurement categorized within Level 3 of the fair value hierarchy. Key assumptions include local and current construction replacement cost multipliers, amounts of ancillary replacement costs, physical deterioration, and economic and functional obsolescence to adjust the current replacement costs by, as well as the estimated economic lives of the assets.

Identifiable intangible assets acquired were primarily customer relationships, which represent the fair value of relationships and agreements DPTT had in place at the date of the merger. The customer relationships had a fair value of \$1.5 million at the acquisition date, determined by using the multi-period excess earnings method, and are amortized over a twelve year estimated useful life. The acquisition date fair value of the remainder of the identifiable assets acquired and liabilities assumed were equivalent to, or did not materially differ from, their carrying values.

Acquisition costs related to the merger were \$2.5 million and \$0.8 million in fiscal year 2014 and fiscal year 2013, respectively, and are included in selling, general and administrative expense in the consolidated statements of income. The Company did not incur any acquisition related costs in fiscal year 2015.

Revenues and net income of PDMC included in the Company's financial results from the April 4, 2014 acquisition date through November 2, 2014, were \$101.8 million and \$6.0 million, respectively.

Unaudited Pro Forma Financial Information

The following unaudited pro forma financial information presents financial information as if the DPTT acquisition had occurred as of the beginning of fiscal year 2013. The pro forma earnings for fiscal years 2014 and 2013 were adjusted to exclude the above mentioned \$2.5 million and \$0.8 million non-recurring acquisition related costs and the gain on acquisition of \$16.4 million. Other material non-recurring pro forma adjustments made to arrive at the below earnings amounts included the add back of additional depreciation recorded against DPTT long-lived assets of \$6.6 million and \$12.9 million for fiscal years 2014 and 2013, respectively. The pro forma information presented does not purport to represent results that would have been achieved had the merger occurred as of the beginning of the earliest period presented, or to be indicative of the Company's future financial performance.

|  | Year Ended       |                  |
|--|------------------|------------------|
|  | November 2, 2014 | November 3, 2013 |
| Revenues   | \$499,968        | \$514,265        |
| Net income   | \$23,969         | \$34,922         |
| Net income attributable to Photronics, Inc. shareholders | \$12,169         | \$21,902         |

|                            |        |        |
|----------------------------|--------|--------|
| Diluted earnings per share | \$0.19 | \$0.36 |
|----------------------------|--------|--------|

45

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Index

## NOTE 3 - PROPERTY, PLANT AND EQUIPMENT

Property, plant and equipment consists of the following:

|  | November<br>1, 2015 | November<br>2, 2014 |
|--|---------------------|---------------------|
| Land   | \$8,172             | \$8,598             |
| Buildings and improvements                     | 121,472             | 124,787             |
| Machinery and equipment                        | 1,458,623           | 1,367,691           |
| Leasehold improvements                         | 18,856              | 20,165              |
| Furniture, fixtures and office equipment       | 12,700              | 12,086              |
| Construction in progress                       | 6,657               | 81,351              |
|  | 1,626,480           | 1,614,678           |
| Less accumulated depreciation and amortization | 1,079,196           | 1,064,609           |
|  | \$547,284           | \$550,069           |

Property under capital leases are included in above property, plant and equipment as follows:

|                               | November<br>1, 2015 | November<br>2, 2014 |
|-------------------------------|---------------------|---------------------|
| Machinery and equipment       | \$ 56,245           | \$ 56,245           |
| Less accumulated amortization | 16,054              | 10,430              |
|                               | \$ 40,191           | \$ 45,815           |

## NOTE 4 - INTANGIBLE ASSETS

Intangible assets include assets related to the investment to form the MP Mask joint venture and other finite lived intangible assets. Amortization expense of intangible assets was \$6.0 million, \$5.8 million and \$5.5 million in fiscal years 2015, 2014 and 2013, respectively.

Intangible assets consist of:

|                              | Gross<br>Amount | Accumulated<br>Amortization | Net<br>Amount |
|------------------------------|-----------------|-----------------------------|---------------|
| As of November 1, 2015       |                 |                             |               |
| Technology license agreement | \$59,616        | \$ 37,426                   | \$22,190      |
| Customer relationships       | 8,616           | 7,229                       | 1,387         |
| Supply agreements            | 6,959           | 6,828                       | 131           |
| Software and other           | 6,577           | 5,669                       | 908           |
|                              | \$81,768        | \$ 57,152                   | \$24,616      |
| As of November 2, 2014       |                 |                             |               |
| Technology license agreement | \$59,616        | \$ 33,451                   | \$26,165      |
| Customer relationships       | 8,716           | 6,394                       | 2,322         |
| Supply agreements            | 6,959           | 6,605                       | 354           |
| Software and other           | 6,223           | 4,770                       | 1,453         |
|                              | \$81,514        | \$ 51,220                   | \$30,294      |





Index

The weighted-average amortization period for intangible assets acquired in fiscal year 2015 is three years, which is comprised of software and other intangible assets that have weighted-average amortization periods of three years. The weighted-average amortization period for intangible assets acquired in fiscal year 2014 is nine years, which is comprised of customer relationships and software and other intangible assets that have weighted-average amortization periods of twelve years and three years, respectively.

Intangible asset amortization over the next five years is estimated to be as follows:

## Fiscal Years:

|      |         |
|------|---------|
| 2016 | \$4,928 |
| 2017 | 4,410   |
| 2018 | 4,410   |
| 2019 | 4,410   |
| 2020 | 4,410   |

**NOTE 5 - JOINT VENTURE, TECHNOLOGY LICENSE AND OTHER AGREEMENTS WITH MICRON TECHNOLOGY, INC.**

In May 2006, Photronics and Micron Technology, Inc. ("Micron") entered into the MP Mask joint venture ("MP Mask"), which develops and produces photomasks for leading-edge and advanced next generation semiconductors. At the time of the formation of the joint venture, the Company also entered into an agreement to license photomask technology developed by Micron and certain supply agreements.

This joint venture is a variable interest entity ("VIE") (as that term is defined in the ASC) because all costs of the joint venture are passed on to the Company and Micron through purchase agreements they have entered into with the joint venture, and it is dependent upon the Company and Micron for any additional cash requirements. On a quarterly basis the Company reassesses whether its interest in MP Mask gives it a controlling financial interest in this VIE. The purpose of this quarterly reassessment is to identify the primary beneficiary (which is defined in the ASC as the entity that consolidates a VIE) of the VIE. As a result of the reassessments in fiscal year 2015, the Company determined that Micron is still the primary beneficiary of the VIE, by virtue of its tie-breaking voting rights within MP Mask's Board of Managers, thereby giving it the power to direct the activities of MP Mask that most significantly impact its economic performance, including its decision making authority in the ordinary course of business and its purchasing the majority of products produced by the VIE.

The Company has utilized MP Mask for both high-end IC photomask production and research and development purposes. MP Mask charges its variable interest holders based on their actual usage of its facility and charges separately for any research and development activities it engages in at the requests of its owners.

MP Mask is governed by a Board of Managers, appointed by Micron and the Company. Since MP Mask's inception, Micron, as a result of its majority ownership, has held majority voting power on the Board of Managers. The voting power held by each party is subject to change as ownership interests change. Under the MP Mask joint venture operating agreement, the Company may be required to make additional capital contributions to MP Mask up to the maximum amount defined in the operating agreement. However, should the Board of Managers determine that further additional funding is required, MP Mask shall pursue its own financing. If MP Mask is unable to obtain its own financing, it may request additional capital contributions from the Company. Should the Company choose not to make a requested contribution to MP Mask, its ownership percentage may be reduced. MP Mask did not request, and the Company did not make, any contributions to MP Mask in fiscal years 2015 or 2014 and it did not receive any distributions from MP Mask during those fiscal years.



Index

The Company's investment in the VIE, which represents its maximum exposure to loss, was \$93.0 million at November 1, 2015 and \$93.1 million at November 2, 2014. These amounts are reported in the Company's consolidated balance sheets as Investment in joint venture. The Company recorded a loss from its investment in MP Mask of \$0.1 million in fiscal years 2015 and 2013 and recorded no income or loss from the investment in fiscal year 2014. Income (loss) from MP Mask is included in Interest and other income, net, in the consolidated statements of income.

As of November 1, 2015, the Company owed MP Mask \$4.3 million and had a receivable from Micron of \$6.4 million, both primarily related to the aforementioned supply agreements. The Company, in 2015, recorded \$0.8 million of commission revenue earned under the supply agreements it has with Micron and MP Mask, and amortization of \$0.2 million of the related supply agreement intangible asset. In 2015 the Company also recorded cost of sales in the amount of \$4.8 million for photomasks produced by MP Mask for the Company's customers, and incurred expenses of \$3.1 million for research and development activities and other goods and services purchased from MP Mask by the Company.

As of November 2, 2014, the Company owed MP Mask \$4.2 million and had a receivable from Micron of \$6.8 million, both primarily related to the aforementioned supply agreements. The Company, in 2014, recorded \$1.2 million of commission revenue earned under the supply agreements it has with Micron and MP Mask, and amortization of \$0.2 million of the related supply agreement intangible asset. In 2014 the Company also recorded cost of sales in the amount of \$3.2 million for photomasks produced by MP Mask for the Company's customers, and incurred expenses of \$1.6 million for research and development activities and other goods and services purchased from MP Mask by the Company. In 2014 the Company purchased equipment from MP Mask for \$1.3 million.

As of November 3, 2013, the Company owed MP Mask \$4.5 million and had a receivable from Micron of \$4.9 million, both primarily related to the aforementioned supply agreements. The Company, in 2013, recorded \$0.9 million of commission revenue earned under the supply agreements it has with Micron and MP Mask, and amortization of \$0.3 million of the related supply agreement intangible asset. In 2013 the Company also recorded cost of sales in the amount of \$8.7 million for photomasks produced by MP Mask for the Company's customers, and incurred expenses of \$1.6 million for research and development activities and other goods and services purchased from MP Mask by the Company. In 2013 the Company purchased equipment from MP Mask for \$6.1 million.

On March 24, 2015, the Company announced that the MP Mask joint venture would not be renewed after May 5, 2016. The MP Mask operating agreement provides that Micron will make a payment to the Company to purchase the Company's equity interest in MP Mask based on the Company's ownership percentage of the net book value of MP Mask at that time, which, as of September 3, 2015, was approximately \$93 million. The Company does not expect that it will incur a significant gain or loss on this transaction. Concurrently, the Company announced that it entered into supply and technology license agreements with Micron. This supply agreement, which commences on May 6, 2016, with a one-year term subject to mutually agreeable renewals, provides that the Company will be the majority outsource supplier of Micron's photomasks and related services, if any. The technology license agreement commenced in March 2015 and continues through the earlier of one year from the termination of the initial technology license agreement, which will occur on May 5, 2016, or when Micron certifies that it has transferred certain defined technology to the Company. The Company forevermore has the rights to use the technology obtained under these technology license agreements.

Summarized financial information of MP Mask is presented below.

|                   |      |
|-------------------|------|
| As of Fiscal Year |      |
| End               |      |
| 2015              | 2014 |

|                        |          |          |
|------------------------|----------|----------|
| Current assets         | \$30,567 | \$31,696 |
| Noncurrent assets      | 173,840  | 205,457  |
| Current liabilities    | 18,234   | 44,024   |
| Noncurrent liabilities | -        | 6,804    |

Index

|                   | Fiscal Year |          |          |
|-------------------|-------------|----------|----------|
|                   | 2015        | 2014     | 2013     |
| Net sales         | \$96,068    | \$81,399 | \$77,900 |
| Gross profit      | 1,215       | 3,427    | 4,663    |
| Net income (loss) | (151 )      | 1,259    | 4,735    |

## NOTE 6 - ACCRUED LIABILITIES

Accrued liabilities include salaries, wages and related benefits of \$14.3 million and \$10.4 million at November 1, 2015 and November 2, 2014, respectively, and an acquisition liability of \$7.1 million and \$7.2 million at November 1, 2015 and November 2, 2014, respectively.

## NOTE 7 - LONG-TERM BORROWINGS

Long-term borrowings consist of the following:

|   | November<br>1, 2015 | November<br>2, 2014 |
|---|---------------------|---------------------|
| 3.25% convertible senior notes due in April 2016          | \$57,500            | \$115,000           |
| 3.25% convertible senior notes due in April 2019          | 57,500              | -                   |
| 2.77% capital lease obligation payable through July 2018  | 15,346              | 20,481              |
| 3.09% capital lease obligation payable through March 2016 | 2,269               | 6,705               |
|   | 132,615             | 142,186             |
| Less current portion                                      | 65,495              | 10,381              |
|   | \$67,120            | \$131,805           |

In January 2015 the Company privately exchanged \$57.5 million in aggregate principal amount of its 3.25% convertible senior notes with a maturity date of April 1, 2016, for new 3.25% convertible senior notes with an aggregate principal amount of \$57.5 million with a maturity date of April 1, 2019. The conversion rate of the new notes is the same as that of the exchanged notes, which were issued in March 2011 with a conversion rate of approximately 96 shares of common stock per \$1,000 note principal, equivalent to a conversion price of \$10.37 per share of common stock, and is subject to adjustment upon the occurrence of certain events, which are described in the indenture dated January 22, 2015. Note holders may convert each \$1,000 principal amount of notes at any time prior to the close of business on the second scheduled trading day immediately preceding April 1, 2019, and the Company is not required to redeem the notes prior to their maturity date. Interest on the notes accrues in arrears, and is paid semiannually through the notes' maturity date.

Index

The Company's credit facility, which expires in December 2018, has a \$50 million limit with an expansion capacity to \$75 million, and is secured by substantially all of the Company's assets located in the United States and common stock the Company owns in certain of its foreign subsidiaries. The credit facility precludes the Company from paying cash dividends, and is subject to a minimum interest coverage ratio, total leverage ratio and minimum unrestricted cash balance financial covenants, all of which the Company was in compliance with at November 1, 2015. The Company had no outstanding borrowings against the credit facility at November 1, 2015, and \$50 million was available for borrowing. The interest rate on the credit facility (1.44% at November 1, 2015) is based on the Company's total leverage ratio at LIBOR plus a spread, as defined in the credit facility.

In August 2013 a \$26.4 million principal amount, five year capital lease commenced to fund the purchase of a high-end lithography tool. Payments under the capital lease, which bears interest at 2.77% are \$0.5 million per month through July 2018. Under the terms of the lease agreement, the Company must maintain the equipment in good working order, and is subject to a cross default with cross acceleration provision related to certain nonfinancial covenants incorporated in its credit facility. As of November 1, 2015, the total amount payable through the end of the lease term was \$16.0 million, of which \$15.3 million represented principal and \$0.7 million represented interest.

In April 2011 the Company entered into a five year, \$21.2 million capital lease for manufacturing equipment. Payments under the lease, which bears interest at 3.09%, are \$0.4 million per month through March 2016. The lease agreement provides that the Company must maintain the equipment in good working order, and includes a cross default with cross acceleration provision related to certain non-financial covenants incorporated in the Company's credit facility agreement. As of November 1, 2015, the total amount payable through the end of the lease term, substantially all of which represented principal was \$2.3 million.

As of November 1, 2015, minimum lease payments under the Company's capital lease obligations were as follows:

## Fiscal Years:

|  |         |
|--|---------|
| 2016   | \$8,398 |
| 2017   | 5,168   |
| 2018   | 4,698   |
|  | 18,264  |
| Less interest                                      | 649     |
| Net minimum lease payments under capital leases    | 17,615  |
| Less current portion of net minimum lease payments | 7,995   |
| Long-term portion of minimum lease payments        | \$9,620 |

Interest payments were \$4.4 million in fiscal 2015, and \$6.3 million in fiscal 2014 and 2013, including deferred financing cost payments of \$0.3 million in fiscal 2014.

## NOTE 8 - OPERATING LEASES

The Company leases various real estate and equipment under non-cancelable operating leases, for which rental expense was \$2.8 million, \$2.8 million and \$2.7 million in fiscal years 2015, 2014 and 2013, respectively.

Index

At November 1, 2015, future minimum lease payments under non-cancelable operating leases with initial terms in excess of one year are as follows:

|            |         |
|------------|---------|
| 2016       | \$2,116 |
| 2017       | 1,665   |
| 2018       | 622     |
| 2019       | 368     |
| 2020       | 317     |
| Thereafter | 1,534   |
|            | \$6,622 |

See Note 7 for disclosures related to the Company's capital lease obligations.

## NOTE 9 – SHARE-BASED COMPENSATION

The Company has a share-based compensation plan ("Plan"), under which options, restricted stock, restricted stock units, stock appreciation rights, performance stock, performance units, and other awards based on, or related to, shares of the Company's common stock may be granted from shares authorized but unissued or shares previously issued and reacquired by the Company. The maximum number of shares of common stock approved by the Company's shareholders to be issued under the Plan was increased from six million to nine million shares during fiscal 2014. Awards may be granted to officers, employees, directors, consultants, advisors, and independent contractors of the Company or its subsidiaries. In the event of a change in control (as defined in the Plan), the vesting of awards may be accelerated. The Plan, aspects of which are more fully described below, prohibits further awards from being issued under prior plans. The Company incurred total share-based compensation expenses of \$3.7 million, \$4.1 million and \$4.0 million in fiscal years 2015, 2014 and 2013, respectively. No share-based compensation cost was capitalized as part of an asset and no related income tax benefits were recorded during the fiscal years presented.

## Stock Options

Option awards generally vest in one to four years, and have a ten year contractual term. All incentive and non-qualified stock option grants must have an exercise price no less than the market value of the underlying common stock on the date of grant. The grant date fair values of options are based on the closing prices of the Company's common stock on the date of grant using the Black-Scholes option pricing model. Expected volatility is based on the historical volatility of the Company's stock. The Company uses historical option exercise behavior and employee termination data to estimate expected term, which represents the period of time that the options granted are expected to remain outstanding. The risk-free rate of return for the estimated term of the option is based on the U.S. Treasury yield curve in effect at the date of grant.

The weighted-average inputs and risk-free rate of return ranges used to calculate the grant date fair values of options issued during fiscal years 2015, 2014 and 2013 are presented in the following table:

|                          | Year Ended       |   |                  |   |                  |   |
|--------------------------|------------------|---|------------------|---|------------------|---|
|                          | November 1, 2015 |   | November 2, 2014 |   | November 3, 2013 |   |
| Expected volatility      | 53.7             | % | 61.0             | % | 98.0             | % |
| Risk-free rate of return | 1.3 – 1.6%       |   | 1.4              | % | 0.5 – 1.4        | % |
| Dividend yield           | 0.0              | % | 0.0              | % | 0.0              | % |



Expected term      4.7 years    4.6 years    4.3 years

51

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Index

A summary of option activity under the Plan as of November 1, 2015, and changes during the year then ended is presented as follows:

| Options  | Shares     | Weighted-Average Exercise Price | Weighted-Average Remaining Contractual Life | Aggregate Intrinsic Value |
|--|------------|---------------------------------|---|---------------------------|
| Outstanding at November 2, 2014                    | 4,076,781  | \$ 7.60                         |   |                           |
| Granted  | 679,800    | 8.32                            |   |                           |
| Exercised  | (459,188 ) | 4.60                            |   |                           |
| Cancelled and forfeited                            | (494,225 ) | 13.82                           |   |                           |
| Outstanding at November 1, 2015                    | 3,803,168  | \$ 7.29                         | 6.0 years                                   | \$ 11,215                 |
| Exercisable at November 1, 2015                    | 2,299,693  | \$ 6.92                         | 4.5 years                                   | \$ 8,592                  |
| Vested and expected to vest as of November 1, 2015 | 3,705,186  | \$ 7.28                         | 5.9 years                                   | \$ 11,039                 |

The weighted-average grant date fair value of options granted during fiscal years 2015, 2014 and 2013 were \$3.81, \$4.44 and \$4.00, respectively. The total intrinsic value of options exercised during fiscal years 2015, 2014 and 2013 was \$2.0 million, \$1.4 million and \$1.6 million, respectively.

The Company received cash from option exercises of \$2.2 million, \$1.1 million and \$0.5 million in fiscal years 2015, 2014 and 2013, respectively. As of November 1, 2015, the total unrecognized compensation cost of unvested option awards was approximately \$3.9 million. That cost is expected to be recognized over a weighted-average amortization period of 2.4 years.

Restricted Stock

The Company periodically grants restricted stock awards. The restrictions on these awards typically lapse over a service period of one to four years. The weighted-average grant date fair values of restricted stock awards issued during fiscal years 2015, 2014 and 2013 were \$8.28, \$8.86 and \$5.48, respectively. The total fair value of awards for which restrictions lapsed was \$1.4 million, \$1.5 million and \$1.3 million during fiscal years 2015, 2014 and 2013, respectively. As of November 1, 2015, the total compensation cost for restricted stock awards not yet recognized was approximately \$0.8 million. That cost is expected to be recognized over a weighted-average amortization period of 2.2 years.

A summary of the status of the Company's outstanding restricted stock awards as of November 1, 2015, is presented below:

| Restricted Stock                                   | Shares    | Weighted-Average Fair Value at Grant Date |
|--|-----------|---|
| Outstanding at November 2, 2014                    | 235,481   | \$ 6.81                                   |
| Granted  | 121,334   | 8.28                                      |
| Vested   | (159,039) | 7.25                                      |
| Cancelled  | (8,188 )  | 7.87                                      |
| Outstanding at November 1, 2015                    | 189,588   | \$ 7.34                                   |
| Vested and expected to vest as of November 1, 2015 | 179,471   | \$ 7.35                                   |



Index

## Employee Stock Purchase Plan

The Company's Employee Stock Purchase Plan ("ESPP") permits employees to purchase shares at 85% of the lower of the closing market price at the commencement or ending date of the Plan year (approximately one year). The Company recognizes the ESPP expense during that same period. As of November 1, 2015, the maximum number of shares of common stock approved by the Company's shareholders to be purchased under the ESPP was 1.5 million shares. Under the ESPP, approximately 1.3 million shares had been issued through November 1, 2015, and approximately 50,000 shares are subject to outstanding subscriptions. As of November 1, 2015, the total compensation cost related to the ESPP not yet recognized was \$0.1 million, which is expected to be recognized in fiscal 2016.

## NOTE 10 - EMPLOYEE RETIREMENT PLANS

The Company maintains a 401(k) Savings and Profit Sharing Plan ("401(k) Plan") which covers all full and part time domestic employees who have completed three months of service and are 18 years of age or older. Under the terms of the 401(k) Plan, employees may contribute up to 50% of their salary, subject to certain maximum amounts, which will be matched by the Company at 50% of the employee's contributions that are not in excess of 4% of the employee's compensation. Employee and employer contributions vest upon contribution. Annual employer contributions for all the Company's defined contribution plans were \$0.7 million in fiscal years 2015 and 2014 and \$0.6 million in fiscal year 2013.

## NOTE 11 - INCOME TAXES

Income before the income tax provisions consist of the following:

|               | Year Ended          |                     |                     |
|---------------|---------------------|---------------------|---------------------|
|               | November<br>1, 2015 | November<br>2, 2014 | November<br>3, 2013 |
| United States | \$6,646             | \$ (23,083 )        | \$ (14,164 )        |
| Foreign       | 63,394              | 64,413              | 40,969              |
|               | \$70,040            | \$41,330            | \$26,805            |

The income tax provisions consist of the following:

|           | Year Ended          |                     |                     |
|-----------|---------------------|---------------------|---------------------|
|           | November<br>1, 2015 | November<br>2, 2014 | November<br>3, 2013 |
| Current:  |                     |                     |                     |
| Federal   | \$160               | \$354               | \$208               |
| State     | (109 )              | -                   | 65                  |
| Foreign   | 9,729               | 4,726               | 7,222               |
| Deferred: |                     |                     |                     |
| Federal   | -                   | -                   | -                   |
| State     | 7                   | (5 )                | (181 )              |
| Foreign   | 3,394               | 4,220               | (85 )               |
| Total     | \$13,181            | \$9,295             | \$7,229             |

Index

The income tax provisions differ from the amount computed by applying the statutory U.S. federal income tax rate to income before income taxes as a result of the following:

|  | Year Ended          |                     |                     |
|--|---------------------|---------------------|---------------------|
|  | November<br>1, 2015 | November<br>2, 2014 | November<br>3, 2013 |
| U.S. federal income tax at statutory rate                                | \$24,514            | \$ 14,465           | \$ 9,382            |
| Changes in valuation allowances  | (11,471)            | (7,575 )            | 1,325               |
| Distributions from foreign subsidiaries                                  | 448                 | 12,674              | 1,957               |
| State income taxes, net of federal benefit                               | 263                 | (141 )              | 267                 |
| Foreign tax rate differentials   | (4,356 )            | (4,864 )            | (4,851 )            |
| Tax credits  | (2,729 )            | (2,847 )            | (3,967 )            |
| Uncertain tax positions, including reserves, settlements and resolutions | (175 )              | (2,255 )            | 1,471               |
| Gain on acquisition of DPTT  | -                   | (5,748 )            | -                   |
| Intercompany gain elimination  | -                   | 4,759               | -                   |
| Tax on foreign subsidiary earnings                                       | 6,589               | -                   | -                   |
| Equity based compensation  | 634                 | 714                 | 765                 |
| Other, net   | (536 )              | 113                 | 880                 |
|  | \$13,181            | \$ 9,295            | \$ 7,229            |

The effective tax rate differs from the U.S. statutory rate of 35% in fiscal years 2015, 2014 and 2013 primarily due to earnings, including the fiscal year 2014 gain on acquisition of DPTT, being taxed at lower statutory rates in foreign jurisdictions, combined with the benefit of various investment credits in a foreign jurisdiction. Valuation allowances in jurisdictions with historic and continuing losses eliminate the effective rate impact of these jurisdictions.

The net deferred income tax assets consist of the following:

|  | As of               |                     |
|--|---------------------|---------------------|
|  | November<br>1, 2015 | November<br>2, 2014 |
| Deferred income tax assets:                    |                     |                     |
| Net operating losses                           | \$56,582            | \$ 64,529           |
| Reserves not currently deductible              | 8,158               | 6,948               |
| Alternative minimum tax credits                | 3,281               | 3,121               |
| Tax credit carryforwards                       | 8,809               | 8,368               |
| Other  | 1,782               | 1,773               |
|  | 78,612              | 84,739              |
| Valuation allowances                           | (38,763)            | (49,548 )           |
|  | 39,849              | 35,191              |
| Deferred income tax liabilities:               |                     |                     |
| Undistributed earnings of foreign subsidiaries | (5,953 )            | (5,366 )            |
| Property, plant and equipment                  | (17,874)            | (11,503 )           |
| Investments                                    | (4,596 )            | (2,660 )            |
| Other  | (552 )              | (448 )              |
|  | (28,975)            | (19,977 )           |
| Net deferred income tax assets                 | \$10,874            | \$ 15,214           |
| Reported as:                                   |                     |                     |
| Current deferred tax assets                    | \$3,354             | \$ 7,223            |
| Noncurrent deferred tax assets                 | 11,908              | 11,036              |
| Noncurrent deferred tax liabilities            | (4,388 )            | (3,045 )            |

\$10,874 \$15,214

Index

A reconciliation of the beginning and ending amounts of unrecognized tax benefits, excluding interest and penalties, is as follows:

|   | Year Ended |          |          |
|---|------------|----------|----------|
|   | November   |          |          |
|   | 1,         | November | November |
|   | 2015       | 2, 2014  | 3, 2013  |
| Balance at beginning of year                            | \$4,993    | \$ 4,757 | \$ 3,793 |
| Additions (reductions) for tax positions in prior years | (212 )     | 3,437    | 1,224    |
| Additions based on current year tax positions           | 318        | 272      | 207      |
| Settlements   | (720 )     | (3,155 ) | (406 )   |
| Lapses of statutes of limitations                       | (350 )     | (318 )   | (61 )    |
| Balance at end of year                                  | \$4,029    | \$ 4,993 | \$ 4,757 |

Unrecognized tax benefits associated with uncertain tax positions were \$4.1 million at November 1, 2015, which is recorded in other liabilities in the consolidated balance sheet and were \$5.1 million at November 2, 2014, of which \$5.0 million is recorded in other liabilities in the consolidated balance sheet, and \$0.1 million is recorded as a reduction to deferred tax assets. If recognized, \$4.1 million of the benefits would favorably impact the Company's effective tax rate in future periods. Included in these amounts in fiscal years 2015 and 2014 were \$0.1 million of interest and penalties. The Company includes any applicable interest and penalties related to uncertain tax positions in its income tax provision. The above table includes the fiscal year 2015 settlement of two foreign audits and the recognition of previously unrecognized tax benefits resulting from the lapse of their assessment periods. Included within fiscal year 2014 is the settlement of an Internal Revenue Service ("IRS") income tax examination of the Company's 2011 and 2012 federal income tax returns, as well as the recognition of previously unrecognized tax benefits resulting from the lapse of the assessment periods, which were offset in part by uncertain tax positions related to the acquisition of DPTT (as discussed in Note 2). The IRS income tax settlement had limited impact on fiscal year 2014 income tax expense, as the changes that resulted from the examination were offset by loss carryforwards, for which the related deferred tax assets were subject to valuation allowances. Shortly after the close of the 2013 fiscal year, the Company reached a settlement with the relevant tax authorities regarding one of its non-US subsidiary's 2010 tax year, as reflected in the fiscal 2013 table above. As of November 1, 2015, the Company does not believe it is reasonably possible that the total amounts of unrecognized tax benefits will significantly increase or decrease in the next twelve months. The Company is no longer subject to examination by the U.S. for years prior to and including fiscal year 2012. With respect to major foreign and state tax jurisdictions, the Company is no longer subject to tax authority examinations for years prior to and including fiscal year 2011.

Index

The following tables present the Company's available operating loss and credit carryforwards at November 1, 2015, and the related expiration periods:

## Operating Loss Carryforwards

|         | Amount     | Expiration Period |
|---------|------------|-------------------|
| Federal | \$ 120,263 | 2023-2035         |
| State   | \$ 214,591 | 2016-2035         |
| Foreign | \$ 35,464  | 2016-2023         |

## Tax Credit Carryforwards

|                                  | Amount   | Expiration Period |
|----------------------------------|----------|-------------------|
| Federal research and development | \$ 4,337 | 2019-2035         |
| Federal alternative minimum tax  | \$ 3,281 | Indefinite        |
| State tax                        | \$ 6,879 | 2016-2029         |

Included in the above foreign operating loss carryforward amount is \$3.5 million of the \$58.6 million operating loss carryforward amount acquired in the DPTT acquisition.

The Company has established a valuation allowance for a portion of its deferred tax assets because it believes, based on the weight of all available evidence, that it is more likely than not that a portion of its net operating loss carryforwards will expire prior to utilization. The valuation allowance increased (decreased) by \$(10.8 million), \$(7.1 million) and \$1.1 million in fiscal years 2015, 2014 and 2013, respectively. During fiscal year 2015, the Company determined that sufficient positive evidence existed in two foreign jurisdictions that it was more likely than not that additional deferred taxes of \$2.4 million were realizable and, therefore, reduced the valuation allowance accordingly.

As of November 1, 2015, the undistributed earnings of foreign subsidiaries included in consolidated retained earnings amounted to \$161.4 million, of which \$17.0 million is not considered to be permanently invested. No provision has been made for future U.S. taxes payable on the remaining undistributed earnings of \$144.4 million, as they are expected to be indefinitely invested in foreign jurisdictions and, therefore, are not anticipated to be subject to U.S. tax. The amount of undistributed earnings is calculated taking into account the net amount of earnings of the Company's foreign subsidiaries, considering its multitier subsidiary structure, and translating those earnings into U.S. dollars using exchange rates in effect as of the balance sheet date. During fiscal year 2015, the Company determined that the historic and future accumulated earnings of a foreign subsidiary were not required for future investment due to changes in the operational structure of the subsidiary. Accordingly, a deferred tax liability of \$5.7 million has been established on \$16.4 million of earnings previously considered indefinitely invested. Prior to the fiscal 2014 acquisition of DPTT, PDMC (formerly PSMC), in accordance with the ownership provisions in the DPTT acquisition agreements, made a onetime remittance of \$35 million of earnings that had been previously considered to be indefinitely invested. The Company has not changed its assertion on the balance of PDMC earnings which remain indefinitely invested. Should the Company elect in the future to repatriate the foreign earnings so invested, it may incur additional income tax expense on those foreign earnings, the amount of which is not practicable to compute.



PKLT, the Company's FPD manufacturing facility in Taiwan, has been accorded a tax holiday, which started in 2012 and expires in 2017. This tax holiday had no dollar or per share effect in the fiscal years ended November 1, 2015, November 2, 2014 and November 3, 2013. PDMC, which acquired an IC manufacturing facility in Taiwan as a result of the DPTT Acquisition, has been accorded a tax holiday that commenced in 2015 and expires in 2019. The Company realized \$0.2 million in tax benefits from the PDMC tax holiday in the year ended November 1, 2015. The tax holiday had no per share effect on the Company's financial results in the year ended November 1, 2015. In Korea, various investment tax credits have been earned to reduce the Company's effective income tax rate.

Index

Income tax payments were \$4.9 million, \$5.2 million and \$10.7 million in fiscal 2015, 2014 and 2013, respectively. Cash received for refunds of income taxes paid in prior years amounted to \$0.1 million, \$1.4 million and \$0.3 million in fiscal years 2015, 2014 and 2013, respectively.

## NOTE 12 - EARNINGS PER SHARE

The calculation of basic and diluted earnings per share is presented as follows:

|  | Year Ended |           |           |
|--|------------|-----------|-----------|
|  | November   | November  | November  |
|  | 1, 2015    | 2, 2014   | 3, 2013   |
| Net income attributable to Photronics, Inc. shareholders           | \$44,625   | \$ 25,996 | \$ 17,966 |
| Effect of dilutive securities:                                     |            |           |           |
| Interest expense on convertible notes, net of related tax effects  | 4,363      | 1,426     | -         |
| Earnings for diluted earnings per share                            | \$48,988   | \$ 27,422 | \$ 17,966 |
| Weighted-average common shares computations:                       |            |           |           |
| Weighted-average common shares used for basic earnings per share   | 66,331     | 61,779    | 60,644    |
| Effect of dilutive securities:                                     |            |           |           |
| Convertible notes  | 11,085     | 3,945     | -         |
| Share-based payment awards   | 967        | 955       | 813       |
| Common stock warrants  | -          | -         | 142       |
| Dilutive common shares   | 12,052     | 4,900     | 955       |
| Weighted-average common shares used for diluted earnings per share | 78,383     | 66,679    | 61,599    |
| Basic earnings per share   | \$0.67     | \$ 0.42   | \$ 0.30   |
| Diluted earnings per share   | \$0.63     | \$ 0.41   | \$ 0.29   |

The table below shows the outstanding weighted-average share-based payment awards that were excluded from the calculation of diluted earnings per share because their exercise price exceeded the average market value of the common shares for the period or, under application of the treasury stock method, they were otherwise determined to be antidilutive. The table also shows convertible notes that, if converted, would have been antidilutive.

|  | Year Ended |          |          |
|--|------------|----------|----------|
|  | November   |          |          |
|  | 1,         | November | November |
|  | 2015       | 2, 2014  | 3, 2013  |
| Share based payment awards                 | 1,641      | 1,911    | 2,880    |
| Convertible notes                          | -          | 11,085   | 6,168    |
| Total potentially dilutive shares excluded | 1,641      | 12,996   | 9,048    |

Index

In the first quarter of fiscal year 2016, the Company awarded approximately 0.7 million shared-based payment awards to its employees and directors.

## NOTE 13 – SUBSIDIARY SHARE REPURCHASES AND TENDER OFFER

In June 2015 the Company increased its ownership interest in PKL, a subsidiary of the Company based in Korea, to 99.77% from 99.75%, by purchasing shares of its common stock from noncontrolling interests at a cost of \$0.1 million.

Since the second quarter of fiscal 2011, the board of directors of PSMC (in 2014 PSMC's name was changed to PDMC, see Note 2), a subsidiary of the Company based in Taiwan, authorized several share repurchase programs for PSMC to purchase for retirement shares of its outstanding common stock. The last of these repurchase programs concluded in the first fiscal quarter of 2013 in which PSMC purchased shares at a cost of \$4.2 million. These repurchase programs increased the Company's ownership in PSMC from 72.09% at October 28, 2012, to 75.11% at January 27, 2013. During fiscal 2013 the Company increased its ownership interest in PSMC, primarily through a tender offer, to 98.63% by purchasing shares at a cost of \$28.1 million. In January 2014 the Company increased its ownership percentage in PSMC to 100% at a cost of \$1.7 million by purchasing the remaining shares that were not owned by the Company.

The table below presents the effect of the change in the Company's ownership interest in PSMC and PKL on the Company's equity for fiscal years 2015, 2014 and 2013 (in 2015 shares of PKL common stock were purchased, in 2014 shares of PSMC common stock were issued in connection with the DPTT Acquisition and shares were acquired from the former noncontrolling interests, and in 2013 shares of PSMC common stock were purchased).

|  | Year Ended          |                     |                     |
|--|---------------------|---------------------|---------------------|
|  | November<br>1, 2015 | November<br>2, 2014 | November<br>3, 2013 |
| Net income attributable to Photronics, Inc. shareholders   | \$44,625            | \$ 25,996           | \$ 17,966           |
| Increase (decrease) in Photronics, Inc.'s additional paid-in capital   | 28                  | (6,183 )            | 600                 |
| Increase (decrease) in Photronics, Inc.'s accumulated other comprehensive income   | -                   | 399                 | (237 )              |
| Change from net income attributable to Photronics, Inc. shareholders due to issuance of shares of PDMC and transfers to or from noncontrolling interests | \$44,653            | \$ 20,212           | \$ 18,329           |

## NOTE 14 - COMMITMENTS AND CONTINGENCIES

At November 1, 2015, the Company had outstanding purchase commitments of \$14 million, which included \$3 million related to capital expenditures, and had recorded liabilities for the purchase of equipment of \$26 million. See Note 8 for operating lease commitments.

The Company is subject to various claims that arise in the ordinary course of business. The Company believes such claims, individually or in the aggregate, will not have a material effect on its consolidated financial statements.

## NOTE 15 - GEOGRAPHIC AND SIGNIFICANT CUSTOMER INFORMATION

The Company operates as a single operating segment as a manufacturer of photomasks, which are high precision quartz plates containing microscopic images of electronic circuits for use in the fabrication of IC's and FPDs. Geographic net sales are based primarily on where the Company's manufacturing facility is located.

The Company's 2015, 2014 and 2013 net sales by geographic area and of ICs and FPDs, and long-lived assets by geographic area were as follows:

|                   | Year Ended          |                     |                     |
|-------------------|---------------------|---------------------|---------------------|
|                   | November<br>1, 2015 | November<br>2, 2014 | November<br>3, 2013 |
| Net sales         |                     |                     |                     |
| Taiwan            | \$205,141           | \$167,075           | \$117,364           |
| Korea             | 147,921             | 140,386             | 134,300             |
| United States     | 132,792             | 106,740             | 127,054             |
| Europe            | 35,792              | 38,726              | 41,126              |
| All other Asia    | 2,560               | 2,600               | 2,336               |
|                   | \$524,206           | \$455,527           | \$422,180           |
| IC                | \$420,833           | \$352,679           | \$320,579           |
| FPD               | 103,373             | 102,848             | 101,601             |
|                   | \$524,206           | \$455,527           | \$422,180           |
|                   |                     |                     |                     |
|                   | As of               |                     |                     |
|                   | November<br>1, 2015 | November<br>2, 2014 | November<br>3, 2013 |
| Long-lived assets |                     |                     |                     |
| Taiwan            | \$185,087           | \$207,324           | \$66,836            |
| Korea             | 167,618             | 176,141             | 153,878             |
| United States     | 184,282             | 158,325             | 191,518             |
| Europe            | 10,287              | 8,259               | 10,471              |
| All other Asia    | 10                  | 20                  | 37                  |
|                   | \$547,284           | \$550,069           | \$422,740           |

One customer accounted for 18%, 16% and 18% of the Company's net sales in fiscal years 2015, 2014 and 2013, respectively, and another customer accounted for 15% and 11% of the Company's net sales in fiscal 2015 and 2014, respectively.

Index

## NOTE 16 - CHANGES IN ACCUMULATED OTHER COMPREHENSIVE INCOME BY COMPONENT

The following tables set forth the changes in the Company's accumulated other comprehensive income by component (net of tax of \$0) for the years ended November 1, 2015 and November 2, 2014:

|  | Year Ended November 1, 2015                       |                                       |         |            |
|--|---|---------------------------------------|---------|------------|
|  | Foreign<br>Currency<br>Translation<br>Adjustments | Amortization<br>of Cash<br>Flow Hedge | Other   | Total      |
| Balance at November 2, 2014  | \$22,651  | \$ (434 )                             | \$(443) | \$21,774   |
| Other comprehensive income (loss) before reclassifications                   | (40,154)  | -                                     | (381)   | (40,535)   |
| Amounts reclassified from other accumulated comprehensive income             | -   | 128                                   | -       | 128        |
| Net current period other comprehensive income (loss)                         | (40,154)  | 128                                   | (381)   | (40,407)   |
| Less: other comprehensive loss attributable to noncontrolling interests      | 7,869   | -                                     | 191     | 8,060      |
| Balance at November 1, 2015  | \$(9,634 )  | \$ (306 )                             | \$(633) | \$(10,573) |
|  | Year Ended November 2, 2014                       |                                       |         |            |
|  | Foreign<br>Currency<br>Translation<br>Adjustments | Amortization<br>of Cash<br>Flow Hedge | Other   | Total      |
| Balance at November 3, 2013  | \$27,797  | \$ (562 )                             | \$(832) | \$26,403   |
| Other comprehensive loss before reclassifications                            | (5,916 )  | -                                     | (41 )   | (5,957 )   |
| Amounts reclassified from other accumulated comprehensive income             | -   | 128                                   | -       | 128        |
| Net current period other comprehensive income (loss)                         | (5,916 )  | 128                                   | (41 )   | (5,829 )   |
| Less: other comprehensive loss attributable to noncontrolling interests      | 770   | -                                     | 31      | 801        |
| Other accumulated comprehensive income allocated to noncontrolling interests | -   | -                                     | 410     | 410        |
| Purchase of common stock of subsidiary                                       | -   | -                                     | (11 )   | (11 )      |
| Balance at November 2, 2014  | \$22,651  | \$ (434 )                             | \$(443) | \$21,774   |

The amortization of the cash flow hedge is included in Cost of sales in the consolidated statements of income for all periods presented.

Index

NOTE 17 – CONCENTRATIONS OF CREDIT RISK

Financial instruments that potentially subject the Company to credit risk principally consist of trade accounts receivables and temporary cash investments. The Company sells its products primarily to manufacturers in the semiconductor and FPD industries in North America, Europe and Asia. The Company believes that the concentration of credit risk in its trade receivables is substantially mitigated by the Company's ongoing credit evaluation process and relatively short collection terms. The Company does not generally require collateral from customers. The Company establishes an allowance for doubtful accounts based upon factors surrounding the credit risk of specific customers, historical trends and other information.

The Company's cash and cash equivalents are deposited in several financial institutions, including institutions located within all of the countries in which it manufactures photomasks. Portions of deposits in some of these institutions may exceed the amount of insurance available for such deposits at these institutions. As these deposits are generally redeemable upon demand and are held by high quality, reputable institutions, the Company considers them to bear minimal credit risk. The Company further mitigates credit risks related to its cash and cash equivalents by spreading such risk among a number of institutions.

NOTE 18 - OTHER RELATED PARTY TRANSACTIONS

The executive chairman of the board of the Company is also a director of a company that provides secure managed information technology services to Photronics. Another director of the Company is also a shareholder, chief executive officer and chairman of the board of this company. Since 2002, the Company has entered into various service contracts with this company to provide services to all of the Company's worldwide facilities. The Company incurred expenses for services provided by this company of \$1.0 million, \$1.2 million, and \$1.7 million in fiscal years 2015, 2014 and 2013, respectively, and had an outstanding balance of less than \$0.1 million due to this company as of November 1, 2015 and \$0.1 million as of November 2, 2014. As of November 1, 2015, the Company had contracted with this company for various services through June 2016 at a cost of \$0.2 million.

The Company purchases photomask blanks from a company of which an officer of the Company is a significant shareholder. The Company purchased \$20.2 million, \$20.1 million and \$20.0 million of photomask blanks from this company in 2015, 2014 and 2013, respectively, for which the amount owed to this company was \$4.5 million at November 1, 2015, and \$4.4 million at November 2, 2014.

The Company believes that the terms of its transactions with the related parties described above were negotiated at arm's length and were no less favorable to the Company than terms it could have obtained from unrelated third parties. See Note 5 for other related party transactions.

NOTE 19 - FAIR VALUE MEASUREMENTS

The accounting framework for determining fair value includes a hierarchy for ranking the quality and reliability of the information used to measure fair value, which enables the reader of the financial statements to assess the inputs used to develop those measurements. The fair value hierarchy consists of three tiers as follows: Level 1, defined as quoted market prices in active markets for identical securities; Level 2, defined as inputs other than Level 1 that are observable, either directly or indirectly; and Level 3, defined as unobservable inputs that are not corroborated by market data.

The Company did not have any assets or liabilities measured at fair value, on a recurring or a nonrecurring basis, at November 1, 2015, or November 2, 2014. During the three month period ended May 4, 2014, the Company measured and recorded the net assets it acquired in its subsidiary's acquisition of DPTT at fair value. See Note 2 for further information.

#### Fair Value of Other Financial Instruments

The fair values of the Company's cash and cash equivalents (Level 1 measurements), accounts receivable, accounts payable, and certain other current assets and current liabilities (Level 2 measurements) approximate their carrying value due to their short-term maturities. The fair value of the Company's convertible senior notes is a Level 2 measurement that is determined using recent bid prices.

61

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Index

The table below presents the fair and carrying values of the Company's convertible senior notes at November 1, 2015, and November 2, 2014.

|   | November 1, 2015 |                | November 2, 2014 |                |
|---|------------------|----------------|------------------|----------------|
|   | Fair Value       | Carrying Value | Fair Value       | Carrying Value |
| 3.25% convertible senior notes due 2016 | \$60,375         | \$57,500       | \$122,544        | \$115,000      |
| 3.25% convertible senior notes due 2019 | \$64,550         | \$57,500       | \$-              | \$-            |

## NOTE 20 - QUARTERLY RESULTS OF OPERATIONS (UNAUDITED)

The following table sets forth certain unaudited quarterly financial data:

|  | First     | Second    | Third     | Fourth    | Year      |
|--|-----------|-----------|-----------|-----------|-----------|
| Fiscal 2015:   | (a)       |           |           |           | (a)       |
| Net sales  | \$123,505 | \$127,309 | \$131,699 | \$141,693 | \$524,206 |
| Gross margin   | 28,184    | 33,095    | 37,243    | 44,614    | 143,136   |
| Net income   | 7,142     | 12,156    | 15,410    | 22,151    | 56,859    |
| Net income attributable to Photronics, Inc. shareholders | 3,837     | 10,060    | 12,106    | 18,622    | 44,625    |
| Earnings per share:                                      |           |           |           |           |           |
| Basic  | \$0.06    | \$0.15    | \$0.18    | \$0.28    | \$0.67    |
| Diluted  | \$0.06    | \$0.14    | \$0.17    | \$0.25    | \$0.63    |
| Fiscal 2014:   | (b)       | (c)(d)    |           |           | (c)(e)    |
| Net sales  | \$101,542 | \$104,882 | \$124,852 | \$124,251 | \$455,527 |
| Gross margin   | 22,882    | 22,190    | 28,650    | 26,624    | 100,346   |
| Net income   | 2,041     | 15,950    | 7,344     | 6,700     | 32,035    |
| Net income attributable to Photronics, Inc. shareholders | 1,993     | 15,540    | 4,186     | 4,277     | 25,996    |
| Earnings per share:                                      |           |           |           |           |           |
| Basic  | \$0.03    | \$0.25    | \$0.07    | \$0.07    | \$0.42    |
| Diluted  | \$0.03    | \$0.22    | \$0.07    | \$0.07    | \$0.41    |

(a) Includes expenses of \$0.9 million of financing expenses related to the exchange of \$57.5 million 3.25% convertible senior notes.

(b) Includes expenses of \$0.5 million, net of tax, related to the acquisition of DPTT.

(c) Includes non-cash gain of \$16.4 million, net of tax, related to the acquisition of DPTT.

(d) Includes expenses of \$2.0 million, net of tax, related to the acquisition of DPTT.

(e) Includes expenses of \$2.5 million, net of tax, related to the acquisition of DPTT.



Index

NOTE 21 - RECENT ACCOUNTING PRONOUNCEMENTS

In November 2015 the Financial Accounting Standards Board (“FASB”) issued Accounting Standards Update (“ASU”) 2015-17 “Balance Sheet Classification of Deferred Taxes”, which requires that deferred tax liabilities and assets be classified as noncurrent in a classified statement of financial position. This ASU is effective for the Company in its first quarter of fiscal 2017, with early application permitted and, upon adoption, may be applied either prospectively or retrospectively. The Company is currently evaluating the effect this ASU will have on its consolidated financial statements.

In April 2015 the FASB issued ASU 2015-03 “Simplifying the Presentation of Debt Issuance Costs”, which requires debt issuance costs related to recognized debt liability to be presented in the balance sheet as a direct deduction from that debt liability, consistent with the presentation of a debt discount. This ASU is effective for the Company in its first quarter of fiscal 2017 and, upon adoption, should be applied retrospectively. Early adoption is permitted. The Company is currently evaluating the effect this ASU will have on its consolidated financial statements.

In May 2014, the FASB issued ASU 2014-09 – Revenue from Contracts with Customers, which will supersede nearly all existing revenue recognition guidance under accounting principles generally accepted in the United States. The core principle of this ASU is that revenue should be recognized for the amount of consideration expected to be received for promised goods or services transferred to customers. This ASU also requires additional disclosure about the nature, amount, timing and uncertainty of revenue and cash flows arising from customer contracts, including significant judgments, and assets recognized for costs incurred to obtain or fulfill a contract. In August 2015 the FASB issued ASU 2015-14 which defers the effective date of ASU 2014-09 by one year and allows entities to early adopt, but no earlier than the original effective date. ASU 2014-09 will now be effective for the Company in its first quarter of fiscal 2019. ASU 2014-09 allows for either full retrospective or modified retrospective adoption. The Company is evaluating the transition method that will be elected and the potential effects of the adoption of ASU 2014-09 on its consolidated financial statements.

NOTE 22 – SUBSEQUENT EVENT

The Company had a minority interest in a foreign entity. In December 2015 the Company sold its investment in the foreign entity for \$8.8 million and expects to recognize a net gain of approximately \$8.5 million in the Company’s quarter ending January 31, 2016.

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

None

ITEM 9A. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

The Company has established and currently maintains disclosure controls and procedures, as such term is defined in Rules 13a-15(e) and 15d-15(e) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), designed to provide reasonable assurance that information required to be disclosed in its reports filed under the Exchange Act, is recorded, processed, summarized and reported within the time periods specified in the Securities and Exchange Commission's rules and forms, and that such information is accumulated and communicated to management, including the Company's chief executive officer and chief financial officer, as appropriate, to allow for timely decisions regarding required disclosure. In designing and evaluating disclosure controls and procedures, management recognized that any controls and procedures, no matter how well designed and operated, can provide only reasonable

assurance of achieving the desired control objectives, and management necessarily was required to apply its judgment in evaluating the cost-benefit relationship of possible controls and procedures.

## Index

The Company's management, under the supervision and with the participation of the Company's chief executive officer and chief financial officer, evaluated the effectiveness of the design and operation of the Company's disclosure controls and procedures as of the end of the period covered by this report. Based upon that evaluation the Company's chief executive officer and chief financial officer concluded that the Company's disclosure controls and procedures were effective at a reasonable assurance level as of the end of the period covered by this report.

### Changes in Internal Control over Financial Reporting

There was no change in the Company's internal control over financial reporting during the fourth fiscal quarter that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting.

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

Management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Rules 13a-15(f) and 15d-15(f) of the Exchange Act. 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.

Management assessed the effectiveness of the Company's internal control over financial reporting as of November 1, 2015, based on the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission in its "Internal Control - Integrated Framework" (2013). Management, under the supervision and with the participation of the Company's chief executive officer and chief financial officer, concluded that the Company's internal control over financial reporting was effective as of November 1, 2015.

The Company's independent registered public accounting firm, Deloitte & Touche LLP, has audited the effectiveness of the Company's internal control over financial reporting as of November 1, 2015, as stated in their attestation report on page 33 of this Form 10-K.

January 7, 2016

## ITEM 9B. OTHER INFORMATION

None.

## PART III

### ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information as to Directors required by Item 401, 405 and 407(c)(3)(d)(4) and (d)(5) of Regulation S-K is set forth in the Company's 2016 definitive Proxy Statement which will be filed with the Securities and Exchange Commission pursuant to Regulation 14A of the Exchange Act within 120 days after the end of the fiscal year covered by this Form 10-K under the caption "PROPOSAL 1 - ELECTION OF DIRECTORS," "SECTION 16(A) BENEFICIAL OWNERSHIP REPORTING COMPLIANCE" and in the third paragraph under the caption "MEETINGS AND COMMITTEES OF THE BOARD," and is incorporated in this report by reference. The information as to Executive Officers is included in the Company's 2016 definitive Proxy Statement under the caption "EXECUTIVE OFFICERS" and is incorporated in this report by reference.



Index

The Company has adopted a code of ethics that applies to its principal executive officer, principal financial officer and principal accounting officer or controller. A copy of the code of ethics may be obtained, free of charge, by writing to the vice president, general counsel of Photronics, Inc. at 15 Secor Road, Brookfield, Connecticut 06804.

ITEM 11. EXECUTIVE COMPENSATION

The information required by Item 402 of Regulation S-K and paragraph (e)(4) and (e)(5) of Item 407 is set forth in the Company's 2016 definitive Proxy Statement under the captions "EXECUTIVE COMPENSATION," "CERTAIN AGREEMENTS", "DIRECTORS' COMPENSATION", "COMPENSATION COMMITTEE INTERLOCKS AND INSIDER PARTICIPATION" and "COMPENSATION COMMITTEE REPORT," respectively, and is incorporated in this report by reference.

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

The information required by Item 201(d) of Regulation S-K is set forth in the Company's 2016 definitive Proxy Statement under the caption "EQUITY COMPENSATION PLAN INFORMATION", and is incorporated in this report by reference. The information required by Item 403 of Regulation S-K is set forth in the Company's 2016 definitive Proxy Statement under the caption "OWNERSHIP OF COMMON STOCK BY DIRECTORS, OFFICERS AND CERTAIN BENEFICIAL OWNERS", and is incorporated in this report by reference.

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

The information required by Items 404 and Item 407(a) of Regulation S-K is set forth in the Company's 2016 definitive Proxy Statement under the captions "MEETINGS AND COMMITTEES OF THE BOARD" and "CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS", respectively, and is incorporated in this report by reference.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

The information required by Item 9(e) of Rule 14a-101 of the Exchange Act is set forth in the Company's 2016 definitive Proxy Statement under the captions "Fees Paid to the Independent Registered Public Accounting Firm" and "AUDIT COMMITTEE REPORT," and is incorporated in this report by reference.

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

The following documents are filed as part of this report:

|   | Page<br>No. |
|---|-------------|
| 1. Financial Statements: See "INDEX TO CONSOLIDATED FINANCIAL STATEMENTS" in Part II, Item 8 of this Form 10-K. | 32          |
| 2. Financial Statement Schedules:   |             |
| Report of Independent Registered Public Accounting Firm   | 66          |

|   |    |
|---|----|
| Schedule II - Valuation and Qualifying Accounts for the years ended November 1, 2015, November 2, 2014 and November 3, 2013 | 66 |
|---|----|

All other schedules are omitted because they are not applicable.

|             |    |
|-------------|----|
| 3. Exhibits | 67 |
|-------------|----|

65

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Index

Report of Independent Registered Public Accounting Firm

Board of Directors and Shareholders

Photronics, Inc.

Brookfield, Connecticut

We have audited the consolidated financial statements of Photronics, Inc. and subsidiaries (the "Company") as of November 1, 2015 and November 2, 2014, and for each of the three fiscal years ended November 1, 2015, November 2, 2014 and November 3, 2013, and the Company's internal control over financial reporting as of November 1, 2015, and have issued our report thereon dated January 7, 2016; such report is included elsewhere in this Form 10-K. Our audits also included the consolidated financial statement schedule of the Company listed in Item 15. This consolidated financial statement schedule is the responsibility of the Company's management. Our responsibility is to express an opinion based on our audits. In our opinion, such consolidated financial statement schedule, when considered in relation to the basic consolidated financial statements taken as a whole, presents fairly, in all material respects, the information set forth therein.

/s/ Deloitte &amp; Touche LLP

Hartford, Connecticut

January 7, 2016

## Schedule II

## Valuation and Qualifying Accounts

for the Years Ended November 1, 2015, November 2, 2014

and November 3, 2013

(in thousands)

|  | Balance<br>at<br>Beginning<br>of<br>Year | Charged<br>to<br>Costs<br>and<br>Expenses | Deductions     | Balance<br>at<br>End of<br>Year |
|--|--|---|----------------|---------------------------------|
| Allowance for Doubtful Accounts        |  |   |                |                                 |
| Year ended November 1, 2015            | \$ 3,078                                 | \$ 730                                    | \$ (507)       | (a) \$3,301                     |
| Year ended November 2, 2014            | \$ 3,541                                 | \$ (740 )                                 | \$ 277         | (a) \$3,078                     |
| Year ended November 3, 2013            | \$ 3,902                                 | \$ (398 )                                 | \$ 37          | (a) \$3,541                     |
| Deferred Tax Asset Valuation Allowance |  |   |                |                                 |
| Year ended November 1, 2015            | \$ 49,548                                | \$ (2,364 )                               | (b) \$ (8,421) | (c) \$38,763                    |
| Year ended November 2, 2014            | \$ 56,661                                | \$ -                                      | \$ (7,113)     | (c) \$49,548                    |
| Year ended November 3, 2013            | \$ 55,536                                | \$ 1,125                                  | \$ -           | \$56,661                        |

(a)Uncollectible accounts written off, net, and impact of foreign currency translation.

(b)Partial reversal of valuation allowance

(c)Increase in deferred tax liability and utilization of net operating losses.





Index

EXHIBITS INDEX

Exhibit  
Number

Description

- 3.1 Certificate of Incorporation as amended July 9, 1986, April 9, 1990, March 16, 1995, November 13, 1997, April 15, 2002 and June 20, 2005 (incorporated by reference to Exhibit 3.1 to the Company's Annual Report on Form 10-K filed January 3, 2014).
- 3.2 By-laws of the Company as restated August 28, 2015.\*
- 4.4 Indenture dated March 28, 2011, between the Company and Wells Fargo (as successor trustee to the Bank of Nova Scotia Trust Company of New York) (incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K filed on March 29, 2011).
- 4.5 First Supplement to Indenture dated April 27, 2011 (incorporated by reference to Exhibit 4.6 of the Company's Quarterly Report on Form 10-Q filed June 8, 2011).
- 4.6 Indenture dated January 22, 2015, by and between the Company and the Bank of New York Mellon Trust Company, N.A., as trustee (incorporated by reference to Exhibit 4.2 to the Company's Current Report on Form 8-K filed on January 28, 2015).
- 10.1 Master Service Agreement dated January 11, 2002 between the Company and RagingWire Telecommunications, Inc. (incorporated by reference to Exhibit 10.1 of the Company's Annual Report on Form 10-K filed January 6, 2015).
- 10.2 The Company's 1992 Employee Stock Purchase Plan (incorporated by reference to Exhibit 10.24 to the Company's Registration Statement on Form S-8, File Number 33-47446 which was filed April 24, 1994):†
- 10.3 Amendment to the Employee Stock Purchase Plan as of March 24, 2004 (incorporated by reference to Exhibit 10.7 to the Company's Annual Report on Form 10-K for the fiscal year ended October 31, 2010 filed January 14, 2011).+
- 10.4 Amendment to the Employee Stock Purchase Plan as of April 8, 2010.\* +
- 10.5 Amendment to the Employee Stock Purchase Plan as of March 28, 2012 (incorporated by reference to Exhibit 10.9 to the Company's Quarterly Report on Form 10-Q filed September 5, 2012):†

Index

- 10.6 The Company's 2007 Long-Term Equity Incentive Plan (incorporated by reference to the Company's Proxy filed on March 3, 2014).<sup>+</sup>
- 10.7 Amendment to the 2007 Long Term Equity Incentive Plan as of April 8, 2010.\*<sup>+</sup>
- 10.8 Amendment to the 2007 Long Term Equity Incentive Plan as of April 11, 2014 (incorporated by reference to Exhibit 10.8 of the Company's Annual Report on Form 10-K filed January 6, 2015).<sup>+</sup>
- 10.9 2011 Executive Incentive Compensation Plan effective as of November 1, 2010 (incorporated by reference to Exhibit 10.9 of the Company's Annual Report on Form 10-K filed January 6, 2015).<sup>+</sup>
- 10.10 Executive Employment Agreement between the Company and Constantine Macricostas dated May 4, 2015 (incorporated by reference to Exhibit 10.31 to the Company's Quarterly Report on Form 10-Q filed on September 9, 2015).<sup>+</sup>
- 10.11 Executive Employment Agreement between the Company and Sean T. Smith dated February 20, 2003 (incorporated by reference to Exhibit 10.12 of the Company's Annual Report on Form 10-K filed January 6, 2015)..<sup>+</sup>
- 10.12 Limited Liability Company Operating Agreement of MP Mask Technology Center, LLC ("MP Mask") between Micron Technology, Inc. ("Micron") and Photronics, Inc. ("Photronics") dated May 5, 2006 (incorporated by reference to Exhibit 10.14 to the Company's Annual Report on Form 10-K for the fiscal year ended October 30, 2011).<sup>#</sup>
- 10.13 Contribution and Units Purchase Agreement between Micron, Photronics and MP Mask dated May 5, 2006 (incorporated by reference to Exhibit 10.15 to the Company's Annual Report on Form 10-K filed on January 13, 2012).<sup>#</sup>
- 10.14 Technology License Agreement among Micron, Photronics and MP Mask dated May 5, 2006 (incorporated by reference to Exhibit 10.16 to the Company's Annual Report on Form 10-K filed on January 13, 2012).<sup>#</sup>
- 10.15 Photronics to Micron Supply Agreement between Micron and Photronics dated May 5, 2006 (incorporated by reference to Exhibit 10.17 to the Company's Annual Report on Form 10-K filed on January 13, 2012).<sup>#</sup>
- 10.16 MP Mask to Photronics Supply Agreement between MP Mask and Photronics dated May 5, 2006 (incorporated by reference to Exhibit 10.18 to the Company's Annual Report on Form 10-K filed on January 13, 2012).<sup>#</sup>
- 10.17 Special Warranty Deed dated as of February 29, 2012 (incorporated by reference to Exhibit 99.2 to the Company's Current Report on Form 8-K filed on March 6, 2012).
- 10.18 Outsource Supply Agreement between Micron and Photronics dated March 24, 2015 (incorporated by reference to Exhibit 10.18 to the Company's Quarterly Report on Form 10-Q filed on June 4, 2015).<sup>#</sup>
- 10.19 Bridge License Agreement between Micron and Photronics dated March 24, 2015 (incorporated by reference to Exhibit 10.16 to the Company's Quarterly Report on Form 10-Q filed on June 4, 2015).<sup>#</sup>
- 10.20 Joint Venture Framework Agreement dated November 20, 2013 between the Company and Dai Nippon Printing Co., Ltd (incorporated by reference to Exhibit 10.19 of the Company's Annual Report on Form 10-K/A filed July 8, 2015).<sup>#</sup>

10.21 Joint Venture Operating Agreement dated November 20, 2013 between the Company and Dai Nippon Printing Co., Ltd. (incorporated by reference to Exhibit 10.20 of the Company's Annual Report on Form 10-K/A filed July 8, 2015).#

10.22 Outsourcing Agreement dated November 20, 2013 between the Company, Dai Nippon Printing Co., Ltd and Photronics Semiconductor Mask Corporation (incorporated by reference to Exhibit 10.21 of the Company's Annual Report on Form 10-K/A filed July 8, 2015).#

10.23 License Agreement dated November 20, 2013 between the Company and Photronics Semiconductor Mask Corporation (incorporated by reference to Exhibit 10.22 of the Company's Annual Report on Form 10-K/A filed July 8, 2015).#

Index

- License Agreement dated November 20, 2013 between Dai Nippon Printing Co., Ltd and Photronics  
10.24 Semiconductor Mask Corporation (incorporated by reference to Exhibit 10.23 of the Company's Annual Report on Form 10-K/A filed July 8, 2015).#
- Margin Agreement dated November 20, 2013 between the Company, Dai Nippon Printing Co., Ltd and  
10.25 Photronics Semiconductor Mask Corporation (incorporated by reference to Exhibit 10.24 of the Company's Annual Report on Form 10-K/A filed July 8, 2015).#
- Merger Agreement dated January 16, 2014 between Photronics Semiconductor Mask Corporation and DNP  
10.26 Photomask Technology Taiwan Co. Ltd. (incorporated by reference to Exhibit 10.25 of the Company's Annual Report on Form 10-K/A filed July 8, 2015).#
- Executive Employment Agreement between the Company and Soo Hong Jeong dated May 31, 2011  
10.27 (incorporated by reference to Exhibit 10.40 to the Company's Quarterly Report on Form 10-Q filed on June 8, 2011). +
- Executive Employment Agreement between the Company and Christopher J. Progler, Vice President, Chief  
10.28 Technology Officer dated September 10, 2007 (incorporated by reference to Exhibit 10.22 to the Company's Annual Report on Form 10-K filed on January 9, 2013).+
- 10.29 Executive Employment Agreement between the Company and Peter S. Kirlin dated May 4, 2015 (incorporated by reference to Exhibit 10.28 of the Company's Quarterly Report on Form 10-Q filed on September 9, 2015).+
- 10.30 Executive Employment Agreement between the Company and Richelle E. Burr dated May 21, 2010.\*
- 10.31 Form of Amendment to Executive Employment Agreement dated March 16, 2012 (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on March 16, 2012).+
- 10.32 Third Amended and Restated Credit Agreement dated as of December 5, 2013 (incorporated by reference to Exhibit 10.24 to the Company's Annual Report on Form 10-K filed on January 3, 2014).
- Amendment No. 1 dated as of August 22, 2014 to the Third Amended and Restated Credit Agreement dated as  
10.33 of December 5, 2013 (incorporated by reference to Exhibit 10.32 of the Company's Annual Report on Form 10-K filed January 6, 2015).
- 10.34 Second Amended and Restated Security Agreement (incorporated by reference to Exhibit 10.33 of the Company's Annual Report on Form 10-K filed January 6, 2015).
- 21 List of Subsidiaries of the Company.\*
- 23 Consent of Deloitte & Touche LLP.\*
- 31.1 Certification of Chief Executive Officer pursuant to Rule 13a-14(a)/15d-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.\*
- 31.2 Certification of Chief Financial Officer pursuant to Rule 13a-14(a)/15d-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.\*
- 32.1

Certification of Chief Executive Officer pursuant to 18 U.S.C. Section 1350 as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.\*

32.2 Certification of Chief Financial Officer pursuant to 18 U.S.C. Section 1350 as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.\*

69

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Index

101.INS XBRL Instance Document

101.SCH XBRL Taxonomy Extension Schema Document

101.CAL XBRL Taxonomy Extension Calculation Linkbase Document

101.DEF XBRL Taxonomy Extension Definition Linkbase Document

101.LAB XBRL Taxonomy Extension Label Linkbase Document

101.PRE XBRL Taxonomy Extension Presentation Linkbase Document

+ Represents a management contract or compensatory plan or arrangement.

# Portions of this exhibit have been omitted pursuant to a request for confidential treatment filed with the Securities and Exchange Commission.

\* Represents an exhibit that is filed with this Annual Report on Form 10-K.

The Company will provide a copy of any exhibit upon receipt of a written request for the particular exhibit or exhibits desired. All requests should be addressed to the Company's general counsel at the address of the Company's principal executive offices.

Index

SIGNATURES

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

PHOTRONICS, INC.  
(Registrant)

By /s/ SEAN T. SMITH January 7, 2016  
Sean T. Smith  
Senior Vice President  
Chief Financial Officer  
(Principal Accounting Officer/  
Principal Financial Officer)

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

By /s/ PETER S. KIRLIN January 7, 2016  
Peter S. Kirlin  
Chief Executive Officer  
Director  
(Principal Executive Officer)

By /s/ SEAN T. SMITH January 7, 2016  
Sean T. Smith  
Senior Vice President  
Chief Financial Officer  
(Principal Accounting Officer/  
Principal Financial Officer)

By /s/ CONSTANTINE S. MACRICOSTAS January 7, 2016  
Constantine S. Macricostas  
Executive Chairman of the Board

By /s/ WALTER M. FIEDEROWICZ January 7, 2016  
Walter M. Fiederowicz  
Director

By /s/ JOSEPH A. FIORITA, JR. January 7, 2016  
Joseph A. Fiorita, Jr.  
Director

By /s/ LIANG-CHOO HSIA January 7, 2016  
Liang-Choo Hsia  
Director

By /s/ GEORGE MACRICOSTAS January 7, 2016

George Macricostas  
Director

By /s/ MITCHELL G. TYSON  
Mitchell G. Tyson  
Director

January 7, 2016