

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 October 30, 2011

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**

(State or other jurisdiction of incorporation or organization)

**06-0854886**

(IRS Employer Identification Number)

**15 Secor Road, Brookfield, Connecticut 06804**

(Address of principal executive offices and zip code)

**(203) 775-9000**

(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act: **Common Stock, \$0.01 par value per share - NASDAQ Global Select Market**

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

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.

Yes o 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 o 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 o

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 o

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

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

Large Accelerated Filer o Accelerated Filer  Non-Accelerated Filer o Smaller Reporting Company o

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

Yes o No

As of May 1, 2011, 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 \$494,018,059 (based upon the closing price of \$8.73 per share as reported by the NASDAQ Global Select Market on that date).

As of December 31, 2011, 60,194,533 shares of the registrant's common stock were outstanding.

**DOCUMENTS INCORPORATED BY REFERENCE**

Proxy Statement for the 2012  
Annual Meeting of Shareholders  
to be held in March 2012

Incorporated into Part III  
of this Form 10-K

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## 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"). 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", 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, in press releases, written statements, or other documents filed with the Securities and Exchange Commission, 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 the consummation and benefits of future 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. These factors may cause actual results, performance, or achievements to differ materially from anticipated results, performance, or achievements expressed or implied by such forward-looking statements. Factors that might affect such 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; changes in federal, state and international tax requirements (including tax rate changes, new tax laws and revised tax law interpretations); interest rate fluctuations and other capital market conditions, including changes in the market price of the Company's common stock; foreign currency exchange rate fluctuations; changes in technology; the timing, impact, and other uncertainties of future acquisitions; 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 other cost savings in connection with acquisitions and productivity programs; (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. is a Connecticut corporation, organized in 1969. Its principal executive offices are located at 15 Secor Road, Brookfield, Connecticut 06804, telephone (203) 775-9000. Photronics, Inc. and its subsidiaries are collectively referred to herein as "Photronics" or the "Company". 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 amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934 as soon as reasonably practicable after such materials are electronically filed or furnished to the Securities and Exchange Commission. The information contained or incorporated in the Company's website is not part of these documents.

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 eight manufacturing facilities; two of which are located in Europe, two in Taiwan, one in Korea and three in the United States. In the first quarter of fiscal 2012 the Company ceased the manufacturing of photomasks at its Singapore facility.

#### Manufacturing Technology

The Company manufactures photomasks, which are used as masters to transfer circuit patterns onto semiconductor wafers and flat panel substrates. The 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) technologies. Electron beam and laser-based systems are the predominant technologies used for photomask manufacturing. These technologies 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 with the most advanced processing techniques 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 critical layer photomasks. 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. Photomasks produced using laser-based systems are less expensive and less precise than those manufactured on high-end electron beam 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, geographic proximity to customers, efficient manufacturing methods, high production yield and high equipment reliability. The Company works to meet these requirements by making significant investments in research and development, manufacturing, and data processing systems, and by utilizing statistical process control methods to optimize the manufacturing process and reduce cycle times.

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 65 nanometers or larger. 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, including a limited number of manufacturers who have the capability to internally manufacture photomasks. Photomasks are manufactured by independent merchant manufacturers like Photronics, and by semiconductor and FPD manufacturers that produce photomasks exclusively for their own use (captive manufacturers). Since the mid-1980s, there has been a strong trend in Asia, Europe and North America 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 has been driven by the increased complexity and cost of capital equipment used in manufacturing photomasks.

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.

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 throughout 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, providing global solutions to its customers, minimizing delivery time, and serving customers that utilize manufacturing foundries outside of the United States, principally in Asia. See Note 17 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 October 30, 2011 ("fiscal 2011") included the following:

ASML Holding N.V.	LG Electronics, Inc.
AU Optronics Corp.	Magnachip Semiconductor
Dongbu HiTek Co. Ltd.	Nanya Technology Corporation
Freescale Semiconductor, Inc.	Novatek Microelectronics Corp., Ltd.
Global Foundries, Inc.	Samsung Electronics Co., Ltd.
HannStar Display Corp.	ST Microelectronics, Inc.
Hynix Semiconductor, Inc.	Systems on Silicon Manufacturing Co. Pte. Ltd.
IM Flash Technologies, LLC	Texas Instruments Incorporated
Inotera Memories, Inc.	TriQuint Semiconductor, Inc.
Jenoptik AG	United Microelectronics Corp.

During fiscal 2011, the Company sold its products and services to approximately 600 customers. Samsung Electronics Co., Ltd. accounted for approximately 20% of the Company's net sales in fiscal 2011 and 19% of the Company's net sales in fiscal 2010 and 2009. This included sales of both IC and FPD photomasks. The Company's five largest customers, in the aggregate, accounted for approximately 45%, 39% and 42% of net sales in fiscal 2011, 2010 and 2009, 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 its primary research and development activities for IC photomasks at its MP Mask Technology Center, LLC ("MP Mask"), a joint venture with Micron Technology, Inc. ("Micron") located in Boise, Idaho, at PK, Ltd. ("PKL"), its subsidiary in Korea, and at Photonics Semiconductor Mask Corporation ("PSMC"), one of its subsidiaries in Taiwan, and for FPD photomasks at PKL, and in site-specific research and development programs to support strategic customers. These research and development programs and activities are designed to advance the Company's leadership 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 32 nanometer node and below, and for FPDs on Generation 8 and higher and AMOLED technology. The Company believes these core competencies will continue to be a critical part of semiconductor and FPD manufacturing, as optical lithography continues to scale device capabilities at and below 45 nanometer and at and above Generation 8. The Company has incurred research and development expenses of \$ 15.5 million, \$14.9 million and \$15.4 million in fiscal 2011, 2010 and 2009, respectively. 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 believes that its intellectual property and trade secret know-how will continue to be important to its technical leadership in the field of photomasks.

### **Patents and Trademarks**

The Company has ownership interests in over 40 issued U.S. Patents, and over 40 registered patents in other parts of the world. 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 2011 to 2028. Additionally, pursuant to a technology license agreement with Micron, the Company has access to certain technology 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 the Company's technical leadership in the field of photomasks, the Company's operations are not dependent on any one individual patent. The Company protects its intellectual property rights regarding products and manufacturing processes by utilizing patents. The Company also relies on non-disclosure agreements with employees, customers and vendors to protect its intellectual property and proprietary processes.

## **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, 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. Although the Company is not dependent on any one supplier for most of its raw materials, glass blanks used for the production of certain high-end photomasks are only available from one supplier. 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.

The 2011 earthquake and tsunami that occurred in Japan did not have a significant impact on the Company's ability to obtain raw materials or capital equipment.

## **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**

International sales were approximately 69%, 71% and 72% of the Company's net sales in fiscal 2011, 2010 and 2009, respectively. The Company believes that its ability to serve international markets requires it to have, 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 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 17 of the notes to the Company's consolidated financial statements reports net sales and long-lived assets by geographic region.

## **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. A few competitors have greater financial, technical, sales, marketing and 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 \$3.7 billion. Competitors include Compugraphics, Inc., Dai Nippon Printing Co., Ltd., Hoya Corporation, SK-Electronics Co. Ltd., Taiwan Mask Corporation, Toppan Printing Co., Ltd. and Toppan Chungwha Electronics Corporation. 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 has contributed to the decrease in the number of independent manufacturers, and expects such pressure to continue in the future.

## **Employees**

As of October 30, 2011, the Company had approximately 1,350 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 semiconductor industry which, as a whole, is volatile and could have a negative material impact on its business.**

The Company sells substantially all of its photomasks to semiconductor 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 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. Further, advances in design and production methods for semiconductors and other high performance electronics could reduce the demand for photomasks. 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 semiconductor industry experienced a downturn in fiscal 2008, which continued through fiscal 2009, and had an adverse impact on the Company's 2009 operating results.

The Company's results may suffer if either 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 incurred a net loss in fiscal year 2009, and may incur future net losses.**

The Company incurred a net loss of \$41.9 million in fiscal 2009 due, in part, to the global recession and related severe downturn experienced by the semiconductor industry that began in 2008. The net loss incurred in fiscal year 2009 included significant non-cash charges for restructurings and impairments of long-lived assets. The Company returned to profitability and had net income attributable to Photronics, Inc. of \$16.2 million in fiscal 2011 and \$23.9 million in fiscal 2010, but cannot provide assurance that it will not incur future net losses.



**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 substantially all of 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. Consequently, if anticipated sales in any quarter do not occur when expected, capital expenditures and expense levels could be disproportionately high, and the Company's operating results would be adversely affected. Due to the foregoing factors, the Company believes that quarter-to-quarter comparisons of its operating results are not necessarily meaningful and that these comparisons cannot be relied upon as indicators of future performance. In addition, in future quarters the Company's operating results could be below the expectations of public market analysts and investors which, in turn, could materially adversely affect 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, increased 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 2011, 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 designs to semiconductor wafers without the use of photomasks achieve market acceptance, the Company's business and results of operations would be materially adversely affected. 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 in high-end manufacturing capability at existing and new facilities. 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 2012 are expected to be in the range of \$60 million to \$80 million, of which \$19 million was in accounts payable and accrued liabilities as of October 30, 2011. 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.

**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 or cash flows.**

On May 5, 2006, Photronics and Micron entered into a joint venture known as MP Mask. The joint venture 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 October 30, 2011, made contributions to MP Mask of approximately \$25 million and received returns of investments of \$10 million.

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 had greater voting power, if necessary, within MP Mask's Board of Managers. The number of managers appointed 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 the joint venture up to the maximum amount defined in the operating agreement. During fiscal 2011, the Company made additional capital contributions of \$18.3 million to the MP Mask joint venture, primarily related to capital calls requested by the joint venture.

On May 19, 2009, the Company's capital lease agreement with Micron for the Company's state-of-the-art nanoFab facility ("U.S. nanoFab") in Boise, Idaho, was canceled, at which time Photronics and Micron agreed to enter into a new lease agreement for the U.S. nanoFab building. Under provisions of the new lease agreement, quarterly lease payments were reduced, the lease term was extended, and ownership of the property will not transfer to the Company at the end of the lease term. As a result of the new lease agreement, the Company reduced its lease obligations and the carrying value of its assets under capital leases by approximately \$28 million. The Company paid the lease obligation in full with a portion of the net proceeds of the March 2011 issuance of its 3.25% convertible senior notes.

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 loss of any of these customers or a significant reduction 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 2011, one customer, Samsung Electronics Co., Ltd., accounted for approximately 20% of the Company's net sales. The Company's five largest customers, in the aggregate, accounted for approximately 45%, 39% and 42% of net sales in fiscal 2011, 2010, and 2009, respectively. None of the Company's customers has entered into a significant long-term agreement with the Company requiring them to purchase the Company's products. 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 market, economic, or 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 also have an adverse effect on the Company's financial performance and business prospects.

**The Company depends on a small number of suppliers for equipment and raw materials and, if the Company's suppliers do not deliver their products to it, the Company may be unable to deliver its products to 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. Further, the Company relies on equipment manufacturers to develop future generations of manufacturing equipment to meet its requirements. In addition, the manufacturing equipment necessary to produce advanced photomasks could become prohibitively expensive.

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, for production of certain high-end photomasks, there is only one available supplier, whose manufacturing facilities are located in Japan. The Company has no long-term contracts for the supply of these raw materials. 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 perform such processes and technologies 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 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 include Total Leverage Ratio, a Minimum Fixed Charge 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 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.

**The Company's prior and future acquisitions may entail certain operational and financial risks.**

The Company has made significant acquisitions throughout its history. The focus of the Company's most recent significant acquisitions has been on increasing its manufacturing presence in Asia, including its acquisition in 2000 of Precision Semiconductor Mask Corporation, a Taiwanese photomask manufacturer, and in 2001 of PK Ltd., a Korean photomask manufacturer, and increasing its technology base through the MP Mask joint venture between Photonics and Micron in 2006. The Company may make additional acquisitions in the future. Acquisitions place significant demands on the Company's administrative, operational and financial personnel and systems. Managing acquired operations entails numerous operational and financial risks, including difficulties in the assimilation of acquired operations, diversion of management's attention from other business concerns, managing assets in multiple geographic regions, determining values of acquired intangible assets and the potential loss of key employees of acquired operations. Sales of acquired operations may decline following an acquisition, particularly if there is an overlap of customers served by the Company and the acquired operation, and these customers transition to another vendor in order to ensure a second source of supply. Furthermore, the Company may be required 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.

**The Company's cash flow 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, some financing instruments used by the Company in the past may not be currently 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 fail to realize projected benefits related to its fiscal 2012 restructuring in Singapore or, it may incur unforeseen charges related to any other possible future facility closures or restructurings.**

In order to lower its operating costs and increase its manufacturing efficiencies, in December 2011 the Company ceased the manufacture of photomasks at its facility in Singapore. However, the Company cannot assure that this action will result in its realizing the projected benefits related to this restructuring. The Company also cannot provide assurance that there will not be additional facility closures or other restructurings in the near or long-term, nor can it assure that it will not incur significant charges, should there be any additional future facility closures or restructurings.

**The Company operates in a highly competitive industry; should the Company be unable to meet its customers' requirements for product quality, timeliness of delivery or technical capabilities, it could adversely affect the Company's sales.**

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, Inc., Dai Nippon Printing Co., Ltd., Hoya Corporation, SK-Electronics Co., Ltd., Taiwan Mask Corporation, Toppan Printing Co., Ltd. and Toppan Chunghwa Electronics Corporation. 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. Many of the Company's competitors have substantially greater financial, technical, sales, marketing and 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 requirements could have a material adverse effect on its business and results of operations. In the past, competition led to pressure to reduce prices which, the Company believes, contributed to the decrease in the number of independent photomask suppliers. This pressure to reduce prices may continue in the future.

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

International sales were approximately 69%, 71% and 72% of the Company's net sales in fiscal 2011, 2010 and 2009, 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 new 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 materially, adversely affect the Company's results of operations, financial condition or cash flows.**

The Company's financial statements are prepared in accordance with accounting principals generally accepted in the United States of America (U.S. GAAP) and are reported in U.S. dollars. The Company's international 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 2011, the Company recorded a net gain from changes in foreign currency exchange rates of \$0.4 million in its statement of operations, while its net assets were increased by \$3.3 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, engineering 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 upon 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, or 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 does 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 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.

**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 region, 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 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 our risk to these vulnerabilities. However, these measures may not be adequate to ensure that our 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 flow 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 flow from operations in the future to both service its debt and make necessary capital expenditures. If the Company is unable to generate such cash flow, 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 will 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. DESCRIPTION OF PROPERTY**

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

<b>Location</b>	<b>Type of Interest</b>
Allen, Texas	Owned
Boise, Idaho	Leased
Brookfield, Connecticut	Owned
Bridgend, South Wales	Leased
Cheonan, Korea	Owned
Dresden, Germany	Leased
Hsinchu, Taiwan	Leased
Singapore	Leased (1)
Taichung, Taiwan	Owned (2)

(1) The Company ceased the manufacturing of photomasks at its Singapore facility in December 2011.

(2) The Company owns its manufacturing facility in Taichung, 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. [Removed and reserved]

## PART II

### ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY AND RELATED SHAREHOLDERS' MATTERS

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 2011 and 2010, as reported by the NASDAQ Global Select Market.

	<u>High</u>	<u>Low</u>
<b>Fiscal Year Ended October 30, 2011:</b>		
Quarter Ended January 30, 2011	\$ 7.25	\$ 5.63
Quarter Ended May 1, 2011	10.15	6.47
Quarter Ended July 31, 2011	10.13	7.46
Quarter Ended October 30, 2011	7.93	4.58
<b>Fiscal Year Ended October 31, 2010:</b>		
Quarter Ended January 31, 2010	\$ 5.14	\$ 3.73
Quarter Ended May 2, 2010	5.98	3.52
Quarter Ended August 1, 2010	5.64	4.03
Quarter Ended October 31, 2010	6.86	3.88

On December 31, 2011, the closing sale price of the Common Stock per the NASDAQ Global Select Market was \$6.08. Based on information available to the Company, the Company believes it has approximately 9,400 shareholders.

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 revolving credit facility precludes it from paying cash dividends.

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 2012 definitive Proxy Statement into Item 12 of Part III of this report.

In the second and third quarters of fiscal 2011 the Company, in two separate transactions, acquired \$35.4 million of its 5.5% convertible senior notes in exchange for 5.2 million shares of its common stock, with a fair value of \$45.7 million, and cash of \$22.9 million (the note holders received 147,529 shares and cash of \$647 for each \$1,000 note). The Company, in connection with these transactions, recorded extinguishment losses of \$35.1 million, which included the write-off of deferred financing fees of \$2.0 million. The losses are included in other income (expense) in the Company's consolidated statements of operations.



**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 Form 10-K (in thousands, except per share amounts).

	Year Ended				
	<u>October 30, 2011</u>	<u>October 31, 2010</u>	<u>November 1, 2009</u>	<u>November 2, 2008</u>	<u>October 28, 2007</u>
<b>OPERATING DATA:</b>					
Net sales	\$ 512,020	\$ 425,554	\$ 361,353	\$ 422,548	\$ 421,479
Cost and expenses:					
Cost of sales	(375,806)	(333,739)	(304,282)	(349,841)	(321,958)
Selling, general and administrative	(45,240)	(42,387)	(41,162)	(55,167)	(61,507)
Research and development	(15,507)	(14,932)	(15,423)	(17,475)	(17,300)
Consolidation, restructuring and related credits (charges)	-	4,979 (c)	(13,557) (e)	(510) (h)	-
Impairment of long-lived assets	-	-	(1,458) (f)	(66,874) (i)	-
Impairment of goodwill	-	-	-	(138,534) (j)	-
Gain on sale of facility	-	-	2,034	-	2,254
Operating income (loss)	75,467	39,475	(12,495)	(205,853)	22,968
Other income (expense):					
Debt extinguishment loss	(35,259) (a)	-	-	-	-
Interest expense	(7,258)	(9,475)	(22,401)	(11,878)	(5,928)
Investment and other income (expense), net	2,949 (b)	2,553 (d)	(2,208) (g)	5,562	6,844
Income (loss) before income tax (provision) benefit	35,899	32,553	(37,104)	(212,169)	23,884
Income tax (provision) benefit	(15,691)	(7,471)	(4,323)	2,778	3,178
Net income (loss)	20,208 (a)(b)	25,082 (c)(d)	(41,427) (e)(f)(g)	(209,391) (h)(i)(j)	27,062
Net income attributable to noncontrolling interests	(3,979)	(1,160)	(483)	(1,374)	(2,539)
Net income (loss) attributable to Photronics, Inc.	<u>\$ 16,229 (a)(b)</u>	<u>\$ 23,922 (c)(d)</u>	<u>\$ (41,910) (e)(f)(g)</u>	<u>\$ (210,765) (h)(i)(j)</u>	<u>\$ 24,523</u>
Earnings (loss) per share:					
Basic	<u>\$ 0.28 (a)(b)</u>	<u>\$ 0.45 (c)(d)</u>	<u>\$ (0.97) (e)(f)(g)</u>	<u>\$ (5.06) (h)(i)(j)</u>	<u>\$ 0.59</u>
Diluted	<u>\$ 0.28 (a)(b)</u>	<u>\$ 0.43 (c)(d)</u>	<u>\$ (0.97) (e)(f)(g)</u>	<u>\$ (5.06) (h)(i)(j)</u>	<u>\$ 0.56</u>
Weighted-average number of common shares outstanding:					
Basic	<u>57,030</u>	<u>53,433</u>	<u>43,210</u>	<u>41,658</u>	<u>41,539</u>
Diluted	<u>58,458</u>	<u>65,803</u>	<u>43,210</u>	<u>41,658</u>	<u>51,282</u>

**BALANCE SHEET DATA**

	As of				
	October 30, 2011	October 31, 2010	November 1, 2009	November 2, 2008	October 28, 2007
Working capital	\$ 209,306	\$ 86,573	\$ 89,542	\$ 66,419	\$ 96,606
Property, plant and equipment, net	368,680	369,814	347,889	436,528	531,578
Total assets	817,854	703,879	663,656	758,007	1,059,780
Long-term debt	152,577	78,852	112,137	202,979	191,253
Equity	559,756	495,943	449,696	432,398	703,749

- (a) 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.
- (b) Includes non-cash mark-to-market charge of \$0.4 million net of tax in connection with warrants issued to purchase the Company's common stock.
- (c) Includes consolidation and restructuring credits of \$5.0 million in connection with the closure of the Company's Shanghai, China, facility.
- (d) Includes non-cash mark-to-market charge of \$0.9 million net of tax in connection with warrants issued to purchase the Company's common stock.
- (e) Includes consolidation and restructuring charges of \$13.6 million (\$12.9 million net of tax) in connection with the closures of the Company's Shanghai, China, and Manchester, U.K., manufacturing facilities.
- (f) Includes impairment charge of \$1.5 million (\$1.1 million net of tax) related to the Company's Manchester, U.K., manufacturing facility.
- (g) Includes non-cash mark-to-market charge of \$0.3 million net of tax in connection with warrants issued to purchase the Company's common stock.
- (h) Includes consolidation and restructuring charges of \$0.5 million (\$0.4 million net of tax) in connection with the closure of the Company's Manchester, U.K., manufacturing facility.
- (i) Includes impairment charge of \$66.9 million (\$60.9 million net of tax) for certain long-lived assets in Asia and Europe.
- (j) Includes impairment of goodwill charge of \$138.5 million (\$137.3 million net of tax).

**ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS****Results of Operations for the Years Ended October 30, 2011, October 31, 2010 and November 1, 2009****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. Thus, the Company's selling cycle is tightly interwoven with the development and release of new semiconductor designs and flat panel applications, particularly as it relates to the semiconductor industry's migration to more advanced 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 could also reduce the demand for photomasks. 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 semiconductor industry experienced a downturn in 2008 that continued into 2009, which had a negative impact on the Company's 2009 operating results. The Company's 2009 operating results were also negatively impacted by the global recession.

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 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 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 in the near term. 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.

Since the recession that began in 2008, to some extent, it has been increasingly difficult to obtain external sources of financing to fund operations. 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.

The Company is focused on improving its competitiveness by advancing its technology and reducing costs and, in connection therewith, has invested in manufacturing equipment to serve the high-end market. In order to lower its operating costs and increase its manufacturing efficiencies, in 2009 the Company ceased the manufacture of photomasks at its facilities in Manchester, U.K. and Shanghai, China, and, in December 2011 at its facility in Singapore.

As of December 2011 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 process technologies for FPDs constitute the majority of designs currently being fabricated in volume. The Company expects 45 nanometer designs to continue to move to wafer fabrication throughout fiscal 2012, 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. 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 2011, 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 \$188 million for the three fiscal years ended October 30, 2011, resulting in significant increases in 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 \$60 million and \$80 million in fiscal 2012.

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 eight 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.

The vast majority of photomask units produced for semiconductor manufacturers employ geometries of 65 nanometers or larger for ICs, and the vast majority of photomask units produced for FPD manufacturers are Generation 7 technologies or lower. 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. Semiconductor fabrication also occurs below 65 nanometer for ICs, and FPD fabrication also occurs at Generation 8 and above.

In the first quarter of fiscal 2012 the Company ceased the manufacture of photomasks at its Singapore facility. The Company expects that the restructuring costs of this action will not exceed \$2.5 million, all of which it expects to record in fiscal 2012.

In the second quarter of fiscal 2011 the Company issued, through a private offering pursuant to Rule 144A under the Securities Act of 1933, as amended, \$115 million aggregate principal amount of 3.25% convertible senior notes. The notes mature on April 1, 2016, and note holders may convert each \$1,000 principal amount of notes to 96.3879 shares of common stock (equivalent to an initial conversion price of \$10.37 per share of common stock) at any time prior to the close of business on the second scheduled trading day immediately preceding April 1, 2016. The conversion rate is subject to adjustment upon the occurrence of certain events, which are described in the indenture dated March 28, 2011. 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. Interest payments on the notes commenced on October 1, 2011. The net proceeds of the notes were approximately \$110.7 million, which were used, in part, to repurchase \$35.4 million of the Company's 5.5% convertible senior notes, which were to mature in October 2014, and to pay, in full, its then outstanding obligations under capital leases of \$19.8 million.

In the second and third quarters of fiscal 2011 the Company, in two separate transactions, acquired \$35.4 million of its 5.5% convertible senior notes in exchange for 5.2 million shares of its common stock, with a fair value of \$45.7 million, and cash of \$22.9 million (the note holders received 147,529 shares and cash of \$647 for each \$1,000 note). The Company, in connection with these transactions, recorded extinguishment losses of \$35.1 million, which included the write-off of deferred financing fees of \$2.0 million. The losses are included in other income (expense) in the Company's consolidated statements of operations.

In 2011 the board of directors of PSMC authorized PSMC to repurchase shares of its outstanding common stock for retirement. These repurchase programs resulted in 21.6 million shares being purchased for \$9.9 million. PSMC's repurchase of these shares increased the Company's ownership percentage in PSMC from 57.53% at October 31, 2010 to 62.25% as of October 30, 2011.

In the fourth quarter of fiscal 2009 the Company issued approximately 11.1 million shares of its common stock at a price of \$4.15 per share. Gross proceeds from the offering were \$46.0 million which were reduced by underwriting commissions and other expenses to yield net proceeds of approximately \$43.1 million. The net proceeds from the offering were used to reduce outstanding amounts under the Company's credit facility.

In the fourth quarter of fiscal 2009 the Company issued \$57.5 million aggregate principal amount of 5.5% convertible senior notes which mature on October 1, 2014. Note holders may convert each \$1,000 principal amount of notes to 196.7052 shares of stock (equivalent to an initial conversion price of approximately \$5.08 per share of common stock) on September 30, 2014. The conversion rate may be increased in the event of a make-whole fundamental change (as defined in the prospectus supplement filed by the Company on September 11, 2009) and the Company may not redeem the notes prior to their stated maturity date. The net proceeds of the offering were approximately \$54.9 million, which were used to reduce outstanding amounts under the Company's credit facility. As discussed above, as of October 30, 2011, \$35.4 million of the convertible senior notes have been converted. Concurrent with the issuance of the 5.5% convertible senior notes, the Company issued warrants to Intel Capital Corporation to purchase a total of 750,000 shares of the Company's common stock, 500,000 of which were at an exercise price of \$4.15 per share and 250,000 at an exercise price of \$5.08 per share. The warrants expire on September 10, 2014, and were issued to Intel Capital Corporation, an affiliate of Intel Corporation, in consideration for an agreement between the Company and Intel Corporation to share technical and operations information regarding the development of the Company's products, the capabilities of the Company's photomask manufacturing lines and the alignment of photomask toolsets. As of October 30, 2011, none of the warrants issued to Intel Capital Corporation have been exercised. Intel Capital Corporation also invested in the Company's 2009 convertible debt offering.

In the third quarter of 2009 the Company ceased the manufacture of photomasks at its Shanghai, China, facility. Through the end of fiscal 2009, the Company recorded total restructuring charges related to this action of \$10.2 million, including \$9.9 million related to asset write-downs, primarily for the Shanghai manufacturing facility whose fair value was determined by management using a market approach. Approximately seventy-five employees were affected by this action. During fiscal 2010, the Company recorded net restructuring credits related to the Shanghai facility closing of \$5.0 million. The net credit was primarily the result of a gain of \$5.4 million related to the sale of the facility.

In the first quarter of 2009 the Company ceased the manufacture of photomasks at its Manchester, U.K., facility and in connection therewith, restructuring charges (primarily for termination costs and asset write-downs) of \$3.3 million (\$2.7 million net of tax) were incurred in fiscal 2009. Approximately eighty-five employees were affected by this action.

In the first quarter of 2008 a capital lease agreement commenced for the U.S. nanoFab facility. Quarterly lease payments, which bore interest at 8%, were \$3.8 million through January 2013. This lease was cancelled in the third quarter of 2009, at which time the Company and Micron (the lessor) entered into a new lease agreement for the facility. Under the provisions of the new lease agreement, quarterly lease payments were reduced from \$3.8 million to \$2.0 million, the term of the lease was extended from December 31, 2012 to December 31, 2014, and ownership of the property will not transfer to the Company at the end of the lease term. The interest rate of the new lease agreement was also 8%. As a result of the new lease agreement, the Company reduced its lease obligation and the carrying value of its assets under capital leases by approximately \$28 million. The lease obligation was paid in full with a portion of the net proceeds of the March 28, 2011, issuance of its 3.25% convertible senior notes. The lease will be accounted for as an operating lease during the additional two years of the new lease term.

## Results of Operations

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

	Year Ended		
	October 30, 2011	October 31, 2010	November 1, 2009
Net sales	100.0%	100.0%	100.0%
Cost of sales	(73.4)	(78.4)	(84.2)
Gross margin	26.6	21.6	15.8
Selling, general and administrative expenses	(8.9)	(10.0)	(11.4)
Research and development expenses	(3.0)	(3.5)	(4.3)
Consolidation, restructuring and related credits (charges)	-	1.2	(3.8)
Impairment of long-lived assets	-	-	(0.4)
Gain on sale of facility	-	-	0.6
Operating income (loss)	14.7	9.3	(3.5)
Debt extinguishment loss	(6.9)	-	-
Interest expense	(1.4)	(2.3)	(6.2)
Investment and other income (expense), net	0.6	0.6	(0.6)
Income (loss) before income tax provision	7.0	7.6	(10.3)
Income tax provision	(3.1)	(1.7)	(1.2)
Net income (loss)	3.9	5.9	(11.5)
Net income attributable to noncontrolling interests	(0.8)	(0.3)	(0.1)
Net income (loss) attributable to Photronics, Inc.	3.1%	5.6%	(11.6)%

Note: All the following tabular comparisons, unless otherwise indicated, are for the fiscal years ended October 30, 2011 (2011), October 31, 2010 (2010) and November 1, 2009 (2009), in millions of dollars.

### Net Sales

	2011	2010	2009	Percent Change	
				2010 to 2011	2009 to 2010
IC	\$ 391.2	\$ 329.8	\$ 272.9	18.6%	20.9%
FPD	120.8	95.8	88.5	26.2	8.3
Total net sales	\$ 512.0	\$ 425.6	\$ 361.4	20.3%	17.8%

Net sales for 2011 increased 20.3% to \$512.0 million as compared to \$425.6 million for 2010. The increase was primarily related to increased high-end IC and FPD sales, mainly resulting from increased unit demand and ASPs for both high-end ICs and FPDs. FPD sales increased primarily as a result of increased unit demand for high-end products. High-end photomask applications, which typically have higher ASPs, include photomask sets for IC products using 45 nanometer and below technologies, and for FPD products using G8 and above and AMOLED technologies. Sales of high-end IC photomasks increased to \$95 million in 2011 as compared to \$37 million in 2010, and sales of high-end FPD photomasks increased to \$67 million in 2011 as compared to \$37 million in 2010. By geographic area, net sales in 2011 as compared to 2010 increased by \$47.4 million or 18.3% in Asia, increased by \$34.3 million or 27.7% in North America, and increased by \$4.8 million or 11.4% in Europe. As a percent of total sales in 2011, sales were 60% in Asia, 31% in North America and 9% in Europe.

Net sales for 2010 increased 17.8% to \$425.6 million as compared to \$361.4 million for 2009. The increase was primarily related to increased IC sales, mainly resulting from increased high-end unit demand, and to a lesser extent increased mainstream unit demand. FPD sales increased modestly as a result of increased unit demand for high-end products. Sales of high-end IC photomasks increased to \$37 million in 2010 as compared to \$14 million in 2009. By geographic area, net sales in 2010 as compared to 2009 increased by \$36.8 million or 16.5% in Asia, increased by \$23.9 million or 23.9% in North America, and increased by \$3.5 million or 9.1% in Europe. As a percent of total sales in 2010, sales were 61% in Asia, 29% in North America and 10% in Europe.

### Gross Margin

	2011	2010	2009	Percent Change	
				2010 to 2011	2009 to 2010
Gross margin	\$ 136.2	\$ 91.8	\$ 57.1	48.4%	60.9%
Gross margin %	26.6%	21.6%	15.8%	-	-

Gross margin percentage increased to 26.6% in 2011 from 21.6% in 2010. This increase was primarily due to increased sales of high-end IC photomask units which typically have higher ASPs. Increased unit sales of high-end FPDs also contributed to the higher gross margin percentage in 2011. Gross margin percentage increased to 21.6% in 2010 from 15.8% in 2009. This increase was primarily due to increased sales and increased high-end IC and FPD photomask units. Increased mainstream unit volume also contributed to the increased gross margin percentage in 2010. 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

	2011	2010	2009	Percent Change	
				2010 to 2011	2009 to 2010
S,G&A expense	\$ 45.2	\$ 42.4	\$ 41.2	6.7%	3.0%
% of net sales	8.9%	10.0%	11.4%	-	-

Selling, general and administrative expenses increased by \$2.8 million to \$45.2 million in 2011, as compared with \$42.4 million in 2010. The increase was primarily related to increased employee compensation and benefit expenses. Selling, general and administrative expenses increased slightly by \$1.2 million to \$42.4 million in 2010, as compared with \$41.2 million in 2009. This increase was also primarily related to increased employee compensation and benefit expenses.

## Research and Development

	2011	2010	2009	Percent Change	
				2010 to 2011	2009 to 2010
R&D expense	\$ 15.5	\$ 14.9	\$ 15.4	3.9%	(3.2)%
% of net sales	3.0%	3.5%	4.3%	-	-

Research and development expenses consist primarily of global development efforts related to high-end process technologies for advanced sub-wavelength reticle solutions for IC technologies. Research and development expense did not change significantly in 2011 as compared to 2010, or in 2010 as compared to 2009.

## Consolidation, Restructuring and Related (Credits) Charges

	2011	2010	2009
Asset write-downs and other	\$ -	\$ -	\$ 10.9
Net gain on sales of assets	-	(5.2)	-
Employee terminations	-	0.2	2.7
Total consolidation, restructuring and related (credits) charges	\$ -	\$ (5.0)	\$ 13.6

### Shanghai, China, Facility

In the third quarter of fiscal 2009, the Company ceased the manufacture of photomasks at its Shanghai, China, facility. In connection with this restructuring, the Company recorded total net charges of \$5.2 million, including \$4.7 million of net asset write-downs through its completion in fiscal 2010. The fair value of the assets written down was determined by management using a market approach. Approximately 75 employees were affected by this restructuring.

The Company recorded an initial restructuring charge of \$10.1 million in the third quarter of fiscal 2009, which included \$7.7 million to write down the carrying value of the Company's Shanghai manufacturing facility to its estimated fair value at that time. In the second quarter of fiscal 2010, the Company sold its facility in Shanghai, China, for net proceeds of \$12.9 million which resulted in a gain of \$5.4 million, which was recorded as a credit to the restructuring reserve in that quarter.

### Manchester, U.K., Facility

During the first quarter of fiscal 2009, the Company ceased the manufacture of photomasks at its Manchester, U.K., facility and, in connection therewith, incurred total restructuring charges of \$3.9 million through its completion in the fourth quarter of fiscal 2009, primarily for employee termination costs and asset write-downs. This initiative began in the fourth quarter of fiscal 2008 with the recording of a \$0.5 million charge for the impairment of certain long-lived assets located at the facility. Approximately 85 employees were affected by this restructuring.

### Singapore Facility

In the first quarter of fiscal 2012 the Company ceased the manufacture of photomasks at its Singapore facility. The Company expects that the restructuring costs of this action will not exceed \$2.5 million, all of which it expects to record in fiscal 2012.

The Company continues to assess its global manufacturing strategy. This ongoing assessment could result in future facility closures, asset redeployments, workforce reductions, and the addition of increased manufacturing facilities, all of which would be predicated on market conditions and customer requirements.



### **Impairment of Long-Lived Assets**

In the second quarter of 2009, the Company recorded an impairment charge of \$1.5 million to reduce the carrying value of its Manchester, U.K., facility to its estimated fair value, which was determined by management using a market approach.

### **Gain on Sale of Facility**

In connection with the closing of its Manchester, U.K., manufacturing facility in the first quarter of fiscal 2009, the Company sold that facility for \$4.3 million in the fourth quarter of fiscal 2009, and realized a gain of \$2.0 million.

### **Other Income (Expense)**

	<u>2011</u>	<u>2010</u>	<u>2009</u>
Debt extinguishment	\$ (35.3)	\$ -	\$ -
Interest expense	(7.2)	(9.5)	(22.4)
Investment and other income (expense), net	2.9	2.6	(2.2)
Total other expense, net	<u>\$ (39.6)</u>	<u>\$ (6.9)</u>	<u>\$ (24.6)</u>

In the second and third quarters of fiscal 2011, the Company acquired \$35.4 million aggregate principal amount of its 5.5% convertible senior notes by delivering \$22.9 million in cash and 5.2 million shares of its common stock, with a fair value of \$45.7 million. In connection with these 2011 acquisitions the Company recorded total debt extinguishment losses of \$35.1 million, which included the write-off of \$2.0 million of deferred financing fees. A portion of the net proceeds of the Company's March 28, 2011, 3.25% convertible senior notes offering was used to repurchase these notes.

Interest expense decreased in 2011, as compared to 2010, primarily as a result of higher interest rate debt being replaced with the 3.25% convertible senior notes issued by the Company in March 2011. In addition, in 2010, the Company wrote off \$1.0 million of deferred financing fees, that was charged to interest expense, in connection with refinancing its credit facility. Investment and other income (expense), net, increased in 2011 as compared to 2010 primarily due to increased investment earnings on the Company's higher cash balances in 2011, lower non-cash losses related to changes in the fair value of certain of the Company's common stock warrants and increased earnings on its equity method investment, all of which were largely offset by less favorable foreign currency transaction results.

Interest expense decreased in 2010 as compared to 2009, primarily as a result of lower debt levels and lower average interest rates on the Company's long-term borrowings. In addition, the Company incurred significantly higher amortization of deferred financing fees in 2009 that were related to amendments to its credit facility. Interest expense includes \$1.0 million in 2010 and \$2.9 million in 2009 related to the write-off of deferred financing fees in connection with amendments to the Company's credit facility. The outstanding balance of the Company's variable rate debt and related higher interest costs were reduced substantially during the fourth quarter of fiscal 2009, with net proceeds from its common stock and convertible debt offerings of that year. Investment and other income (expense), net, increased in 2010 as compared to 2009, primarily due to improved foreign currency transaction results, which were offset, in part, by a \$0.6 million increase in non-cash losses recorded to adjust certain common stock warrants to their fair value.

### **Income Tax Provision**

	<u>2011</u>	<u>2010</u>	<u>2009</u>
Income tax provision	\$ 15.7	\$ 7.5	\$ 4.3
Effective income tax rate	43.7%	23.0%	11.7%

The effective tax rate differs from the U.S. statutory rate of 35% in fiscal year 2011 primarily due to the impact of the non-deductible debt extinguishment losses and the impact of a foreign subsidiary tax settlement offset by a higher level of earnings taxed at lower statutory rates in foreign jurisdictions. Further, in Korea and in Taiwan, various investment tax credits have been earned, which also reduced the Company's effective income tax rate in 2011.

The effective income tax rate differs from the U.S. statutory rate of 35% in 2010 primarily due to tax rates being lower than the U.S. rate in other countries where the Company's income is taxed. In 2009, the effective income tax rate differed from the U.S. statutory rate because income tax expenses incurred in jurisdictions where the Company generated income before income taxes were, due to valuation allowances, not significantly offset by income tax benefits realized in jurisdictions in which the Company incurred losses before income taxes. The Company, in 2010 and 2009, also benefitted from the utilization of various investment tax credits in Korea and Taiwan.

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, reduces its deferred tax assets by a valuation allowance. As a result of these evaluations, the valuation allowance was (decreased) increased by \$(8.2) million, \$10.9 million and \$5.7 million in 2011, 2010 and 2009, respectively. The Company also regularly assesses the potential outcomes of ongoing and future 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 starts in 2012 and expires in 2017. In addition, the Company was accorded a tax holiday in China which expired in 2011. The availability of these tax holidays 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. These tax holidays had no dollar or per share effect on the 2011, 2010 or 2009 fiscal years.

#### **Net Income Attributable to Noncontrolling Interests**

Net income attributable to noncontrolling interests increased \$2.8 million to \$4.0 million in 2011, as compared to 2010, and \$0.7 million to \$1.2 million in 2010, as compared to 2009, primarily as a result of increased net income at PSMC, the Company's non-wholly owned subsidiary in Taiwan.

In 2011 the board of directors of PSMC authorized PSMC to repurchase shares of its outstanding common stock for retirement. These repurchase programs resulted in 21.6 million shares being purchased for \$9.9 million. PSMC's repurchase of these shares increased the Company's ownership percentage in PSMC from 57.53% at October 31, 2010, to 62.25% as of October 30, 2011. The Company's ownership percentage in its subsidiary in Korea was 99.7% at October 30, 2011 and October 31, 2010.

#### **Liquidity and Capital Resources**

	<b>October 30, 2011</b>	<b>October 31, 2010</b>	<b>November 1, 2009</b>
	<i>(in millions)</i>	<i>(in millions)</i>	<i>(in millions)</i>
Cash and cash equivalents	\$ 189.9	\$ 98.9	\$ 88.5
Net cash provided by operating activities	\$ 136.6	\$ 95.9	\$ 68.1
Net cash used in investing activities	\$ (100.7)	\$ (58.2)	\$ (24.7)
Net cash provided by (used in) financing activities	\$ 54.5	\$ (32.4)	\$ (40.5)

As of October 30, 2011, the Company had cash and cash equivalents of \$189.9 million compared to \$98.9 million as of October 31, 2010. The Company's working capital increased \$122.7 million to \$209.3 million at October 30, 2011, as compared to \$86.6 million at October 31, 2010. The increase in working capital was primarily the result of cash proceeds from the issuance of \$115 million of 3.25% convertible senior notes (of which a portion of the proceeds was used to repay higher interest rate debt) and increased cash generated from operating activities.

Cash provided by operating activities was \$136.6 million in fiscal 2011, as compared to \$95.9 million in fiscal 2010. The increase was the effect of improved year-over-year operating results (excluding the effect of the non-cash debt portion of the extinguishment loss) as a result of increased sales. Cash provided by operating activities increased to \$95.9 million in fiscal 2010, as compared to \$68.1 million in fiscal 2009, due to improved operating results in fiscal 2010 as a result of increased sales.

Cash used in investing activities in fiscal 2011 increased to \$100.7 million, as compared to \$58.2 million in 2010, primarily due to increases in the Company's investment in MP Mask as a result of capital calls, net proceeds from the sale of the Company's former manufacturing facility in Shanghai, China, which reduced total net proceeds used in investing activities in fiscal 2010, and increased capital expenditures in 2011. Capital expenditures for the 2011, 2010, and 2009 fiscal years were \$82.1 million, \$71.4 million and \$35.0 million, respectively. The Company expects capital expenditure payments for fiscal 2012 to be approximately \$60 million to \$80 million, primarily related to investment in high-end IC manufacturing capability.

Cash provided by financing activities was \$54.5 million in fiscal 2011 as compared to \$32.4 million used in financing activities in fiscal 2010, and was primarily comprised of the net proceeds received from the March 2011 issuance of 3.25% convertible senior notes, partially offset by the repayment of certain other higher interest rate long-term borrowings. Cash used in financing activities was \$32.4 million in fiscal 2010, a decrease of \$8.1 million from \$40.5 million used in fiscal 2009, and is primarily comprised of \$31.3 million in net repayments of long-term borrowings. These 2010 repayments were primarily made with cash generated by operations.

In March 2011 the Company issued \$115 million aggregate principal amount of 3.25% convertible senior notes. The Company realized net proceeds of \$110.7 million from the issuance of the notes, which mature on April 1, 2016, and commenced paying interest semiannually on October 1, 2011. During the three month period ended May 1, 2011, the Company used \$19.7 million of the net proceeds of the 3.25% convertible senior notes and issued common stock to repurchase approximately \$30.4 million principal amount of its 5.5% convertible senior notes, and used an additional \$19.8 million of the net proceeds to repay its outstanding obligations under capital leases. In June 2011 the Company acquired an additional \$5.0 million principal amount of its outstanding 5.5% convertible senior notes for \$3.2 million and common stock. The Company may use a portion of the remaining net proceeds of its 3.25% convertible senior notes to repurchase additional amounts of its outstanding 5.5% senior convertible notes and for capital expenditure and working capital purposes.

In March 2011 the Company and its lenders amended its revolving credit facility. Under the terms of the amended credit facility, the total amount available to the Company to borrow was reduced from \$65 million to \$30 million. The credit facility bears interest (2.50% at October 30, 2011), based on the Company's total leverage ratio, at LIBOR plus a spread, as defined in the agreement. The credit facility is secured by substantially all of the Company's assets located in the United States, as well as common stock the Company owns in certain of its foreign subsidiaries, and is subject to financial covenants, including the following, as defined in the agreement: minimum fixed charge ratio, total leverage ratio and minimum unrestricted cash balance. In January 2011 a \$10 million irrevocable stand-by letter of credit, which expired in July 2011, for the purchase of manufacturing equipment was issued under the credit facility. As of October 30, 2011, the Company had no outstanding borrowings under the credit facility and \$30 million was available for borrowing.

In April 2011 the Company entered into a 5 year, \$21.2 million capital lease of manufacturing equipment. Payments under the lease, which bears interest at 3.09%, are \$0.4 million per month through March 2016. As of October 30, 2011, the total lease amount payable through the end of the lease term was \$20.6 million, of which \$19.2 million represented principal and \$1.4 million represented interest.

In May 2009 the Company amended its revolving credit facility and entered into a warrant agreement with its lenders for 2.1 million shares of its common stock. Forty percent of the warrants were exercisable upon issuance, while the remaining warrants were cancelled as a result of the Company's September 2009 early repayment of a portion of the outstanding balance under its June 6, 2007, credit agreement. As of October 30, 2011, 0.7 million warrants were exercised, including 0.1 million exercised during fiscal 2011. The remaining 0.2 million warrants which were outstanding at October 30, 2011, were exercised in December 2011. The warrants were exercised for one share of the Company's common stock at an exercise price of \$.01 per share. The warrant agreement included a net cash settleable put provision exercisable starting in May 2012 and a call provision exercisable starting in May 2013, both of which were exercisable only if the Company's common stock is not traded on a national exchange. As a result of the aforementioned net cash settleable put provision, the warrants were initially recorded as a liability (included in other liabilities) and were subsequently reported at their fair value.

In addition to the former credit facility discussed above, the Company also entered into a term loan agreement on June 8, 2009, with an aggregate commitment of \$27.2 million. This loan was repaid in February 2010 with funds from the credit facility.

In September 2009 the Company sold, through a public offering, \$57.5 million aggregate principal amount of 5.5% convertible senior notes which mature on October 1, 2014. As discussed above, \$35.4 million principal amount of these notes were acquired during 2011, leaving an outstanding principal amount of \$22.1 million at October 30, 2011. Note holders may convert each \$1,000 principal amount of notes to 196.7052 shares of stock (equivalent to an initial conversion price of approximately \$5.08 per share of common stock) on September 30, 2014. The conversion rate may be increased in the event of a make-whole fundamental change (as defined in the prospectus supplement filed by the Company on September 11, 2009) and the Company may not redeem the notes prior to their maturity date. The net proceeds of the convertible senior notes offering were approximately \$54.9 million, which were used to reduce outstanding amounts under the Company's credit facility.

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, 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 October 30, 2011, the Company had outstanding purchase commitments of approximately \$18.5 million, which include approximately \$14.4 million related to capital expenditures, primarily for investment in high-end IC photomask manufacturing capability. The Company intends to finance its capital expenditures with working capital and cash generated from operations, and, if necessary, with borrowings under its credit facility.

### **Cash Requirements**

The Company's cash requirements in fiscal 2012 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 Cash Obligations

The following table presents the Company's future contractual obligations as of October 30, 2011:

	Payments Due				
	Total	Less Than 1 Year	1 - 3 Years	3 - 5 Years	More Than 5 Years
Long-term borrowings	\$ 137,054	\$ -	\$ 22,054	\$ 115,000	\$ -
Operating leases	21,036	2,324	16,828	1,011	873
Capital leases	19,218	4,043	8,835	6,340	-
Unconditional purchase obligations	18,549	16,806	1,743	-	-
Interest	21,805	5,592	10,717	5,496	-
Other noncurrent liabilities	7,097	-	907	-	6,190
Total	<u>\$ 224,759</u>	<u>\$ 28,765</u>	<u>\$ 61,084</u>	<u>\$ 127,847</u>	<u>\$ 7,063</u>

As of October 30, 2011, the Company had an outstanding balance of \$1.9 million for a loan from a customer which was not included in the above table. The proceeds of the loan were used to purchase manufacturing equipment. This loan is expected to be repaid with product supplied to the customer, typically on a monthly basis, and the Company estimates that the loan will be fully repaid in fiscal 2013.

As of October 30, 2011, the Company had recorded an accrual for uncertain tax positions of \$1.9 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 October 30, 2011, the Company has contributed \$24.4 million to the joint venture, and has received distributions from the joint venture totaling \$10.0 million. During fiscal 2011, the Company contributed \$18.3 million to MP Mask. The Company received no distributions from MP Mask during fiscal 2011.

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 9 to the consolidated financial statements for additional information on these operating leases.

In May 2009 the Company and Micron entered into a new lease agreement for the U.S. nanoFab building and cancelled its prior lease agreement. The new lease, among other changes discussed in Note 4 to the consolidated financial statements, extended the lease term from December 31, 2012 to December 31, 2014. The Company was to continue to account for the lease as a capital lease for the remainder of its original term, and will account for it as an operating lease for the period of the lease extension. Rental payments due during the lease extension period total \$13.9 million. In 2011 the Company paid this capital lease obligation in full with a portion of the net proceeds of the March 2011 issuance of its 3.25% convertible senior notes.

## **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 benefit from advanced technology it may utilize under its technology license with Micron. The Company's Korean and Taiwanese operations are non-wholly owned subsidiaries and, therefore, a portion of earnings generated at each location is allocated to the noncontrolling interests.

The Company continues to assess its global manufacturing strategy and monitor its market capitalization, 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 values of the Company's 3.25% and 5.5% convertible senior notes are 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 the consolidated statement of operations.

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 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.

### *Investments in Joint Ventures*

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 had 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 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.

## *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 in the consolidated statements of operations are 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 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 product warranty obligations, 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. However, the Company records a liability for the insignificant amount of estimated warranty returns based on historical experience. The Company's specific return policies include accepting returns of products with defects, or products that have not been produced to precise customer specifications. At the time of revenue recognition, a liability is established for these items.

## *Share-based Compensation*

The Company adopted Financial Accounting Standards Board (FASB) Accounting Standards Codification (ASC) 718, related to share-based compensation, on October 31, 2005, using the modified prospective method described in Statement of Financial Accounting Standards No. 123 (revised 2004), "Share-Based Payment". Subsequently, compensation expense has been recognized in its consolidated statements of operations over the service period that the awards are expected to vest. The Company recognizes expense for all share-based compensation with graded vesting granted on or after October 31, 2005, on a straight-line basis over the vesting period of the entire award. For awards with graded vesting granted prior to October 31, 2005, the Company recognized compensation cost over the vesting period following accelerated recognition as if each underlying vesting date represented a separate award. 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.

### **Effect of Recent Accounting Pronouncements**

See Note 23 of the Company's consolidated financial statements for a summary of recent accounting pronouncements that may affect the Company's financial statements.

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

The Company records derivatives on the balance sheet 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 reported in the consolidated statement of operations, 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. 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, New Taiwan dollar and the Singapore dollar. The functional currencies of the Company's European subsidiaries are the British pound and the euro.

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. In some instances, the Company may sell or purchase products in a currency other than the functional currency of the country where it was produced. 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. Prior to 2010, the Company had periodically experienced significant foreign exchange losses on these transactions.

The Company's primary net foreign currency exposures as of October 30, 2011, included the Korean won, the Japanese yen, the Singapore dollar, the New Taiwan dollar, the British pound, and the euro. As of October 30, 2011, 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 \$2.6 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 October 30, 2011, the Company did not have any outstanding variable rate borrowings. A 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 October 30, 2011.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

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## 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 October 30, 2011 and October 31, 2010 and the related consolidated statements of operations, equity and other comprehensive income (loss), and cash flows for each of the three fiscal years ended October 30, 2011, October 31, 2010 and November 1, 2009. We also have audited the Company's internal control over financial reporting as of October 30, 2011, based on criteria established in *Internal Control - Integrated Framework* 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 Annual 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 October 30, 2011 and October 31, 2010, and the results of their operations and their cash flows for each of the three fiscal years ended October 30, 2011, October 31, 2010 and November 1, 2009, 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 October 30, 2011, based on the criteria established in *Internal Control - Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

**/s/ Deloitte & Touche LLP**  
**Hartford, Connecticut**  
**January 12, 2012**

**PHOTRONICS, INC. AND SUBSIDIARIES**  
**Consolidated Balance Sheets**  
*(in thousands, except per share amounts)*

	<u>October 30, 2011</u>	<u>October 31, 2010</u>
<b>ASSETS</b>		
Current assets:		
Cash and cash equivalents	\$ 189,928	\$ 98,945
Accounts receivable, net of allowance of \$4,055 in 2011 and \$4,235 in 2010	85,540	82,951
Inventories	22,100	15,502
Deferred income taxes	609	1,173
Other current assets	7,030	7,231
Total current assets	<u>305,207</u>	<u>205,802</u>
Property, plant and equipment, net	368,680	369,814
Investment in joint venture	79,984	61,127
Intangible assets, net	42,462	47,748
Deferred income taxes	11,239	10,132
Other assets	10,282	9,256
Total assets	<u>\$ 817,854</u>	<u>\$ 703,879</u>
<b>LIABILITIES AND EQUITY</b>		
Current liabilities:		
Current portion of long-term borrowings	\$ 5,583	\$ 11,467
Accounts payable	54,772	77,630
Accrued liabilities	35,546	30,132
Total current liabilities	<u>95,901</u>	<u>119,229</u>
Long-term borrowings	152,577	78,852
Deferred income taxes	737	499
Other liabilities	8,883	9,356
Total liabilities	<u>258,098</u>	<u>207,936</u>
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, 59,651 shares issued and outstanding at October 30, 2011, and 53,779 shares issued and outstanding at October 31, 2010	597	538
Additional paid-in capital	486,674	436,825
Retained earnings (accumulated deficit)	13,605	(2,624)
Accumulated other comprehensive income	10,171	7,062
Total Photronics, Inc. shareholders' equity	<u>511,047</u>	<u>441,801</u>
Noncontrolling interests	48,709	54,142
Total equity	<u>559,756</u>	<u>495,943</u>
Total liabilities and equity	<u>\$ 817,854</u>	<u>\$ 703,879</u>

See accompanying notes to consolidated financial statements.

**PHOTRONICS, INC. AND SUBSIDIARIES**  
**Consolidated Statements of Operations**  
*(in thousands, except per share amounts)*

	Year Ended		
	October 30, 2011	October 31, 2010	November 1, 2009
Net sales	\$ 512,020	\$ 425,554	\$ 361,353
Cost and expenses:			
Cost of sales	(375,806)	(333,739)	(304,282)
Selling, general and administrative	(45,240)	(42,387)	(41,162)
Research and development	(15,507)	(14,932)	(15,423)
Consolidation, restructuring and related credits (charges)	-	4,979	(13,557)
Impairment of long-lived assets	-	-	(1,458)
Gain on sale of facility	-	-	2,034
Operating income (loss)	75,467	39,475	(12,495)
Other income (expense):			
Debt extinguishment loss	(35,259)	-	-
Interest expense	(7,258)	(9,475)	(22,401)
Investment and other income (expense), net	2,949	2,553	(2,208)
Income (loss) before income tax provision	35,899	32,553	(37,104)
Income tax provision	(15,691)	(7,471)	(4,323)
Net income (loss)	20,208	25,082	(41,427)
Net income attributable to noncontrolling interests	(3,979)	(1,160)	(483)
Net income (loss) attributable to Photonics, Inc.	<u>\$ 16,229</u>	<u>\$ 23,922</u>	<u>\$ (41,910)</u>
Earnings (loss) per share:			
Basic	<u>\$ 0.28</u>	<u>\$ 0.45</u>	<u>\$ (0.97)</u>
Diluted	<u>\$ 0.28</u>	<u>\$ 0.43</u>	<u>\$ (0.97)</u>
Weighted-average number of common shares outstanding:			
Basic	<u>57,030</u>	<u>53,433</u>	<u>43,210</u>
Diluted	<u>58,458</u>	<u>65,803</u>	<u>43,210</u>

See accompanying notes to consolidated financial statements.

**PHOTRONICS, INC. AND SUBSIDIARIES**  
**Consolidated Statements of Equity and Other Comprehensive Income (Loss)**  
**Years Ended October 30, 2011, October 31, 2010 and November 1, 2009**  
*(in thousands)*

<b>Photronics, Inc. Shareholders</b>												
<u>Accumulated Other Comprehensive Income (Loss)</u>												
	<u>Common Shares</u>	<u>Stock Amount</u>	<u>Add'l Paid-In Capital</u>	<u>Retained Earnings Accumulated (Deficit)</u>	<u>Unrealized Investment Gains (Losses)</u>	<u>Cash Flow Hedges</u>	<u>Foreign Currency Translation</u>	<u>Other</u>	<u>Total</u>	<u>Total Photronics, Inc.</u>	<u>Non-Controlling Interests</u>	<u>Total Equity</u>
<b>Balance at November 2, 2008</b>	41,712	\$ 417	\$384,502	\$ 15,364	\$ (62)	\$(1,652)	\$ (15,520)	\$(267)	\$(17,501)	\$ 382,782	\$ 49,616	\$432,398
Comprehensive income (loss):												
Net (loss) income	-	-	-	(41,910)	-	-	-	-	-	(41,910)	483	(41,427)
Unrealized holding losses reclassification adjustment	-	-	-	-	62	-	-	-	62	62	39	101
Amortization of cash flow hedges	-	-	-	-	-	576	-	-	576	576	-	576
Foreign currency translation adjustments	-	-	-	-	-	-	10,712	-	10,712	10,712	342	11,054
Other	-	-	-	-	-	-	-	(238)	(238)	(238)	(101)	(339)
<b>Total comprehensive (loss) income</b>										<b>(30,798)</b>	<b>763</b>	<b>(30,035)</b>
Subsidiary dividend	-	-	-	-	-	-	-	-	-	-	(438)	(438)
Sale of common stock through employee stock option and purchase plan	28	-	117	-	-	-	-	-	-	117	-	117
Restricted stock awards vestings and expense	121	1	809	-	-	-	-	-	-	810	-	810
Share-based compensation expense	-	-	1,326	-	-	-	-	-	-	1,326	-	1,326
Common stock issued in public offering (net)	11,084	111	42,986	-	-	-	-	-	-	43,097	-	43,097
Common stock warrants issued	-	-	2,081	-	-	-	-	-	-	2,081	-	2,081
Common stock warrants exercised	66	1	339	-	-	-	-	-	-	340	-	340
<b>Balance at November 1, 2009</b>	53,011	530	432,160	(26,546)	-	(1,076)	(4,808)	(505)	(6,389)	399,755	49,941	449,696
Comprehensive income:												
Net income	-	-	-	23,922	-	-	-	-	-	23,922	1,160	25,082
Unrealized holding losses	-	-	-	-	147	-	-	-	147	147	62	209
Less: reclassification adjustments	-	-	-	-	(147)	-	-	-	(147)	(147)	(62)	(209)
Amortization of cash flow hedges	-	-	-	-	-	129	-	-	129	129	-	129
Foreign currency translation adjustments	-	-	-	-	-	-	13,451	-	13,451	13,451	3,123	16,574
OCI	-	-	-	-	-	-	(214)	214	-	-	-	-

reclassification													
Other	-	-	-	-	-	-	-	(129)	(129)	(129)	(82)	(211)	
Total comprehensive income										37,373	4,201	41,574	
Sale of common stock through employee stock option and purchase plan	242	2	520	-	-	-	-	-	-	522	-	522	
Restricted stock awards vestings and expense	58	1	509	-	-	-	-	-	-	510	-	510	
Share-based compensation expense	-	-	1,374	-	-	-	-	-	-	1,374	-	1,374	
Common stock warrants exercised	468	5	2,235	-	-	-	-	-	-	2,240	-	2,240	
Common stock issuance costs	-	-	27	-	-	-	-	-	-	27	-	27	
<b>Balance at October 31, 2010</b>	<b>53,779</b>	<b>538</b>	<b>436,825</b>	<b>(2,624)</b>	<b>-</b>	<b>(947)</b>	<b>8,429</b>	<b>(420)</b>	<b>7,062</b>	<b>441,801</b>	<b>54,142</b>	<b>495,943</b>	
Comprehensive income:													
Net income	-	-	-	16,229	-	-	-	-	-	16,229	3,979	20,208	
Amortization of cash flow hedges	-	-	-	-	-	128	-	-	128	128	-	128	
Foreign currency translation adjustments	-	-	-	-	-	-	3,040	-	3,040	3,040	227	3,267	
Other	-	-	-	-	-	-	-	(25)	(25)	(25)	(10)	(35)	
Total comprehensive income										19,372	4,196	23,568	
Common stock issued to extinguish debt	5,229	52	45,585	-	-	-	-	-	-	45,637	-	45,637	
Sale of common stock through employee stock option and purchase plan	440	5	851	-	-	-	-	-	-	856	-	856	
Restricted stock awards vestings and expense	81	1	1,035	-	-	-	-	-	-	1,036	-	1,036	
Share-based compensation expense	-	-	1,422	-	-	-	-	-	-	1,422	-	1,422	
Common stock warrants exercised	122	1	1,157	-	-	-	-	-	-	1,158	-	1,158	
Repurchase of common stock by subsidiary	-	-	(201)	-	-	-	-	(34)	(34)	(235)	(9,629)	(9,864)	
<b>Balance at October 30, 2011</b>	<b>59,651</b>	<b>\$ 597</b>	<b>\$486,674</b>	<b>\$ 13,605</b>	<b>\$ -</b>	<b>\$ (819)</b>	<b>\$ 11,469</b>	<b>\$ (479)</b>	<b>\$ 10,171</b>	<b>\$ 511,047</b>	<b>\$ 48,709</b>	<b>\$ 559,756</b>	

See accompanying notes to consolidated financial statements.

**PHOTRONICS, INC. AND SUBSIDIARIES**  
**Consolidated Statements of Cash Flows**  
*(in thousands)*

	Year Ended		
	October 30, 2011	October 31, 2010	November 1, 2009
Cash flows from operating activities:			
Net income (loss)	\$ 20,208	\$ 25,082	\$ (41,427)
Adjustments to reconcile net income (loss) to net cash provided by operating activities:			
Depreciation and amortization of property, plant and equipment	86,661	81,374	76,530
Amortization of deferred financing costs and intangible assets	6,799	8,926	13,944
Debt extinguishment loss	27,399	-	-
Consolidation, restructuring and related charges (credits)	-	(5,059)	10,514
Share-based compensation	2,458	1,883	2,136
Deferred income taxes	(224)	168	(2,943)
Impairment of long-lived assets	-	-	1,458
Gain on sale of facility	-	-	(2,034)
Changes in assets and liabilities:			
Accounts receivable	(1,806)	(13,352)	2,709
Inventories	(6,544)	(84)	3,111
Other current assets	223	(725)	3,087
Accounts payable, accrued liabilities and other	1,379	(2,294)	1,063
Net cash provided by operating activities	<u>136,553</u>	<u>95,919</u>	<u>68,148</u>
Cash flows from investing activities:			
Purchases of property, plant and equipment	(82,121)	(71,381)	(34,995)
Investment in joint venture	(18,271)	-	-
Proceeds from sales of short-term investments and other	(345)	289	996
Proceeds from sale of facilities	-	12,880	4,321
Return of investment from joint venture	-	-	5,000
Net cash used in investing activities	<u>(100,737)</u>	<u>(58,212)</u>	<u>(24,678)</u>
Cash flows from financing activities:			
Proceeds from debt and equity offerings	115,000	-	103,500
Proceeds from long-term borrowings	17,000	41,680	28,112
Repayments of long-term borrowings	(64,107)	(72,932)	(161,841)
Payments of expenses related to debt and equity offerings	(4,201)	-	(5,539)
Deferred financing costs and other	(117)	(1,285)	(4,734)
Repurchase of common stock by subsidiary	(9,878)	-	-
Proceeds from share-based arrangements	828	81	-
Net cash provided by (used in) financing activities	<u>54,525</u>	<u>(32,456)</u>	<u>(40,502)</u>
Effects of exchange rate changes on cash	642	5,155	1,808
Net increase in cash and cash equivalents	90,983	10,406	4,776
Cash and cash equivalents at beginning of year	98,945	88,539	83,763
Cash and cash equivalents at end of year	<u>\$ 189,928</u>	<u>\$ 98,945</u>	<u>\$ 88,539</u>
Supplemental disclosures of cash flow information:			
Changes in accrual for purchases of property, plant and equipment	\$ (20,836)	\$ 28,717	\$ (13,551)
Capital lease obligation for purchases of property, plant and equipment	\$ 21,248	\$ -	\$ (28,244)
Common stock issued to extinguish debt	\$ 20,234	\$ -	\$ -
Issuances of common stock warrants	\$ -	\$ -	\$ 5,320

See accompanying notes to consolidated financial statements.



**PHOTRONICS, INC. AND SUBSIDIARIES**  
**Notes to Consolidated Financial Statements**  
**Years Ended October 30, 2011, October 31, 2010 and November 1, 2009**  
*(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 eight manufacturing facilities; two of which are located in Europe, two in Taiwan, one in Korea, and three in the United States. The Company closed its manufacturing facilities in Manchester, United Kingdom, and Shanghai, China, during the year ended November 1, 2009, and in December 2011 ceased manufacturing photomasks at its facility in Singapore.

**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. Actual results may differ from such estimates.

**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 reported in the consolidated statements of operations, 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 2011, 2010 and 2009 each included 52 weeks, as will fiscal year 2012.

## **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 the consolidated statement of operations.

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 are stated at fair value as of the date acquired less accumulated amortization. Amortization is calculated 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.

## **Investments in Joint Ventures**

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 stated at cost plus equity in undistributed net income (loss) of the joint venture. 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 had 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 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.

## **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 mix 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, the income taxes in the consolidated statements of operations are 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 adopted Financial Accounting Standards Board (FASB) Accounting Standards Codification (ASC) 718 related to share-based payments on October 31, 2005, using the modified prospective method. Subsequently, compensation expense has been recognized in its consolidated statements of operations over the service period that the awards are expected to vest. The Company recognizes expense for all share-based compensation with graded vesting granted on or after October 31, 2005, on a straight-line basis over the vesting period of the entire award. For awards with graded vesting granted prior to October 31, 2005, the Company recognized compensation cost over the vesting period following accelerated recognition as if each underlying vesting date represented a separate award. 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.

## 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 investment and other income (expense), net, were a gain of \$0.4 million, a gain of \$2.0 million and a loss of \$3.1 million in 2011, 2010 and 2009, respectively.

## Noncontrolling Interests

Noncontrolling interests represents the minority shareholders' proportionate share in the equity of the Company's two majority-owned subsidiaries, PK Ltd. ("PKL") in Korea of which noncontrolling shareholders owned approximately 0.3% as of October 30, 2011 and October 31, 2010, and Photonics Semiconductor Mask Corporation ("PSMC") in Taiwan, of which noncontrolling interests owned approximately 38% and 42%, as of October 30, 2011 and October 31, 2010, respectively. The effect on its equity of the change in the Company's ownership interest in PSMC is presented in Note 15.

## 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 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 product warranty obligations, 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. However, the Company records a liability for the insignificant amount of estimated warranty returns based on historical experience. The Company’s specific return policies include accepting returns of products with defects, or products that have not been produced to precise customer specifications. At the time of revenue recognition, a liability is established for these items.

**Sales Taxes** – The Company presents its revenues, in the consolidated statements of operations, net of any sales taxes billed to its customers.

**NOTE 2 - PROPERTY, PLANT AND EQUIPMENT**

Property, plant and equipment consists of the following:

	<b>October 30, 2011</b>	<b>October 31, 2010</b>
Land	\$ 7,330	\$ 7,983
Buildings and improvements	90,455	80,458
Machinery and equipment	1,195,007	1,115,371
Leasehold improvements	8,778	7,647
Furniture, fixtures and office equipment	13,988	15,273
Construction in progress	4,694	26,265
	<u>1,320,252</u>	<u>1,252,997</u>
Less accumulated depreciation and amortization	951,572	883,183
	<u>\$ 368,680</u>	<u>\$ 369,814</u>

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

	<b>October 30, 2011</b>	<b>October 31, 2010</b>
Buildings and improvements	\$ 33,621	\$ 33,621
Machinery and equipment	21,327	19,912
	<u>54,948</u>	<u>53,533</u>
Less accumulated amortization	24,660	21,082
	<u>\$ 30,288</u>	<u>\$ 32,451</u>

**NOTE 3 - INTANGIBLE ASSETS**

Intangible assets are amortized based on their estimated useful lives, which range from 3 to 15 years. Intangible assets include assets related to the purchase of additional shares of PKL and the investment to form the MP Mask joint venture. Amortization expense of intangible assets was \$5.3 million, \$6.0 million and \$6.5 million in 2011, 2010 and 2009, respectively. Intangible asset amortization is forecasted to range from \$4.3 million to \$5.1 million per year for the next 5 years.

Intangible assets consist of:

	<b>Gross Amount</b>	<b>Accumulated Amortization</b>	<b>Net Amount</b>
<b>As of October 30, 2011</b>			
Technology license agreement	\$ 59,616	\$ 21,528	\$ 38,088
Customer lists	7,210	4,154	3,056
Supply agreement	6,959	5,802	1,157
Software and other	3,557	3,396	161
	<u>\$ 77,342</u>	<u>\$ 34,880</u>	<u>\$ 42,462</u>
<b>As of October 31, 2010</b>			
Technology license agreement	\$ 59,616	\$ 17,554	\$ 42,062
Customer lists	7,210	3,431	3,779
Supply agreement	6,959	5,355	1,604
Software and other	3,863	3,560	303
	<u>\$ 77,648</u>	<u>\$ 29,900</u>	<u>\$ 47,748</u>

**NOTE 4 JOINT VENTURE, TECHNOLOGY LICENSE AND OTHER AGREEMENTS WITH MICRON TECHNOLOGY, INC.**

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On May 5, 2006, Photronics and Micron entered into the MP Mask joint venture ("MP Mask"), which 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 in Boise, Idaho, (headquarters of MP Mask) and Photronics invested \$135 million in exchange for a 49.99% interest in MP Mask (to which \$64.2 million of the original investment was allocated), a license for photomask technology of Micron, and certain supply agreements.

This joint venture is a variable interest entity ("VIE") (as that term is defined in the Accounting Standards Codification ("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 2011, 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. During fiscal 2011 the Company made additional capital contributions of \$18.3 million to the MP Mask joint venture, which were primarily related to capital calls made by the joint venture. The Company made no capital contributions to MP Mask during fiscal 2010, and did not receive any distributions from MP Mask during fiscal 2011 or fiscal 2010.

The Company's investment in the VIE, which represents its maximum exposure to loss, was \$80.0 million and \$61.1 million at October 30, 2011 and October 31, 2010, respectively. These amounts are reported in the Company's consolidated balance sheets as "Investment in joint venture". The Company recorded income from its investment in MP Mask of \$0.6 million and \$0.2 million in fiscal 2011 and fiscal 2010, respectively. Income from MP Mask is included in "Investments and other income, net" in the consolidated statements of operations.

As of October 30, 2011, the Company owed MP Mask \$6.3 million and had a receivable from Micron of \$3.4 million, both primarily related to the aforementioned supply agreements. The Company, in 2011, recorded \$1.7 million of commission revenue earned under the supply agreements it has with Micron and MP Mask. Amortization of \$0.5 million of the supply agreement intangible asset resulted in net earnings related to the supply agreements of \$1.2 million in 2011. The recorded commission revenue of \$1.7 million represents the excess of \$35.0 million in orders received from Micron over the Company's cost of \$33.3 million to fulfill the orders through MP Mask. The Company, for certain sales made during 2011, also recorded cost of sales in the amount of \$18.5 million for photomasks produced by MP Mask for the Company's customers, and incurred outsourcing expenses of \$3.1 million from MP Mask for research and development activities and other goods and services purchased by the Company. In 2011, the Company purchased equipment from MP Mask for \$4.6 million, of which \$2.3 million was recorded as the cost of the equipment and \$2.3 million was recorded as an investment in joint venture.

As of October 31, 2010, the Company owed MP Mask \$5.4 million and had a receivable from Micron of \$4.9 million, both primarily related to the supply agreements. The Company, in 2010, recorded \$1.7 million of commission revenue earned under the supply agreements it has with Micron and MP Mask. Amortization of \$0.5 million of the supply agreement intangible asset resulted in net earnings related to the supply agreements of \$1.2 million in 2010. The recorded commission revenue of \$1.7 million represents the excess of \$35.3 million in orders received from Micron over the Company's cost of \$33.6 million to fulfill the orders through MP Mask. The Company, for certain sales made during 2010, also recorded cost of sales in the amount of \$5.9 million for photomasks produced by MP Mask for the Company's customers, and incurred outsourcing expenses of \$1.9 million from MP Mask for research and development activities and other goods and services purchased by the Company.

The Company, in 2009, recorded \$1.8 million of commission revenue earned under the supply agreements it has with Micron and MP Mask. Amortization of \$0.9 million of the supply agreement intangible asset resulted in net earnings related to the supply agreements of \$0.9 million in 2009. The recorded commission revenue of \$1.8 million represents the excess of \$37.9 million in orders received from Micron over the Company's cost of \$36.1 million to fulfill the orders through MP Mask. The Company, for certain sales made during 2009, also recorded cost of sales in the amount of \$4.2 million for photomasks produced by MP Mask for the Company's customers, and incurred outsourcing expenses of \$2.0 million from MP Mask for research and development activities and other goods and services purchased by the Company.

In the first quarter of 2008 a capital lease agreement commenced for the U.S. nanoFab facility. Quarterly lease payments, which bore interest at 8%, were \$3.8 million through January 2013. This lease was cancelled in the third fiscal quarter of 2009, at which time the Company and Micron (the lessor) entered into a new lease agreement for the facility. Under the provisions of the new lease agreement, quarterly lease payments were reduced from \$3.8 million to \$2.0 million, the term of the lease was extended from December 31, 2012 to December 31, 2014, and ownership of the property will not transfer to the Company at the end of the lease term. The interest rate of the new lease agreement is also 8%. As a result of the new lease agreement, the Company reduced its lease obligation and the carrying value of its assets under capital leases by approximately \$28 million. The Company paid the lease obligation in full with a portion of the net proceeds of the March 2011 issuance of its 3.25% convertible senior notes. The lease will be accounted for as an operating lease during the additional two years of the new lease term.

## NOTE 5 - ACCRUED LIABILITIES

Accrued liabilities consist of the following:

	<u>October 30, 2011</u>	<u>October 31, 2010</u>
Income taxes	\$ 10,194	\$ 3,814
Property, plant and equipment	7,587	13,552
Salaries, wages and related benefits	7,073	5,501
VAT and other taxes	2,875	2,369
Other	7,817	4,896
	<u>\$ 35,546</u>	<u>\$ 30,132</u>

## NOTE 6 - DERIVATIVE INSTRUMENTS AND HEDGING ACTIVITIES

The Company utilizes derivative instruments to reduce its exposure to the effects of the variability of interest rates and foreign currencies on its financial performance when it believes such action is warranted. Historically, the Company has been a party to derivative instruments to hedge either the variability of cash flows of a prospective transaction or the fair value of a recorded asset or liability. In certain instances, the Company has designated these transactions as hedging instruments. However, whether or not a derivative was designated as being a hedging instrument, the Company's purpose for engaging in the derivative has always been for risk management (and not speculative) purposes. The Company has historically not been a party to a significant number of derivative instruments and does not expect its derivative activity to significantly increase in the foreseeable future.

In addition to the utilization of derivative instruments discussed above, the Company attempts to minimize its risk of foreign currency exchange rate variability by, whenever possible, procuring production materials within the same country that it will utilize the materials in manufacturing and, by selling to customers from manufacturing sites within the country in which the customers are located.

In May 2009, in connection with an amendment to its credit facility, the Company issued 2.1 million warrants, each exercisable for one share of the Company's common stock at an exercise price of \$0.01 per share. Forty percent of the warrants were exercisable upon issuance, and the remaining balance was to become exercisable in twenty percent increments at various points in time after October 31, 2009. As a result of certain net cash settleable put provisions within the warrant agreement, the warrants were recorded as a liability in the Company's consolidated balance sheet. As of the issuance date, and for future periods that such warrants remain outstanding, the Company has, and will continue to, adjust the liability based upon the current fair value of the warrants, with any changes in their fair value being recognized in earnings. Due to the warrants' exercise price of \$0.01 per share, their fair value will approximate the market price of the Company's common stock. Approximately 1.2 million of these warrants were cancelled as a result of the Company's early repayment of certain amounts under its credit facility during the year ended November 1, 2009, and the associated liability was reduced accordingly.

The Company was a party to two foreign currency forward contracts which expired during the year ended November 1, 2009, both of which were not accounted for as hedges, as they were economic hedges of intercompany loans denominated in U.S. dollars that were remeasured at fair value and recognized immediately in earnings. A portion of an existing loss on a cash flow hedge in the amount of \$0.1 million is expected to be reclassified into earnings during fiscal year 2012.



The table below presents the effect of derivative instruments on the Company's consolidated balance sheets at October 30, 2011 and October 31, 2010.

Derivatives Not Designated as Hedging Instruments Under ASC 815	Balance Sheet Location	Fair Value at	
		October 30, 2011	October 31, 2010
Warrants on common stock	Other liabilities	\$ 1,147	\$ 1,881

In December 2011 the above warrants on common stock were exercised.

The table below presents the effect of derivative instruments on the Company's consolidated statements of operations for the years ended October 30, 2011 and October 31, 2010.

Derivatives Not Designated as Hedging Instruments Under ASC 815	Location of Loss Recognized Related to Derivative Instruments	Amount of Loss Recognized Related to Derivative Instruments	
		Year Ended October 30, 2011	Year Ended October 31, 2010
Warrants on common stock	Investment and other income (expense), net	\$ (424)	\$ (916)

#### NOTE 7 - LONG-TERM BORROWINGS

Long-term borrowings consist of the following:

	October 30, 2011	October 31, 2010
3.25% convertible senior notes due on April 1, 2016	\$ 115,000	\$ -
5.50% convertible senior notes due on October 1, 2014	22,054	57,500
3.09% capital lease obligation payable through March 2016	19,218	-
4.75% financing loan with customer	1,888	2,954
8.0% capital lease obligation	-	16,220
5.6% capital lease obligation	-	8,645
Borrowings under revolving credit facility, which bear interest at a variable rate, as defined (3.81% at October 31, 2010)	-	5,000
	158,160	90,319
Less current portion	5,583	11,467
	<u>\$ 152,577</u>	<u>\$ 78,852</u>

As of October 30, 2011, long-term borrowings, excluding capital lease obligations, mature as follows: \$1,540, \$348, \$22,054, \$0 and \$115,000 in fiscal years 2012, 2013, 2014, 2015 and 2016 respectively. The maturity date for the 4.75% financing loan with a customer is dependent upon the timing of photomasks shipped to that customer. The Company currently estimates that the loan will be fully repaid in fiscal 2013, and has reflected that estimate in the yearly maturity amounts presented above.

As of October 30, 2011, minimum lease payments under the Company's capital lease obligations were as follows:

**Fiscal Years:**

2012	\$	4,580
2013		4,961
2014		4,580
2015		4,580
2016		1,909
		<u>20,610</u>
Less interest		1,392
Net minimum lease payments under capital leases		19,218
Less current portion of net minimum lease payments		4,043
Long-term portion of minimum lease payments	\$	<u>15,175</u>

In March 2011 the Company issued through a private offering pursuant to Rule 144A under the Securities Act of 1933, as amended, \$115 million aggregate principal amount of 3.25% convertible senior notes. The notes mature on April 1, 2016, and note holders may convert each \$1,000 principal amount of notes to 96.3879 shares of common stock (equivalent to an initial conversion price of \$10.37 per share of common stock) at any time prior to the close of business on the second scheduled trading day immediately preceding April 1, 2016. The conversion rate is subject to adjustment upon the occurrence of certain events, which are described in the indenture dated March 28, 2011. 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. Interest payments on the notes commenced on October 1, 2011. The net proceeds of the notes were approximately \$110.7 million, which were used, in part, to acquire \$35.4 million of the Company's 5.5% convertible senior notes which were to mature on October 1, 2014, and to repay, in full, its then outstanding obligations under capital leases of \$19.8 million.

In March 2011 the Company amended its revolving credit facility ("the credit facility") which, as amended, included, among other things: i) a reduction of the aggregate commitments of the lenders from \$65 million to \$30 million; ii) a reduction of the applicable interest rates and modifications of the leverage ratios related thereto; iii) an extension of the maturity date to April 30, 2015; iv) an increase in the permitted amount of certain financed capital assets up to \$75 million outstanding at any one time; v) an allowance to issue the 3.25% convertible senior notes; vi) an increase in the investments "basket" from \$15 million to \$25 million per year; vii) an allowance to repurchase the 5.5% convertible senior notes and other indebtedness; and viii) removal of the limitation on maximum last twelve months capital expenditures. The credit facility bears interest (2.50% at October 30, 2011), based on the Company's total leverage ratio, at LIBOR plus a spread, as defined in the credit facility.

The credit facility is secured by substantially all of the Company's assets located in the United States, as well as common stock the Company owns in certain of its foreign subsidiaries, and is subject to the following financial covenants: minimum fixed charge ratio, total leverage ratio and minimum unrestricted cash balance. The Company, in connection with a February 2010 amendment to the credit facility, wrote off \$1.0 million of deferred financing fees in its second quarter of fiscal 2010. As of October 30, 2011, the Company had no outstanding borrowings under the credit facility and \$30 million was available for borrowing.

In June 2011 the Company acquired \$5.0 million of its 5.5% convertible senior notes in exchange for 0.7 million shares of its common stock with a fair value of \$6.5 million and cash of \$3.2 million (the note holders received 147,529 shares and cash of \$647 for each \$1,000 note). The Company, in connection with this repurchase, recorded an extinguishment loss of \$5.0 million, which included the write off of deferred financing fees of \$0.3 million. The loss is included in other income (expense) in the Company's consolidated statements of operations.

In March 2011 the Company acquired \$30.4 million of its 5.5% convertible senior notes in exchange for 4.5 million shares of its common stock with a fair value of \$39.2 million and cash of \$19.7 million (the note holders received 147,529 shares and cash of \$647 for each \$1,000 note). The Company, in connection with this repurchase, recorded an extinguishment loss of \$30.1 million, which included the write off of deferred financing fees of \$1.7 million. The loss is included in other income (expense) in the Company's consolidated statements of operations.

In September 2009 the Company issued, through a public offering, \$57.5 million aggregate principal amount of 5.5% convertible senior notes, which were to mature on October 1, 2014. Under the terms of the offering, the note holders could convert each \$1,000 principal amount of notes to 196.7052 shares of common stock (equivalent to an initial conversion price of \$5.08 per share of common stock) on, or before, September 30, 2014. The conversion rate is subject to adjustment upon the occurrence of certain events which are described in the indenture dated September 16, 2009. The Company is not required to redeem the notes prior to their maturity. The net proceeds of this offering were approximately \$54.9 million, which were used to reduce amounts outstanding under the Company's credit facility. As discussed above, \$35.4 million aggregate principal amount of these notes were acquired by the Company during 2011.

In the first quarter of 2008 a capital lease agreement with Micron commenced for the U.S. nanoFab facility. Quarterly lease payments, which bore interest at 8%, were \$3.8 million through January 2013. This lease was cancelled in the third fiscal quarter of 2009, at which time the Company and Micron (the lessor) entered into a new lease agreement for the facility. Under the provisions of the new lease agreement, quarterly lease payments were reduced from \$3.8 million to \$2.0 million, the term of the lease was extended from December 31, 2012 to December 31, 2014, and ownership of the property will not transfer to the Company at the end of the lease term. The interest rate of the new lease agreement remained at 8%. As a result of the new lease agreement, the Company reduced its lease obligation and the carrying value of its assets under capital leases by approximately \$28 million. The Company paid the lease obligation in full with a portion of the net proceeds of the March 2011 issuance of its 3.25% convertible senior notes. The lease will be accounted for as an operating lease during the additional two years of the new lease term.

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 October 30, 2011, the total amount payable through the end of the lease term was \$20.6 million, of which \$19.2 million represented principal and \$1.4 million represented interest.

In October 2007 the Company entered into a capital lease agreement in the amount of \$19.9 million associated with certain equipment. Payments under the lease were \$0.4 million per month over a five year term at a 5.6% interest rate. In April 2011 the Company used a portion of the net proceeds of the March 2011 issuance of its 3.25% convertible senior notes, to repay in full the \$7.0 million outstanding balance of this lease. In connection with this repayment, the Company paid a \$0.2 million prepayment penalty which was recorded as a debt extinguishment loss, included in other income (expense) in the Company's statements of operations.

In January 2010 the Company borrowed \$3.7 million from a customer to purchase manufacturing equipment. This loan bears interest at 4.75% and is primarily being repaid with product supplied to the customer. Product valued at \$1.1 million and \$0.7 million was shipped to the customer and applied against the loan during 2011 and 2010, respectively. The Company estimates that the loan will be fully repaid in fiscal 2013.

Interest payments were \$9.7 million, \$7.8 million and \$20.8 million in fiscal 2011, 2010 and 2009, respectively, including deferred financing cost payments of \$4.3 million, \$1.3 million and \$6.5 million in fiscal 2011, 2010 and 2009, respectively.

## NOTE 8 - COMMON STOCK WARRANTS

In September 2009 the Company entered into two warrant agreements with Intel Capital Corporation to purchase a total of 750,000 shares of the Company's common stock. Under one warrant agreement 500,000 shares of the Company's common stock can be purchased at an exercise price of \$4.15 per share and under the second warrant agreement 250,000 shares of the Company's common stock can be purchased at an exercise price of \$5.08 per share. The warrant agreements expire in September 2014. Also in September 2009, the Company and Intel Corporation entered into an agreement to share technical and operations information regarding the development of the Company's products, the capabilities of the Company's photomask manufacturing lines and the alignment of photomask toolsets. Intel Capital Corporation also invested in the Company's convertible debt offering of September 2009. The warrants were recorded at their fair value on their date of grant, which was determined using the Black-Scholes option pricing model. As of October 30, 2011, none of the warrants issued to Intel Capital Corporation had been exercised.

In conjunction with a May 2009 amendment to its credit facility, the Company also entered into a warrant agreement with its lenders. See Note 6 for further discussion of these warrants.

## NOTE 9 - OPERATING LEASES

The Company leases various real estate and equipment under non-cancelable operating leases. Rental expense under such leases amounted to \$2.9 million in fiscal years 2011 and 2010, and \$3.6 million in fiscal year 2009. As discussed in Note 7, in fiscal 2009 the Company entered into a new lease agreement for the U.S. nanoFab, under which the lease was being accounted for as a capital lease through December 31, 2012 (the end date of its original lease term), and, thereafter, will be accounted for as an operating lease through its expiration on December 31, 2014. In 2011 the Company paid this capital lease obligation in full with a portion of the net proceeds of the March 2011 issuance of its 3.25% convertible senior notes.

At October 30, 2011, future minimum lease payments under non-cancelable operating leases with initial terms in excess of one year are as follows:

2012	\$	2,206
2013		8,294
2014		8,506
2015		521
2016		489
Thereafter		873
	\$	<u>20,889</u>

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

## NOTE 10 – SHARE-BASED COMPENSATION

In March 2007 the Company's shareholders approved a new 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 3.0 million shares to 6.0 million shares during the second quarter of fiscal 2010. 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 cost of \$2.5 million, \$1.9 million and \$2.1 million in fiscal years 2011, 2010 and 2009, respectively. No share-based compensation cost was capitalized as part of inventory 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 2011, 2010 and 2009 are presented in the following table:

	<b>Year Ended</b>		
	<b>October 30, 2011</b>	<b>October 31, 2010</b>	<b>November 1, 2009</b>
Expected volatility	98.7%	89.9%	69.8%
Risk-free rate of return	0.7 – 1.9%	1.5 – 2.4%	1.9 - 2.5%
Dividend yield	0.0%	0.0%	0.0%
Expected term	4.2 years	4.4 years	4.7 years

A summary of option activity under the Plan as of October 30, 2011, and changes during the year then ended is presented as follows:

<b>Options</b>	<b>Shares</b>	<b>Weighted-Average Exercise Price</b>	<b>Weighted-Average Remaining Contractual Life</b>	<b>Aggregate Intrinsic Value</b>
Outstanding at October 31, 2010	3,901,909	\$ 9.34		
Granted	625,750	6.77		
Exercised	(318,974)	1.28		
Cancelled and forfeited	(174,769)	16.11		
Outstanding at October 30, 2011	<u>4,033,916</u>	<u>\$ 9.28</u>	<u>6.1 years</u>	<u>\$ 7,300</u>
Exercisable at October 30, 2011	<u>2,068,448</u>	<u>\$ 14.32</u>	<u>4.3 years</u>	<u>\$ 2,166</u>
Expected to vest as of October 30, 2011	<u>1,651,417</u>	<u>\$ 3.73</u>	<u>8.0 years</u>	<u>\$ 4,711</u>

The weighted-average grant date fair value of options granted during the fiscal years 2011, 2010 and 2009 were \$4.75, \$2.98 and \$0.44, respectively. The total intrinsic value of options exercised during fiscal years 2011 and 2010 was \$2.1 million and \$0.4 million, respectively. A summary of the status of the Company's unvested options as of October 30, 2011, is presented below:

<b>Unvested Options</b>	<b>Shares</b>	<b>Weighted-Average Fair Value at Grant Date</b>
Unvested at October 31, 2010	1,968,554	\$ 1.71
Granted	625,750	4.75
Vested	(616,473)	1.63
Cancelled and forfeited	(12,363)	1.75
Unvested at October 30, 2011	<u>1,965,468</u>	<u>\$ 2.70</u>

The Company received cash from option exercises of \$0.4 million and \$0.1 million in fiscal years 2011 and 2010, respectively, and there were no options exercised during fiscal year 2009. As of October 30, 2011, the total unrecognized compensation cost of unvested option awards was approximately \$3.3 million. That cost is expected to be recognized over a weighted-average amortization period of 2.7 years.

### Restricted Stock

The Company periodically grants restricted stock awards. The restrictions on these awards lapse over a service period that has ranged from less-than-one to eight years. The weighted-average grant date fair values of restricted stock awards issued during fiscal years 2011 and 2009 were \$6.71 and \$0.76, respectively. No restricted stock awards were granted during fiscal 2010. The total fair value of awards for which restrictions lapsed was \$0.5 million, \$0.4 million and \$0.3 million during fiscal years 2011, 2010 and 2009 respectively. As of October 30, 2011, the total compensation cost for restricted stock awards not yet recognized was approximately \$1.3 million. That cost is expected to be recognized over a weighted-average amortization period of 2.6 years. A summary of the status of the Company's outstanding restricted stock awards as of October 30, 2011, is presented below:

<b>Restricted Stock</b>	<b>Shares</b>	<b>Weighted- Average Fair Value at Grant Date</b>
Outstanding at October 31, 2010	97,272	\$ 14.60
Granted	176,250	6.71
Vested	(80,695)	9.79
Cancelled and forfeited	(1,000)	17.02
Outstanding at October 30, 2011	<u>191,827</u>	<u>\$ 9.37</u>
Expected to vest as of October 30, 2011	<u>163,220</u>	<u>\$ 9.23</u>

## *Employee Stock Purchase Plan*

The Company's Employee Stock Purchase Plan ("ESPP") permits employees to purchase shares at 85% of the lower of the fair market value at the commencement of the offering or the last day of the payroll payment period. The maximum number of shares of common stock approved by the Company's shareholders to be purchased under the ESPP was increased from 0.9 million shares to 1.2 million shares during fiscal 2010. The vesting period for shares purchased under the ESPP is approximately one year. Under the ESPP, approximately 1.0 million shares had been issued through October 30, 2011, and approximately 62,000 shares are subject to outstanding subscriptions. As of October 30, 2011, the total compensation cost related to the ESPP not yet recognized was \$0.1 million, all of which is expected to be recognized within fiscal 2012.

## **NOTE 11 - EMPLOYEE RETIREMENT PLANS**

The Company maintains a 401(k) Savings and Profit Sharing Plan ("401(k) Plan") which covers all full-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. Employer contributions amounted to \$0.4 million in fiscal years 2011 and 2010 and \$0.2 million in 2009.

The Company's international subsidiaries maintain retirement plans for their employees, which vary by country. The obligations and cost of these plans are not significant to the Company's consolidated financial statements.

## **NOTE 12 - CONSOLIDATION, RESTRUCTURING AND RELATED CHARGES (CREDITS)**

### **2009 Restructurings**

#### *Shanghai, China, Facility*

In the third quarter of fiscal 2009, the Company ceased the manufacture of photomasks at its Shanghai, China, facility. In connection with this restructuring, the Company recorded total net charges of \$5.2 million, including \$4.7 million of net asset write-downs through its completion in fiscal 2010. The fair value of the assets written down was determined by management using a market approach. Approximately 75 employees were affected by this restructuring.

The Company recorded an initial restructuring charge of \$10.1 million in the third quarter of fiscal 2009, which included \$7.7 million to write down the carrying value of the Company's Shanghai manufacturing facility to its estimated fair value at that time. In the second quarter of fiscal 2010, the Company sold its facility in Shanghai, China, for net proceeds of \$12.9 million which resulted in a gain of \$5.4 million, which was recorded as a credit to the restructuring reserve in that quarter.

The following tables set forth the Company's restructuring reserve as of October 31, 2010 and November 1, 2009, related to its Shanghai, China, facility, and reflect the activity affecting the reserve for the years then ended.

	<b>Year Ended October 31, 2010</b>			
	<b>November 2, 2009</b>	<b>Charges (credits)</b>	<b>Utilized</b>	<b>October 31, 2010</b>
Net gain on sale of assets	\$ -	\$ (5,189)	\$ 5,189	\$ -
Employee terminations and other	134	210	(344)	-
	<u>\$ 134</u>	<u>\$ (4,979)</u>	<u>\$ 4,845</u>	<u>\$ -</u>
	<b>Year Ended November 1, 2009</b>			
	<b>November 3, 2008</b>	<b>Charges</b>	<b>Utilized</b>	<b>November 1, 2009</b>
Asset write-downs	\$ -	\$ 9,908	\$ (9,908)	\$ -
Other	-	324	(190)	134
	<u>\$ -</u>	<u>\$ 10,232</u>	<u>\$ (10,098)</u>	<u>\$ 134</u>

Manchester, U.K. Facility

During the first quarter of fiscal 2009, the Company ceased the manufacture of photomasks at its Manchester, U.K., facility and, in connection therewith, incurred restructuring charges of \$3.9 million through its completion in the fourth quarter of fiscal 2009, primarily for employee termination costs and asset write-downs. The Company, in fiscal 2009, also recorded an impairment charge of \$1.5 million to reduce the carrying value of the Manchester facility to its estimated fair value, which was determined by management by using a market approach. Approximately 85 employees were affected by this restructuring. The following table sets forth the Company's 2009 restructuring reserve related to its Manchester, U.K., facility as of November 1, 2009, and reflects the activity affecting the reserve for the year then ended.

	<b>Year Ended November 1, 2009</b>			
	<b>November 3, 2008</b>	<b>Charges</b>	<b>Utilized</b>	<b>November 1, 2009</b>
Employee terminations	\$ -	\$ 2,375	\$ (2,375)	\$ -
Asset write-downs and other	-	950	(950)	-
	<u>\$ -</u>	<u>\$ 3,325</u>	<u>\$ (3,325)</u>	<u>\$ -</u>

**Singapore Restructuring**

In the first quarter of fiscal 2012 the Company ceased the manufacture of photomasks at its Singapore facility. The Company anticipates that the restructuring costs of this action will not exceed \$2.5 million, all of which are expected to be incurred in fiscal 2012.



**NOTE 13 - INCOME TAXES**

The income (loss) before income tax provision consists of the following:

	<b>Year Ended</b>		
	<b>October 30, 2011</b>	<b>October 31, 2010</b>	<b>November 1, 2009</b>
United States	\$ (20,396)	\$ (27,507)	\$ (35,228)
Foreign	56,295	60,060	(1,876)
	<u>\$ 35,899</u>	<u>\$ 32,553</u>	<u>\$ (37,104)</u>

The income tax provision consists of the following:

	<b>Year Ended</b>		
	<b>October 30, 2011</b>	<b>October 31, 2010</b>	<b>November 1, 2009</b>
Current:			
Federal	\$ 291	\$ -	\$ -
State	74	-	-
Foreign	15,550	7,303	7,266
Deferred:			
Federal	-	-	-
State	-	-	-
Foreign	(224)	168	(2,943)
Total	<u>\$ 15,691</u>	<u>\$ 7,471</u>	<u>\$ 4,323</u>

The income tax provision differs from the amount computed by applying the statutory U.S. federal income tax rate to the income (loss) before income taxes as a result of the following:

	<b>Year Ended</b>		
	<b>October 30, 2011</b>	<b>October 31, 2010</b>	<b>November 1, 2009</b>
U.S. federal income tax at statutory rate	\$ 12,564	\$ 11,393	\$ (12,986)
Debt extinguishment losses	11,942	-	-
Distributions from foreign subsidiaries	1,925	1,750	10,407
State income taxes, net of federal benefit	503	(1,270)	(464)
Changes in valuation allowances	(8,334)	9,693	6,427
Foreign tax rate differentials	(4,467)	(6,381)	3,497
Tax credits in foreign jurisdictions	(522)	(2,954)	(1,581)
Uncertain tax positions, including reserves, settlements and resolutions	1,499	93	(1,218)
Shanghai, China operations closure	-	(6,127)	-
Other, net	581	1,274	241
	<u>\$ 15,691</u>	<u>\$ 7,471</u>	<u>\$ 4,323</u>

Subsequent to the issuance of the Company's 2010 consolidated financial statements, the Company identified two errors in the classifications of line items within the Tax Rate Reconciliation table (above). The first error of \$6 million was primarily due to incorrectly including the tax effects of cumulative earnings from a foreign subsidiary whose earnings were considered not to be reinvested resulting in an overstatement of both the Distributions from foreign subsidiaries line and the Changes in valuation allowances line of the 2010 Tax Rate Reconciliation table. The second error of \$1 million was due to a State tax benefit that was not recorded as the result of the Shanghai, China operations closure resulting in an overstatement of the State income taxes, net of federal benefit line and an overstatement of the Changes in valuation allowances line. As a result, the Tax Rate Reconciliation table has been restated from the amounts previously reported. The corrections had no effect on the net deferred tax asset, the income tax provision, the consolidated balance sheet and statements of operations previously reported for all years presented. In addition to these restatements, the Company has reclassified certain prior amounts from the Foreign tax rate differentials line into a separate line, Tax credits in foreign jurisdictions line, to conform with the current year presentation within this table.

The effective tax rate differs from the U.S. statutory rate of 35% in fiscal year 2011 primarily due to the impact of the non-deductible debt extinguishment losses related to the Company's acquisition of a portion of its 5.5% convertible senior notes and the impact of a foreign subsidiary tax settlement offset by a higher level of earnings taxed at lower statutory rates in foreign jurisdictions.

The Company's operations in Shanghai, China, were closed in the fiscal year ended October 31, 2010. The Company recognized a \$10.5 million U.S. tax benefit as a result of the investment writedown. In China, additional income was recognized as a result of asset sales and intercompany loan settlements and the related China income tax liability was offset by accumulated net operating losses. As a result of the closure, the Company wrote off its Shanghai, China, subsidiary's deferred tax asset of \$4.4 million, which arose as a result of unused operating losses. The deferred tax asset written off had been offset in its entirety by a valuation allowance.

The net deferred income tax assets consist of the following:

	<b>October 30, 2011</b>	<b>October 31, 2010</b>
<b>Deferred income tax assets:</b>		
Reserves not currently deductible	\$ 5,889	\$ 5,007
Net operating losses	51,991	57,764
Alternative minimum tax credits	3,217	2,926
Tax credit carryforwards	5,410	9,770
Future lease obligation	3,108	5,705
Other	3,359	3,796
	<u>72,974</u>	<u>84,968</u>
Valuation allowances	<u>(53,063)</u>	<u>(61,303)</u>
	19,911	23,665
<b>Deferred income tax liabilities:</b>		
Property, plant and equipment	(2,744)	(5,369)
Undistributed earnings of foreign subsidiaries	(4,417)	(4,428)
Investments	(1,203)	(2,622)
Other	(481)	(440)
	<u>(8,845)</u>	<u>(12,859)</u>
<b>Net deferred income tax assets</b>	<u><u>\$ 11,066</u></u>	<u><u>\$ 10,806</u></u>
<b>Reported as:</b>		
Current deferred tax assets	\$ 609	\$ 1,173
Long-term deferred tax assets	11,239	10,132
Accrued liabilities	(45)	-
Long-term deferred tax liabilities	<u>(737)</u>	<u>(499)</u>
	<u><u>\$ 11,066</u></u>	<u><u>\$ 10,806</u></u>

Subsequent to the issuance of the Company's 2010 consolidated financial statements, the Company's management determined that there was an error in the classification of and within the deferred income tax assets and liabilities presented in the 2010 table of deferred tax assets and liabilities footnote presentation. The error primarily related to an overstatement of the Company's gross net operating loss carryforwards and the related \$13 million deferred tax asset related to those same losses due to taxable gains that should have been recorded in a prior year on various intercompany transactions. Because a full valuation allowance has also been previously recorded against this overstated deferred tax asset, the error had no effect on the net deferred tax assets recorded in the financial statements. Additionally, the Company determined that certain deferred tax assets and liabilities had previously been improperly netted within the net operating loss line of the deferred tax asset composition table. As a result, the amounts presented in the 2010 table of deferred income tax assets and liabilities have been restated from the amounts previously reported. The corrections had no effect on the net deferred tax assets, the income tax provision, the consolidated balance sheet and statements of operations previously reported for all years presented.

Unrecognized tax benefits associated with uncertain tax positions were \$1.9 million at October 30, 2011, of which \$0.5 million was recorded in income taxes payable and the balance in other liabilities in the consolidated balance sheet, and were \$2.0 million at October 31, 2010 included in other liabilities in the consolidated balance sheet. If recognized, the benefits would favorably affect the Company's effective tax rate in future periods. Included in these amounts were \$0.1 million and \$0.3 million for interest and penalties in the two years, respectively. The Company includes any applicable interest and penalties related to uncertain tax positions in its income tax provision. As of October 30, 2011, the Company believes it is not reasonably possible that the total amounts of unrecognized tax benefits will significantly increase or decrease in the next twelve months. Currently, the statutes of limitations remain open subsequent to, and including, 2008 in the U.S., 2009 in the U.K., 2008 in Germany, 2011 in Korea, 2006 in Taiwan and in Singapore.

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

	<b>Year Ended</b>		
	<b>October 30, 2011</b>	<b>October 31, 2010</b>	<b>November 1, 2009</b>
Balance at beginning of year	\$ 1,676	\$ 1,573	\$ 1,988
Additions (reductions) for tax positions in prior years	709	(351)	-
Additions based on current year tax positions	502	454	377
Settlements	(1,063)	-	(685)
Lapses of statutes of limitations	-	-	(107)
Balance at end of year	<u>\$ 1,824</u>	<u>\$ 1,676</u>	<u>\$ 1,573</u>

As of October 30, 2011, the Company had available U.S. Federal tax operating loss carryforwards of approximately \$111.9 million which expire between 2020 and 2030, and research and development tax credit carryforwards of approximately \$2.9 million which expire between 2018 and 2029.

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 may expire prior to utilization. The valuation allowance (decreased) increased by \$(8.2) million, \$10.9 million and \$5.7 million in fiscal years 2011, 2010 and 2009, respectively.

As of October 30, 2011, the Company had \$3.2 million of alternative minimum tax credit carryforwards that are available to offset future federal income taxes payable. The Company also has state tax credits available of \$1.6 million which, if they are not utilized, will begin to expire in 2012.

As of October 30, 2011, the undistributed earnings of foreign subsidiaries included in consolidated retained earnings amounted to \$80.3 million, of which \$12.6 million of earnings is considered not to be permanently reinvested. The amount of undistributed earnings is calculated taking into account the net amount of earnings of the Company's foreign subsidiaries considering its multi-tier subsidiary structure and translated into U.S. dollars using exchange rates in effect as of the balance sheet date. During fiscal year 2008 a decision was made to not indefinitely reinvest earnings in certain foreign jurisdictions. No provision has been made for taxes due on the remaining undistributed earnings of \$67.7 million considered to be 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 starts in 2012 and expires in 2017. In addition, the Company had been accorded a tax holiday in China which expired in 2011. These tax holidays had no dollar or per share effect in the fiscal years ended October 30, 2011, October 31, 2010 and November 1, 2009. In Korea and at Photronics Semiconductor Mask Corporation (PSMC) in Taiwan, various investment tax credits have been earned to reduce the Company's effective income tax rate.

Income tax payments were \$10.4 million, \$8.9 million and \$9.6 million in fiscal 2011, 2010 and 2009, respectively. Cash received for refunds of income taxes paid in prior years amounted to \$0.2 million in fiscal 2011 and \$0.1 million in both fiscal years 2010 and 2009.

#### NOTE 14 - EARNINGS (LOSS) PER SHARE

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

	<b>Year Ended</b>		
	<b>October 30, 2011</b>	<b>October 31, 2010</b>	<b>November 1, 2009</b>
Net income (loss) attributable to Photonics, Inc.	\$ 16,229	\$ 23,922	\$ (41,910)
Effect of dilutive securities:			
Interest expense on convertible notes, net of related tax effects	-	4,085	-
Earnings (loss) for diluted earnings (loss) per share	<u>\$ 16,229</u>	<u>\$ 28,007</u>	<u>\$ (41,910)</u>
Weighted-average common shares computations:			
Weighted-average common shares used for basic earnings (loss) per share	57,030	53,433	43,210
Effect of dilutive securities:			
Share-based payment awards	1,145	996	-
Common stock warrants	283	63	-
Convertible notes	-	11,311	-
Dilutive potential common shares	<u>1,428</u>	<u>12,370</u>	<u>-</u>
Weighted-average common shares used for diluted earnings (loss) per share	<u>58,458</u>	<u>65,803</u>	<u>43,210</u>
Basic earnings (loss) per share	\$ 0.28	\$ 0.45	\$ (0.97)
Diluted earnings (loss) per share	\$ 0.28	\$ 0.43	\$ (0.97)

In periods in which the Company incurred a net loss, the assumed exercises and vestings of certain outstanding share-based awards had an antidilutive effect. The assumed exercise of certain outstanding common stock warrants and the conversion of convertible senior notes to common stock would also have been antidilutive in the periods that the Company reported a net loss. The table below shows the amounts of incremental weighted-average shares of these share-based payment awards, common stock warrants, and convertible debt that were not considered potentially dilutive common shares in the fiscal years presented.

	<b>Year Ended</b>		
	<b>October 30, 2011</b>	<b>October 31, 2010</b>	<b>November 1, 2009</b>
Convertible notes	-	-	1,429
Common stock warrants	-	-	804
Share-based payment awards	-	-	793
Total potentially dilutive shares excluded	<u>-</u>	<u>-</u>	<u>3,026</u>

The table below shows the outstanding weighted-average share-based payment awards and common stock warrants that were excluded from the calculation of diluted earnings (loss) 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.

	<b>Year Ended</b>		
	<b>October 30, 2011</b>	<b>October 31, 2010</b>	<b>November 1, 2009</b>
Convertible notes	13,994	-	-
Share based payment awards	2,407	2,684	2,243
Common stock warrants	213	745	2
Total potentially dilutive shares excluded	<u>16,614</u>	<u>3,429</u>	<u>2,245</u>

In the first quarter of fiscal year 2012, the Company awarded approximately 0.5 million shared-based payment awards to its employees and directors.

**NOTE 15 – SUBSIDIARY SHARE REPURCHASE**

During fiscal year 2011, the board of directors of PSMC, a subsidiary of the Company based in Taiwan, authorized PSMC to repurchase for retirement shares of its outstanding common stock on the open market. The repurchase programs, the last of which expired in October 2011, resulted in 21.6 million shares being repurchased for \$9.9 million. PSMC's repurchase of these shares increased the Company's ownership of PSMC from 57.53% at October 31, 2010, to 62.25% at October 30, 2011. The tables below present the effect of the change in Photronics, Inc.'s ownership interest in PSMC on the Company's equity for fiscal years ended October 30, 2011, October 31, 2010 and November 1, 2009.

	<b>Year Ended</b>		
	<b>October 30, 2011</b>	<b>October 31, 2010</b>	<b>November 1, 2009</b>
Net income (loss) attributable to Photronics, Inc.	\$ 16,229	\$ 23,922	\$ (41,910)
Decrease in Photronics, Inc.'s additional paid-in capital for PSMC's repurchase of 21.6 million shares of its common stock	(201)	-	-
Change from net income (loss) attributable to Photronics, Inc. and transfer to noncontrolling interest	<u>\$ 16,028</u>	<u>\$ 23,922</u>	<u>\$ (41,910)</u>

**NOTE 16 - COMMITMENTS AND CONTINGENCIES**

At October 30, 2011, the Company had outstanding purchase commitments of \$19 million, which included \$14 million related to capital expenditures, and had recorded purchase commitments, consisting primarily of liabilities for the purchase of manufacturing equipment, of \$19 million and \$40 million at October 30, 2011 and October 31, 2010, respectively. See Note 9 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 17 - 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 2011, 2010 and 2009 net sales by geographic area and for ICs and FPDs, and total long-lived assets by geographic area were as follows:

	<b>Year Ended</b>		
	<b>October 30, 2011</b>	<b>October 31, 2010</b>	<b>November 1, 2009</b>
<b>Net sales</b>			
Asia	\$ 307,402	\$ 259,951	\$ 223,138
Europe	46,613	41,850	38,344
North America	158,005	123,753	99,871
	<u>\$ 512,020</u>	<u>\$ 425,554</u>	<u>\$ 361,353</u>
<b>Product</b>			
IC	\$ 391,158	\$ 329,767	\$ 272,866
FPD	120,862	95,787	88,487
	<u>\$ 512,020</u>	<u>\$ 425,554</u>	<u>\$ 361,353</u>
<b>Long-lived assets</b>			
Asia	\$ 197,956	\$ 221,283	\$ 199,179
Europe	10,879	14,182	9,579
North America	159,845	134,349	139,131
	<u>\$ 368,680</u>	<u>\$ 369,814</u>	<u>\$ 347,889</u>

Samsung Electronics Co., Ltd. accounted for approximately 20%, 19% and 19% of the Company's net sales in fiscal years 2011, 2010 and 2009, respectively.

**NOTE 18 – 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 19 – OTHER COMPREHENSIVE INCOME**

The Company's other comprehensive income, as reported in the consolidated statements of equity, consists of all changes in equity during the periods presented except those resulting from investments by owners and distributions to owners. The components of other comprehensive income for the last three fiscal years, net of tax, were as follows:

	<u>Foreign Currency Translation Adjustments</u>	<u>Amortization of Cash Flow Hedges</u>	<u>Changes in Unrealized Investment Gains (Losses)</u>	<u>Other</u>	<u>Total Other Comprehensive Income</u>
<b>Year Ended October 30, 2011</b>					
Attributable to Photronics, Inc.	\$ 3,040	\$ 128	\$ -	\$ (29)	\$ 3,139
Attributable to noncontrolling interests	227	-	-	(11)	216
Total other comprehensive income	<u>3,267</u>	<u>128</u>	<u>-</u>	<u>(40)</u>	<u>3,355</u>
Income tax benefit (expense)	-	-	-	5	5
Other comprehensive income, net of tax	<u>\$ 3,267</u>	<u>\$ 128</u>	<u>\$ -</u>	<u>\$ (35)</u>	<u>\$ 3,360</u>
<b>Year ended October 31, 2010</b>					
Attributable to Photronics, Inc.	\$ 13,451	\$ 129	\$ -	\$ (159)	\$ 13,421
Attributable to noncontrolling interests	3,123	-	-	(117)	3,006
Total other comprehensive income	<u>16,574</u>	<u>129</u>	<u>-</u>	<u>(276)</u>	<u>16,427</u>
Income tax benefit (expense)	-	-	-	65	65
Other comprehensive income, net of tax	<u>\$ 16,574</u>	<u>\$ 129</u>	<u>\$ -</u>	<u>\$ (211)</u>	<u>\$ 16,492</u>
<b>Year ended November 1, 2009</b>					
Attributable to Photronics, Inc.	\$ 10,712	\$ 576	\$ 62	\$ (238)	\$ 11,112
Attributable to noncontrolling interests	342	-	39	(101)	280
Total other comprehensive income	<u>11,054</u>	<u>576</u>	<u>101</u>	<u>(339)</u>	<u>11,392</u>
Income tax benefit (expense)	-	-	-	-	-
Other comprehensive income, net of tax	<u>\$ 11,054</u>	<u>\$ 576</u>	<u>\$ 101</u>	<u>\$ (339)</u>	<u>\$ 11,392</u>



## NOTE 20 - OTHER RELATED PARTY TRANSACTIONS

The chairman of the board and chief executive officer of the Company is also the vice chairman of the board and majority shareholder of a company that provides secure managed information technology services to Photonics. Another director of the Company is also a shareholder, chief executive officer and executive 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 \$1.8 million, \$2.6 million and \$2.8 million in fiscal years 2011, 2010 and 2009, respectively and, as of October 30, 2011, had an outstanding balance of \$0.2 million due to this company. As of October 30, 2011, the Company had contracted with this company for various services through October 2013, at a cost of \$3.2 million.

The Company purchases photomask blanks from a company of which an officer of the Company is a significant shareholder. The Company purchased \$21.4 million, \$21.9 million and \$25.5 million of photomask blanks from this company in 2011, 2010 and 2009, respectively, for which the amount owed to this company was \$2.9 million at October 30, 2011 and \$4.3 million at October 31, 2010.

The Company believes that the terms of its transactions with 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 4 for other related party transactions.

## NOTE 21 - FAIR VALUE MEASUREMENTS

Accounting guidance defines fair value as the price that would be received to sell an asset or transfer a liability in an orderly transaction between market participants at the measurement date. An "orderly transaction" is a transaction that assumes exposure to the market for a period prior to the measurement date to allow for marketing activities that are usual and customary for transactions involving such assets or liabilities (i.e. it is not a forced transaction). The transaction to sell the asset or transfer the liability is a hypothetical transaction at the measurement date, considered from the perspective of a market participant that holds the asset or owes the liability. Therefore, the objective of a fair value measurement is to determine the price that would be received to sell the asset or paid to transfer the liability (an exit price) at the measurement date.

A fair value measurement further assumes that the hypothetical transaction occurs in the principal (or if no principal market exists, the most advantageous) market for the asset or liability. Further, a fair value measurement assumes a transaction involving the highest and best use of the asset and the consideration of assumptions that would be made by market participants when pricing the asset or liability, such as transfer restrictions (in the case of an asset) or nonperformance risk.

This guidance establishes a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value into three broad levels. The fair value hierarchy gives the highest priority to unadjusted, quoted market prices in active markets for identical assets or liabilities (including when the liabilities are traded as assets) while giving the lowest priority to unobservable inputs, which are inputs that reflect the Company's assumptions about the factors that market participants would use in valuing assets or liabilities, based upon the best information available under existing circumstances. In cases when the inputs used to measure fair value fall in different levels of the fair value hierarchy, the level within which the fair value measurement in its entirety falls is determined based on the lowest level input that is significant to the fair value measurement in its entirety. When, due to changes in the inputs to valuation techniques used to measure its fair value, an asset or liability is transferred between levels of the fair value hierarchy, the Company recognizes all transfers to or from any level to be as of the beginning of the reporting period. Assessing the significance of a particular input to the fair value measurement in its entirety requires judgment, including the consideration of factors specific to the asset or liability. The hierarchy consists of the following three levels:

Level 1 - Inputs are prices in active markets for identical securities that are accessible at the measurement date.

Level 2 - Inputs other than quoted prices included within Level 1 are observable for the asset or liability, either directly or indirectly. At October 30, 2011 and October 31, 2010, the Company's Level 2 liabilities are certain common stock warrants, which are included in other liabilities.

Level 3 - Inputs are unobservable inputs for the asset or liability.

*Assets and Liabilities Measured at Fair Value on a Recurring Basis*

The tables below present the Company's liabilities as of October 30, 2011 and October 31, 2010, that are measured at fair value on a recurring basis. The Company had no assets measured at fair value on a recurring basis as of the dates presented.

	October 30, 2011			Total
	Quoted Prices in Active Markets for Identical Instruments (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	
Common stock warrants	\$ -	\$ 1,147	\$ -	\$ 1,147
Total liabilities	\$ -	\$ 1,147	\$ -	\$ 1,147

	October 31, 2010			Total
	Quoted Prices in Active Markets for Identical Instruments (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	
Common stock warrants	\$ -	\$ 1,881	\$ -	\$ 1,881
Total liabilities	\$ -	\$ 1,881	\$ -	\$ 1,881

The fair value of the common stock warrants liability was determined using the Black-Scholes option pricing model. A significant observable input into the model was the market price of the Company's common stock at the measurement date. Gains or losses related to fair value adjustments to the common stock warrants liability are included in other income (expense), net.

### *Assets and Liabilities Measured at Fair Value on a Nonrecurring Basis*

The Company did not have any nonfinancial assets or liabilities measured at fair value on a nonrecurring basis at October 30, 2011 or October 31, 2010.

### *Fair Value of Other Financial Instruments*

The fair values of the Company's cash and cash equivalents, accounts receivable, accounts payable, and certain other current assets and current liabilities approximate their carrying value due to their short-term maturities. The fair value of the Company's variable rate long-term debt approximates its carrying value due to the variable nature of the underlying interest rates. The estimated fair value of the Company's 3.25% convertible senior notes was approximately \$109.3 million at October 30, 2011, and the estimated fair value of the Company's 5.5% convertible senior notes was approximately \$32.8 million and \$83.2 million at October 30, 2011 and October 31, 2010, respectively. The Company acquired \$35.4 million principal amount of its 5.5% convertible senior notes during fiscal year 2011.

**NOTE 22 - QUARTERLY RESULTS OF OPERATIONS (UNAUDITED)**

The following table sets forth certain unaudited quarterly financial data:

	<u>First</u>	<u>Second</u>	<u>Third</u>	<u>Fourth</u>	<u>Year</u>
<b>Fiscal 2011:</b>	<b>(a)</b>	<b>(b) (c)</b>	<b>(d) (e)</b>	<b>(e)</b>	<b>(f) (g)</b>
Net sales	\$ 120,823	\$ 133,103	\$ 135,935	\$ 122,159	\$ 512,020
Gross margin	30,594	36,486	38,240	30,893	136,214
Net income (loss)	13,584	(15,033)	12,622	9,035	20,208
Net income (loss) attributable to Photronics, Inc.	12,111	(16,438)	11,265	9,291	16,229
Earnings (loss) per share:					
Basic	\$ 0.23	\$ (0.30)	\$ 0.19	\$ 0.16	\$ 0.28
Diluted	\$ 0.20	\$ (0.30)	\$ 0.16	\$ 0.14	\$ 0.28
<b>Fiscal 2010:</b>	<b>(h) (i)</b>	<b>(j) (k) (l)</b>	<b>(m)</b>	<b>(n) (o)</b>	<b>(l) (p) (q)</b>
Net sales	\$ 98,197	\$ 105,070	\$ 112,251	\$ 110,036	\$ 425,554
Gross margin	18,177	22,090	26,272	25,276	91,815
Net income	408	8,605	7,607	8,462	25,082
Net income attributable to Photronics, Inc.	213	7,873	7,691	8,145	23,922
Earnings per share:					
Basic	\$ 0.00	\$ 0.15	\$ 0.14	\$ 0.15	\$ 0.45
Diluted	\$ 0.00	\$ 0.14	\$ 0.13	\$ 0.14	\$ 0.43

- (a) Includes non-cash mark-to-market loss of \$0.1 million, net of tax, in connection with warrants issued to purchase the Company's stock.
- (b) Includes debt extinguishment loss of \$30.3 million, net of tax, in connection with the acquisition of \$30.4 million principal amount of the Company's 5.5% convertible senior notes, with original maturity date of October 2014.
- (c) Includes non-cash mark-to-market loss of \$0.7 million, net of tax, in connection with warrants used to purchase the Company's stock.
- (d) Includes debt extinguishment loss of \$5.0 million, net of tax, in connection with the acquisition of \$5.0 million principal amount of the Company's 5.5% convertible senior notes, with original maturity date of October 2014.
- (e) Includes non-cash mark-to-market gain of \$0.2 million, net of tax, in connection with warrants used to purchase the Company's stock.
- (f) Includes debt extinguishment loss of \$35.3 million, net of tax, in connection with the acquisition of \$35.4 million principal amount of the Company's 5.5% convertible senior notes, with original maturity date of October 2014.
- (g) Includes non-cash mark-to-market loss of \$0.4 million, net of tax, in connection with warrants used to purchase the Company's stock.
- (h) Includes consolidation and restructuring charges of \$0.2 million, net of tax, in connection with the closure of the Company's Shanghai, China, manufacturing facility.
- (i) Includes non-cash mark-to-market gain of \$0.1 million, net of tax, in connection with warrants issued to purchase the Company's stock.
- (j) Includes consolidation and restructuring credits of \$5.0 million, net of tax, that primarily resulted from the sale of the Company's Shanghai, China, manufacturing facility, which was sold in connection with its closure.
- (k) Includes non-cash mark-to-market charge of \$0.9 million, net of tax, in connection with warrants issued to purchase the Company's stock.
- (l) Includes \$1.0 million charge, net of tax, for the write-off of deferred financing fees that resulted from an amendment to the Company's revolving credit facility.
- (m) Includes non-cash mark-to-market gain of \$0.4 million, net of tax, in connection with warrants issued to purchase the Company's stock.
- (n) Includes consolidation and restructuring credits of \$0.2 million, net of tax, that primarily resulted from the sale of the Company's Shanghai, China, manufacturing facility, which was sold in connection with its closure.
- (o) Includes non-cash mark-to-market charge of \$0.5 million, net of tax, in connection with warrants issued to purchase the Company's stock.
- (p) Includes consolidation and restructuring charges of 5.0 million, net of tax, in connection with the closure of the Company's Shanghai, China, manufacturing facility.
- (q) Includes non-cash mark-to-market charge of \$0.9 million, net of tax, in connection with warrants issued to purchase the Company's stock.

## **NOTE 23 - RECENT ACCOUNTING PRONOUNCEMENTS**

In June 2011 the FASB issued ASU No. 2011-05, "Presentation of Comprehensive Income", with the purpose of increasing the prominence of items reported in other comprehensive income. The amended guidance requires that all non-owner changes in stockholders' equity be presented either in a single continuous statement of comprehensive income or in two separate statements. The amendments also required that reclassification adjustments for items that are reclassified from other comprehensive income to net income in the statement(s) be presented on the face of the financial statements. However, in December 2011 the FASB issued ASU No. 2011-12 that deferred the effective date for amendments to the presentation of reclassifications of items out of other comprehensive income. ASU No. 2011-12 was issued to allow the FASB time to redeliberate whether it is necessary to require entities to present reclassification adjustments, by component, in both the statement where net income is presented and the statement where comprehensive income is presented for both interim and annual financial statements, as originally required under ASU No. 2011-05. During the FASB's redeliberation period, entities will continue to report reclassifications out of accumulated other comprehensive income using guidance in effect before ASU No. 2011-05 was issued. ASU No. 2011-05 is to be applied retrospectively and is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2011. The adoption of this ASU will have no effect on the Company's reported financial condition, financial performance or cash flows.

In May 2011 the FASB issued ASU No. 2011-04, "Amendments to Achieve Common Fair Value Measurement and Disclosure Requirements in U.S. GAAP and IFRSs", which amended its guidance on fair value measurements with the purpose of achieving commonality of its fair value measurement and disclosure requirements with those of IFRSs. ASU No. 2011-04 clarifies the FASB's intentions regarding the application of existing fair value measurement and disclosure requirements, changes certain principles for measuring fair value and changes the disclosure requirements for fair value measurements. ASU No. 2011-04 is to be applied prospectively and is effective during interim and annual periods beginning after December 15, 2011. The Company is currently evaluating the effect, if any, ASU No. 2011-04 will have on its consolidated financial statements.

## **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 ensure 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.

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 Annual 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 October 30, 2011, based on the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission in "Internal Control - Integrated Framework." Management, under the supervision and with the participation of the Company's chief executive officer and chief financial officer, assessed that the Company's internal control over financial reporting was effective as of October 30, 2011.

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 October 30, 2011, as stated in their attestation report on page 34 of this Form 10-K.

January 12, 2012

## **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 2012 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 paragraph three 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 2012 definitive Proxy Statement under the caption "EXECUTIVE OFFICERS" and is incorporated in this report by reference.

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 2012 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 SHAREHOLDER MATTERS

The information required by Item 201(d) of Regulation S-K is set forth in the Company's 2012 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 2012 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 2012 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 2012 definitive Proxy Statement under the captions "FEES PAID TO THE INDEPENDENT AUDITORS" 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:

	<b>Page No.</b>
1. Financial Statements: See "INDEX TO CONSOLIDATED FINANCIAL STATEMENTS" in Part II, Item 8 of this Form 10-K.	33
2. Financial Statement Schedules:	
Report of Independent Registered Public Accounting Firm on Financial Statement Schedule for the years ended October 30, 2011, October 31, 2010 and November 1, 2009	70
Schedule II - Valuation and Qualifying Accounts for the years ended October 30, 2011, October 31, 2010 and November 1, 2009	70
All other schedules are omitted because they are not applicable.	
3. Exhibits	71

**Report of Independent Registered Public Accounting Firm on Financial Statement Schedule**

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 October 30, 2011 and October 31, 2010, and for each of the three fiscal years ended October 30, 2011, October 31, 2010 and November 1, 2009, and the Company's internal control over financial reporting as of October 30, 2011, and have issued our report thereon dated January 12, 2012; 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 & Touche LLP  
 Hartford, Connecticut  
 January 12, 2012

**Schedule II**  
**Valuation and Qualifying Accounts**  
**for the Years Ended October 30, 2011, October 31, 2010**  
**and November 1, 2009**  
 (in thousands)

	<b>Balance at Beginning of Year</b>	<b>Charge to Costs and Expenses</b>	<b>Deductions</b>	<b>Balance at End of Year</b>
<b>Allowance for Doubtful Accounts</b>				
Year ended October 30, 2011	\$ 4,235	\$ 298	\$ (478) (a)	\$ 4,055
Year ended October 31, 2010	\$ 2,669	\$ 1,975	\$ (409) (a)	\$ 4,235
Year ended November 1, 2009	\$ 2,788	\$ 538	\$ (657) (a)	\$ 2,669
<b>Deferred Tax Asset Valuation Allowance</b>				
Year ended October 30, 2011	\$ 61,303	\$ -	\$ (8,240) (b)	\$ 53,063
Year ended October 31, 2010	\$ 50,449	\$ 20,419	\$ (9,565) (c)	\$ 61,303
Year ended November 1, 2009	\$ 44,769(d)	\$ 6,427	\$ (747)	\$ 50,449

- (a) Uncollectible accounts written off
- (b) Primarily due to utilization of net operating losses and expiration of investment tax credit.
- (c) Primarily due to reversal of valuation allowance for Shanghai, China, facility closure and impact of reduced income tax rates in Taiwan.
- (d) The valuation allowance balance at the beginning of the year ended November 1, 2009 has been adjusted to reflect the error discussed in Note 13.



## 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 for the fiscal year ended October 28, 2007).
3.2	By-laws of the Company, (incorporated by reference to Exhibit 3.2 to the Company's Registration Statement on Form S-1, File Number 33-11694, which was declared effective by the Commission on March 10, 1987).
4.1	Form of Indenture between the Company and the Bank of New York, as Trustee (incorporated by reference to Exhibit 4.1 to the Company's Registration Statement on Form S-3 File Number 333-160235 which was filed on June 25, 2009).
4.2	Indenture dated September 16, 2009 between the Company and the Bank of New York, as Trustee (incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8K filed September 17, 2009 (Commission File Number 0-15451)).
4.3	Supplement to Indenture dated September 16, 2009 between the Company and the Bank of New York, as Trustee relating to the issuance of the Company's 5.5% Convertible Notes due 2014 (incorporated by reference to Exhibit 4.2 to the Company's Current Report on Form 8K filed September 17, 2009 (Commission File Number 0-15451)).
4.4	Indenture dated March 28, 2011 between the Company and 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).
10.1	Master Service Agreement dated January 11, 2002 between the Company and RagingWire Telecommunications, Inc. (incorporated by reference to Exhibit 10.1 to the Company's Annual Report on Form 10-K for the fiscal year ended November 1, 2009).
10.2	Underwriting Agreement between the Company and Morgan Stanley & Co. Incorporated dated September 10, 2009 relating to the issuance of the Company's 5.5% Convertible Notes due 2014 (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8K filed September 11, 2009 (Commission File Number 0-15451)).
10.3	Underwriting Agreement between the Company and Morgan Stanley & Co. Incorporated dated September 10, 2009 relating to the issuance of 9,638,554 shares of common stock (incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8K filed September 11, 2009 (Commission File Number 0-15451)).
10.4	Warrant Agreement between the Company and Intel Capital Corporation dated September 10, 2009 (incorporated by reference to Exhibit 10.3 to the Company's Current Report on Form 8K filed September 11, 2009 (Commission File Number 0-15451)).
10.5	Warrant Agreement between the Company and Intel Capital Corporation dated September 10, 2009 (incorporated by reference to Exhibit 10.4 to the Company's Current Report on Form 8K filed September 11, 2009 (Commission File Number 0-15451)).
10.6	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). <sup>+</sup>
10.7	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 30, 2011). <sup>+</sup>
10.8	Amendment to the Employee Stock Purchase Plan as of April 8, 2010 (incorporated by reference to Exhibit 10.42 to the Company's Quarterly Report on Form 10-Q filed on June 10, 2010). <sup>+</sup>
10.9	The Company's 2007 Long-Term Equity Incentive Plan (incorporated by reference to Exhibit 4.1 to the Company's Registration Statement on Form S-8, Registration No. 333-151763, which was filed on June 18, 2008). <sup>+</sup>
10.10	Amendment to the 2007 Long Term Equity Incentive Plan as of April 8, 2010 (incorporated by reference to Exhibit 10.43 to the Company's Quarterly Report on Form 10-Q filed on June 10, 2010). <sup>+</sup>
10.11	Consulting Agreement between the Company and Constantine S. Macricostas, dated July 11, 2005.* <sup>+</sup>

10.12	Amendment No. 1 to the Consulting Agreement between Constantine S. Macricostas and the Company dated November 10, 2008 (incorporated by reference to Exhibit 10.11 to the Company's Annual Report on Form 10K for the fiscal year ended November 2, 2008 (Commission File No. 0-15451)). <sup>+</sup>
10.13	Executive Employment Agreement between the Company and Sean T. Smith dated February 20, 2003 (incorporated by reference to Exhibit 10.12 to the Company's Annual Report on Form 10-K for the fiscal year ended November 1, 2009). <sup>+</sup>
10.14	Limited Liability Company Operating Agreement of MP Mask Technology Center, LLC between Micron Technology, Inc. ("Micron") and Photronics, Inc. ("Photronics") dated May 5, 2006.* #
10.15	Contribution and Units Purchase Agreement between Micron, Photronics and MP Mask Technology Center, LLC ("MP Mask") dated May 5, 2006.* #
10.16	Technology License Agreement among Micron, Photronics and MP Mask dated May 5, 2006.* #
10.17	Photronics to Micron Supply Agreement between Micron and Photronics dated May 5, 2006.* #
10.18	Company to Photronics Supply Agreement between MP Mask and Photronics dated May 5, 2006.* #
10.19	Operating Lease Agreement dated May 19, 2009 between the Company and Micron (incorporated by reference to Exhibit 8.02 to the Company's Current Report on Form 8K filed on July 6, 2009 (Commission File No. 0-15451)).
10.20	Executive Employment Agreement between the Company and Soo Hong Jeong dated May 31, 2011 (incorporated by reference to Exhibit 10.40 to the Company's Quarterly Report on Form 10-Q filed on June 8, 2011). <sup>+</sup>
10.21	Executive Employment Agreement between the Company and Christopher J. Progler, Vice President, Chief Technology Officer dated September 10, 2007 (incorporated by reference to Exhibit 10.24 to the Company's Annual Report on Form 10-K filed on January 11, 2008 (Commission File No. 0-15451)). <sup>+</sup>
10.22	Executive Employment Agreement between the Company and Peter Kirilin dated May 21, 2010 (incorporated by reference to Exhibit 10.42 of the Company's Quarterly Report on Form 10-Q filed on June 10, 2010). <sup>+</sup>
10.23	Executive Employment Agreement between the Company and Richelle Burr dated May 21, 2010 (incorporated by reference to Exhibit 10.43 of the Company's Quarterly Report on Form 10-Q filed on June 10, 2010). <sup>+</sup>
10.24	Amended and Restated Credit Agreement dated as of February 12, 2010 (incorporated by reference to Exhibit 99.1 to the Company's Current Report on Form 8-K filed on February 16, 2010).
10.25	Amendment No. 1 to the Credit Agreement dated as of May 7, 2010 (incorporated by reference to Exhibit 99.1 to the Company's Current Report on Form 8-K filed on May 13, 2010).
10.26	Amendment No. 2 to the Credit Agreement dated September 17, 2010 (incorporated by reference to Exhibit 99.1 to the Company's Current Report on Form 8-K filed on September 21, 2010).
10.27	Amendment No. 3 to the Amended and Restated Credit Agreement dated as of March 18, 2011 (incorporated by reference to Exhibit 10.14 to the Company's Current Report on Form 8-K filed on March 29, 2011).
10.28	Security Agreement dated December 12, 2008 by and among the Company, the subsidiaries of the Company listed on the signature page and JPMorgan Chase Bank National Association (incorporated by reference to Exhibit 10.38 to the Company's Quarterly Report on Form 10Q for the quarterly period ended May 3, 2009 (Commission File Number 0-15451)).
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.*
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.

## 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 12, 2012

\_\_\_\_\_  
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/ CONSTANTINE S. MACRICOSTAS

January 12, 2012

\_\_\_\_\_  
Constantine S. Macricostas  
Chairman of the Board  
Chief Executive Officer  
(Principal Executive Officer)

By /s/ SEAN T. SMITH

January 12, 2012

\_\_\_\_\_  
Sean T. Smith  
Senior Vice President  
Chief Financial Officer  
(Principal Accounting Officer/  
Principal Financial Officer)

By /s/ WALTER M. FIEDEROWICZ

January 12, 2012

\_\_\_\_\_  
Walter M. Fiederowicz  
Director

By /s/ JOSEPH A. FIORITA, JR.

January 12, 2012

\_\_\_\_\_  
Joseph A. Fiorita, Jr.  
Director

By /s/ GEORGE C. MACRICOSTAS

January 12, 2012

\_\_\_\_\_  
George C. Macricostas  
Director

By /s/ MITCHELL G. TYSON

January 12, 2012

\_\_\_\_\_  
Mitchell G. Tyson  
Director



July 11, 2005

Mr. Constantine S. Macricostas  
5509 Pennock Point Road  
Jupiter, FL 33458

**RE: Consulting Agreement**

Dear Deno:

This letter confirms that Photronics, Inc. (the "Company") has agreed to continue to retain you as a Consultant in accordance with the terms of this letter. This Agreement is extended to you because of your importance as the Chief Executive Officer of the Company and our desire to retain your counsel after your retirement.

Accordingly, you shall continue to be retained, and you agree to serve, as a consultant. In order to retire from the Company, you must be at least 55 years of age and have been employed by the Company for at least 20 years, which criteria you have satisfied. The consulting relationship shall continue for a period of seven (7) years after the date of this letter (the "Consulting Period").

**1) Consulting Services**

You shall provide consulting services to the Company in any area of your expertise upon request by a duly authorized officer of the Company, and such services shall be provided at such times, locations (provided that travel to any location not reasonably proximate to either Brookfield, Connecticut or your then current residence shall be at the expense of the Company) and by such means as reasonably required by the Company. You shall make yourself available to provide such services for up to ten (10) hours per month throughout the Consulting Period.

**2) Compensation**

As compensation for your services during the Consulting Period, the Company agrees to provide you with consulting fees and benefits under the terms specified below:

- a) **Fees:** In consideration for your consulting services, the Company will pay you consulting fees in the amount of two hundred and fifty thousand dollars (\$250,000) per year ("Consulting Fees"). The Company shall pay you the Consulting Fees in equal monthly payments of twenty thousand, eight hundred and thirty-three dollars and thirty-three cents (\$20,833.33) throughout the Consulting Period.
-

- b) **Taxes and Withholding:** As a Consultant, you will comply with all applicable State and Federal laws governing self-employed individuals, including obligations such as quarterly payment of estimated taxes, social security, disability and other contributions based on the fees paid to you by the Company under this Agreement. The Company will not withhold or make payments for State or Federal income tax or Social Security, make employment insurance or disability insurance contributions, or obtain workers' compensation insurance on your behalf. You hereby indemnify and defend the Company against any and all such taxes or contributions.
- c) **Health Insurance:** To the extent permitted by law and by the Company's group health insurance policies, during the Consulting Period you and your spouse will continue to be covered by the Company's health insurance benefits until January 1, 2006. Thereafter, the Company will provide you with supplemental health coverage, provided that the premiums payable by the Company shall not exceed \$10,000 per year. If premiums exceed that amount, then you may wish to reimburse the Company for such excess if you wish to continue such coverage.

### **3) Limitations on Authority**

You shall have no responsibilities as a Consultant to the Company other than as provided for above, and you shall not represent or purport to represent the Company in any manner whatsoever to any third party unless authorized by the Company in writing to do so.

### **4) Non-Competition and Non-Solicitation**

You hereby agree that during the Consulting Period, you will not, without first obtaining the Company's prior written approval, directly or indirectly engage or prepare to engage in any activities in competition with the Company or accept employment, provide services to, or establish a business relationship with a business or individual engaged in or preparing to engage in competition with the Company. You are free to engage in other work or business activities during the Consulting Period so long as they are not competitive with the Company. For purposes of this paragraph the holding of less than one percent (1%) of the outstanding voting securities of any firm or business organization in competition with the Company shall not constitute activities or services precluded by this paragraph. You also agree that through the end of the Consulting Period and for one (1) year thereafter, you will not, either directly or through others, solicit or attempt to solicit any employee or other personnel of the Company to terminate his or her relationship with the Company or to become an employee, consultant or independent contractor to or for any other person or entity. Further, you agree not to disparage the Company in any manner likely to be harmful to the Company's business reputation, or the personal or business reputation of the Company's directors, shareholders or employees. You agree that the Consulting Fees adequately compensate you for the restrictions of this paragraph.

**5) Expenses**

You are responsible to pay, without reimbursement, all reasonable and ordinary expenses you incur on behalf of the Company in order to fulfill your obligations hereunder. Notwithstanding the foregoing, in the event that the Company requests the Consultant to incur travel, entertainment or other expenses in connection with duties that extend beyond the ordinary course of the Consultant's duties under this Agreement, then the Company and the Consultant shall discuss and agree in advance on the amount of such extraordinary expenses for which the Consultant will be reimbursed, and such extraordinary expenses will not be credited against the Consulting Fee otherwise payable under this Agreement.

**6) Office Space**

During the term of this Agreement, Company shall provide Consultant with office space suitable for Consultant to perform the Consulting Services, at the Company's offices in Brookfield, CT. Such office space shall be in proximity to the Company's offices for its executive officers.

**7) Purchase of Automobile**

Commencing February, 2003, Consultant has had use of a 2003 BMW 540i automobile owned by Company. On or after February 2007, Consultant shall have the right to purchase such automobile from the Company for book value.

**8) Liquidated Damages/Specific Performance**

- a) You agree that it would be impracticable or extremely difficult to ascertain the amount of actual damages caused by breach of paragraph (4), Non-Competition and Non-Solicitation, of this Agreement. Therefore, you agree that, in the event of such a breach, the Company will be entitled to withhold further payments of all Consulting Fees, recover all Consulting Fees already paid to you, and obtain such injunctive and other relief as appropriate.

You further agree that this liquidated damage provision represents reasonable compensation for the loss which would be incurred by the Company because of any such breach.

- b) In the event you claim that the Company is in breach of this Agreement, in addition to any other remedies available to you, you shall be entitled to obtain specific performance of this Agreement.
- c) In the event either party litigates enforcement of this Agreement, the prevailing party shall be entitled to recover its reasonable attorneys' fees and pre-judgment interest on amounts due but not paid. Interest shall be at a rate equal to two percent (2%) above the prime rate announced by the Company's primary lender.

None of your interests under this letter, or any right to receive any payments or distribution hereunder, shall be subject in any manner to sale, transfer, assignment, pledge, attachment, garnishment or other alienation or encumbrance of any kind, nor may such interest or right to receive a payment or distribution be taken, voluntarily or involuntarily, for the satisfaction of the obligations or debts of, or other claims against you, including claims for alimony, support, separate maintenance and claims in bankruptcy proceedings.

If the foregoing accurately sets forth our Agreement, please so indicate by signing in the space provided below.

Very truly yours,

PHOTRONICS, INC.

By:           /s/ Edwin L. Lewis          

Title: Vice President, General Counsel and Secretary

Agreed to and accepted by:

          /s/ Constantine S. Macricostas          

Constantine S. Macricostas



LIMITED LIABILITY COMPANY  
OPERATING AGREEMENT  
OF  
MP MASK TECHNOLOGY CENTER, LLC  
a Delaware Limited Liability Company

MEMBERSHIP INTERESTS IN MP MASK TECHNOLOGY CENTER, LLC, A DELAWARE LIMITED LIABILITY COMPANY, HAVE NOT BEEN REGISTERED WITH OR QUALIFIED BY THE SECURITIES AND EXCHANGE COMMISSION OR ANY SECURITIES REGULATORY AUTHORITY OF ANY STATE. THE INTERESTS ARE BEING SOLD IN RELIANCE UPON EXEMPTIONS FROM SUCH REGISTRATION OR QUALIFICATION REQUIREMENTS. THE INTERESTS CANNOT BE SOLD, TRANSFERRED, ASSIGNED OR OTHERWISE DISPOSED OF EXCEPT IN COMPLIANCE WITH THE RESTRICTIONS ON TRANSFERABILITY CONTAINED IN THIS LIMITED LIABILITY COMPANY OPERATING AGREEMENT OF MP MASK TECHNOLOGY CENTER, LLC AND APPLICABLE FEDERAL AND STATE SECURITIES LAWS.

Dated as of May 5, 2006

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## EXHIBITS

Exhibit A Members, Addresses, Initial Capital Contributions, and Percentage Interests

Exhibit B Initial Micron Managers

Exhibit C Initial Photonics Managers

Exhibit D Insurance

LIMITED LIABILITY COMPANY OPERATING AGREEMENT  
OF  
MP MASK TECHNOLOGY CENTER, LLC

THIS LIMITED LIABILITY COMPANY OPERATING AGREEMENT (together with the Exhibits, this "Agreement") is made and entered into as of the 5th day of May, 2006 (the "Effective Date"), by and between Micron Technology, Inc., a Delaware corporation ("Micron"), and Photronics, Inc., a Connecticut corporation ("Photronics"), with respect to MP Mask Technology Center, LLC (the "Company"), a limited liability company organized under the Delaware Limited Liability Company Act, as amended from time to time (the "Act").

ARTICLE 1.  
ORGANIZATIONAL MATTERS

1.1 Continuation

The Company was formed under the Act on April 10, 2006 by filing a Certificate of Formation of the Company (the "Certificate") in the Office of the Secretary of State of the State of Delaware as required by the Act. The Members hereby continue the Company under the Act for the purposes and upon the terms and conditions hereinafter set forth. Micron hereby continues as a Member of the Company, and Photronics is admitted to the Company as a Member upon its execution of this Agreement and receipt by Micron of \$48 million of the Purchase Price (as defined in the Contribution and Purchase Agreement). The rights and liabilities of the Members shall be as provided in the Act, except as otherwise expressly provided herein. In the event of any inconsistency between any terms and conditions contained in this Agreement and any non-mandatory provisions of the Act, the terms and conditions contained in this Agreement shall govern. If any provision of this Agreement is prohibited or ineffective under the Act, this Agreement will be considered amended to the smallest degree possible in order to make such provision effective under the Act. Subject to the provisions hereof, the Board of Managers may execute and file, or cause the General Manager to file, any duly authorized amendments to the Certificate from time to time in a form prescribed by the Act. The Board of Managers shall also cause to be made, on behalf of the Company, such additional filings and recordings as the Board of Managers shall deem necessary or advisable.

1.2 Name

The name of the Company shall be MP Mask Technology Center, LLC. The Company may also conduct business at the same time under one or more fictitious names if the Board of Managers determines that such is in the best interests of the Company. The Board of Managers may change the name of the Company from time to time, in accordance with Applicable Law.

### 1.3 Principal Place of Business; Other Places of Business

The principal place of business of the Company is located at 3851 East Columbia Road, Boise, Idaho or at such other place within or outside the State of Delaware as the Board of Managers may from time to time designate. The Company may maintain offices and places of business at such other place or places within or outside the State of Delaware as the Board of Managers deem advisable.

### 1.4 Business Purpose

The purpose of the Company shall be the (a) development, fabrication and sale of advanced photomasks; (b) entry into any other lawful business, purpose or activity in which a limited liability company may be engaged under Applicable Law (including, without limitation, the Act) as the Members may determine from time to time, subject to and in accordance with the terms of this Agreement; and (c) entry into any lawful transaction and engagement in any lawful activity in furtherance of the foregoing purposes and as may be necessary, incidental or convenient to carry out the business of the Company as contemplated by this Agreement.

### 1.5 Designated Agent for Service of Process

The Company shall continuously maintain a registered office and a designated and duly qualified agent for service of process on the Company in the State of Delaware. As of the date hereof, the name of the duly qualified agent for service of process is Corporation Service Company and the address of the registered office of the Company in the State of Delaware is c/o Corporation Service Company, 2711 Centerville Road, Suite 400, Wilmington, DE 19808. The registered office and the registered agent may be changed from time to time by the Board of Managers, by causing the prescribed form, accompanied by the requisite filing fee, to be filed with the Delaware Secretary of State in accordance with the Act.

### 1.6 Term

The Company shall continue until the Company is terminated, dissolved or liquidated in accordance with this Agreement and the Act. Notwithstanding the dissolution of the Company, the existence of the Company shall continue until termination pursuant to and as provided in Article 8 of this Agreement.

### 1.7 Objectives; Approved Technology

The primary objectives of the Company (the "Primary Objectives") are to: (i) develop and produce prototypes for industry-leading, advanced, next-generation, high-end photomasks in accordance with Micron's specifications; (ii) achieve sustainable, leading edge photomask production capabilities; (iii) manufacture production photomasks for, and approved by, Micron pursuant to Micron's specifications and in quantities required under the Transaction Documents. To the extent the Company has excess capacity and resources after completely fulfilling the Primary Objectives (inclusive of fulfillment of Company and Micron engineering needs appropriate to accomplish the foregoing, but recognizing that Photronics may also support Micron's production photomask needs through its other facilities as allowed pursuant to the Transaction Documents), the Company's secondary objective (the "Secondary Objective") is to support the development of leading edge logic applications and manufacture prototypes and, when approved by the Technology Steering Committee, production photomasks, for use by external Photronics customers; [\*\*\*\*].

[\*\*\*\*].

## 1.8 Transaction Documents

Contemporaneous with, or prior to, the execution of this Agreement, Photonics, Micron and/or the Company have entered into the agreements listed on Schedule B to the Contribution and Purchase Agreement (collectively, the "Transaction Documents").

### ARTICLE 2. DEFINITIONS

Capitalized words and phrases used and not otherwise defined elsewhere in this Agreement shall have the following meanings:

"Act" is defined in the preamble.

"Adjusted Capital Account Deficit" means, with respect to any Member at any time, the deficit balance, if any, in such Member's Capital Account as of such time, after giving effect to the following adjustments:

(1) Add to such Capital Account the amount that such Member is obligated to restore or is deemed to be obligated to restore pursuant to Regulations Section 1.704-1(b)(2)(ii)(c) or the penultimate sentence of each of Regulations Sections 1.704-2(g)(1) and 1.704-2(i)(5); and

(2) Subtract from such Capital Account such Member's share of the items described in Regulations Sections 1.704-1(b)(2)(ii)(d)(4), (5) and (6).

The foregoing definition of Adjusted Capital Account Deficit is intended to comply with the provisions of Regulations Section 1.704-1(b)(2)(ii)(d) and shall be interpreted consistently therewith.

"Affiliate" of a Person means any other Person which, directly or indirectly, controls, is controlled by, or is under common control with, such Person. The term "control" (including, with correlative meaning, the terms "controlled by" and "under common control with"), as used with respect to any Person, means the possession, directly or indirectly, of the power to direct or cause the direction of the management and policies of such Person, whether through the ownership of voting securities, by contract or otherwise. A Person shall be deemed an Affiliate of another Person only so long as such control relationship exists. The parties acknowledge and agree that neither Photronics nor Micron is presently controlled by any other Person. Notwithstanding the foregoing, a Company Entity shall not be deemed to be an Affiliate of either Photronics or Micron, except where expressly provided in this Agreement.

"Agreement" shall mean this Limited Liability Company Operating Agreement, together with the Exhibits, as amended or otherwise modified from time to time, which shall constitute the limited liability company agreement of the Company within the meaning of the Act.

"Annual Budget" is defined in Section 6.4.

"Applicable Law" means, with respect to a Person, any domestic or foreign, national, federal, territorial, state or local constitution, statute, law (including principles of common law), treaty, ordinance, rule, administrative interpretation, regulation, order, writ, injunction, legally binding directive, judgment, decree or other requirement or restriction of any arbitrator or Governmental Authority applicable to such Person or its properties, assets, officers, directors, employees, consultants or agents (in connection with such officer's, director's, employee's, consultant's or agent's activities on behalf of such Person).

"Assignment and Assumption Agreement" means the Assignment and Assumption Agreement dated as of the date hereof, by and between Micron and the Company.

"Base Contributions" is defined in Section 4.1.2(a).

"Board of Managers" means, at any time, the Board of Managers of the Company designated in accordance with Section 5.2.

"Business" is defined in Section 5.7(g).

"Business Day" means any day other than a day on which commercial banks in the United States are required or authorized to be closed.

"Capital Account" means the Capital Account maintained for each Member on the Company's books and records in accordance with the following provisions:

(1) To each Member's Capital Account there shall be added (a) such Member's Capital Contributions, (b) such Member's allocable share of Net Profits and any items in the nature of income or gain that are specially allocated to such Member pursuant to Article 10 hereof or other provisions of this Agreement and (c) the amount of any Company liabilities assumed by such Member or which are secured by any property owned by such Member.



(2) From each Member's Capital Account there shall be subtracted (a) the amount of (i) cash and (ii) the Gross Asset Value of any Company Assets (other than cash) distributed to such Member pursuant to any provision of this Agreement in its capacity as a Member (for the avoidance of doubt, any payment to a Member pursuant to any license, consulting, services, subcontracting, lease or other agreement between the Company and such Member or any Affiliates of such Member shall not be treated as a "distribution"), (b) such Member's allocable share of Net Losses and any other items in the nature of expenses or losses that are specially allocated to such Member pursuant to Article 10 or other provisions of this Agreement, and (c) liabilities of such Member assumed by the Company or which are secured by any property contributed by such Member.

(3) In the event any Interest in the Company is Transferred in accordance with the terms of this Agreement, the transferee shall succeed to the Capital Account of the transferor to the extent it relates to the Transferred Interest.

(4) In determining the amount of any liability for purposes of subsections (1) and (2) of this definition, there shall be taken into account Code Section 752(c) and any other applicable provisions of the Code and Regulations.

(5) The foregoing provisions and the other provisions of this Agreement relating to the maintenance of Capital Accounts are intended to comply with Regulations Sections 1.704-1(b) and 1.704-2 and shall be interpreted and applied in a manner consistent with such Regulations. In the event that the Board of Managers shall determine that it is prudent to modify the manner in which the Capital Accounts, or any additions or subtractions thereto, are computed in order to comply with such Regulations, the Board of Managers may make such modification, provided that it is not likely to have a material effect on the amounts distributable to any Member pursuant to Article 8 hereof upon the dissolution of the Company. The Board of Managers shall also make (a) any adjustments that are necessary or appropriate, in the absence of guidance under applicable Regulations, to maintain equality between the Capital Accounts of the Members and the amount of Company capital reflected on the Company's balance sheet, as computed for book purposes, in accordance with Regulations Section 1.704-1(b)(2)(iv)(q), and (b) any appropriate modifications in the event that unanticipated events might otherwise cause this Agreement not to comply with Regulations Sections 1.704-1(b) and 1.704-2.

"Capital Contributions" means, with respect to any Member, the total amount of cash and the initial Gross Asset Value of property (other than cash) contributed to the capital of the Company by such Member.

"Cash" means cash and cash equivalents determined by the Board of Managers in good faith consistent with GAAP.

"Certificate" is defined in Section 1.1.

"Chairman of the Board" is defined in Section 5.5.

"Change in Control" shall be deemed to have occurred, with respect to Micron or Photronics, when:

(1) Any "person" or "group" (as such terms are used in Sections 13(d) and 14(d) of the Exchange Act) is or becomes the "beneficial owner" (as defined in Rules 13d-3 and 13d-5 under the Exchange Act) of shares representing more than fifty percent (50%) of the combined voting power of the then outstanding securities entitled to vote generally in elections of directors of Micron or Photronics, as the case may be (the "Voting Stock");

(2) Micron or Photronics (A) consolidates with or merges into any other Person or any other Person merges into Micron or Photronics, and in the case of any such transaction, the outstanding common stock of Micron or Photronics, as the case may be, is changed or exchanged into other assets or securities as a result, unless the stockholders of Micron or Photronics, as the case may be, immediately before such transaction own, directly or indirectly immediately following such transaction, more than fifty percent (50%) of the combined voting power of the outstanding voting securities of the corporation resulting from such transaction in substantially the same proportion as their ownership of the Voting Stock immediately before such transaction, or (B) conveys, transfers or leases all or substantially all of its assets to any Person; or

(3) Any time Continuing Directors do not constitute a majority of the Board of Directors of Micron or Photronics, as the case may be (or, if applicable, a successor Person to Micron or Photronics, as the case may be).

"Change in Control Notice" is defined in Section 7.4.1.

"Change in Control Closing" is defined in Section 7.4.2.

"Change in Control Closing Price" is defined in Section 7.4.3.

"Change in Control Option Price" is defined in Section 7.4.3.

"Code" means the Internal Revenue Code of 1986, as amended from time to time (or any corresponding provisions of succeeding law).

"Company" is defined in the preamble.

"Company Accountant" shall mean initially PricewaterhouseCoopers LLP or such other independent accounting firm as appointed from time to time by the Board of Managers.

"Company Assets" means all direct and indirect rights and interests in real and personal property owned by the Company and its subsidiaries from time to time, and shall include both tangible and intangible property (including Cash).

"Company Correlative Item" is defined in Section 10.4.4(b).

"Company Entity" means the Company, or any of its directly or indirectly majority owned subsidiaries (whether organized as corporations, limited liability companies or other legal entities).

"Company Minimum Gain" has the meaning set forth in Regulations Sections 1.704-2(b)(2) and 1.704-2(d)(1) for the phrase "partnership minimum gain."

"Company Section 482 Allocation" is defined in Section 10.4.4(a).

"Competing Products" [\*\*\*\*].

"Continuing Director" means, solely with respect to Micron or Photronics, at any date, a member of Micron's or Photronics' Board of Directors, as the case may be, (i) who was a member of such board as of the Effective Date or (ii) who was nominated or elected by at least a majority of the directors who were Continuing Directors at the time of such nomination or election or whose election to such board was recommended or endorsed by at least a majority of the directors who were Continuing Directors at the time of such nomination or election or such lesser number comprising a majority of a nominating committee comprised of independent directors if authority for such nominations or elections has been delegated to a nominating committee whose authority and composition have been approved by at least a majority of the directors who were Continuing Directors at the time such committee was formed.

"Contribution and Purchase Agreement" means the Contribution and Units Purchase Agreement dated as of the date hereof by and between the Company, Micron and Photronics.

"Depreciation" means, for each Fiscal Year of the Company or other period, an amount equal to the federal income tax depreciation, amortization or other cost recovery deduction allowable with respect to an asset for such year or other period, except that if the Gross Asset Value of an asset differs from its adjusted basis for federal income tax purposes at the beginning of such year or other period, Depreciation shall be an amount that bears the same ratio to such beginning Gross Asset Value as the federal income tax depreciation, amortization or other cost recovery deduction for such year or other period bears to such beginning adjusted tax basis; provided, however, that if the federal income tax depreciation, amortization or other cost recovery deduction for such year or other period is zero, Depreciation shall be determined with reference to such beginning Gross Asset Value using any reasonable method selected by the Board of Managers.

"Economic Interest" means a Person's right to share in allocations of Net Profits, Net Losses and other items of income, gains, losses, deductions and credits hereunder and to receive distributions from the Company as set forth in this Agreement, but does not include any other rights of a Member including, without limitation, the right to vote or to participate in the management of the Company, or, except as specifically provided in this Agreement or required under the Act, any right to information concerning the business and affairs of the Company.

"Effective Date" is defined in the preamble.

"Excess Allocation" is defined in Section 9.1.2.

"Exchange Act" means the Securities Exchange Act of 1934, as amended.

"Fiscal Month" is defined in Section 5.10.1.

"Fiscal Quarter" is defined in Section 5.10.1.

"Fiscal Year" is defined in Section 5.10.1.

"GAAP" means generally accepted accounting principles in the United States as in effect from time to time.

"GAAS" means generally accepted auditing standards in the United States as in effect from time to time.

"General Manager" is defined in Section 5.12.1.

"Governmental Authority" means any foreign, domestic, national, federal, territorial, state or local governmental authority, quasi-governmental authority, instrumentality, court, government or self-regulatory organization, commission, tribunal or organization or any regulatory, administrative or other agency, or any political or other subdivision, department or branch of any of the foregoing.

"Gross Asset Value" means, with respect to any asset, the asset's adjusted basis for federal income tax purposes, except as follows:

(1) The initial Gross Asset Value of the Micron Contributed Assets shall be as set forth on Exhibit A. The initial Gross Asset Value of any other asset contributed by a Member shall be the fair value of such asset as determined by the Board of Managers and the contributing Member.

(2) The Gross Asset Value of all Company Assets immediately prior to the occurrence of any event described in subsections (a) through (d) hereof shall be adjusted to equal their respective fair values, in accordance with the applicable valuation provisions of this Agreement, or if there are no such provisions, as determined by the Board of Managers using such reasonable method of valuation as the Board of Managers may adopt, upon the occurrence of the following events and in accordance with the applicable Regulations:

(a) the acquisition of an additional Interest in the Company (other than in connection with the execution of this Agreement) by a new or existing Member in exchange for more than a de minimis Capital Contribution, if the Board of Managers reasonably determines that such adjustment is necessary or appropriate to reflect the relative Economic Interests of the Members in the Company;

(b) the distribution by the Company to a Member of more than a de minimis amount of Company Assets as consideration for an Economic Interest or Interest in the Company, if the Board of Managers reasonably determines that such adjustment is necessary or appropriate to reflect the relative Economic Interests of the Members in the Company;

(c) the liquidation of the Company within the meaning of Regulations Section 1.704-1(b)(2)(ii)(g); and

(d) at such other times as the Board of Managers shall reasonably determine necessary or advisable in order to comply with Regulations Sections 1.704-1(b) and 1.704-2.

(3) The Gross Asset Value of any Company Asset distributed to a Member shall be the gross fair market value of such Company Asset on the date of distribution as determined by the Board of Managers.

(4) The Gross Asset Values of Company Assets shall be increased (or decreased) to reflect any adjustments to the adjusted basis of such Company Assets pursuant to Code Section 734(b) or Code Section 743(b), but only to the extent that such adjustments are taken into account in determining Capital Accounts pursuant to Regulations Section 1.704-1(b)(2)(iv)(m); provided, however, that Gross Asset Values shall not be adjusted pursuant to this subsection (4) of this definition to the extent that the Board of Managers reasonably determines that an adjustment pursuant to subsection (2) of this definition above is necessary or appropriate in connection with a transaction that would otherwise result in an adjustment pursuant to this subsection (4) of this definition.

(5) If the Gross Asset Value of a Company Asset has been determined or adjusted pursuant to subsections (1), (2) or (4) of this definition, such Gross Asset Value shall thereafter be adjusted by the Depreciation taken into account with respect to such Company Asset for purposes of computing Net Profits and Net Losses.

"Increasing Member" is defined in Section 5.4.1

"Indemnified Loss" is defined in Section 5.11.1.

"Indemnitee" is defined in Section 5.11.1.

"Liquidators" is defined in Section 8.5.1.

"Majority Member" is defined in Section 7.3.1.

"Managers" means at any time the individuals designated in accordance with Section 5.2 to serve on the Board of Managers.

"Maximum Base Contributions Amount" is defined in Section 4.1.2(a).

"Maximum Excess Contributions Amount" is defined in Section 4.1.2(b).

"Member" means a Person owning a Membership Interest.

"Member Correlative Item" is defined in Section 10.4.4(a).

"Member Minimum Gain" means "partner nonrecourse debt minimum gain" as defined in Regulations Section 1.704-2(i)(2).

"Member Nonrecourse Debt" means "partner nonrecourse debt" as set forth in Regulations Section 1.704-2(b)(4).

"Member Nonrecourse Deductions" means "partner nonrecourse deductions" as set forth in Regulations Section 1.704-2(i).

"Member Section 482 Allocation" is defined in Section 10.4.4(b).

"Membership Interest" or "Interest" means the entire ownership interest of a Member in the Company at any particular time, including without limitation, the Member's Economic Interest, any and all rights to vote and otherwise participate in the Company's affairs, and the rights to any and all benefits to which a Member may be entitled as provided in this Agreement, together with the obligations of such Member to comply with all of the terms and provisions of this Agreement. A Membership Interest may be expressed as a number of Units.

"Micron" is defined in the preamble.

"Micron Contributed Assets" mean the "Transferred Assets" (as defined in the Contribution and Purchase Agreement) contributed by Micron to the Company.

"Micron Manager" means any of the Managers designated by Micron to serve on the Board of Managers in accordance with Section 5.2.

"Minority Closing" is defined in Section 7.3.1.

"Minority Closing Price" is defined in Section 7.3.2.

"Minority Member" is defined in Section 7.3.1.

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"Net Profits" or "Net Losses" means, for each Fiscal Year or other period, an amount equal to the Company's taxable income or loss for such year or period determined in accordance with Code Section 703(a) (for this purpose, all items of income, gain, loss or deduction required to be stated separately pursuant to Code Section 703(a)(1) shall be included in taxable income or loss), with the following adjustments:

(1) Any income of the Company that is exempt from federal income tax and not otherwise taken into account in computing Net Profits or Net Losses pursuant to this definition shall be added to such taxable income or loss;

(2) Any expenditure of the Company described in Code Section 705(a)(2)(B) or treated as a Code Section 705(a)(2)(B) expenditure pursuant to Regulations Section 1.704-1(b)(2)(iv)(i), and not otherwise taken into account in computing Net Profits or Net Losses pursuant to this subsection (2) of this definition, shall be subtracted from such taxable income or loss;

(3) Gain or loss resulting from any disposition of Company Assets where such gain or loss is recognized for federal income tax purposes shall be computed by reference to the Gross Asset Value of the Company Assets disposed of, notwithstanding that the adjusted tax basis of such Company Assets differs from its Gross Asset Value;

(4) In lieu of the depreciation, amortization and other cost recovery deductions taken into account in computing such taxable income or loss, there shall be taken into account Depreciation for such Fiscal Year;

(5) To the extent an adjustment to the adjusted tax basis of any asset included in Company Assets pursuant to Code Section 734(b) or Code Section 743(b) is required pursuant to Regulations Section 1.704-1(b)(2)(iv)(m)(4) to be taken into account in determining Capital Accounts as a result of a distribution other than in liquidation of a Member's Interest, the amount of such adjustment shall be treated as an item of gain (if the adjustment increases the basis of the asset) or loss (if the adjustment decreases the basis of the asset) from the disposition of the asset and shall be taken into account for the purposes of computing Net Profits and Net Losses;

(6) If the Gross Asset Value of any Company Asset is adjusted in accordance with subsection (2) or subsection (3) of the definition of "Gross Asset Value," the amount of such adjustment shall be taken into account in the taxable year of such adjustment as gain or loss from the disposition of such asset for purposes of computing Net Profits or Net Losses; and

(7) Notwithstanding any other provision of this definition, any items of income, gain, loss or deduction that are specially allocated pursuant to Sections 10.2 and 10.4.4 shall not be taken into account in computing Net Profits or Net Losses. The amount of items of income, gain, loss and deduction available to be specially allocated shall be determined using principles analogous to those set forth in this definition.

The Members acknowledge and agree that for financial accounting purposes the results of the Company's operations will be reported in accordance with GAAP.

"Non-Disclosure Agreement" means the Non-Disclosure Agreement, dated as of the date hereof, by and among the Company, Micron and Photronics.

"Nonrecourse Deductions" has the meaning set forth in Regulations Sections 1.704-2(b)(1) and 1.704-2(c).

"Officer" is defined in Section 5.12.3.

"Option Price" is defined in Section 7.3.2.

"Percentage Interest" means, with respect to a Member holding one or more Units, its Interest in the Company as determined by dividing the number of Units owned by such Member by the total number of Units of the Company then outstanding as specified in Exhibit A attached hereto, as such exhibit may be modified or supplemented from time to time in accordance with the terms of this Agreement. A change in a Member's Capital Account shall not affect the Percentage Interests of the Members unless expressly provided in this Agreement.

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"Person" means any person or entity, whether an individual, trustee, corporation, partnership, limited partnership, limited liability company, trust, unincorporated organization, business association, firm, joint venture, other legal entity or Governmental Authority.

"Photronics" is defined in the preamble.

"Photronics Manager" means any of the Managers designated by Photronics to serve on the Board of Managers in accordance with Section 5.2.

"Primary Objectives" is defined in Section 1.7.

"Proceeding" means any action, suit, hearing, arbitration, proceeding (public or private), investigation, examination, audit or claim brought by or against any Governmental Authority.

"R&D" is defined in Section 3.6.

"Reducing Member" is defined in Section 5.4.1.



"Regulations" means temporary and final Treasury Regulations promulgated under the Code, as such regulations may be amended from time to time (including corresponding provisions of succeeding Treasury Regulations).

"Regulatory Allocations" is defined in Section 10.2.8.

"Representative" is defined in Section 5.11.7(e).

"Responsible Party" is defined in Section 5.11.6.

"Secondary Objective" is defined in Section 1.7.

"SG&A" is defined in Section 3.6.

"Special Vote" means the affirmative vote or consent of each of Micron (provided that Micron shall be entitled to such vote or consent only so long as Micron's Percentage Interest is at least twenty-five percent (25%)) and Photronics (provided that Photronics shall be entitled to such vote or consent only so long as Photronics' Percentage Interest is at least twenty-five percent (25%)).

"Tax" or "Taxes" means all taxes, levies, imposts and fees imposed by any Governmental Authority (domestic or foreign) of any nature including but not limited to federal, state, local or foreign net income tax, alternative or add-on minimum tax, profits or excess profits tax, franchise tax, gross income, adjusted gross income or gross receipts tax, employment related tax (including employee withholding or employer payroll tax, FICA or FUTA), real or personal property tax or ad valorem tax, sales or use tax, excise tax, stamp tax or duty, any withholding or back up withholding tax, value added tax, severance tax, prohibited transaction tax, premiums tax, occupation tax, together with any interest or any penalty, addition to tax or additional amount imposed by any Governmental Authority (domestic or foreign) responsible for the imposition of any such tax.

"Tax Matters Partner" shall mean Micron.

"Technology License Agreement" means the Technology License Agreement dated as of the date hereof by and among the Company, Micron and Photronics.

"Technology Steering Committee" is defined in Section 5.13.

"Transaction Documents" is defined in Section 1.8.

"Transfer" (including, with correlative meaning, the term "Transferred") means, with respect to any Unit, Membership Interest or Economic Interest or portion thereof, a sale, conveyance, exchange, assignment, pledge, encumbrance, gift, bequest, hypothecation or other transfer or disposition by any other means, whether for value or no value and whether voluntary or involuntary (including, without limitation, by operation of law), or an agreement to do any of the foregoing.

"Unit" means, with respect to a Membership Interest, a fractional, undivided share of such Membership Interest issued pursuant to Article 3 of this Agreement. A Membership Interest may include a fractional Unit. As of the date hereof, the Units are held by the Members in accordance with Exhibit A, which Exhibit will be updated from time to time in accordance with the terms of this Agreement.

"Voting Stock" is defined in the definition of "Change in Control."

ARTICLE 3.  
CAPITAL; CAPITAL ACCOUNTS AND MEMBERS

3.1 Initial Capital Contributions of Members

3.1.1 Capital Contributions. The Members acknowledge and agree that as of the date hereof: (i) pursuant to the Contribution and Purchase Agreement Micron has contributed to the Company the Micron Contributed Assets; and (ii) pursuant to the Assignment and Assumption Agreement Micron has assigned to the Company certain contractual rights and other liabilities, and the Company has assumed certain liabilities of Micron in connection therewith. Upon Photonics purchase of 49,990 Units, from Micron pursuant to the Contribution and Purchase Agreement, Photonics' and Micron's Capital Account balances shall have a relative ratio equal to 49.99 divided by 50.01.

3.1.2 Capital Account Balances. The names, addresses, initial Capital Account balances of each Member (after giving effect to the transactions described in Section 3.1.1 and the sale by Micron of an Interest in the Company to Photonics pursuant to the LLC Units Sale and Purchase Agreement), Percentage Interests of, and number of Units owned by, the Members are as set forth on Exhibit A, provided that the gross asset value and capital account balances on Exhibit A will not be finalized until the completion of the balance sheet referenced in Section 5.10.3(a).

3.2 Additional Capital Contributions by Members

Except as provided in Section 3.1 and Section 4.1.2, no Member shall be required to make any Capital Contributions to the Company.

3.3 Capital Accounts

A Capital Account shall be established and maintained by the Company for each Member in accordance with the terms of this Agreement.

### 3.4 Member Capital

Except as otherwise provided in this Agreement or approved by a Special Vote: (a) no Member shall demand or be entitled to receive a return of or interest on any portion of its Capital Contributions or balance in its Capital Account; (b) no Member shall withdraw any portion of its Capital Contributions or receive any distributions from the Company as a return of capital on account of such Capital Contributions; and (c) the Company shall not redeem or repurchase the Membership Interest of any Member, provided that any such return, distribution or redemption that is permitted hereunder shall be pro rata based upon the Members' respective Percentage Interests.

### 3.5 Liability of Members

Except as otherwise required by any non-waivable provision of the Act or other Applicable Law and except as provided in this Agreement or other agreements between the Company and one or more Members or their Affiliates, no Member shall be liable in any manner whatsoever for any debt, liability or other obligation of the Company, whether such debt, liability or other obligation arises in contract, tort, or otherwise solely by reason of being a Member.

### 3.6 Certain Expenses.

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## ARTICLE 4. FINANCING OF THE COMPANY

### 4.1 Types of Financing

4.1.1 General. The Board of Managers shall be responsible for determining the type of financing required to fund the operations of the Company, which may include Capital Contributions from Members or incurring debt from Members or from public, private or bank markets.

### 4.1.2 Member Contributions.

(a) If the Board of Managers determines that the Company requires additional funding by way of Capital Contributions, then the Members shall make additional Capital Contributions of up to [\*\*\*\*]. Any such written notice shall include the amount of required Capital Contribution and the required funding date and shall be sent to the Members at least twenty (20) Business Days prior to the required funding date. Such required funding date shall correspond to the end of a Fiscal Month. Subject to the dollar limitation set forth in this Section 4.1.2(a), [\*\*\*\*].

(b) If the Members (or one of the Members as allowed pursuant to Section 4.1.2(c)) have made all of the Base Contributions provided for by Section 4.1.2(a) during any year and the Board of Managers determines that additional funding is required and advisable, then the Company shall pursue its own additional needed financing. If, after using its reasonable efforts to obtain such financing, the Company cannot obtain such financing on terms that are acceptable to the Company, then the Company may request that the Members make additional Capital Contributions in excess of the Base Contributions of up to an additional aggregate amount equal to such amount as agreed between the Members or, absent any such agreement, [\*\*\*\*] (the "Maximum Excess Contributions Amount") (each Member having the right to contribute its pro rata share, determined by multiplying such amount by such Member's Percentage Interest (the "Excess Contributions")) to the Company upon the written request of the Board of Managers. Any such written request shall include the amount of requested Capital Contribution and the required funding date and shall be sent to the Members at least twenty (20) Business Days prior to the required funding date. Such required funding date shall correspond to the end of a Fiscal Month. Subject to the dollar limitation set forth in this Section 4.1.2(b), there shall be no limit on the number of such requests for Excess Contributions that the Board of Managers may make in any year. Subject to Section 4.1.2(c), each Member shall have the right to make any Excess Contribution pro rata based on its Percentage Interest.

(c) If a Member fails to make a required Base Contribution or a requested Excess Contribution by the required funding date set forth pursuant to Section 4.1.2(a) or (b) above, then the other Member may elect to fund its portion and all or part of the non-funding Member's portion of such Base Contribution or Excess Contribution; provided, however, that in no event may a Member make during any year aggregate Base Contributions, including those made for itself and for the non-funding Member, in excess of the Maximum Base Contributions Amount or aggregate Excess Contributions, including those made for itself and for the non-funding Member, in excess of the Maximum Excess Contributions Amount, without the prior written consent of the other Member.

(d) Upon the payment by either or both Members of any required Base Contribution or requested Excess Contribution, the Company shall issue a number of additional Units (rounded down to the nearest whole Unit) to the funding Member(s) equal to the amount of the Base Contribution or Excess Contribution, as the case may be, funded by the funding Member(s) divided by a fraction, the numerator of which is the [\*\*\*\*] of the Company's Assets, less the [\*\*\*\*] of the Company's liabilities, as of the required funding date immediately prior to the funding of the Base Contributions or Excess Contributions, as the case may be, and the denominator of which is the number of Units outstanding immediately prior to the funding of the Base Contributions or Excess Contributions, as the case may be.

(e) The provisions of Sections 4.1.2(a)-(d) (including any obligation to make any Base Contribution or Excess Contribution requested on or prior to [\*\*\*\*]) shall not apply following [\*\*\*\*] unless neither Member has provided notice pursuant to Section 8.2(f) prior to [\*\*\*\*], in which case such provisions shall again be applicable following [\*\*\*\*].

ARTICLE 5.  
MANAGEMENT

5.1 Board of Managers

5.1.1 Powers. Except as otherwise expressly provided in this Agreement, all management powers over the business, property and affairs of the Company are exclusively vested in a board of Managers (the "Board of Managers"), and no Member shall have any right to participate in or exercise control or management power over the business and affairs of the Company or otherwise to bind, act or purport to act on behalf of the Company in any manner. Subject to the limitations set forth in this Agreement, the Board of Managers shall have all the rights and powers that may be possessed by a manager under the Act, which shall include, without limitation, the power to incur indebtedness, the power to enter into agreements and commitments of all kinds, the power to manage, acquire and dispose of Company Assets, and all ancillary powers necessary or convenient to the foregoing. Unless authorized by a Special Vote, no individual Manager may, in his or her capacity as a Manager, act for the Board of Managers or have authority to bind the Company. The Board of Managers may also designate one or more persons to open bank accounts and conduct other banking business on behalf of the Company. The Managers shall devote such time to the business and affairs of the Company as is reasonably necessary for the performance of their duties, but shall not be required to devote full time to the performance of such duties.

5.1.2 Evaluation of General Manager. The Board of Managers will be responsible for supervision and evaluation of the Company's General Manager on an ongoing basis, including at least an annual review of his or her performance to ensure he or she is acting in accordance with prudent business practices.

5.2 Number of Managers; Appointment of Managers

The Board of Managers shall initially consist of six (6) individuals (each such individual, a "Manager"). Subject to Sections 5.3 and 5.4 below, three (3) of the Managers shall be appointed by Micron and three (3) of the Managers shall be appointed by Photonics. Unless a Manager resigns (including by death or retirement) or is removed either by the Member who appointed such Manager or in accordance with Section 5.3 or 5.4, each Manager shall hold office until a successor shall have been duly appointed by the appointing Member. Each Member having the right to nominate a Manager or Managers pursuant to this Section 5.2 shall have the right, in its sole discretion, to remove such Manager or Managers at any time, by delivery of written notice to the other Member, the Company and the Manager(s) to be removed. In the case of a vacancy in the office of a Manager for any reason (including by reason of death, resignation, retirement, expiration of such Manager's term or removal pursuant to the preceding sentence), the vacancy shall be filled by the Member that nominated the Manager in question; provided, however, that in the case of a vacancy created due to a change in a Member's Percentage Interest as described in Section 5.3 or 5.4, such vacancy shall be filled in accordance with Section 5.3 or 5.4. Micron hereby selects the individuals specified on Exhibit B hereto to serve on the initial Board of Managers. Photonics hereby selects the individuals specified on Exhibit C hereto to serve on the initial Board of Managers.

### 5.3 Effect of Reduction in Photronics' Percentage Interest on Photronics Managers

Subject to Section 5.4.1 below, the number of Managers that Photronics can appoint to or maintain on the Board of Managers shall depend on Photronics' Percentage Interest as follows:

Photronics' Percentage Interest	Number of Photronics Managers
****	3
****	1
****	0

### 5.4 Effect of Reduction in Micron's Percentage Interest on Micron Managers

Subject to Section 5.4.1 below, the number of Managers that Micron can appoint to or maintain on the Board of Managers shall depend on Micron's Percentage Interest as follows:

Micron's Percentage Interest	Number of Micron Managers
****	3
****	1
****	0

5.4.1 Procedure. If either Member's Percentage Interest should be below any of the threshold levels set forth in Sections 5.3 or 5.4 above and if such Member (the "Reducing Member") then has more designees serving on the Board of Managers than the number to which it is entitled, such Reducing Member shall immediately identify by written notice to the other Member the designee or designees on the Board of Managers that will cease serving on the Board of Managers, and each such designee shall thereupon cease to be a Manager or member of the Board of Managers. If such Reducing Member fails to make such designation within five (5) Business Days after written demand by the other Member (the "Increasing Member"), the Increasing Member may designate by written notice to the Reducing Member one or more (as appropriate) of the Reducing Member's designees on the Board of Managers that will cease serving on the Board of Managers and each such designee shall thereupon cease to be a Manager or member of the Board of Managers. Upon the written notice described in either of the immediately preceding two sentences, the Increasing Member may immediately fill the vacancies created by such removals by written notice to the other Member designating its selected Manager(s). Similarly, if a Member whose Percentage Interest fell below any threshold level set forth in Section 5.3 or 5.4 subsequently increases its Percentage Interest above any such level, the process shall be reversed.

## 5.5 Chairman of the Board of Managers

A Chairman of the Board of Managers (the "Chairman of the Board") shall preside at all meetings of the Board of Managers. The Chairman of the Board shall be selected from among the Managers appointed by Micron; provided, however, that if the Percentage Interest of Micron falls below [\*\*\*\*], then the Chairman of the Board will be selected by Photronics if Photronics' Percentage Interest is above [\*\*\*\*] or otherwise by the Board of Managers.

## 5.6 Meetings of Members and of the Board of Managers; Quorum

5.6.1 Member Meetings. At any time, and from time to time, the Board of Managers may, but shall not be required to, call meetings of the Members. Special meetings of the Members for any proper purpose or purposes may be called at any time by either Member. Written notice of any such meeting (which may be given via confirmed facsimile, confirmed e-mail or other manner provided for in Section 11.5) shall be given to all Members not less than five (5) Business Days nor more than thirty-five (35) Business Days prior to the date of such meeting. Each meeting of the Members shall be conducted by the Chairman of the Board of Managers or any designee thereof. Each Member may authorize any Person by written proxy to act for it or on its behalf on all matters in which the Member is entitled to participate. Each proxy must be signed by a duly authorized officer of the Member. All other provisions governing or otherwise relating to the holding of meetings of the Members shall from time to time be established in the sole discretion of the Board of Managers.

5.6.2 Action by Member Consent. Any action which may be taken at any meeting of the Members may be taken without a meeting, without prior notice and without a vote if a consent in writing, setting forth the action so taken, is executed by all Members.

5.6.3 Board Meetings. The Board of Managers shall hold meetings at least once every Fiscal Quarter. The presence of four (4) Managers (with at least fifty percent (50%) of the Managers present being Micron Managers), in each case, in person or by telephone conference or by other means of communication acceptable to the Board of Managers, shall be necessary and sufficient to constitute a quorum for the purpose of taking action by the Board of Managers at any meeting of the Board of Managers. Each Member may authorize any Person by written proxy to act for or on behalf of any Manager that such Member has the right to nominate on all matters in which such Manager is entitled to participate. Each proxy must be signed by a duly authorized officer of the Member. Each Member shall be responsible for the expenses of the Manager(s) appointed by such Member in connection with all meetings of the Board of Managers. Either Member may place items on the agenda for any meeting of the Board of Managers, and the Chairman of the Board of Managers will call for a vote on any matter at the reasonable request of any Member.

5.6.4 Notice; Waiver. The regular quarterly meetings of the Board of Managers described in Section 5.6.3 shall be held upon not less than five (5) Business Days written notice. Additional meetings of the Board of Managers may be held at the request of any Manager, upon not less than five (5) Business Days' written notice (which may be given via confirmed facsimile, confirmed e-mail or other manner provided for in Section 11.5) or telephonic notice to each Manager (which notice shall be provided to the other Managers by the requesting Manager). The presence of any Manager at a meeting (including by means of telephone conference or other means of communication acceptable to the Board of Managers) shall constitute a waiver of notice of the meeting with respect to such Manager. No action taken by the Managers at any meeting shall be valid unless the requisite quorum is present.

5.6.5 Voting of Managers. Except as otherwise expressly provided in this Agreement, all actions, determinations or resolutions of the Board of Managers shall require the affirmative vote or consent of a majority of the Board of Managers present at any meeting at which a quorum is present; provided, however, that in the event of an evenly split vote, the Chairman of the Board will automatically receive an additional vote to break any such evenly split vote. Except as provided in the prior sentence, each Manager shall be entitled to one (1) vote, and Managers shall be entitled to cast their vote through proxies. The Board of Managers may act without a meeting if the action is consented to in advance or subsequently ratified, in each case in writing, by all of the Managers.

5.6.6 Meetings by Telecommunications. Managers and their proxies shall have the right to participate in all meetings of the Board of Managers by means of a conference telephone or similar communications equipment by means of which all persons participating in the meeting can hear each other at the same time and participation by such means shall constitute presence in person at a meeting. Members and their representatives and proxies shall have the right to participate in all meetings of the Members by means of a conference telephone or similar communications equipment by means of which all persons participating in the meeting can hear each other at the same time and participation by such means shall constitute presence in person at a meeting.

5.6.7 Reliance by Third Parties. Any Person dealing with the Company, the Micron Member, the Photonics Member, any Manager or any Officer may rely upon a certificate signed by any one Micron Manager and one Photonics Manager as to: (a) the identity of any Manager or Officer; (b) the existence or non-existence of any fact or facts which constitute a condition precedent to acts by the Managers or Officers or in any other manner germane to the affairs of the Company; (c) the Persons who are authorized to execute and deliver any instrument or document for or on behalf of the Company; or (d) any act or failure to act by the Company or as to any other matter whatsoever involving the Company, the Micron Member, the Photonics Member, any Manager or any Officer.



## 5.7 Actions Requiring a Special Vote

Notwithstanding the provisions of Section 5.6.5 or any other provisions of this Agreement, the Company may not, and no Member or Manager may cause the Company to, take any of the following actions (or any other action specified in this Agreement as requiring a Special Vote) without a Special Vote:

(a) effect a merger or consolidation (in a transaction or series of transactions) in which the Company is not the surviving entity or in which the Company is the surviving entity but in either case in which the Membership Interests or Units possessing more than fifty percent (50%) of the total combined Membership Interests or Units are transferred to a Person or Persons different than those who held such interests immediately prior to the merger or consolidation or the initial transaction culminating in such merger or consolidation;

(b) sell or otherwise transfer all or substantially all of the assets of the Company to any other Person, including to another Company Entity;

(c) settle any lawsuit, administrative proceeding, tax claim or other legal proceeding where any Company Entity pays the settlement of a dollar amount that is greater than [\*\*\*\*] of the fair market value (subject to the last paragraph of this Section 5.7, as determined by the Board of Managers) of the assets of the Company Entities taken as a whole;

(d) effect any investment in, or acquisition of, assets or equity interests (including by a merger, consolidation or otherwise) by a Company Entity or Company Entities that comprise greater than [\*\*\*\*] of the fair market value of the assets of the Company Entities taken as a whole, as determined by the Board of Managers (other than in connection with the Company's routine cash management functions);

(e) approve the fairness of pricing terms and the fairness of other terms having an economic impact of any contract, agreement, arrangement or understanding (or any series of related contracts, agreements, arrangements or understandings relating to the same or substantially similar subject matter) entered into after the date hereof between any Company Entity on the one hand, and either Member (or any of their respective Affiliates) on the other hand, that involves actual or potential payments to or from any Company Entity exceeding [\*\*\*\*] in any Fiscal Year or [\*\*\*\*] in the aggregate over the life of the contract, agreement, arrangement or understanding;

(f) approve the fairness of pricing terms and the fairness of other terms having an economic impact of any amendment to any contract, agreement, arrangement or understanding (or any series of related contracts, agreements, arrangements or understandings relating to the same or substantially similar subject matter) between any Company Entity on the one hand, and either Member (or any of their respective Affiliates) on the other hand, which amendment involves (i) a change in actual or potential payments to or from any Company Entity exceeding [\*\*\*\*] in any Fiscal Year or [\*\*\*\*] in the aggregate over the life of the contract, agreement, arrangement or understanding or (ii) a material reduction in the services, rights or privileges received by any Company Entity under the contract, agreement, arrangement or understanding without proportionate reduction in fees, royalties or other payments to such Member (or its respective Affiliates, provided that no Company Entity shall be deemed a Member Affiliate for the purposes of this provision) thereunder;

(g) authorize any Company Entity to engage in or undertake any material activity that is materially unrelated to the Company's pursuit of the Business (for purposes of this subsection (g), "Business" shall mean all activities related to or reasonably required in connection with the design, development fabrication and sale of advanced photomasks);

(h) effect any distribution from the Company to its Members other than in cash or any distribution in cash other than in accordance with Article 9 of this Agreement;

(i) effect any resolution to wind-up the Company or any Company Entity (unless the relevant governing documents or this Agreement expressly provide for "automatic" dissolution upon the occurrence of specified events);

(j) effect the filing of any application or petition for bankruptcy, reorganization or other similar proceedings under Applicable Law with respect to the Company or any Company Entity;

(k) file any lawsuit by the Company or any Company Entity against any Person that is a customer of Photonics;

(l) suspend the Company's operations for a period of greater than [\*\*\*\*];

(m) issue any additional Units or Membership Interests, or securities convertible into Units or Membership Interests, or admit any new Member other than pursuant to the terms of this Agreement;

(n) change the Company's Fiscal Year; or

(o) [\*\*\*\*].

#### 5.8 Compensation of Managers

The Managers shall not be entitled to any compensation in their capacities as Managers unless otherwise agreed upon in writing by all of the Members.

## 5.9 Other Activities

Subject to Applicable Law and the provisions of the Transaction Documents, the Members, their respective Affiliates and the Managers may engage or invest in, and devote their time to, any other business venture or activity of any nature and description (independently or with others), whether or not such other activity may be deemed or construed to be in competition with the Company. Neither the Company nor any Member, Affiliate of a Member, or Manager shall have any right by virtue of this Agreement or the relationship created hereby in or to such other venture or activity of any Member or its Affiliates (or to the income or proceeds derived therefrom), and the pursuit thereof, even if competitive with the business of the Company, shall not be deemed wrongful or improper.

## 5.10 Accounting; Records and Reports

5.10.1 Accounting and Fiscal Year. The books, records and accounts of the Company, including for all applicable tax purposes, will be maintained in accordance with such methods of accounting as shall be determined by the Board of Managers. The fiscal year of the Company ("Fiscal Year"), including each of the fiscal quarters (the "Fiscal Quarters") and each of the fiscal months ("Fiscal Months") thereof, shall correspond to that of Micron for as long as Micron and/or an Affiliate of Micron holds a fifty percent (50%) or greater Percentage Interest in the Company in the aggregate. The Company shall have a taxable year which complies with Section 706(b) of the Code.

5.10.2 Books and Records. The Board of Managers shall cause to be kept, at such location as the Board of Managers shall reasonably deem appropriate, full and proper ledgers, other books of account, and records of all receipts and disbursements and other financial activities of the Company in accordance with Micron's record retention policies. The Board of Managers shall also cause to be kept at such location copies of each of the following:

- (a) a current list of the full name and last known address of each Member, and the capital account, number of Units and Percentage Interest held by each Member;
- (b) a current list of the full name and last known address of each Manager;
- (c) the Certificate of the Company, any amendments to the Certificate, and executed copies of any powers of attorney granted for the purpose of executing the Certificate;
- (d) the Company's federal, state and local income tax returns and reports, if any, for the seven (7) most recent Fiscal Years;
- (e) this Agreement and any amendments to this Agreement;

(f) financial statements of the Company for the five (5) most recent Fiscal Years; and

(g) minutes of all meetings of the Board of Managers and the Members and any written consents of the Board of Managers or the Members for actions taken without a meeting.

5.10.3 Reports. The Board of Managers shall also cause to be sent to each Member of the Company, the following:

(a) within forty-five (45) days after the Effective Date, the Company shall provide each Member with an unaudited balance sheet of the Company as of the Effective Date;

(b) within 180 days following the end of each Fiscal Year, Schedule K-1 to IRS Form 1065 and such other information as may be reasonably required by the Members for preparation of their respective federal, state and local income or franchise tax returns;

(c) a copy of the Company's federal, state and local income tax or information returns for each Fiscal Year, concurrent with the filing of such returns;

(d) within seventy-five (75) days after the end of each Fiscal Year or as soon thereafter as reasonably practicable, the Company shall provide each Member with an audited balance sheet, income statement and statement of cash flows for and as of the last day of the Fiscal Year then ended, audited in accordance with GAAS by an auditor agreed to by Micron; provided, that Photronics shall reimburse the Company for the cost of such audit;

(e) within forty-five (45) days after the end of each Fiscal Quarter or as soon thereafter as reasonably practicable, the Company shall provide each Member with an unaudited balance sheet, income statement and statement of cash flows for and as of the last day of the year or quarter (as appropriate) then ended, prepared in accordance with GAAP, as well as such other financial information as any Member may reasonably request to enable such Member and its Affiliates to prepare their consolidated quarterly and annual financial statements; and

(f) within a reasonable period of time, notice of any material litigation filed against the Company or any written claim by a Governmental Authority of any material violation of any state, federal or foreign law, statute, rule or regulation.

5.10.4 Access to Company Books and Records.

(a) To the extent not in violation of Applicable Law, Members (personally or through an authorized representative) may, for purposes reasonably related to their interests in the Company, during reasonable business hours (i) examine and copy (at their own cost and expense) the books and records of the Company, including the records listed in Section 5.10.2, and (ii) have access to the Company's management, internal and external accountants and attorneys, plans, properties and other assets to conduct due diligence and other investigations regarding the Business and assets of the Company at such Member's sole expense, and the Company shall reasonably cooperate with such Member in such due diligence and investigations. Upon reasonable notice, Photronics may also request reasonable short-term and temporary access to the properties of the Company by Photronics customers for technology review and validation. Any information obtained as a result of this Section 5.10.4 shall be used by a Member solely for purposes reasonably related to such Member's participation in the Company and shall be subject to the Non-Disclosure Agreement.

(b) Any Member's request for documents or request to inspect or copy documents or have access to the Company's management, plans, properties and other assets under this Section 5.10.4 (i) may be made by that Member or that Member's authorized representative and (ii) shall be made in writing to the General Manager and shall state the purpose of such demand. If a Member is not satisfied with the response of the General Manager, the Member may make such request of the Technology Steering Committee and/or the Board of Managers.

#### 5.11 Indemnification and Liability of the Managers

5.11.1 Indemnification. The Company shall indemnify and hold harmless each Manager, the General Manager and all other Officers (individually, an "Indemnitee") to the fullest extent permitted by Applicable Law from and against any and all losses, claims, demands, costs, damages, liabilities, whether joint or several, expenses of any nature (including reasonable attorneys' fees and disbursements), judgments, fines, settlements and other amounts (each an "Indemnified Loss") arising from any and all claims, demands, actions, suits or proceedings, civil, criminal, administrative or investigative, in which the Indemnitee may be involved as a defendant, or threatened to be involved as a defendant (other than all claims, demands, actions, suits or proceedings brought by the Member who nominated such Manager, if applicable), relating to the performance or nonperformance of any act concerning the activities of the Company or by reason of the Indemnitee's status as a Manager, General Manager or Officer, as applicable, regardless of whether the Indemnitee retains such status at the time any such Indemnified Loss is paid or incurred, if (a) the Indemnitee acted in good faith and in a manner he or she reasonably believed to be in, or not opposed to, the best interests of the Company and, in the case of a criminal proceeding, had no reasonable cause to believe that his or her conduct was unlawful, and (b) the Indemnitee's conduct did not constitute an act or omission which involved intentional misconduct or a knowing violation of the law. The termination of an action, suit or proceeding by judgment, order, settlement, or upon a plea of nolo contendere or its equivalent, shall not, in and of itself, create a presumption or otherwise constitute evidence that the Indemnitee acted in a manner contrary to that specified in clauses (a) or (b) above.

5.11.2 Expenses. Expenses incurred by an Indemnitee in defending any claim, demand, action, suit or proceeding subject to this Section 5.11 shall be advanced by the Company prior to the final disposition of such claim, demand, action, suit, or proceeding.

5.11.3 Company Expenses. Any indemnification provided hereunder shall be satisfied solely out of the Company Assets, as an expense of the Company. No Member shall be subject to liability by reason of these indemnification provisions.

5.11.4 No Other Rights. The provisions of this Section 5.11 are for the benefit of the Indemnitees and shall not be deemed to create any rights for the benefit of any other Person; provided, however, that the indemnification rights provided in this Section 5.11 will inure to the benefit of the heirs, legal representatives, successors, assigns and administrators of the Indemnitee.

5.11.5 No Liability. No Indemnitee shall be liable to the Company or to any Member for any losses sustained or liabilities incurred as a result of any act or omission of any Indemnitee if (a) the Indemnitee acted in good faith and in a manner he or she reasonably believed to be in, or not opposed to, the best interests of the Company and, in the case of a criminal proceeding, had no reasonable cause to believe that his or her conduct was unlawful, and (b) the Indemnitee's conduct did not constitute an act or omission which involved intentional misconduct or a knowing violation of the law.

5.11.6 Reliance Upon Agreement. To the extent that any Manager, General Manager or Officer (each, a "Responsible Party") has, under Applicable Law or in equity, duties (including, without limitation, fiduciary duties) to the Company, any Member or other Person bound by the terms of this Agreement, such Responsible Parties acting in accordance with this Agreement shall not be liable to the Company, any Member, or any such other Person for its good faith reliance on the provisions of this Agreement.

5.11.7 No Fiduciary Duties.

(a) In connection with the determination of any and all matters presented for action to the Members, the Board of Managers or the Technology Steering Committee, as applicable, the Members acknowledge and agree that each Member will be acting on its own behalf and each Representative serving on the Board of Managers or the Technology Steering Committee will be acting on behalf of the Member that appointed such Representative.

(b) Each Member may act, and, to the fullest extent permitted by Applicable Law, will be protected for acting, in its own interest (subject to the express terms of any contract entered into by such Member) without regard to the interest of the other Member or the Company or any of its subsidiaries, and, subject to Section 5.11.7(E), each Representative may act, and, to the fullest extent permitted by Applicable Law, will be protected for acting, at the direction or control of, or in a manner that such Representative believes is in the best interest of, the Member that appointed the Representative without regard to the interest of the other Member or the Company or any of its subsidiaries. Further, each Member may, to the fullest extent permitted by Applicable Law (subject to the express terms of any contract entered into by such Member), make decisions and exercise direction and control over the decisions of the Representatives appointed by such Member without duty to or regard for the interests of the other Member or the Company or any of its subsidiaries.

(c) The Company, on its own behalf and on behalf of each of its subsidiaries, and each Member waive, to the fullest extent permitted by Applicable Law, (1) any claim or cause of action against any Member or Manager or member of the Technology Steering Committee appointed by a Member based on the determination of any and all matters presented for action to the Members, the Board of Managers or the Technology Steering Committee, as applicable, (2) breach of fiduciary duty, duty of care, duty of loyalty or any other duty or (3) breach of the Act; provided, however, the foregoing will not limit any Member's obligation under or liability for breach of the express terms of this Agreement or any other agreement that they have entered into with the Company or any of its subsidiaries or the other Member.

(d) The Company and each Member, by entering into this Agreement, expressly acknowledge that neither Member nor any of its designated Managers shall owe any fiduciary duties to the Company or to the other Member by virtue of such Member's ownership of a majority of the Units of the Company or such Member's Managers' positions on, and majority control of, the Board of Managers or the Technology Steering Committee.

(e) The term "Representative" shall mean, with respect to a Member, the Managers and members of the Technology Steering Committee appointed by such Member, but not including, only for purposes of Section 5.11.7(c)(2), the General Manager or any other officer of the Company (and each such officer shall be bound by such fiduciary and other duties (including the duty of care and the duty of loyalty) as would apply to an officer having comparable authority and duties under the DGCL).

## 5.12 General Manager

5.12.1 General Manager. The Company will have a General Manager (the "General Manager") to be selected by Micron with input from the Board of Managers and Photonics; provided, however, that if the Percentage Interest of Micron falls below [\*\*\*\*] then the General Manager will (after input from the Board of Managers and Micron) be selected by Photonics if Photonics' Percentage Interest is above [\*\*\*\*] or otherwise by the Board of Managers.

5.12.2 Duties and Powers of the General Manager. The General Manager shall, subject to the control of the Board of Managers, have general supervision, direction and control of the day-to-day affairs of the Company and shall report directly to the Board of Managers. Unless limited by the Board of Managers or this Agreement, he or she shall have the general powers and duties of management usually vested in the office of chief executive officer of corporations and shall have such other powers and duties as may be prescribed by the Board of Managers. Only the General Manager, the Board of Managers or individuals authorized by the General Manager or the Board of Managers shall have the ability to enter into binding agreements or approve payments on behalf of the Company.

5.12.3 Other Officers; Employment; Removal. The Company may also have a chief financial officer, a secretary and such other officers as determined by the Board of Managers, each of whom will be accountable to the General Manager (the General Manager and any other officers elected in accordance with this Section 5.12.3, each, an "Officer" and collectively, the "Officers"). The General Manager and any other Officer may be removed at any time upon an affirmative vote of the majority of the Board of Managers.

5.12.4 Duties and Powers of Chief Financial Officer. Any chief financial officer of the Company shall keep and maintain, or cause to be kept and maintained, books and records of accounts of the properties and business transactions of the Company, including accounts of its assets, liabilities, receipts, disbursements, gains, losses and capital. He or she shall disburse the funds of the Company as may be ordered by the Board of Managers and shall render to the Board of Managers at their request an account of all his or her transactions as chief financial officer and of the financial condition of the Company. Authorizations with respect to the Company's depositories, disbursement of funds and related banking matters shall be as set forth in resolutions of the Board of Managers.

5.12.5 Duties and Powers of Secretary.

(a) Any secretary of the Company shall attend (in person or by telephone conference) all meetings of the Board of Managers and all meetings of the Members (whether any of such meetings are in person, by telephone conference or both) and record all votes and the minutes of all proceedings in a book to be kept for that purpose, and shall perform like duties for any standing committees when requested by such committee.

(b) Any secretary of the Company shall keep, or cause to be kept, at the principal executive office or at the office of the Company's transfer agent or registrar, as determined by resolution of the Board of Managers, a register, or a duplicate register, showing the names of all Members and their addresses, Economic Interests and Percentage Interests, the number and date of certificates issued for the same (if any), and the number and date of cancellation of every certificate surrendered for cancellation (if any).

5.12.6 General Provisions Regarding Officers.

(a) The Board of Managers may, from time to time, designate Officers of the Company and delegate to such Officers such authority and duties as the Board of Managers may deem advisable and may assign titles (including, without limitation, president, vice-president and/or treasurer) to any such Officer. Unless the Board of Managers otherwise determines, if the title assigned to an Officer of the Company is one commonly used for Officers of a business corporation, then, subject to the terms of this Agreement, the assignment of such title shall constitute the delegation to such Officer of the authority and duties that are customarily associated with such office. Any number of titles may be held by the same Officer.

(b) Any Officer to whom a delegation is made pursuant to the foregoing shall serve in the capacity delegated unless and until such delegation is revoked by the Board of Managers for any reason or no reason whatsoever, with or without cause, or such Officer resigns.



### 5.13 Technology Steering Committee

The Company will establish a Technology Steering Committee (the "Technology Steering Committee") in accordance with the provisions of the Technology License Agreement.

### 5.14 Non-Disclosure Agreement

The parties acknowledge and agree that the contents and terms and conditions of all of the Transaction Documents and all proprietary or nonpublic information disclosed by one party to another party in connection with the Transaction Documents is subject to the Non-Disclosure Agreement.

### 5.15 Maintenance of Insurance

The Company shall at all times be covered by insurance of the types and in the amounts set forth on Exhibit D. Such insurance coverage may be provided through the coverage under one or more insurance policies maintained by the Company or by either Member. A certificate of insurance will be provided to the Members annually evidencing coverage.

### 5.16 Related Party Agreements

Micron, Photronics and the Company agree that any contract, agreement, amendment, arrangement or understanding entered into after the date hereof between any Company Entity on the one hand, and either Member (or any of their respective Affiliates) on the other hand, shall be on an arms-length basis.

## ARTICLE 6. OPERATIONS

### 6.1 Headquarters

The Company's world headquarters shall be in Boise, Idaho.

## 6.2 Surplus Equipment

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## 6.3 Printability Studies

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## 6.4 Operations Plan; Annual Budget

The Company will operate in accordance with an operations plan, which plan shall be initially developed and agreed upon by Micron and Photronics, and amended from time to time by the Board of Managers and in no event less than annually. The Board of Managers will also be responsible for approving an annual budget (the "Annual Budget") on at least an annual basis.

## ARTICLE 7. DISPOSITION AND TRANSFERS OF INTERESTS

### 7.1 Holding of Membership Interest

For so long as Micron or Photronics, directly or indirectly, maintains a Membership Interest in the Company, Micron or Photronics, as applicable, must own and hold such Membership Interest either (a) itself or (b) through one or more wholly owned (including indirect wholly owned) subsidiaries.

### 7.2 Transfer Moratorium

No Member may Transfer all or any portion of its Membership Interest to any other Person without the prior written consent of the other Member and any such attempted Transfer shall be deemed void and of no force or effect, nor shall Micron or Photronics without the prior written consent of the other sell or transfer, or allow to be sold or transferred, or in any way dispose of, its ownership interest, either direct or indirect, in any wholly owned subsidiary (including any indirect wholly owned subsidiary) that owns, directly or indirectly, the Membership Interest held by Micron or Photronics, respectively, in each case other than [\*\*\*\*].

### 7.3 Purchase of Remaining Interest

7.3.1 If the Percentage Interest of a Member (the "Minority Member") drops to [\*\*\*\*] or less and remains at or below [\*\*\*\*] for more than six (6) consecutive months, the other Member or a wholly owned subsidiary thereof (such other Member or Affiliate thereof, the "Majority Member") shall have the option to purchase all of the remaining Interest of the Minority Member at a cash purchase price equal to the Option Price, subject to the terms and conditions set forth below. The Majority Member may exercise this purchase option by delivering a written notice of its intent to exercise to the Minority Member. The closing of the purchase and sale of the Minority Member's remaining Interest (the "Minority Closing") shall take place as of the last day of the Fiscal Month in which the notice is delivered (unless such notice is delivered within the last ten (10) days of the end of a Fiscal Month, in which case the Minority Closing shall take place on the last day of the first full Fiscal Month thereafter). Such Minority Closing shall take place at the principal office of the Company or at such other location as the Majority Member and the Minority Member may mutually determine. At the Minority Closing, (i) the Minority Member shall transfer its remaining Interest in the Company to the Majority Member, free and clear of any liens or encumbrances, (ii) the Majority Member shall pay the Minority Member the Minority Closing Price by wire transfer of immediately available funds and (iii) the Minority Member shall deliver to the Majority Member such instrument or instruments of conveyance as the Majority Member reasonably requests.

7.3.2 Upon the Minority Closing, the Majority Member shall pay to the Minority Member a sum (the "Minority Closing Price") equal to the product of (i) the difference of [\*\*\*\*]. Within five (5) Business Days after the month-end balance sheet becomes available (prepared in accordance with GAAP consistently applied and as of the last day of the Fiscal Month in which the Minority Closing occurred), [\*\*\*\*]. If the Option Price is greater than the Minority Closing Price, the Majority Member shall deliver the difference to the Minority Member by wire transfer of immediately available funds within three (3) Business Days of such recalculation. If the Option Price is less than the Minority Closing Price, the Minority Member shall refund the difference to the Majority Member by wire transfer of immediately available funds within three (3) Business Days of such recalculation.

#### 7.4 Change in Control of Photonics

7.4.1 [\*\*\*\*].

7.4.2 [\*\*\*\*].

7.4.3 [\*\*\*\*].

7.4.4 [\*\*\*\*].

#### 7.5 Purchase and Sale Agreement

In the event of any purchase and sale of Membership Interests under Section 7.3, 7.4 or 8.5.3, the parties thereto shall enter into a commercially reasonable agreement to implement such purchase and sale. Such agreement will include that (a) the selling Member is released from any obligation to make future capital contributions to the Company and (b) income and loss for the year in which such closing occurs will be allocated to the selling Member on a basis that reflects the actual operations of the Company's business for the period prior to the Closing and will not be allocated based on the product of the Company's income and loss for the entire year times that percentage of the year in which the selling Member held a Membership Interest.

ARTICLE 8.  
DISSOLUTION, LIQUIDATION, AND TERMINATION OF THE COMPANY

8.1 Limitations

The Company may be dissolved, liquidated, and terminated only pursuant to the provisions of this Article 8, and the parties hereto do hereby irrevocably waive, to the extent permitted by Applicable Law, any and all other rights they may have to cause a dissolution, liquidation or termination of the Company or a sale or partition of any or all of the Company Assets in connection with such dissolution or liquidation.

8.2 Exclusive Causes

Notwithstanding the Act, the following and only the following events shall cause the Company to be dissolved, liquidated, and terminated:

(a) the election of all of the Members;

(b) the entry of a decree of judicial dissolution pursuant to Section 18-802 of the Act;

(c) any Member's election, if the Company ceases operation for more than six (6) months unless due to Force Majeure (as defined in the Supply Agreement dated as of the date hereof between Photronics and Micron);

(d) Photronics' election following a material breach of this Agreement or any other material provision of any of the Transaction Documents by Micron and, if the material breach is capable of cure, such material breach continues uncured for a period (i) specified in such Transaction Document or (ii) of ninety (90) days of a written notice from Micron to Photronics of such material breach if no cure period is specified in such Transaction Document; provided that if the breach in the case of (ii) is capable of being cured and the breaching party has worked diligently and in good faith since the receipt of the notice to cure such breach, but has not cured the breach during the allotted time, the cure period will be extended for an additional thirty (30) days;

(e) Micron's election following a material breach of this Agreement or any other material provision of any of the Transaction Documents by Photronics; and, if the material breach is capable of cure, such material breach continues uncured for a period (i) specified in such Transaction Document or (ii) of ninety (90) days of a written notice from Micron to Photronics of such material breach if no cure period is specified in such Transaction Document; provided that if the breach in the case of (ii) is capable of being cured and the breaching party has worked diligently and in good faith since the receipt of the notice to cure such breach, but has not cured the breach during the allotted time, the cure period will be extended for an additional thirty (30) days;

(f) either Member's election upon at least [\*\*\*\*] notice prior to (i) the ten-year anniversary of this Agreement or (ii) the last date of each successive five-year period following the ten-year anniversary of this Agreement, such termination to be effective upon such ten-year anniversary or the last date of such five-year period, as applicable;

(g) the election by a Member with a Percentage Interest of at least 90% to dissolve and wind up the affairs of the Company (which election shall not require the consent of the other Member), upon delivery of written notice of such election to the Company and the other Member;

(h) the occurrence of any other event that, under the Act, makes it unlawful, impossible or impractical to carry on the business of the Company;

(i) the election by either Member to dissolve and wind up the affairs of the Company upon (a) the occurrence of a bankruptcy of the Company, provided that the Member making such election is not in default of any payment obligation to the Joint Venture Company or (b) the bankruptcy, dissolution or liquidation of a Member, and further provided that, in either event, such election shall be made only after entry by the court presiding over the bankruptcy of an order granting relief from the automatic stay to make such election to the Member making such election; or

(j) [\*\*\*\*].

To the fullest extent permitted by law, any dissolution of the Company other than as provided in this Section 8.2 shall be a dissolution in contravention of this Agreement. The parties agree that the failure of a Member to make Base Contributions (but not the failure of a Member to make Excess Contributions) or the Transfer of Membership Interests by a Member in contravention of this Agreement shall, among other matters, constitute a material breach of this Agreement.

### 8.3 Effect of Dissolution

The dissolution of the Company shall be effective on the day on which the event occurs giving rise to the dissolution, but the Company shall not terminate until it has been wound up and its assets have been distributed as provided in Section 8.5.1 or 8.5.3 of this Agreement. Notwithstanding the dissolution of the Company, prior to the termination of the Company, the business of the Company and the affairs of the Members, as such, shall continue to be governed by this Agreement.

### 8.4 No Capital Contribution Upon Dissolution

Each Member shall look solely to the Company Assets for all distributions with respect to the Company, its Capital Contribution thereto, its Capital Account and its share of Net Profits or Net Losses, and shall have no recourse therefor (upon dissolution or otherwise) against any other Member. Accordingly, if any Member has a deficit Capital Account balance (after giving effect to all contributions, distributions and allocations for all taxable years, including the year during which the liquidation occurs), then such Member shall have no obligation to make any Capital Contribution with respect to such deficit, and such deficit shall not be considered a debt owed to the Company or to any other Person for any purpose whatsoever.

## 8.5 Liquidation

8.5.1 Upon dissolution of the Company, the Board of Managers (or other Person(s) designated by a decree of court) shall act as the "Liquidators" of the Company. The Liquidators shall liquidate the Company Assets, and after allocating (pursuant to Article 10 of this Agreement) all income, gain, loss and deductions resulting therefrom, shall apply and distribute the proceeds thereof as follows:

(a) first, to (i) the payment of the obligations of the Company to third parties, including, but not limited to and on a pari passu basis, taxes, debts, lease and other payments to Persons other than Members or their Affiliates; (ii) the expenses of liquidation; and (iii) the setting up of any reserves for contingencies, debts or liabilities to Persons other than the Members or their Affiliates, whether the whereabouts of the creditor is known or unknown, which the Board of Managers may consider necessary;

(b) thereafter, amounts due to either Member or their respective Affiliates (other than a Company Entity) pursuant to intellectual property license agreements, consulting agreements, services agreements, subcontracting agreements, lease agreements and other similar agreements; and

(c) thereafter, to the Members in proportion to the positive balances in the Members' respective Capital Accounts, determined after taking into account all Capital Account adjustments for the Company's taxable year during which such liquidation occurs, by the end of the taxable year in which such liquidation occurs or, if later, within ninety (90) days after the date of the liquidation.

8.5.2 Notwithstanding Section 8.5.1 of this Agreement, in the event that the Board of Managers determines that an immediate sale of all or any portion of the Company Assets would cause undue loss to the Members, the Board of Managers, in order to avoid such loss to the extent not then prohibited by the Act, may either defer liquidation of and withhold from distribution for a reasonable time any Company Assets except those necessary to satisfy the Company's debts and obligations, or, subject to Section 9.4, distribute the Company Assets to the Members in kind (in accordance with the second sentence of Section 8.5.1).

8.5.3 Notwithstanding Section 8.5.1 or 8.5.2 of this Agreement, in the event of termination pursuant to Section 8.2 (other than pursuant to Section 8.2(d)) Micron shall have the right, exercisable within thirty (30) days of such termination, to acquire, free and clear of all liens and other encumbrances (i) from Photronics, Photronics' Membership Interest at a purchase price equal [\*\*\*\*]. The foregoing purchase price shall be determined (and adjusted as necessary) in the manner provided in Section 7.4.3.

ARTICLE 9.  
DISTRIBUTIONS

9.1 Distributions of Cash Available for Distribution

9.1.1 Use of Cash. Subject to applicable legal and contractual restrictions and to Section 9.2 and Article 8, Company cash will be treated as follows (in the following order of priority):

(a) First, cash will be retained in the Company in an amount sufficient to fund the Company's operations. Such amount will take into consideration scheduled debt service, lease and other payments to third parties and payments of amounts due to either Member or their respective Affiliates pursuant to intellectual property license agreements, consulting agreements, services agreements, subcontracting agreements, lease agreements and other similar agreements; and

(b) Second, subject to Section 9.1.2, any excess cash remaining will be distributed at the discretion of the Board of Managers to Micron and Photronics pro rata based on their Percentage Interests at the time of such distribution.

9.1.2 Excess Allocations. Subject to Section 9.2 and Article 8, to the extent a Member's Percentage Interest is adjusted for any reason as provided in this Agreement and the aggregate allocations of Net Profit (and similar items) net of any allocations of Net Losses (and similar items) made to such Member pursuant to Article 10 on a cumulative basis through the effective time of such adjustment exceeded: (a) the aggregate distributions made to such Member pursuant to Sections 9.1.1(b) and 9.4 plus (b) all amounts previously distributed to such Member pursuant to this Section 9.1.2 through such effective time (collectively, an "Excess Allocation"), then prior to the making of any further distributions pursuant to Section 9.1.1(b), distributions shall first be made pro rata among the Members according to their respective Excess Allocation amounts existing at such time, to the extent thereof.

9.2 Distributions Upon Liquidation

Distributions made in conjunction with the final liquidation of the Company shall be applied or distributed as provided in Article 8 hereof.

9.3 Withholding

The Company may withhold amounts in respect of allocations or distributions if it is required to do so by any Applicable Law, and each Member hereby authorizes the Company to withhold from or pay on behalf of or with respect to such Member such amount of federal, state, local or foreign taxes that the Tax Matters Partner determines the Company is required to withhold or pay with respect to any amount distributable or allocable to such Member pursuant to this Agreement, provided that the Tax Matters Partner shall provide Photronics with twenty (20) Business Days advance written notice of the amount of any withholding to be made in respect of allocations or distributions to Photronics (or any Affiliate of Photronics) which notice shall demonstrate the calculation thereof. Any amount paid on behalf of or with respect to a Member pursuant to this Section 9.3 shall constitute a loan by the Company to such Member, which loan shall be repaid by such Member within twenty (20) Business Days after notice from the Company that such payment must be made unless: (i) the Company withholds such payment from a distribution that would otherwise be made to the Company or (ii) the Tax Matters Partner determines, in its sole discretion, that such payment may be satisfied out of Company Assets available therefor which would, but for such payment, be distributed to the Member. Any amounts withheld pursuant to this Section 9.3 shall be treated as having been distributed to such Member. Each Member hereby represents that it has provided to the Company IRS Form W-9 and that it has provided and will from time to time provide such other forms or documents as may reasonably be required in order to establish the status of such Member for purposes of the tax laws of any applicable jurisdiction. Each Member agrees to indemnify and hold harmless the Company from any liability imposed on the Company for (i) any action taken by the Company in reliance upon such representation of tax withholding status or (ii) any failure to withhold from any amount distributable or allocable, or deemed distributable or allocable, to such Member pursuant to this Agreement. A Member's obligations hereunder shall survive the dissolution, liquidation or winding up of the Company. If a Governmental Authority asserts in writing to any Person that the Company failed to withhold Tax at the time and/or in the amounts required by Chapter 3 of the Code or comparable provisions of other Tax laws in respect of Photronics and/or its Affiliates, then Photronics and/or its Affiliates, as applicable, shall promptly upon receipt of a copy of such writing accompanied by a written notice from the Company specifying that a payment is required pursuant to this Section 9.3 pay to such Governmental Authority an amount in full satisfaction of the amount of Taxes so asserted by such Governmental Authority. If Photronics and its Affiliates do not promptly pay such amount to such Governmental Authority, then, unless Photronics provides satisfactory written evidence of settlement in full of the matter asserted by the Governmental Authority, the Company shall withhold such amount from the next distribution(s) to Photronics, shall promptly pay such withheld amounts over to such Governmental Authority in payment of such asserted liability for Taxes and shall treat the amounts so withheld and paid over as actually distributed to Photronics.

#### 9.4 Distributions in Kind

Subject to Section 8.5.3, no right is given to any Member to demand or receive any distribution of property other than cash as provided in this Agreement. Upon a vote of the Board of Managers and a Special Vote, the Board of Managers may determine (subject to the approval of the Special Vote) to make a distribution in kind of Company Assets to the Members, and such Company Assets shall be distributed in such fashion as to ensure that the fair market value thereof (as determined by the Board of Managers and approved by the Special Vote) is distributed, and any items of gain or loss resulting from such distribution are allocated, in accordance with this Article 9 and Articles 6 and 10 hereof.

#### 9.5 Limitations on Distributions

Notwithstanding any provision to the contrary contained in this Agreement, neither the Company nor the Board of Managers, on behalf of the Company, shall be required to or shall knowingly make a distribution to any Member or the holder of any Economic Interest on account of its Membership Interest or Economic Interest in the Company (as applicable) in violation of the Act or other Applicable Law.

### ARTICLE 10. ALLOCATIONS OF NET PROFITS AND NET LOSSES

#### 10.1 General Allocation of Net Profits and Losses

10.1.1 Net Profits and Net Losses shall be determined and allocated with respect to each Fiscal Year or other period of the Company as of the end of such Fiscal Year or other period and at such other times, if any, as the Board of Managers shall determine is appropriate for purposes of administering this Agreement. Subject to the other provisions of this Agreement, an allocation to a Member of a share of Net Profits or Net Losses shall be treated as an allocation of the same share of each item of income, gain, loss or deduction that is taken into account in computing Net Profits or Net Losses.



10.1.2 Subject to the other provisions of this Article 10, Net Profits, Net Losses and any other items of income, gain, loss and deduction for any Fiscal Year shall be allocated in proportion to the Members' respective Percentage Interests.

## 10.2 Regulatory Allocations

Notwithstanding the foregoing provisions of this Article 10, the following special allocations shall be made in the following order of priority:

10.2.1 If there is a net decrease in Company Minimum Gain during a Company taxable year, then, to the extent required by Regulations Section 1.704-2(f), each Member shall be allocated items of Company income and gain for such taxable year (and, if necessary, for subsequent years) in an amount equal to such Member's share of the net decrease in Company Minimum Gain, determined in accordance with Regulations Section 1.704-2(g)(2). This Section 10.2.1 is intended to comply with the minimum gain chargeback requirement of Regulations Section 1.704-2(f) and shall be interpreted consistently therewith.

10.2.2 If there is a net decrease in Member Minimum Gain attributable to a Member Nonrecourse Debt during any Company taxable year, each Member who has a share of the Member Minimum Gain attributable to such Member Nonrecourse Debt, determined in accordance with Regulations Section 1.704-2(i)(5), shall, to the extent required by Regulations Section 1.704-2(i)(4), be specially allocated items of Company income and gain for such taxable year (and, if necessary, subsequent years) in an amount equal to such Member's share of the net decrease in Member Minimum Gain attributable to such Member Nonrecourse Debt, determined in a manner consistent with the provisions of Regulations Section 1.704-2(g)(2). This Section 10.2.2 is intended to comply with the partner nonrecourse debt minimum gain chargeback requirement of Regulations Section 1.704-2(i)(4) and shall be interpreted consistently therewith.

10.2.3 If any Member unexpectedly receives an adjustment, allocation, or distribution of the type contemplated by Regulations Section 1.704-1(b)(2)(ii)(d) (4), (5) or (6), and after receiving such adjustment, allocation, or distribution, such Member has an Adjusted Capital Account Deficit, items of income and gain shall be allocated to all such Members (in proportion to the amounts of their respective Adjusted Capital Account Deficits) in an amount and manner sufficient to eliminate the Adjusted Capital Account Deficit of such Member as quickly as possible. This Section 10.2.3 is intended to constitute a "qualified income offset" within the meaning of Regulations Section 1.704-1(b)(2)(ii)(d) and shall be interpreted consistently therewith.

10.2.4 If the allocation of Net Loss to a Member as provided in Section 10.1 would create or increase an Adjusted Capital Account Deficit for such Member, there shall be allocated to such Member only that amount of Net Loss as will not create or increase an Adjusted Capital Account Deficit. The Net Loss that would, absent the application of the preceding sentence, otherwise be allocated to such Member shall be allocated to the other Members in accordance with their relative Percentage Interests, subject to the limitations of this Section 10.2.4. If, after the allocation of Net Loss pursuant to the preceding two sentences, no additional amount of Net Loss can be allocated to any Member without creating or increasing an Adjusted Capital Account Deficit for such Member, then Net Loss shall be allocated to the Members in accordance with their relative Percentage Interests. This Section 10.2.4 is intended to implement the alternate test for economic effect set forth in Regulations Section 1.704-1(b)(2)(ii)(d) and shall be interpreted consistently therewith.

10.2.5 To the extent that an adjustment to the adjusted tax basis of any Company Asset pursuant to Code Section 734(b) or Code Section 743(b) is required, pursuant to Regulations Section 1.704-1(b)(2)(iv)(m)(2) or Regulations Section 1.704-1(b)(2)(iv)(m)(4), to be taken into account in determining Capital Accounts as the result of a distribution to a Member in complete liquidation of its Interest in the Company, the amount of such adjustment to the Capital Accounts shall be treated as an item of gain (if the adjustment increases the basis of the asset) or loss (if the adjustment decreases such basis), and such gain or loss shall be specially allocated to the Members in accordance with their interests in the Company in the event that Regulations Section 1.704-1(b)(2)(iv)(m)(2) applies, or to the Members to whom such distribution was made in the event that Regulations Section 1.704-1(b)(2)(iv)(m)(4) applies.

10.2.6 The Nonrecourse Deductions for each taxable year of the Company shall be allocated to the Members in proportion to their Percentage Interests.

10.2.7 The Member Nonrecourse Deductions shall be allocated each year to the Member that bears the economic risk of loss (within the meaning of Regulations Section 1.752-2) for the Member Nonrecourse Debt to which such Member Nonrecourse Deductions are attributable.

10.2.8 The allocations set forth in Sections 10.2.1, 10.2.2, 10.2.3, 10.2.4, 10.2.5, 10.2.6 and 10.2.7 (the "Regulatory Allocations") are intended to comply with certain requirements of Regulations Sections 1.704-1(b) and 1.704-2. Notwithstanding the provisions of Section 10.1.2, the Regulatory Allocations shall be taken into account by the Board of Managers in specially allocating other items of income, gain, loss and deduction among the Members so that, to the extent possible, the net amount of such allocations of other items and the Regulatory Allocations to each Member shall be equal to the net amount that would have been allocated to each such Member if the Regulatory Allocations had not occurred. In exercising its discretion under this Section 10.2.8, the Board of Managers shall take into account future Regulatory Allocations that, although not yet made, are likely to offset other Regulatory Allocations previously made.

### 10.3 Tax Allocations

10.3.1 Except as provided in Section 10.3.2, for income tax purposes under the Code and the Regulations and for purposes of applicable state and local law, each Company item of income, gain, loss and deduction shall be allocated between the Members in the same manner as its correlative item of "book" income, gain, loss or deduction is allocated pursuant to this Article 10.

10.3.2 Tax items with respect to Company Assets that are contributed to the Company with a Gross Asset Value that varies from its basis in the hands of the contributing Member immediately preceding the date of contribution shall be allocated between the Members for income tax purposes pursuant to Regulations promulgated under Code Section 704(c) or, if applicable, corresponding provisions of applicable state or local law so as to take into account such variation. The Company shall account for such variation under any permissible method under Section 704(c) as determined by the Tax Matters Partner. If the Gross Asset Value of any Company Asset is adjusted pursuant to subsection (2) of the definition of "Gross Asset Value," subsequent allocations of income, gain, loss and deduction with respect to such Company Asset shall take account of any variation between the adjusted basis of such Company Asset for federal income tax purposes and its Gross Asset Value under any permissible method under Section 704(c) as determined by the Tax Matters Partner. Any tax credits will be allocated to the Members in accordance with the requirements of applicable tax law. Allocations pursuant to this Section 10.3.2 are solely for purposes of federal, state and local taxes and shall not affect, or in any way be taken into account in computing, any Member's Capital Account or share of Net Profits, Net Losses and any other items or distributions pursuant to any provision of this Agreement.

### 10.4 Other Provisions

10.4.1 For any Fiscal Year during which any Membership Interest or Economic Interest or portion thereof is Transferred between the Members or to another Person or is otherwise disposed of or acquired, or there is for any other reason a change in the Members' respective Percentage Interests, the portion of the Net Profits, Net Losses and other items of income, gain, loss, deduction and credit with respect to such Membership Interest or Economic Interest or portion thereof shall be allocated and, to the extent necessary apportioned, under any method allowed pursuant to Section 706 of the Code and the applicable Regulations, as reasonably determined by the Board of Managers; provided, that the Board of Managers shall utilize consistent methods with respect to the same or substantially similar transactions and items in making such allocations or apportionments with respect to all such changes in the Members' respective Percentage Interests, whether occurring within a single Fiscal Year or in different Fiscal Years.

10.4.2 In the event that the Code or any Regulations require allocations of items of income, gain, loss, deduction or credit different from those set forth in this Article 10, the Board of Managers is hereby authorized to make new allocations in reliance on the Code and such Regulations, and no such new allocation shall give rise to any claim or cause of action by any Member, provided that such allocations are consistent with the advice of the Company Accountant or tax counsel and are not likely to alter materially the amounts which each Member is entitled to receive under the terms of this Agreement.

10.4.3 For purposes of determining a Member's proportional share of the Company's "excess nonrecourse liabilities" within the meaning of Regulations Section 1.752-3(a)(3), each Member's interest in Net Profits shall be such Member's Percentage Interest.

10.4.4 Section 482 Adjustments.

(a) Company Section 482 Adjustment. If the Internal Revenue Service or any applicable state or local taxing authority reallocates an item of income, deduction or loss to the Company pursuant to Code Section 482 or any similar rule or principle of law (a "Company Section 482 Allocation"), and a Member or an Affiliate of such Member has a corresponding "correlative item," as determined under Regulations Section 1.482-1(g) (the "Member Correlative Item"), the item of income, deduction or loss constituting such Company Section 482 Allocation shall be specially allocated to and reflected in the Capital Account of the Member who received (or whose Affiliate received) such Member Correlative Item, and such Member shall be treated as making any corresponding deemed capital contribution or receiving any corresponding deemed distribution, with such deemed capital contribution or distribution, as the case may be, reflected in the Capital Account of such Member.

(b) Member Section 482 Adjustment. If the Internal Revenue Service or any applicable state or local taxing authority reallocates an item of income, deduction or loss to a Member or an Affiliate of such Member pursuant to Code Section 482 or any similar rule or principle of law (a "Member Section 482 Allocation"), and the Company has a corresponding "correlative item," as determined under Regulations Section 1.482-1(g) (the "Company Correlative Item"), such Company Correlative Item shall be specially allocated to and reflected in the Capital Account of the Member that received (or whose Affiliate received) such Member Section 482 Allocation, and such Member shall be treated as making any corresponding deemed capital contribution or receiving any corresponding deemed distribution, with such deemed capital contribution or distribution, as the case may be, reflected in the Capital Account of such Member.

(c) Corresponding Treatment if Foreign Adjustment. If any taxing authority outside the United States makes an adjustment to the income, deduction or loss of the Company or a Member (or an Affiliate of a Member) that is analogous to an adjustment under Code Section 482, the Board of Managers shall use commercially reasonable efforts to handle any affected items of the Company in a manner analogous to the treatment of an adjustment under Code Section 482 as set forth in Sections 10.4.4(a) and 10.4.4(b) above.

10.4.5 The Members acknowledge and are aware of the income tax consequences of the allocations made by this Article 10 and hereby agree to be bound by the provisions of this Article 10 in reporting their shares of the Company's income and loss for federal, state and local income tax purposes. Without limiting the foregoing sentence, each Member acknowledges that, while it presently has no plan or intention to take a position in preparing a tax return that requires it to file a notice of inconsistent treatment under Code Section 6222(b), if it intends to do so in the future, it shall use its best efforts to provide at least ten (10) days advance notice of such intent to the Company and shall, if so requested by the Company, consult with the Tax Matters Partner concerning such position.

All matters concerning the allocations and other determinations provided for in this Article 10 and any accounting procedures not expressly provided for in this Agreement shall be determined by the Board of Managers in a manner consistent with the terms and intent of this Agreement.

ARTICLE 11.  
MISCELLANEOUS

11.1 Amendments

Any provision of this Agreement may be amended if, and only if, such amendment is in writing and is duly executed by all Members; provided, however, that amendments may be made to this Agreement from time to time by the Board of Managers, without the consent of either Member, to take such actions as may be reasonably necessary (if any) to insure that the Company will be treated as a partnership for federal income tax purposes. Upon the making of any amendment to this Agreement in accordance with the previous sentence, the Board of Managers shall prepare and file such documents and certificates as may be required under the Act and under any other Applicable Law.

11.2 No Waiver

Any provision of this Agreement may be waived if, and only if, such waiver is in writing and is duly executed by the party against whom the waiver is to be enforced. No failure or delay by any party in exercising any right, power or privilege under this Agreement shall operate as a waiver thereof nor shall any single or partial waiver or exercise thereof preclude the enforcement of any other right, power or privilege.

11.3 Entire Agreement

This Agreement, together with the other documents, exhibits and schedules referred to herein and therein, constitute the entire agreement between the parties hereto pertaining to the subject matter hereof, and supersede any and all prior oral and written, and all contemporaneous oral, agreements or understandings pertaining thereto. There are no agreements, understandings, restrictions, warranties or representations relating to such subject matter among the parties other than those set forth herein and in the other documents, exhibits and schedules referred to herein and therein.

11.4 Further Assurances

Each of the parties hereto does hereby covenant and agree on behalf of itself, its successors and its assigns, without further consideration, to prepare, execute, acknowledge, file, record, publish, and deliver such other instruments, documents and statements, and to take such other action as may be required by law or reasonably necessary or advisable to effectively carry out the purposes of this Agreement.

## 11.5 Notices

Unless otherwise provided herein, all notices, requests, instructions or consents required or permitted under this Agreement shall be in writing and will be deemed given: (a) when delivered personally; (b) when sent by confirmed facsimile; (c) ten (10) Business Days after having been sent by registered or certified mail, return receipt requested, postage prepaid; or (d) three (3) Business Days after deposit with an internationally recognized commercial overnight carrier specifying next-day delivery, with written verification of receipt. All communications will be sent to the addresses listed on Exhibit A (or to such other address or facsimile number as may be designated by a party giving written notice to the other parties pursuant to this Section 11.5).

## 11.6 Tax Matters

### 11.6.1 Tax Matters Partner.

(a) The Company shall file an election pursuant to Code Section 6231(a)(1)(B)(ii) to have Code Section 6231(a)(1)(B)(i) not apply. For so long as Micron and/or any of its Affiliates has an aggregate Percentage Interest greater than fifty percent (50%), Micron shall serve as the Company's "Tax Matters Partner" (as defined in Code Section 6231(a)(7)) and shall perform any similar or corresponding role under applicable state law. The Tax Matters Partner shall perform the duties imposed on a Tax Matters Partner under the Code and shall be entitled to expend Company funds for (or to be reimbursed for) reasonable third-party costs relating thereto. All legal and accounting fees relating to any audits of the Company shall be borne by the Company; provided, that the Members shall bear the costs of any audits of their separate tax returns. In the event the United States Internal Revenue Service or any other applicable Governmental Authority notifies the Tax Matters Partner of any proposed Proceeding relating to the Company's information or tax returns or to the amount of the liability of the Company for any Tax, the Tax Matters Partner shall promptly notify the other Members of such matter, shall provide relevant factual information (to the extent known) describing any asserted liability for Tax in reasonable detail and shall provide copies of any notice or other documents received from the Internal Revenue Service or other applicable Governmental Authority with respect to such matter. The Tax Matters Partner shall at all times keep the other Members informed as to the status of all such Proceedings.

(b) The Member designated as Tax Matters Partner is hereby authorized to make all elections available to the Company for federal, state, local, and foreign tax purposes, except that in no event shall the Company file an election to be treated as a corporation or as an association taxable as a corporation for United States federal income tax purposes or for purposes of income or corporate franchise tax purposes under the law of any State of the United States.

(c) The Tax Matters Partner shall prepare or cause to be prepared all appropriate income and information tax returns for the Company. All such returns shall be subject to review by the other Member(s) before filing and shall be delivered to the other Member(s) for review not fewer than ten (10) Business Days in advance of the due date thereof (taking into account any extensions actually obtained). All third-party costs and expenses reasonably incurred by the Tax Matters Partner in performing its duties described in this Section 11.6 or otherwise in accordance with the terms of this Agreement (including legal and accounting fees) shall be borne by the Company. Each Member shall provide to the Tax Matters Partner such information as the Tax Matters Partner deems necessary or appropriate in connection with its activities as Tax Matters Partner. The Tax Matters Partner shall cooperate with the Members by providing to each Member such information as the Member may reasonably request concerning the Company and its transactions in connection with the determination of such Member's liability for any Tax or any Proceeding relating thereto.

(d) The provisions of this Section 11.6 shall survive the termination or dissolution of the Company and shall remain binding on the Members for such period of time as is necessary to resolve any and all matters regarding the Tax treatment of the Company and Tax items attributable to the Company.

11.6.2 Standards. The Tax Matters Partner and its Affiliates shall not be liable, responsible, or accountable, in damages or otherwise, to the Company or to any other Member(s) for doing any act or failing to do any act, with respect to the Tax Matters Partner's duties set forth in this Section 11.6 or otherwise performed, the effect of which may cause or result in loss or damage to the Company or any Member(s), unless the Tax Matters Partner or one of its Affiliates engages in gross negligence or willful misconduct.

#### 11.7 Governing Law

This Agreement will be governed by and construed in accordance with the laws of the State of Delaware, United States of America, as applied to agreements among Delaware residents entered into and wholly to be performed within the State of Delaware (without reference to any choice or conflicts of laws rules or principles that would require the application of the laws of any other jurisdiction).

#### 11.8 Construction; Interpretation

11.8.1 Certain Terms. The words "hereof," "herein," "hereto," "hereunder" and similar words refer to this Agreement as a whole and not to any particular provision of this Agreement. The term "including" is not limited and means "including without limitation."

11.8.2 Section References; Titles and Subtitles. Unless otherwise noted, all references to Sections and Exhibits herein are to Sections and Exhibits of this Agreement. The titles, captions and headings of this Agreement are inserted for convenience of reference only and are not intended to be a part of or to affect the meaning or interpretation of this Agreement.

11.8.3 Reference to Persons, Agreements, Statutes. Unless otherwise expressly provided herein, (i) references to a Person include its successors and permitted assigns, (ii) references to agreements (including this Agreement) and other contractual instruments shall be deemed to include all subsequent amendments, restatements and other modifications thereto or supplements thereof and (iii) references to any statute or regulation are to be construed as including all statutory and regulatory provisions consolidating, amending, replacing, supplementing or interpreting such statute or regulation.

11.8.4 Presumptions. No party, nor its counsel, shall be deemed the drafter of this Agreement for purposes of construing the provisions of this Agreement, and all provisions of this Agreement shall be construed in accordance with their fair meaning, and not strictly for or against any party.

#### 11.9 Rights and Remedies Cumulative

The rights and remedies provided by this Agreement are cumulative and the use of any one right or remedy by any party shall not preclude or waive its right to use any or all other remedies. Said rights and remedies are given in addition to any other rights the parties may have by law, statute, ordinance or otherwise.

#### 11.10 No Assignment; Binding Effect

Except as otherwise expressly provided herein, no party may assign, delegate or otherwise transfer any of its rights or obligations hereunder to any third party, whether by assignment, transfer, Change in Control or other means, without the prior written consent of each other party. Any attempted assignment in violation of the foregoing shall be null and void. Subject to the foregoing, this Agreement shall be binding on and inure to the benefit of the Members, their heirs, executors, administrators, successors and all other Persons hereafter holding, having or receiving an interest in the Company.

#### 11.11 Severability

If any provision in this Agreement will be found or be held to be invalid or unenforceable, then the meaning of said provision will be construed, to the extent feasible, so as to render the provision enforceable, and if no feasible interpretation would save such provision, it will be severed from the remainder of this Agreement which will remain in full force and effect unless the severed provision is essential and material to the rights or benefits received by any party. In such event, the parties will use their respective best efforts to negotiate, in good faith, a substitute, valid and enforceable provision or agreement which most nearly effects the parties' intent in entering into this Agreement.

#### 11.12 Counterparts

This Agreement may be executed in counterparts, each of which so executed will be deemed to be an original and such counterparts together will constitute one and the same agreement. Execution and delivery of this Agreement by exchange of facsimile copies bearing the facsimile signature of a party shall constitute a valid and binding execution and delivery of this Agreement by such party.



#### 11.13 Dispute Resolution

The parties hereby agree that claims, disputes or controversies of whatever nature, arising out of, in connection with, or in relation to the interpretation, performance or breach of this Agreement (or any other agreement contemplated by or related to this Agreement), shall be first raised to the chief executive officer or another officer of each of the Members (appointed by such Member's chief executive officer) for discussion and attempt at resolution in good faith among such chief executive officers or any individuals appointed by such chief executive officers for such discussions and attempt at resolution, and if after thirty (30) days of such raising to the chief executive officers the parties are unable to come to a resolution, each of the parties shall be free to pursue any such claim, dispute or controversy in court.

#### 11.14 Third-Party Beneficiaries

None of the provisions of this Agreement shall be for the benefit of or be enforceable by any creditor of the Company or by any third-party creditor of any Member. This Agreement is not intended to confer any rights or remedies hereunder upon, and shall not be enforceable by, any Person other than the parties hereto, their respective successors and permitted assigns and, solely with respect to the provision of Section 5.11, each Indemnitee and each other indemnified Person addressed therein.

#### 11.15 Specific Performance

The parties agree that irreparable damage will result if this Agreement is not performed in accordance with its terms, and the parties agree that any damages available at law for a breach of this Agreement would not be an adequate remedy. Therefore, the provisions hereof and the obligations of the parties hereunder shall be enforceable in a court of equity, or other tribunal with jurisdiction, by a decree of specific performance, and appropriate injunctive relief may be applied for an granted in connection therewith. Such remedies and all other remedies provided for in this Agreement shall, however, be cumulative and not exclusive and shall be in addition to any other remedies that a party may have under this Agreement, at law or in equity.

#### 11.16 Consequential Damages

No party shall be liable to any other party under any legal theory for indirect, special, incidental, consequential or punitive damages, or any damages for loss of profits, revenue or business, even if such party has been advised of the possibility of such damages (it being understood that consequential damages arising from the breach of the confidentiality restrictions set forth in the Non-Disclosure Agreement shall not be considered to fall within any such category of damages).

(Signature Page Follows)

IN WITNESS WHEREOF, the parties hereto have duly executed this Agreement as of the day and year first above written.

MEMBERS

MICRON TECHNOLOGY, INC.

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

PHOTRONICS, INC.

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

EXHIBIT A

Name and Address of Members	Gross Asset Value of Contributed Property	Capital Account Balance	Percentage Interest	Number of Units
Micron Technology, Inc. 8000 S. Federal Way Boise, Idaho 83716-9632 Attn: Chief Operating Officer Fax: (208) 368-2548  With a required copy to: General Counsel Fax: (208) 368-4540			50.01%	50,010
Photronics, Inc. 15 Secor Road Brookfield, CT 06804 Attention: Edwin L. Lewis, Senior Vice President and General Counsel Fax: (203) 775-5601			49.99%	49,990
And				
15 Secor Road Brookfield, CT 06804 Attention: Sean Smith, Senior Vice President and Chief Financial Officer Fax: (203) 775-5601				

EXHIBIT B

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\*\*\*\* Material omitted pursuant to a request for confidential treatment under Rule 24b-2 of the Exchange Act of 1934. Material filed separately with the Securities and Exchange Commission.

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EXHIBIT C

Michael J. Luttati, Sean T. Smith and Christopher J. Progler.

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EXHIBIT D

INSURANCE POLICIES AT CLOSING

1. Property Insurance: Coverage for "all risk" property insurance, insuring against physical damage on a replacement basis for assets, and insuring against resultant business interruption from physical damage on an actual-loss sustained basis. The property insurance limit must equal full replacement value of all physical property and one year business interruption insurance.
2. Transit Insurance: Coverage for repair or replacement of capital equipment in transit up to the invoiced amount for the equipment.
3. Liability Insurance:
  - Commercial general liability insurance, including but not limited to contractual liability, personal injury, completed operations, product liability and host liquor liability, coverage for bodily injury and property damage liability, with a limit of not less than \$50 million for each loss occurrence and not less than \$50 million in annual aggregate coverage.
  - Automobile liability coverage for bodily injury and property damage liability with a limit of not less than \$10 million for each loss occurrence and not less than \$10 million in annual aggregate coverage, for owned, hired, and non-owned automobiles.
4. Workers Compensation & Employers Liability: Statutory workers compensation coverage for employees, if any, of the Company and its subsidiaries, including employers' liability coverage with a limit of not less than \$10 million for each loss occurrence and \$10 million in annual aggregate coverage.

CONTRIBUTION AND UNITS PURCHASE AGREEMENT

THIS CONTRIBUTION AND UNITS PURCHASE AGREEMENT (this "Agreement") is made and entered into as of May 5, 2006, by and between Micron Technology, Inc., a Delaware corporation ("Micron"), Photronics, Inc., a Connecticut corporation ("Photronics"), and MP Mask Technology Center, LLC, a Delaware limited liability company (the "Company").

WHEREAS, Micron formed the Company to serve as the legal entity for a joint venture (the "Joint Venture") between Micron and Photronics for the development, fabrication and sale of advanced photomasks (the "Photomask Business").

WHEREAS, in furtherance of establishing the Joint Venture, and in connection with the execution of the Limited Liability Company Operating Agreement of MP Mask Technology, LLC (the "LLC Operating Agreement") to be dated as of the Closing Date (as defined below), by and between Micron and Photronics, Micron desires to contribute hereunder as of the Closing Date (the "Contribution") to the Company the assets set forth on Schedule A hereto, which Schedule may be updated upon the reasonable agreement of Micron and Photronics, consistent with Section 6(h) below (the "Transferred Assets"), subject to the terms and conditions contained in this Agreement, in exchange for 100% of the membership interests (the "Membership Interests") of the Company.

WHEREAS, immediately following the Contribution, Micron desires to sell 49.99% of all of the Membership Interests, represented by 49,990 units (the "Transferred Units"), of the Company to Photronics, and Photronics desires to purchase such Membership Interests from Micron, pursuant to the terms and conditions of this Agreement.

WHEREAS, at the Closing, Micron and Photronics shall enter into the LLC Operating Agreement to set forth the respective rights and obligations of Micron and Photronics with respect to the Company, and, along with the Company, certain other Transaction Documents, as listed on Schedule B hereto.

NOW, THEREFORE, in consideration of the promises set forth herein and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties hereby agree as follows:

1. Contribution.

(a) General. On the terms and subject to the conditions contained in this Agreement, Micron shall convey, assign, transfer and deliver to the Company, and the Company shall acquire on the Closing Date (as defined below), all of Micron's right, title and interest in and to its ownership interests in the Transferred Assets, subject to Permitted Exceptions respecting only the real property located at 3851 E. Columbia Road, Boise, Idaho (the "JV Plant"), and no other Micron assets whatsoever, in exchange for 100,000 membership units of the Company (the "Units"). "Permitted Exceptions" shall mean: (a) the lien of all ad valorem real estate Taxes (as defined below) due and payable in the calendar year 2006 and subsequent calendar years; (b) all matters of record relating to the JV Plant in the official records of the county in which such real property is located; (c) local, state and federal laws, ordinances or governmental regulations and the like, including but not limited to building and zoning laws, ordinances and regulations, now or hereafter in effect relating to the JV Plant; and (d) any matters that would be shown on an accurate survey of current date of the JV Plant.

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(b) Contribution Closing. The closing of the contribution transactions provided for in this Agreement (the "Contribution Closing") shall take place at the offices of Micron at 8000 South Federal Way, Boise, Idaho at the opening of business on May 5, 2006 (the "Closing Date"). At the Contribution Closing, Micron shall deliver to the Company deeds, endorsements, assignments and good and sufficient instruments of conveyance, transfer and assignment as are necessary, appropriate and effective to vest in the Company all of the right, title and interest of Micron in and to the Transferred Assets and, simultaneously with such deliveries, Micron shall take such steps as are necessary to put the Company in actual possession and operating control of the Transferred Assets. On the Closing Date, the Company shall issue to Micron the Units, which shall be fully paid and nonassessable.

(c) Assumption of Liabilities. Effective as of the Contribution Closing, the Company will assume and perform and in due course pay and discharge the following liabilities: (i) any liabilities arising out of or based upon events or circumstances occurring after the Closing in connection with or resulting from the operation of the Company's business, including product warranty claims made with respect to the sale of products by the Company after the Closing, whether or not such products were manufactured prior to the Closing; (ii) any liabilities set forth on Schedule C; (iii) any other liabilities explicitly assumed under the provisions of the Transaction Documents; and (iv) any liabilities relating to the Transferred Assets that were not Known by Micron as of the Contribution Closing (collectively, the "Assumed Liabilities"). At the Contribution Closing, the Company shall deliver to Micron appropriate assumption agreements as are necessary, appropriate and effective to assume the Assumed Liabilities. Following the Contribution Closing, Micron shall use reasonable efforts to assign and transfer all its rights, title and interest in, to and under any Assumed Contracts. To the extent any Assumed Contract (as defined below) is not capable of being transferred, assigned or conveyed without the consent or waiver of a party thereto (other than Micron or an affiliate of Micron) or any other third party (including governmental authority), or if such transfer, assignment or conveyance would constitute a breach thereof or violation of Applicable Law, this Agreement shall not constitute a transfer, assignment or conveyance thereof, and Micron shall hold any such Assumed Contract for the benefit of the Company.

(d) Prorations. On the Closing Date, or as promptly as practicable following the Closing Date, but in no event later than sixty (60) calendar days thereafter, the water, gas electricity and other utilities, local business or other transferable license or permit fees, and other similar periodic charges payable with respect to the Transferred Assets shall be prorated between Micron and the Company, with Micron bearing such costs and expenses attributable to the period through and including the day prior to the Closing Date, and the Company bearing such costs and expenses attributable to the period after the day prior to the Closing Date.



(e) Taxes. Except as otherwise provided in this Agreement, (a) all Taxes (other than transfer Taxes) in respect of the Transferred Assets for the period or portions of periods ending at or prior to the day prior to the Closing Date shall be borne solely by Micron ("Micron Pre-Closing Taxes"). For purposes of the foregoing, any Taxes that are imposed on a periodic basis and are payable for a Tax period that includes (but does not end on) the day prior to the Closing Date (a "Straddle Period"), the portion of such Tax that relates to the portion of such Tax period ending on the day prior to the Closing Date shall (A) in the case of any Taxes other than Taxes based upon or related to income or receipts, be deemed to be the amount of such Tax for the entire Tax period multiplied by a fraction, the numerator of which is the number of days in the Tax period ending on the day prior to the Closing Date and the denominator of which is the number of days in the entire Tax period, and (B) in the case of any Tax based upon or related to income or receipts, be deemed equal to the amount which would be payable if the relevant Tax period ended on the day prior to the Closing Date. For purposes of this Section, all relevant periods in respect of personal property, real property and similar Taxes imposed by the State of Idaho shall be treated as beginning after the day prior to the Closing Date, and such Taxes in respect of the Transferred Assets shall be paid by the Company. Micron shall pay to the Company, within fifteen (15) days prior to the date on which Taxes are due with respect to Straddle Periods, that amount equal to the applicable portion of such Taxes which relates to the portion of such Taxable period ending on the day prior to the Closing Date. Except as otherwise provided in this Agreement, all Taxes in respect of the Transferred Assets for the period or portions of periods beginning after the day prior to the Contribution Closing shall be borne by the Company or, to the extent that the Company is taxed as a flow-through entity, with respect to income or franchise Taxes, by the Members. "Tax" means all taxes, levies, imposts and fees imposed by any Governmental Authority (domestic or foreign) of any nature, including but not limited to federal, state, local or foreign net income tax, alternative or add-on minimum tax, profits or excess profits tax, franchise tax, gross income, adjusted gross income or gross receipts tax, employment related tax (including employee withholding or employer payroll tax, FICA or FUTA), real or personal property tax or ad valorem tax, sales or use tax, excise tax, stamp tax or duty, any withholding or back up withholding tax, value added tax, severance tax, prohibited transaction tax, premiums tax, occupation tax, together with any interest or any penalty, addition to tax or additional amount imposed by any Governmental Authority (domestic or foreign) responsible for the imposition of any such tax.

## 2. Purchase and Sale of Membership Interests.

(a) General. At the LLC Closing (as defined below) and upon the terms and conditions set forth in this Agreement, Micron shall sell, transfer and assign to Photronics, and Photronics shall purchase and acquire from Micron, the Transferred Units, free and clear of all security interests, claims, liens, pledges, options, encumbrances, charges, agreements, voting trusts, proxies and other arrangements or restrictions whatsoever, except as may be set forth in this Agreement and the LLC Operating Agreement. Capitalized terms used, but not defined, in this Agreement, shall have the meanings set forth in the LLC Operating Agreement.

(b) Purchase Price. The total purchase price to be paid by Photronics for the Units will be \$63,000,000 (the "Purchase Price").

(c) Closing; Subsequent Payments. Subject to the terms and conditions contained in this Agreement, the purchase and sale of the Units hereunder (the "LLC Closing" and together with the Contribution Closing, the "Closing") shall take place immediately following the Contribution Closing at the offices of Micron at the opening of business on May 5, 2006 (the "Closing Date"), or at such other place or on such other date as is mutually agreeable to Micron and Photronics. [\*\*\*\*]. In addition, Photronics shall make two additional payments to Micron in payment for the balance of the Purchase Price by delivery to Micron, by wire transfer of immediately available funds to a bank account designated in writing by Micron, of an amount equal to \$7,500,000, on each of the first and second anniversaries of the Closing Date.

### 3. Closing Conditions.

(a) The obligation of Micron to sell, transfer and assign the Units to Photronics hereunder is subject to the satisfaction of the following conditions as of the Closing:

(i) the representations and warranties contained in Section 4 hereof shall be true and correct in all material respects at and as of the date hereof and at and as of the Closing Date as though then made, except to the extent of changes caused by the transactions expressly contemplated herein;

(ii) Micron shall have received the portion of the Purchase Price payable to Micron at the Closing pursuant to Section 2 above;

(iii) The agreements and covenants of Photronics contained in this Agreement that are required to be performed prior to or on the Closing Date shall have been performed or satisfied by Photronics in all material respects;

(iv) Consummation of the transactions contemplated hereby and by the Transaction Documents shall not have been restrained, enjoined or otherwise prohibited by Applicable Law or order of judgment or any Governmental Authority (as defined in the LLC Operating Agreement); and

(v) Micron and Photronics shall have entered into the LLC Operating Agreement and the other Transaction Documents, and such agreements shall be in full force and effect.

(b) The obligation of Photronics to purchase and acquire the Units from Micron is subject to the satisfaction of the following conditions as of the Closing:

(i) the representations and warranties contained in Section 4 hereof shall be true and correct in all material respects at and as of the date hereof and at and as of the Closing Date as though then made, except to the extent of changes caused by the transactions expressly contemplated herein;

(ii) The agreements and covenants of Micron contained in this Agreement that are required to be performed prior to or on the Closing Date shall have been performed or satisfied by Micron in all material respects;

(iii) The Contribution shall have occurred;

(iv) Consummation of the transactions contemplated hereby and by the Transaction Documents shall not have been restrained, enjoined or otherwise prohibited by Applicable Law or order of judgment or any Governmental Authority; and

(v) Micron and Photonics shall have entered into the LLC Operating Agreement and the other Transaction Documents, and such agreements shall be in full force and effect.

4. Representations and Warranties of Micron. Micron hereby represents and warrants to Photonics as follows:

(a) Organization. Each of Micron and the Company is duly organized, validly existing and in good standing under the laws of its jurisdiction of formation. Micron has all corporate power and authority required to conduct its business as currently conducted and to own and lease its properties and operate its business as currently owned, leased and operated. The Company has all limited liability company power and authority required to conduct its business as currently conducted and to own and lease its properties and operate its business as currently owned, leased and operated. Each of Micron and the Company is duly qualified to do business and is in good standing (to the extent such concept exists in the relevant jurisdiction) as a foreign corporation or limited liability company, as applicable, in each jurisdiction where the character of the property owned or leased or the nature of its activities makes such qualification necessary, except for those jurisdictions where the failure to be so qualified or in good standing is not reasonably likely to result in a Material Adverse Effect on Micron or the Joint Venture, as applicable. A "Material Adverse Effect" on a Person (as defined in the LLC Operating Agreement) or business shall mean any facts or circumstances that, individually or in the aggregate, would, or might reasonably be expected to, result in a material adverse effect on the business, financial condition or results of operations of such Person or business.

(b) Ownership. All of the Membership Interests of the Company are owned by Micron, and Micron has good and marketable title to such Membership Interests, which consists of 100,000 units, free and clear of all security interests, claims, liens, pledges, options, encumbrances, charges, agreements, voting trusts, proxies and other arrangements or restrictions whatsoever.

(c) Authorization. Micron has all requisite corporate power and corporate authority to execute and deliver this Agreement, to perform all of its obligations and undertakings hereunder and to consummate the transactions contemplated hereby. The execution and performance of this Agreement and the sale of the Units by Micron to Photonics have been duly authorized by all necessary action on the part of Micron, and this Agreement has been duly authorized, executed and delivered by Micron and constitutes a valid and legally binding obligation of Micron, enforceable in accordance with its terms, except as the enforceability thereof may be limited by applicable bankruptcy, insolvency, reorganization, moratorium or similar laws affecting the enforcement of creditors' rights generally and general equitable principles.

(d) Conflicts. The execution, delivery and performance of this Agreement by Micron or the Company does not conflict with, violate or result in the breach of, or create any lien or encumbrance on the Transferred Assets or the Membership Interests of the Company pursuant to, any charter, agreement, instrument, order, judgment, decree, law or governmental regulation to which Micron is a party or is subject or by which the Transferred Assets or the Membership Interests of the Company are bound. The execution, delivery and performance of this Agreement does not and will not require any governmental or other third party consents or filings on the part of Micron or the Company.

(e) Transferred Assets. [\*\*\*\*]. The Company has, except for Permitted Exceptions, (i) good and marketable title to, and possession of, all of the owned Transferred Assets that are real property and (ii) good and valid title to all of the owned Transferred Assets that are not real property. All of the Transferred Assets are in good operating condition and repair, ordinary wear and tear and immaterial defects excepted. The Company has no assets other than the Transferred Assets and the rights under the Technology License Agreement (as defined in the LLC Operating Agreement).

(f) Litigation. To Micron's Knowledge, there is no material Proceeding pending or threatened against, relating to or affecting the Transferred Assets or the transactions contemplated by this Agreement. "Micron's Knowledge" and the related term "Known by Micron" shall mean the actual knowledge of the executive officers of Micron, after due inquiry of the operating officers of Micron and the Company. "Proceeding" shall mean any action, suit, hearing, arbitration, proceeding (public or private), investigation, examination, audit or claim.

(g) Environmental Matters. Except as would not reasonably be expected to have a Material Adverse Effect on the Company, to Micron's Knowledge: (i) Micron's operation of the Transferred Assets has complied with all Environmental Laws; and (ii) no real property constituting a Transferred Asset contains any Hazardous Substance which could be expected to require investigation or remediation under any Environmental Law. "Environmental Law" shall mean any law, regulation, order, decree, common law or agency requirement relating to the protection of the environment or human health and safety. "Hazardous Substance" shall mean any substance that is listed, classified or regulated in any concentration under any Environmental Law including petroleum products and polychlorinated biphenyls.

(h) Contracts. All material contracts or other material agreements assigned to the Company by Micron in connection with the transactions contemplated by this Agreement are set forth on Exhibit C hereto (the "Assumed Contracts") and are in full force and effect and constitute the valid and legally binding obligations of the Company, enforceable in accordance with their terms, except as the enforceability thereof may be limited by applicable bankruptcy, insolvency, reorganization, moratorium or similar laws affecting the enforcement of creditors' rights generally and general equitable principles. Micron is not in material default under, and to Micron's Knowledge, no other party is in material default under, any of the Assumed Contracts.

(i) Sufficiency of Assets. To Micron's Knowledge, upon the execution of, and consummation of the transactions contemplated by, this Agreement, the Contribution Agreement and the other Transaction Documents, (i) the tangible assets and properties of the Company as of the Closing Date will include all of the material tangible assets and properties necessary for the conduct of the Company's Photomask Business as conducted by Micron immediately prior to the Closing (not including assets used by Micron in connection with its performance of services under the Information Technology, Operational and General Administrative Services Agreement between Micron and the Company (the "Services Agreement")) and (ii) the services to be performed by Micron pursuant to the Services Agreement encompass services sufficient for the continued conduct of Micron's Photomask Business as conducted by Micron immediately prior the Closing. All of the material machinery and equipment located at the JV Plant as of the date hereof constitute Transferred Assets (not including (i) assets used by Micron in connection with its performance of services under the Services Agreement and (ii) assets used by non-Micron field service personnel in connection with their performance of services for the Company).

(j) Undisclosed Liabilities. To Micron's Knowledge, Micron's Photomask Business is not subject to any material liability, whether absolute, contingent, accrued or otherwise, which is not shown or which is in excess of amounts shown or reserved for in the unaudited balance sheet of Micron's Photomask Business dated as of the date hereof and provided to Photronics on the date hereof, which balance sheet has been prepared from, and is consistent with, the books and records of Micron.

(k) Permits. To Micron's Knowledge, it operates Micron's Photomask Business and the Transferred Assets with all required material Governmental Authority approvals, permits and licenses and is in compliance with all material terms thereof.

(l) No Material Adverse Effect. Since March 2, 2006, there has not been any Material Adverse Effect on Micron's Photomask Business.

(m) Compliance with Laws. Micron is in compliance in all material respects with all Applicable Laws relating to or applicable to the conduct of Micron's Photomask Business and the ownership and use of the Transferred Assets.

(n) Title Insurance. Micron has provided Photronics with true and complete copies of the Micron Title Insurance Policies. To Micron's knowledge, each of the Micron Title Insurance Policies is, and as of the Closing will be, in full force and effect according to its terms.

(o) Brokers and Finders. Micron has not engaged any broker or finder in connection with this transaction.

5. Representations and Warranties of Photronics. Photronics hereby acknowledges, represents and warrants to Micron as follows:

(a) Organization. Photronics is duly organized, validly existing and in good standing under the laws of its jurisdiction of formation. Photronics has all corporate power and authority required to conduct its business as currently conducted and to own and lease its properties and operate its business as currently owned, leased and operated. Photronics is duly qualified to do business and is in good standing (to the extent such concept exists in the relevant jurisdiction) as a foreign corporation or limited liability company, as applicable, in each jurisdiction where the character of the property owned or leased or the nature of its activities makes such qualification necessary, except for those jurisdictions where the failure to be so qualified or in good standing is not reasonably likely to result in a Material Adverse Effect on Photronics.

(b) Authorization. Photronics has all requisite corporate power and corporate authority to execute and deliver this Agreement, to perform all of its obligations and undertakings hereunder and to consummate the transactions contemplated hereby. The execution and performance of this Agreement and the purchase of the Units by Photronics from Micron have been duly authorized by all necessary action on the part of Photronics, and this Agreement has been duly authorized, executed and delivered by Photronics and constitutes a valid and legally binding obligation of Photronics, enforceable in accordance with its terms, except as the enforceability thereof may be limited by applicable bankruptcy, insolvency, reorganization, moratorium or similar laws affecting the enforcement of creditors' rights generally and general equitable principles.

(c) Conflicts. The execution, delivery and performance of this Agreement by Photronics does not conflict with, violate or result in the breach of any charter, agreement, instrument, order, judgment, decree, law or governmental regulation to which Photronics is a party or is subject. The execution, delivery and performance of this Agreement does not and will not require any governmental or other third party consents or filings either on the part of Photronics.

(d) Investment Representations.

(i) Photronics is acquiring the Units for investment purposes and is not acquiring the Units with a view to the public sale or distribution of any part thereof, and Photronics has no present intention of selling, granting participation in, or otherwise distributing the Units in violation of any federal or state securities laws. Photronics recognizes that it must bear the economic risk of the investment represented by its purchase of the Units for an indefinite period according to the terms of the LLC Operating Agreement. Photronics understands that the Units have not been registered under the Securities Act of 1933 on the basis that the sale provided for in this Agreement is exempt under the Act and that the reliance of Micron on such exemptions is predicated upon such Photronics' representations set forth herein.

(ii) Photronics acknowledges and agrees that any certificates representing Units held by Photronics, and the LLC Operating Agreement, will be affixed with the following legend:

"MEMBERSHIP INTERESTS IN MP MASK TECHNOLOGY CENTER, LLC, A DELAWARE LIMITED LIABILITY COMPANY, HAVE NOT BEEN REGISTERED WITH OR QUALIFIED BY THE SECURITIES AND EXCHANGE COMMISSION OR ANY SECURITIES REGULATORY AUTHORITY OF ANY STATE. THE INTERESTS ARE BEING SOLD IN RELIANCE UPON EXEMPTIONS FROM SUCH REGISTRATION OR QUALIFICATION REQUIREMENTS. THE INTERESTS CANNOT BE SOLD, TRANSFERRED, ASSIGNED OR OTHERWISE DISPOSED OF EXCEPT IN COMPLIANCE WITH THE RESTRICTIONS ON TRANSFERABILITY CONTAINED IN THE LIMITED LIABILITY COMPANY OPERATING AGREEMENT OF MP MASK TECHNOLOGY CENTER, LLC AND APPLICABLE FEDERAL AND STATE SECURITIES LAWS."

(iii) Photronics hereby acknowledges that Micron has provided to Photronics no information regarding the Company, or its business, prospects or value, and is making no representations other than those in Section 4 hereof. Photronics further acknowledges that it has conducted an independent investigation and has been given access by the Company or parties unrelated to Micron to all information regarding the Company that it has requested, but such investigation shall not relieve Micron on liability for breaches of representations and warranties made by Micron in Section 4. Photronics is capable of evaluating and has evaluated the merits and risks of its acquisition of the Units.

(iv) Photronics hereby acknowledges that Micron is relying on the representations contained in this Agreement in engaging in the sale of the Membership Interests of the Company and would not engage in the sale of the Membership Interests of the Company in the absence of the representations contained in this Agreement.

(e) Brokers and Finders. Photronics has not engaged any broker or finder in connection with this transaction.

#### 6. Covenants.

(a) Operations Prior to the Closing Date. Prior to the Closing Date, Micron shall operate Micron's Photomask Business and the Transferred Assets in the ordinary course and substantially as presently operated.

(b) No Sale of Assets. Except for the sale of inventory in the ordinary course of business and the disposition of broken or obsolete assets, Micron will not, directly or indirectly, (a) solicit any inquiries or proposals or enter into or continue any discussions, negotiations or agreements relating to the direct or indirect transfer of the Transferred Assets to any Person other than the Company or (b) provide any assistance or any information to or otherwise cooperate with any Person in connection with any such inquiry proposal or transaction.

(c) Diligence in Pursuit of Closing. Each of the parties hereto shall use all commercially reasonable efforts to fulfill their respective obligations hereunder and under the other Transaction Documents, and shall reasonably cooperate with the other parties in regard to the same in order to effect the Closing.

(d) Maintenance of Insurance. Prior to the Closing, Micron shall not take or fail to take any action that would adversely affect the applicability and the extent of coverage of any insurance in effect on the date hereof, in any material respect, that covers all or any part of the Transferred Assets, as and to the extent such insurance applies to and covers insured risks for periods prior to the Closing Date.

(e) Confidentiality. The disclosure and exchange of information between Micron and Photronics is governed solely by the terms of the Micron Technology, Inc. Mutual Nondisclosure Agreement dated as of March 29, 2005, as amended, and by the Nondisclosure Agreement among Micron, Photronics and the Company included as part of the Transaction Documents (the "Confidentiality Agreements").

(f) Press Releases. The parties agree that, following the signing of this Agreement, they shall issue a joint press release, the text of which shall have been pre-approved by Micron and Photronics. Except as required by law or regulation, prior to the issuance of such press release, none of the parties hereto shall make any public disclosure, announcement or statement with respect to this Agreement, the Transaction Documents or the Joint Venture or any of the transactions contemplated by this Agreement or the Transaction Documents.

(g) Title. Micron covenants that following the Closing Date, Micron, without cost to Micron but for the benefit of the Company, will diligently and reasonably present and prosecute to the fullest extent of available coverage claims under the policies of title insurance, and riders and endorsements thereto, issued effective upon Micron's acquisition of fee simple title to the real property constituting Transferred Assets (the "Micron Title Insurance Policy") with respect to any claim, action, loss or damage affecting such property that the Company may assert against Micron. Micron agrees to pay over to the Company any proceeds paid to Micron in respect of Micron's claims asserted under the Micron Title Insurance Policy to the extent related to the real property constituting Transferred Assets.

(h) Opening Balance Sheet. [\*\*\*\*]. If the net asset value of the Transferred Assets on the Opening Balance Sheet is less than the NAV Amount, then Micron shall promptly wire an amount of cash equal to such deficiency to the Company. If the net asset value on the Opening Balance Sheet is greater than the NAV Amount, then the Company shall promptly wire an amount equal to such excess to Micron.

7. Survival of Representations and Warranties. All representations and warranties contained herein or made in writing by any party in connection herewith shall survive the execution and delivery of this Agreement and the Closing hereunder for a period of one (1) year following the Closing Date, except for the representations and warranties set forth in Sections 4(b) and 4(c) and the second sentence of Section 4(e), which shall survive the execution and delivery of this Agreement and the Closing for a period of ten years following the Closing Date.



8. Indemnification.

(a) Agreement to Indemnify.

(i) Micron agrees to indemnify and hold harmless Photronics and each of its representatives and affiliates (including the Company) (each a "Photronics Indemnified Party") against any and all liabilities, claims, demands or losses, including reasonable attorneys' fees incurred by any Photronics Indemnified Party arising out of, or resulting from, (u) any breach of any representation or warranty made by Micron in this Agreement or any other certificate delivered by Micron pursuant to this Agreement, (v) any breach of any covenant made by Micron in this Agreement or any other certificate delivered by Micron pursuant to this Agreement, (w) any known liabilities of Micron's Photomask Business not assumed by the Company pursuant to the Transaction Documents, (x) any Pre-Closing Environmental Matter or (y) any products distributed by Micron prior the Closing. "Pre-Closing Environmental Matter" shall mean (a) the production, use, generation, emission, storage, treatment, transportation, recycling, disposal, discharge, release or other handling or disposition at any time on or prior to the Closing Date of any Hazardous Substances on, from or under any real property included in the Transferred Assets by Micron or any affiliate of Micron or (b) the failure prior to the Closing Date by Micron or any affiliate of Micron to operate the business on any real property included in the Transferred Assets in compliance with any Environmental Law.

(ii) Photronics agrees to indemnify and hold harmless Micron and each of its representatives and affiliates (including the Company) (each a "Micron Indemnified Party") against any and all liabilities, claims, demands or losses, including reasonable attorneys' fees, incurred by any Micron Indemnified Party arising out of, or resulting from, (u) any breach of any representation or warranty made by Photronics in this Agreement or any other certificate delivered by Photronics pursuant to this Agreement or (v) any breach of any covenant made by Photronics in this Agreement or any other certificate delivered by Photronics pursuant to this Agreement.

(b) Limitations on Indemnification.

(i) [\*\*\*\*].

(ii) [\*\*\*\*].

(iii) After the Closing, with respect to any matter as to which indemnification is provided pursuant to Section 8 of this Agreement, such indemnification shall be the sole remedy available to a Photronics Indemnified Party or Micron Indemnified Party, as the case may be; provided, however, that this Section 8(b) (iii) shall not limit any party's rights to bring a claim, action or suit for fraud or bad faith.

(c) Indemnification Procedures. In the event a Photonics Indemnified Party or a Micron Indemnified Party intends to make a claim for indemnification hereunder on behalf of himself or any Photonics Indemnified Party or Micron Indemnified Party, respectively (an "Indemnitee"), such party shall notify whichever of Micron or Photonics against whom indemnity is being sought (the "Indemnitor") of the claim in writing promptly (but in no event later than thirty (30) days) after receiving written notice of any action, lawsuit, proceeding, investigation or other claim against him (if by a third party) or discovering the liability, obligation or facts giving rise to such claim for indemnification, describing the claim, the amount thereof (if known and quantifiable), and the basis thereof, provided that the failure to so notify the Indemnitor shall not relieve the Indemnitor of his obligations hereunder except to the extent such failure shall have actually prejudiced the Indemnitor. The Indemnitor shall be entitled to assume and control (with counsel of its choice) the defense of the action, lawsuit, proceeding, investigation or other claim giving rise to Indemnitee's claim for indemnification at the option and expense of the Indemnitor by sending written notice of its election to do so within fifteen (15) days after receiving written notice of such claim from the Indemnitee as aforesaid; provided, however, that:

(i) The Indemnitee shall be entitled to participate in the defense of such claim and to employ counsel of its choice for such purpose, the fees and expenses of such separate counsel which shall be borne by the Indemnitee;

(ii) If the Indemnitor elects to assume the defense of any such claim, the Indemnitor shall be entitled to compromise or settle such claim so long as either (x) such settlement provides an unconditional release of all Indemnitees with respect to such claim and requires the payment of monetary damages only or (y) the Indemnitor obtains the prior written consent of the Indemnitee (which consent shall not be unreasonably withheld or delayed); and

(iii) If the Indemnitor shall not have assumed the defense of such claim within the 15-day period set forth above, the Indemnitee may assume the defense of such action, lawsuit, proceeding, investigation or such other claim with counsel selected by it (which counsel shall be reasonably acceptable to the Indemnitor) at the expense of the Indemnitor, provided that the Indemnitee shall under no circumstances settle or compromise such claim without the prior written consent of the Indemnitor (which consent shall not be unreasonably withheld or delayed).

9. Termination. This Agreement may be terminated at any time prior to the Closing (a) by mutual written consent of the parties hereto or (b) if the Closing does not occur prior to July 1, 2006, provided that no party shall be entitled to terminate this Agreement pursuant to this clause (b) if such party is in breach of any provision hereof or if the Closing has not occurred despite the satisfaction of the conditions to such party's obligation to close. In the event of the termination of this Agreement pursuant to this Section 9, this Agreement shall become void and of no further force and effect, there shall be no liability under this Agreement and all rights and obligations of each party hereto shall cease, provided that nothing herein shall relieve any party from liability for, or be deemed to waive any rights available to a party by reason of, any breach by the other party or parties of its or their representations, warranties, covenants or agreements set forth in this Agreement. If the Closing does occur, this Agreement may not be terminated thereafter by either party without the prior written consent of the other.

10. Further Assurances. After the Closing, as and when requested by Photronics, Micron shall execute and deliver all such instruments of conveyance and transfer and shall take such further actions as Photronics may deem reasonably necessary to transfer the Units to Photronics and to carry out fully the provisions and purposes of this Agreement. After the Closing, as and when requested by Micron, Photronics shall take such further actions as Micron may deem reasonably necessary to carry out fully the provisions and purposes of this Agreement.

11. Miscellaneous.

(a) Successors and Assigns. This Agreement is intended to bind and inure to the benefit of and be enforceable by Micron and Photronics and their respective successors and assigns. This Agreement may not be assigned by either party hereto without the prior written consent of the other party to this Agreement, which consent shall not be unreasonably withheld.

(b) Amendment. This Agreement may be amended only through a writing signed by all parties hereto.

(c) Entire Agreement and Modification. This Agreement and all agreements between Micron and Photronics entered into concurrently herewith, including the LLC Operating Agreement and the other Transaction Documents, together with the Confidentiality Agreements, constitute and contain the entire agreement of the parties and supersede and preempt any and all prior negotiations, correspondence, understandings, agreements and representations, written or oral, which may have related to the subject matter hereof.

(d) Choice of Law. The construction, validity, interpretation and enforcement of this Agreement shall be governed by the internal law, and not the law of conflicts, of the State of Delaware. EACH OF THE PARTIES HERETO HEREBY WAIVES, TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, ANY RIGHT IT MAY HAVE TO A TRIAL BY JURY IN RESPECT OF ANY LITIGATION DIRECTLY OR INDIRECTLY ARISING OUT OF, UNDER OR IN CONNECTION WITH THIS AGREEMENT. EACH OF THE PARTIES HERETO (A) CERTIFIES THAT NO REPRESENTATIVE, AGENT OR ATTORNEY OF THE OTHER PARTY HAS REPRESENTED, EXPRESSLY OR OTHERWISE, THAT THE OTHER PARTY WOULD NOT, IN THE EVENT OF LITIGATION, SEEK TO ENFORCE THE FOREGOING WAIVER AND (B) ACKNOWLEDGES THAT THE PARTIES HERETO HAVE BEEN INDUCED TO ENTER INTO THIS AGREEMENT, BY, AMONG OTHER THINGS, THE MUTUAL WAIVERS AND CERTIFICATIONS IN THIS SECTION 8(d).

(e) Enforcement. If any portion of this Agreement shall be determined to be unenforceable for any reason, it shall be adjusted rather than voided, if possible, in order to achieve the intent of the parties to the extent possible. In any event, all other provisions of this Agreement shall be valid and enforceable to the maximum extent possible.

(f) Headings. The headings appearing in this Agreement have been inserted for identification and reference purposes and shall not by themselves determine the construction or interpretation of this Agreement.

(g) Notices. Unless otherwise provided herein, all notices, requests, instructions or consents required or permitted under this Agreement shall be in writing and will be deemed given: (a) when delivered personally; (b) when sent by confirmed facsimile; (c) ten (10) business days after having been sent by registered or certified mail, return receipt requested, postage prepaid; or (d) three (3) business days after deposit with an internationally recognized commercial overnight carrier specifying next day delivery, with written verification of receipt. All communications will be sent to the addresses listed on Exhibit A to the LLC Operating Agreement (or to such other address or facsimile number as may be designated by a party giving written notice to the other parties pursuant to Section 11.5 of the LLC Operating Agreement).

(h) Counterparts. This Agreement may be executed in two or more counterparts, each of which shall be deemed to be an original, but all of which taken together shall constitute one and the same agreement.

(i) Expenses. Except as otherwise provided herein, each party shall pay all costs and expenses that it incurs with respect to the negotiation, execution, delivery, performance and consummation of this Agreement, except that the Company shall pay any transfer Taxes, recording and filing fees, and other charges with respect to the transfer of the Transferred Assets at the Contribution Closing.

(signature page follows)

IN WITNESS WHEREOF, the parties have executed this Agreement on the day and year first above written.

MICRON TECHNOLOGY, INC.

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

PHOTRONICS, INC.

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

MP MASK TECHNOLOGY CENTER, LLC

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

\*\*\*\* Material omitted pursuant to a request for confidential treatment under Rule 24b-2 of the Exchange Act of 1934. Material filed separately with the Securities and Exchange Commission.

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Schedule A

Transferred Assets

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\*\*\*\* Material omitted pursuant to a request for confidential treatment under Rule 24b-2 of the Exchange Act of 1934. Material filed separately with the Securities and Exchange Commission.

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Schedule B

Transaction Documents

Contribution and Units Purchase Agreement among Micron, Photronics and the Company

Limited Liability Company Operating Agreement between Micron and Photronics

Company to Micron Direct Supply Agreement between Micron and the Company

Company to Photronics Supply Agreement between Photronics and the Company

Photronics to Micron Supply Agreement between Micron and Photronics

Technology License Agreement among Micron, Photronics and the Company

Information Technology, Operational and General Administrative Services Agreement between Micron and the Company

Operational and General Administrative Services Agreement between Photronics and the Company

Nondisclosure Agreement among Micron, Photronics and the Company

Non-solicitation Agreement among Micron, Photronics and the Company

Assignment and Assumption Agreement between Micron and the Company

Bill of Sale between Micron and the Company

Warranty Deed between Micron and the Company

Build to Suit Lease between Micron and Photronics

Schedule C

Assumed Contracts and Assumed Liabilities

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\*\*\*\* Material omitted pursuant to a request for confidential treatment under Rule 24b-2 of the Exchange Act of 1934. Material filed separately with the Securities and Exchange Commission.

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## TECHNOLOGY LICENSE AGREEMENT

This TECHNOLOGY LICENSE AGREEMENT (the "Agreement"), made this 5th day of May, 2006 (the "Effective Date"), is by and among MICRON TECHNOLOGY, INC., a Delaware corporation ("Micron"), PHOTRONICS, INC., a Connecticut corporation ("Photronics") and MP MASK TECHNOLOGY CENTER, LLC, a Delaware limited liability company (the "Company").

## RECITALS

WHEREAS, Micron and Photronics have formed the Company to develop and fabricate advanced Reticles primarily dedicated to supporting Micron's prototype and production Reticle requirements as directed by Micron and pursuant to the Limited Liability Company Operating Agreement of even date herewith (the "Operating Agreement") by and between Micron and Photronics;

WHEREAS, Micron and Photronics own certain technology assets that each will license pursuant to the terms and conditions of this Agreement (i) to the Company so that the Company may fulfill its Objectives (defined below) and (ii) to each other for the purposes set forth herein; and

WHEREAS, Micron, Photronics and the Company have entered into separate supply agreements under which Micron and Photronics will be able to obtain the Reticles developed and fabricated using the technology licensed hereunder.

NOW, THEREFORE, in consideration of the promises contained, and of the obligations herein made and undertaken, the parties hereto do hereby covenant and agree follows:

## 1. DEFINITIONS

For purposes of this Agreement, the definitions set forth in this Section 1 shall apply to the respective capitalized terms. All capitalized terms not defined in this Agreement shall have the meaning set forth in the Operating Agreement.

1.1 "Approved Technology" shall mean (i) all Technology and Software initially provided by Micron or Photronics to the Company hereunder in accordance with Section 3, and (ii) all other Technology and Software that has been approved by the Technology Steering Committee for use in the Company.

1.2 "Company Improvements" shall mean (i) all Improvements made by or for the Company to any of the Micron Technology, Micron Software or the Photronics Technology; (ii) all documentation, works of authorship, know-how, data and data bases, formulae, algorithms, processes, inventions and discoveries (whether or not patentable), Software, ideas, concepts, techniques, methods, content, technical information; engineering, production and other designs; drawings, schematics, tooling requirements, and other information, technology and materials, tangible or intangible, conceived, created, developed, first fixed in a tangible medium or first reduced to practice by, for or at the Company; and (iii) all Intellectual Property Rights in each of the foregoing.

\*\*\*\* Material omitted pursuant to a request for confidential treatment under Rule 24b-2 of the Exchange Act of 1934. Material filed separately with the Securities and Exchange Commission.

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1.3 "Competing Product" means [\*\*\*\*].

1.4 "Copy Critical" shall refer to [\*\*\*\*]

1.5 "Copy Exact" shall refer [\*\*\*\*].

1.6 "Designated Facility" means [\*\*\*\*]

1.7 "Improvements" shall mean all derivative works of, improvements upon and modifications to Technology.

1.8 "Intellectual Property Right" means any patents, patent applications, including with respect to patents any patent rights granted upon any reissue, division, continuation or continuation-in-part applications now or hereafter filed, or utility models issued or pending, any registered and unregistered design rights, any copyrights (including the copyright on Software), trade secrets, know-how, or any other intellectual property rights or proprietary rights whether registered or unregistered, and whether now known or hereafter recognized in any jurisdiction, excluding trade names, service names, trademarks, service marks, and trade dress.

1.9 "Licensed Technology" shall mean the New Technology, Standard Technology and Unrestricted Technology, as applicable. All Company Improvements shall be considered Licensed Technology, subject to classification thereof by the Technology Steering Committee in accordance with Section 3.4.

1.10 "Micron Intellectual Property Rights" shall mean all Intellectual Property Rights (i) owned by Micron or sublicenseable by Micron on the terms of this Agreement without obligation to pay additional consideration to a licensor; and (ii) necessary or useful to fulfill the Objectives or to design, develop or manufacture Reticles, including any Intellectual Property Rights assigned by the Company to Micron in accordance with this Agreement.

1.11 "Micron Software" shall mean the Software owned by Micron that Micron provides to either the Company or to Photronics in accordance with this Agreement.

1.12 "Micron Technology" shall mean all Technology (i) owned by Micron or sublicenseable by Micron to the Company or to Photronics on the terms of this Agreement without obligation to pay additional consideration to a licensor; and (ii) necessary or useful to fulfill the Objectives or to design, develop or manufacture Reticles, including any Company Improvements owned by Micron pursuant to this Agreement.

1.13 "New Photronics Facility" means the new Photronics Facility to be built pursuant to the Transaction Documents in Boise, Idaho.

1.14 "New Technology" shall mean [\*\*\*\*].

1.15 "Objectives" shall mean the following business purposes for which the Company has been created and for which the Company is licensed hereunder: (i) to develop and produce prototypes for advanced, next-generation, high-end Reticles that meet Micron's specifications as provided to the Company from time to time; (ii) to achieve sustainable, leading edge production capabilities using only Approved Technology; (iii) to manufacture in production volumes approved Reticles for Micron that meet Micron's specifications and fulfill Micron's Reticle requirements; and (iv) to the extent the Company has excess capacity after fulfilling all of Micron's Reticle requirements as set forth above, and as permitted herein and pursuant to the Supply Agreement between the Company and Photronics, manufacture prototype and production Unrestricted Reticles for Photronics customers using only Approved Technology. These Objectives may be changed in accordance with the procedures set forth in the Operating Agreement.

1.16 "Photronics Controlled Subsidiary" means a subsidiary of Photronics that is primarily in the business of developing and fabricating Reticles and that is directly, or indirectly through one or more intermediaries, [\*\*\*\*], and that is controlled by Photronics.

1.17 "Photronics Facility" shall mean [\*\*\*\*].

1.18 "Photronics Improvements" means Improvements made by Photronics to Micron Technology, but not including Improvements made by Photronics employees or subcontractors while providing services to the Company.

1.19 "Photronics Intellectual Property Rights" shall mean all Intellectual Property Rights (i) owned by Photronics or sublicenseable by Photronics on the terms of this Agreement without obligation to pay additional consideration to a licensor; and (ii) necessary or useful to fulfill the Objectives or to design, develop or manufacture Reticles.

1.20 "Photronics Technology" shall mean all Technology (i) owned by Photronics or sublicenseable by Photronics to the Company or to Micron on the terms of this Agreement without obligation to pay additional consideration to a licensor, and (ii) necessary or useful to fulfill the Objectives or to design, develop or manufacture Reticles.

1.21 "Process Node" means a specific geometry loosely based on a minimum line width at which semiconductor integrated circuit devices, and the Reticles used in the manufacture of those devices, are manufactured; e.g., [\*\*\*\*].

1.22 "Qualified" shall mean [\*\*\*\*].

1.23 "Reticle" means a photomask, template or reticle that can be used to transfer an image to a wafer or workpiece.

1.24 "Software" shall mean computer program instruction code, whether in human-readable source code form, machine-executable binary form, firmware, scripts, interpretive text, or otherwise, necessary or useful to design, develop or manufacture Reticles, including related documentation. "Software" does not include databases and other information stored in electronic form, other than executable instruction codes or source code that is intended to be compiled into executable instruction codes.

1.25 "Specifications" shall have the meaning given thereto in the Photronics to Micron Supply Agreement of even date herewith.

1.26 "Standard Technology" shall mean [\*\*\*\*]. A list of Standard Technology, if any, as of the Effective Date is set forth in Exhibit A hereto.

1.27 "Technology" shall mean all documentation, works of authorship, know-how, data and data bases, formulae, algorithms, processes, inventions and discoveries (whether or not patentable), ideas, concepts, techniques, methods, content, technical information, engineering, production and other designs, drawings, schematics, tooling requirements, and other information, technology and materials, tangible or intangible, and necessary or useful to fulfill the Objectives or to design, develop or manufacture Reticles. "Technology" shall not include (i) Software, or (ii) customer data or information related to the design, development or manufacture of Reticles for either Micron or Photronics customers.

1.28 "Technology Transfer Protocol" shall mean the preferred methodology and protocols for Micron to provide Technology implementation training to Photronics hereunder and for implementing that Technology at the Designated Facility. The initial Technology Transfer Protocol is attached hereto as Exhibit B, but may be modified from time to time by the Technology Steering Committee.

1.29 "Unrestricted Reticles" shall mean Reticles designed for use in the manufacture of products other than Competing Products.

1.30 "Unrestricted Technology" shall mean [\*\*\*\*].

## 2. LICENSES

2.1 License Grant by Micron to Company. Subject to the terms and conditions of this Agreement, Micron grants to the Company a royalty-free, non-exclusive, non-transferable license, without right of sublicense, under the Micron Intellectual Property Rights and to the Micron Technology (excluding Software), to develop, make, use, offer to sell and sell Reticles, and to create Improvements to the Micron Technology, solely in accordance with the Objectives.

2.2 License Grant by Micron to Photronics. Subject to the terms and conditions of this Agreement, including the classification procedures, use restrictions, and conditions set forth in Section 3, Micron grants to Photronics and to each Photronics Controlled Subsidiary a non-exclusive, worldwide, non-transferable (except as provided in Section 9.4), fully paid-up (subject to Section 9.4) license, [\*\*\*\*] under the Micron Intellectual Property Rights and to the Licensed Technology, to develop, use, make at Photronics Facilities, have Unrestricted Reticles made by the Company, import, offer to sell and sell Reticles, and to create Improvements to the Micron Technology.

2.3 License Grant by Photonics to the Company. Subject to the terms and conditions of this Agreement, Photonics grants to Company a royalty-free, non-exclusive, non-transferable, fully paid-up license, without right of sublicense, under the Photonics Intellectual Property Rights and to the Photonics Technology and Photonics Improvements, to develop, make, use, import, offer to sell and sell Reticles, and to create Improvements to the Micron Technology, solely in accordance with the Objectives.

2.4 License Grant by Photonics to Micron. Subject to the terms and conditions of this Agreement, Photonics grants to Micron a royalty-free, non-exclusive, non-transferable, fully paid-up license, with right of sublicense only to Photonics Improvements, under the Photonics Intellectual Property Rights and to the Photonics Technology and Photonics Improvements, to develop, make, have made, use, import, offer to sell and sell Reticles, and to create Improvements to the Micron Technology.

2.5 Software Licenses from Micron to the Company. Micron grants to the Company, subject to the terms and conditions of this Agreement, a royalty free, nonexclusive, limited license to reproduce, install and execute the Micron Software that Micron provides to the Company under Section 3 solely for the Company's internal use and only to fulfill the Objectives. The Company may make one copy of the Micron Software in machine-readable form for backup, disaster recovery or archival purposes only, and may make additional working copies beyond the copies provided by Micron as are reasonably necessary for the Company's internal use only. All such copies of Micron Software shall include all of the copyright and other proprietary notices of Micron contained on the original copy. The Company shall not assign, sublicense, transfer, pledge, lease, loan, rent to or share the Micron Software with any third party (except for Photonics personnel performing services for the Company at the Company's facilities). The Company shall not modify, decompile, reverse engineer, disassemble, or otherwise translate the Micron Software without the prior written consent of Micron in each case. Micron may from time to time provide the Company with human-readable source code for specified Micron Software. In such event, Micron will grant to the Company, subject to the terms and conditions of this Agreement, a royalty free, nonexclusive, limited license to reproduce, make derivative works of, install and execute such specified Micron Software.

2.6 Software License from Micron to Photonics. Upon the Lease Commencement Date (as defined in the Build to Suit Lease between Micron and Photonics of even date herewith), [\*\*\*\*] and for use only at the New Photonics Facility, Micron grants to Photonics, subject to the terms and conditions of this Agreement, a royalty free, non-exclusive, limited license to reproduce, install, and execute the Micron Software provided to Photonics pursuant to Section 3 below.

(a) Photonics may make one copy of the Micron Software in machine-readable form for backup, disaster recovery or archival purposes only, and may make additional working copies beyond the copies provided by Micron as are reasonably necessary for Photonics' internal use only at the New Photonics Facility. All such copies of Micron Software shall include all of the copyright and other proprietary notices of Micron contained on the original copy. [\*\*\*\*] Photonics shall not assign, sublicense, transfer, pledge, lease, loan, rent to or share the Micron Software with any third party, or use the Micron Software to perform services for any third party (excluding manufacture of Reticles by Photonics for third parties as expressly permitted under this Agreement). Photonics shall not modify, have modified, decompile, reverse engineer, disassemble, or otherwise translate the Micron Software without the prior written consent of Micron in each case.

(b) Micron may from time to time, upon the request of Photronics and in Micron's sole discretion, provide Photronics with human-readable source code for Micron Software. In such event, Micron will grant to Photronics, a nonexclusive, limited license to reproduce, make derivative works of, install and execute such Micron Software only at the New Photronics Facility and on the terms and conditions agreed to by the parties.

(c) Photronics acknowledges that some of the Software [\*\*\*\*] may be third party Software that Micron does not have the right to sublicense. Micron will identify applicable third party Software during the process of establishing the New Photronics Facility. Photronics shall be responsible at its own expense to independently license such third party Software. If such third party Software is not available to be licensed, Micron and Photronics shall consult in good faith about alternatives to such unavailable third party Software [\*\*\*\*].

### 3. DELIVERABLES

3.1 Initial Delivery to the Company. Micron will provide to the Company immediately after the Effective Date all Technology retained by Micron [\*\*\*\*]. In addition, Micron will license and deliver to the Company the Software retained by Micron [\*\*\*\*]. Photronics will provide to the Company promptly after the Effective Date the Approved Technology listed on Exhibit D hereto. The parties acknowledge that the ability to provide certain Technology and Software to the Company will be subject to the right to sublicense third party Technology and Software pursuant to existing license agreements. [\*\*\*\*].

3.2 Initial Delivery to Photronics. Within thirty (30) days following the Effective Date, Micron will deliver to Photronics or make available to Photronics the Licensed Technology retained by Micron [\*\*\*\*]. In addition, Micron will provide Photronics certain Micron Software for implementation and use at the New Photronics Facility in accordance with the license grant set forth in Section 2.6 above. A list of such Micron Software will be determined by Micron prior to the Lease Commencement Date and will be provided to Photronics; the list will include the Micron Software reasonably necessary to assist Photronics [\*\*\*\*]. The Licensed Technology and Micron Software will be made available for electronic transfer in accordance with means to be mutually agreed by Micron and Photronics, but where necessary, physical transfers may be conducted.

3.3 Determination of Approved Technology. The Technology Steering Committee, pursuant to the Technology Steering Committee charter attached hereto as Exhibit E, will create general guidelines setting forth the process for determining whether Technology, regardless of source, will be Approved Technology for use by the Company and will make such determinations in accordance with the charter and the guidelines. The Technology Steering Committee may amend these guidelines from time to time. A negative determination will not preclude the Technology Steering Committee from later determining that Technology does constitute Approved Technology.

3.4 Determination of Licensed Technology and Availability of Licensed Technology; Additional Deliveries of Micron Software. Within thirty (30) days following the end of each calendar quarter, the Technology Steering Committee will convene to analyze any Technology developed during such calendar quarter at or by the Company. [\*\*\*\*]. From time to time, Micron may provide Photronics additional Micron Software [\*\*\*\*] in accordance with the license grant in Section 2.6. The quarterly Technology Steering Committee meetings may be used for purposes of discussing the provision of additional Micron Software to Photronics.

3.5 Photronics Use Restrictions. [\*\*\*\*].

(a) [\*\*\*\*].

(b) [\*\*\*\*].

(c) [\*\*\*\*].

3.6 Photronics Improvements. Photronics will notify the Company and Micron no less frequently than once each calendar quarter of all Photronics Improvements recognized, logged, or recorded by Photronics pursuant to its standard internal processes for logging or tracking Improvements or inventions on its own behalf or for which Photronics seeks to claim, register, record, or file an application for recognition as an Intellectual Property Right of Photronics. Photronics promptly shall make available all such Photronics Improvements for use by the Company. As part of the quarterly meeting of the Technology Steering Committee pursuant to Section 3.4 above, the Technology Steering Committee will review any Photronics Improvements identified by Photronics as having been created the previous quarter and shall determine whether to treat the Photronics Improvements as Approved Technology. In addition, Micron shall have the opportunity to receive access to all Photronics Improvements, subject to the license grant set forth in Section 2.4.

3.7 Initial Designated Facility. [\*\*\*\*].

3.8 New Facility. [\*\*\*\*].

#### 4. TRAINING AND SUPPORT.

4.1 Initial Designated Facility Support. Micron agrees to provide Photronics technical support in connection with technology module transfers (as the term "module" is used in the Technology Transfer Protocol) [\*\*\*\*]. Photronics may request that the designated Micron support personnel travel to the Designated Facility to provide technical support and Micron will approve such travel in its reasonable judgment, based on the availability of the appropriate Micron personnel and the nature of the request, provided that Photronics shall pay all travel expenses for any Micron approved travel. Micron shall have no obligation to provide support for implementation of Licensed Technology at Photronics facilities that are not the Designated Facility.

4.2 Support Related to New Photonics Facility. [\*\*\*\*].

4.3 On-site Training in Accordance with the Technology Transfer Protocol. In addition to the support specified in Sections 4.1, 4.2 and 4.5, Micron and Photonics anticipate that Micron will provide Photonics onsite training to be conducted at the Company to assist Photonics to learn and implement the Licensed Technology and Micron Software as authorized by this Agreement. The anticipated and preferred methodology for conducting this onsite training is set forth in the Technology Transfer Protocol, although this may be changed by the TSC. Both Micron and Photonics will make available the appropriate personnel to conduct and receive the onsite training in accordance with the guidelines and time periods set forth in the Technology Transfer Protocol.

4.4 Additional Support. Photonics may request additional support from the General Manager and the General Manager may agree to provide such additional support in its sole discretion. Any such additional support hours shall be charged to Photonics at [\*\*\*\*].

4.5 Software Support. Photonics may request Software maintenance and support from Micron. During the term, this Software maintenance and support shall be charged to Photonics at [\*\*\*\*]. During any wind-down period in which Software licenses survive the termination of this Agreement or the joint venture relationship contemplated by the Transaction Documents, Micron agrees to provide Photonics software maintenance and support services for a period of one (1) year for any Micron Software then installed at the New Photonics Facility at rates and upon terms consistent with Micron's then-standard software support rates and terms. All Micron Software support shall be subject to the terms and conditions set forth in Section (2) of Schedule 4.1(B) of the Information Technology, Operational and General Administrative Services Agreement of even date herewith. To the extent that there is any conflict between the terms and conditions of the foregoing referenced section and this Agreement, as to Software support that Micron provides to Photonics, the terms of this Agreement shall prevail. The New Photonics Facility may from time to time request that Micron make enhancements or improvements to the Micron Software or other Software installed at the New Photonics Facility. Any enhancements or improvements to the Micron Software or other Software installed at the New Photonics Facility are subject to the prior written approval of the Technology Steering Committee. Subject to the approval of the Technology Steering Committee, the same modifications may be made to the Micron Software and other Software installed at the Company.

## 5. PAYMENTS

5.1 Initial Technology License Fee. On the Effective Date, Photonics will pay Micron Seventy-two Million Dollars (\$72,000,000) for the initial provision of Licensed Technology and the licenses granted to Photonics under this Agreement to use such Licensed Technology. Such amount shall be non-refundable.



5.2 Costs. Unless otherwise set forth herein, each of Photronics and Micron shall bear its own costs and expenses regarding receipt and implementation of Technology licensed and made available to it under this Agreement. If Photronics requests that Micron provide any support on-site at a Photronics Facility, or otherwise requires a Micron employee to travel to provide technical support pursuant to Section 4 above, Photronics agrees to bear the reasonable travel and lodging expenses of the applicable Micron personnel in addition to any other fees that may apply.

5.3 Taxes. To the extent that any taxes are applicable to the license and delivery of Licensed Technology and Micron Software to Photronics pursuant to this Agreement, Photronics shall be responsible for and shall pay any applicable sales, use, excise, withholding or similar taxes, including value added taxes and customs duties due on the importation of Licensed Technology and arising from the license to Photronics under this Agreement, excluding any taxes based on Micron's net income.

## 6. OWNERSHIP; INTELLECTUAL PROPERTY PROTECTION

6.1 Ownership. Except as expressly set forth herein, this Agreement, the delivery of Technology and Software and the licenses granted hereunder shall not affect each of Photronics and Micron's ownership of its Technology and Software and the Intellectual Property Rights owned by such parties and licensed or provided to one or more parties under this Agreement. Micron shall own any and all derivative works, enhancements, improvements or modifications to Micron Software. All rights not expressly granted herein are reserved.

6.2 Ownership of Company Improvements. Subject to the license grants set forth in Section 2, Micron shall own all Company Improvements. To the extent that Photronics or the Company obtains any ownership interest in or to such Company Improvements, Photronics and the Company hereby assign and agree to assign to Micron all of their right, title and interest in and to any Company Improvements. Notwithstanding the foregoing, the Technology Steering Committee may, in its discretion and upon Photronics' written request, determine that certain Technology that would otherwise be deemed a Company Improvement but that is primarily based on or derived from Photronics Technology, shall be deemed a Photronics Improvement and treated as such under Section 6.3 below.

6.3 Ownership of Photronics Improvements. Subject to the license grants set forth in Section 2 and disclosure obligations set forth in Section 3.6, Photronics shall own all Photronics Improvements and any Intellectual Property Rights in or to such Photronics Improvements.

6.4 Patent Prosecution. Micron shall have the right in its sole discretion to prepare, file, prosecute and maintain, at its own expense, any patent applications and Patents claiming Company Improvements, and to conduct any interferences, re-examinations, reissues, oppositions or requests for patent term extension or governmental equivalents thereto. Subject to Section 7, Photronics shall have the right in its sole discretion to prepare, file, prosecute and maintain, at its own expense, any patent applications and Patents claiming Photronics Improvements, and to conduct any interferences, re-examinations, reissues, oppositions or requests for patent term extension or governmental equivalents thereto.

6.5 Cooperation. The Company and Photronics shall each reasonably cooperate with and assist Micron at their own expense in connection with Micron's patent prosecution activities related to Company Improvements. The Technology Steering Committee will (a) facilitate communication among the parties regarding patent applications with respect to Company Improvements, (b) discuss and provide input to Micron on patent strategy with respect to Company Improvements, and (c) upon Micron's or Photronics request, review applications and other substantive papers with respect to Company Improvements prior to filing with the patent office.

#### 6.6 Enforcement.

(a) Notice. Micron and Photronics shall each promptly notify Company of its knowledge of any actual or potential infringement of Intellectual Property Rights associated with the Approved Technology.

(b) Cooperation; Costs. Each party agrees to render such reasonable assistance in connection with enforcement activities described in this Section 6.6 as the enforcing party may request. Costs of maintaining any such action shall be paid by and belong to the party bringing the action.

(c) Recoveries. If any actions are undertaken for the benefit of the Company, any damages or settlement recovered from any such action (after the deduction of the costs and fees of the action) shall be allocated as follows: (i) to Micron if the action was undertaken by Micron; or (ii) to Micron and Photronics in proportion to their actual monetary contributions to the undertaking of the action if the action is undertaken for the benefit of the Company and agreed upon in advance by Micron and Photronics to be shared.

(d) Third Party Claims of Infringement. If the manufacture, use or sale of any Reticles pursuant to this Agreement results in any claim, suit or proceeding alleging patent infringement against the Company, Micron or Photronics, the party named as the defendant in that claim, suit or proceeding shall promptly notify the other parties hereto in writing setting forth the facts of such claims in reasonable detail. The named defendant shall keep the other parties hereto reasonably informed of all material developments in connection with any such claim, suit or proceeding. The other parties shall, upon request, provide reasonable assistance and cooperation to the named defendant and may elect to participate in the defense of the claim, suit or proceeding, at its own expense using counsel of its own choice.

#### 7. CONFIDENTIALITY

All information provided, disclosed or obtained in connection with this Agreement or the performance of any of the Parties' activities under this Agreement shall be subject to the Confidentiality Agreement. Furthermore, the terms and conditions of this Agreement shall be considered "Confidential Information" under the Confidentiality Agreement for which each Party is considered a "Receiving Party" under such agreement. [\*\*\*\*]. To the extent there is a conflict between this Agreement and the Confidentiality Agreement, the terms of this Agreement shall control. Furthermore, each party acknowledges and agrees that the authorized sale of a product under any of the Transaction Documents shall not constitute a breach of any confidentiality obligations under this Agreement or the Confidentiality Agreement to the extent that the authorized sale of a product inherently discloses Confidential Information of a Party. If the Confidentiality Agreement is terminated or expires and is not replaced, the Confidentiality Agreement shall continue with respect to confidential information provided in connection with this Agreement, notwithstanding such expiration or termination, for the duration of the initial term and any and all extension periods or until a new Confidentiality Agreement is entered into between the parties.

## 8. LIMITED REPRESENTATIONS AND WARRANTIES

8.1 Mutual Representations. Each party hereby represents and warrants to the other parties as follows:

(a) The execution, delivery and performance of this Agreement by such party have been duly authorized by all necessary action on the part of such party.

(b) This Agreement has been duly executed and delivered by such party and, assuming due authorization, execution and delivery by the other party, constitutes a legal, valid and binding obligation of such party, enforceable against such party in accordance with its terms.

(c) To each party's knowledge, such party's execution, delivery and performance of this Agreement do not (i) violate, conflict with or result in the breach of any provision of the charter or by-laws (or similar organizational documents) of such party, or (ii) conflict with or violate any law or governmental order applicable to such party or any of its assets, properties or businesses.

8.2 Limited Warranty. Micron and Photronics each represent and warrant that it has all necessary right, title or interest and has obtained all necessary consents to perform its obligations and to grant the licenses it grants under this Agreement, and that, to its knowledge, and without conducting specific investigation, the Technology or Software that it provides access to under this Agreement does not infringe upon or misappropriate the Intellectual Property Rights of any third party.

8.3 Disclaimer. [\*\*\*\*\*].

## 9. TERMINATION

9.1 Term of Agreement. This Agreement shall become effective on the first day that it has been executed by both parties and shall remain in force for ten (10) years and will renew automatically for additional five (5) year terms, unless either Micron or Photronics terminates its participation in the Company or unless the Agreement is sooner terminated in accordance with Section 9.2 or Section 9.3 below.

## 9.2 Termination.

(a) Micron and Photonics may terminate this Agreement upon mutual written consent.

(b) Either Micron or Photonics may terminate this Agreement at any time in the event that the other materially breaches this Agreement and, if the material breach is capable of cure, such material breach continues uncured for a period of ninety (90) days after written notice thereof. Provided that if the breach is capable of being cured and the breaching Party has worked diligently and in good faith since the receipt of the notice to cure such breach, but has not cured the breach during the allotted time, the cure period will be extended for an additional ninety (90) days.

9.3 Other Causes for Termination. Upon dissolution of the Company, or termination of the Operating Agreement, or a Permitted Photonics Change in Control (as defined in the Operating Agreement), this Agreement shall automatically terminate, and all rights to receive further disclosures of Technology and Software shall automatically terminate.

9.4 Permitted Photonics Change in Control License Transfer Fee. [\*\*\*\*].

9.5 Survival. In the event of termination of this Agreement, the parties' rights and obligations under Sections 4.4, 6, 7, 8, 9.4, 9.5, 10 and 11 shall survive and continue in effect. In addition, and notwithstanding anything to the contrary contained herein, except for a termination of the Agreement under Section 9.2(b), the licenses granted under Section 2 shall survive the termination or expiration of this Agreement, provided that [\*\*\*\*].

## 10. LIMITATION OF LIABILITY

[\*\*\*\*] Each party acknowledges that the foregoing limitations are an essential element of the Agreement between the parties and that in the absence of such limitations the pricing and other terms set forth in this Agreement would be substantially different. Each Party shall have a duty to mitigate any damages hereunder in accordance with applicable law.

## 11. MISCELLANEOUS

11.1 Amendments. This Agreement may not be amended without the prior written consent of each party hereto.

11.2 No Waiver. Any provision of this Agreement may be waived if, and only if, such waiver is in writing and is duly executed by the party against whom the waiver is to be enforced. No failure or delay by any party in exercising any right, power or privilege under this Agreement shall operate as a waiver thereof nor shall any single or partial waiver or exercise thereof preclude the enforcement of any other right, power or privilege.

11.3 Notices. Unless otherwise provided herein, all notices, requests, instructions or consents required or permitted under this Agreement shall be in writing and will be deemed given: (a) when delivered personally; (b) when sent by confirmed facsimile; (c) ten (10) Business Days after having been sent by registered or certified mail, return receipt requested, postage prepaid; or (d) three (3) Business Days after deposit with an internationally recognized commercial overnight carrier specifying next-day delivery, with written verification of receipt. All communications will be sent to the addresses listed on Exhibit A of the Operating Agreement (or to such other address or facsimile number as may be designated by a party giving written notice to the other parties pursuant to this Section 11.3).

11.4 Independent Development. Subject to the license restrictions and confidentiality obligations set forth in this Agreement, nothing in this Agreement shall be construed to preclude either Micron or Photonics from directly or indirectly designing, developing, acquiring, using, marketing, licensing or selling any technology, prototypes, or production Reticles that is similar, related to or competitive with those developed, designed or manufactured by the other party or by the Company.

11.5 Governing Law. This Agreement will be governed by and construed in accordance with the laws of the State of Delaware, United States of America, as applied to agreements among Delaware residents entered into and wholly to be performed within the State of Delaware (without reference to any choice or conflicts of laws rules or principles that would require the application of the laws of any other jurisdiction).

#### 11.6 Construction; Interpretation.

(a) Certain Terms. The words "hereof," "herein," "hereunder" and similar words refer to this Agreement as a whole and not to any particular provision of this Agreement. The term "including" is not limited and means "including without limitation."

(b) Section References; Titles and Subtitles. Unless otherwise noted, all references to Sections and Exhibits herein are to Sections and Exhibits of this Agreement. The titles, captions and headings of this Agreement are inserted for convenience of reference only and are not intended to be a part of or to affect the meaning or interpretation of this Agreement.

(c) Reference to Persons, Agreements, Statutes. Unless otherwise expressly provided herein, (i) references to a Person include its successors and permitted assigns, (ii) references to agreements (including this Agreement) and other contractual instruments shall be deemed to include all subsequent amendments, restatements and other modifications thereto or supplements thereof and (iii) references to any statute or regulation are to be construed as including all statutory and regulatory provisions consolidating, amending, replacing, supplementing or interpreting such statute or regulation.

(d) Presumptions. No party, nor its counsel, shall be deemed the drafter of this Agreement for purposes of construing the provisions of this Agreement, and all provisions of this Agreement shall be construed in accordance with their fair meaning, and not strictly for or against any party.

11.7 Rights and Remedies Cumulative. The rights and remedies provided by this Agreement are cumulative and the use of any one right or remedy by any party shall not preclude or waive its right to use any or all other remedies. Said rights and remedies are given in addition to any other rights the parties may have by law, statute, ordinance or otherwise.

11.8 No Assignment; Binding Effect. Except as otherwise expressly provided in Section 9.4, no party may assign, delegate or otherwise transfer any of its rights or obligations hereunder to any third party, whether by assignment, transfer, Change in Control, or other means, without the prior written consent of each other party. Any attempted assignment in violation of the foregoing shall be null and void. Subject to the foregoing, this Agreement shall be binding on and inure to the benefit of the parties, their heirs, executors, administrators, and successors.

11.9 Severability. If any provision in this Agreement will be found or be held to be invalid or unenforceable, then the meaning of said provision will be construed, to the extent feasible, so as to render the provision enforceable, and if no feasible interpretation would save such provision, it will be severed from the remainder of this Agreement which will remain in full force and effect unless the severed provision is essential and material to the rights or benefits received by any party. In such event, the parties will use their respective best efforts to negotiate, in good faith, a substitute, valid and enforceable provision or agreement which most nearly affects the parties' intent in entering into this Agreement.

11.10 Counterparts. This Agreement may be executed in counterparts, each of which so executed will be deemed to be an original and such counterparts together will constitute one and the same agreement. Execution and delivery of this Agreement by exchange of facsimile copies bearing the facsimile signature of a party shall constitute a valid and binding execution and delivery of this Agreement by such party.

11.11 Dispute Resolution. The parties hereby agree that claims, disputes or controversies of whatever nature, arising out of, in connection with, or in relation to the interpretation, performance or breach of this Agreement (or any other agreement contemplated by or related to this Agreement), shall be resolved in accordance with the dispute resolution procedures set forth in the Operating Agreement.

11.12 Third-Party Beneficiaries. None of the provisions of this Agreement shall be for the benefit of or be enforceable by any creditor of the Company or by any third-party creditor of any Member. This Agreement is not intended to confer any rights or remedies hereunder upon, and shall not be enforceable by, any Person other than the parties hereto, their respective successors and permitted assigns.

11.13 Entire Agreement. This Agreement, together with the other documents, exhibits and schedules referred to herein and therein, constitute the entire agreement among the parties hereto pertaining to the subject matter hereof, and supersede any and all prior oral and written, and all contemporaneous oral, agreements or understandings pertaining thereto. There are no agreements, understandings, restrictions, warranties or representations relating to such subject matter among the parties other than those set forth herein and in the other documents, exhibits and schedules referred to herein and therein.

IN WITNESS WHEREOF, the parties hereto have duly executed this Agreement as of the day and year first above written.

MICRON TECHNOLOGY, INC.

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

PHOTRONICS, INC.

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

MP MASK TECHNOLOGY CENTER, LLC

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

EXHIBITS:

- Exhibit A: Approved Technology and Licensed Technology
- Exhibit B: Technology Transfer Protocol
- Exhibit C: Software
- Exhibit D: Approved Technology of Photonics
- Exhibit E: Technology Steering Committee Charter

\*\*\*\* Material omitted pursuant to a request for confidential treatment under Rule 24b-2 of the Exchange Act of 1934. Material filed separately with the Securities and Exchange Commission.

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Exhibit A

Approved Technology and Licensed Technology

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\*\*\*\* Material omitted pursuant to a request for confidential treatment under Rule 24b-2 of the Exchange Act of 1934. Material filed separately with the Securities and Exchange Commission.

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Initial Approved Technology List

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\*\*\*\* Material omitted pursuant to a request for confidential treatment under Rule 24b-2 of the Exchange Act of 1934. Material filed separately with the Securities and Exchange Commission.

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Exhibit B

Technology Transfer Protocol

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\*\*\*\* Material omitted pursuant to a request for confidential treatment under Rule 24b-2 of the Exchange Act of 1934. Material filed separately with the Securities and Exchange Commission.

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Exhibit C

Software

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\*\*\*\* Material omitted pursuant to a request for confidential treatment under Rule 24b-2 of the Exchange Act of 1934. Material filed separately with the Securities and Exchange Commission.

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Exhibit D

Approved Technology of Photonics

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\*\*\*\* Material omitted pursuant to a request for confidential treatment under Rule 24b-2 of the Exchange Act of 1934. Material filed separately with the Securities and Exchange Commission.

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Exhibit E

Technology Steering Committee Charter

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\*\*\*\* Material omitted pursuant to a request for confidential treatment under Rule 24b-2 of the Exchange Act of 1934. Material filed separately with the Securities and Exchange Commission.

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## PHOTRONICS TO MICRON SUPPLY AGREEMENT

THIS PHOTRONICS TO MICRON SUPPLY AGREEMENT (together with the Schedules attached hereto, collectively this "Agreement") is made and entered into as of May 5, 2006 (the "Effective Date"), by and between MICRON TECHNOLOGY, INC., a Delaware corporation and its Affiliates (collectively "Micron"), and PHOTRONICS, INC., a Connecticut corporation ("Photronics"). Micron and Photronics are hereinafter collectively referred to as the "Parties" and individually as a "Party."

## RECITALS

WHEREAS, pursuant to the Limited Liability Company Operating Agreement of MP Mask Technology Center, LLC, of the same Effective Date herewith, by and between Micron and Photronics (the "Operating Agreement"), the Parties have formed MP Mask Technology Center, LLC (the "Company") for the purpose of developing, producing and manufacturing photomasks and prototypes for photomasks;

WHEREAS, the Parties have entered into a Technology License Agreement of the same Effective Date herewith, under which the necessary technology has been licensed to the Company and Photronics (as defined below) in order for such Parties to fulfill their obligations under this Agreement;

WHEREAS, the Company and Photronics have entered into a separate supply agreement of even Effective Date herewith, which details the terms under which Photronics will purchase Products manufactured by the Company; and

WHEREAS, the Parties desire to enter into this Agreement to establish the terms under which Micron shall purchase Products from Photronics;

NOW, THEREFORE, in consideration of the mutual representations, warranties, covenants and other terms and conditions contained herein, the Parties hereby agree as follows:

## 1. DEFINITIONS; INTERPRETATION

For purposes of this Agreement, the definitions set forth in this Section 1 shall apply to the respective capitalized terms. All capitalized terms not defined herein shall have the meaning set forth in the Operating Agreement.

1.1 "Capacity" shall have the meaning set forth in Section 2.7.

1.2 "Capacity Commitment" shall have the meaning set forth in Section 2.7.

1.3 "Copy Critical" shall have the meaning set forth in the Technology License Agreement.

1.4 "Copy Exact" shall have the meaning set forth in the Technology License Agreement.

1.5 "Copy Exact Photronics Facility" shall have the meaning for a Photronics Facility that is Copy Exact, each as defined in the Technology License Agreement.

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1.6 "Cost" shall have the meaning set forth in Schedule 5.1.

1.7 "Dead-on-Arrival" shall mean any Product that is discovered to contain a Material Defect within thirty (30) calendar days after receipt of shipment of the Product.

1.8 "Entity" means a corporation, partnership, limited liability company, unincorporated organization, business association, firm, joint venture or other legal entity.

1.9 "Fiscal Month" shall mean a fiscal month of Micron.

1.10 "Fiscal Quarter" shall mean a fiscal quarter of Micron.

1.11 "Fiscal Year" shall mean a fiscal year of Micron.

1.12 "Forecast" shall have the meaning set forth in Section 2.5.

1.13 "Intellectual Property Right" shall have the meaning set forth in the Technology License Agreement.

1.14 "Licensed Technology" shall have the meaning set forth in the Technology License Agreement.

1.15 "Loading Failure Margin" shall have the meaning set forth in Section 2.4.

1.16 "Loading Percentage" shall mean [\*\*\*\*].

1.17 "Loading Requirement" shall mean [\*\*\*\*].

1.18 "Material Defect" shall mean any malfunction, error or other defect in a Product that constitutes a material nonconformity with the Specifications for such Product under conditions of normal and proper use.

1.19 "Maximum Capacity Commitment" shall have the meaning set forth in Section 2.7.

1.20 "Micron Supply Agreement" shall mean the Micron Direct Supply Agreement of the same Effective Date herewith, by and between Micron and the Company.

1.21 "New Photonics Facility" shall have the meaning set forth in the Technology License Agreement.

1.22 "New Photonics Facility Lease" shall mean the Build to Suit Lease of the same Effective Date herewith by and between Micron and Photonics relating to the New Photonics Facility.

1.23 "Next Quarter Forecast" shall have the meaning set forth in Section 2.5.

1.24 "Photonics Facility" shall mean (i) a facility that directly, or indirectly through one or more intermediaries, is at least ninety percent (90%) owned by Photonics unless otherwise agreed upon by Micron in writing on a case-by-case basis or (ii) [Photonics Semiconductor Mask Corporation (Taiwan) ("PSMC"), provided that Photonics' direct or indirect ownership of PSMC at all times is greater than 50% and no company that makes or sells Competing Products owns any ownership interest in PSMC.

1.25 "Photronics Supply Agreement" shall mean the Supply Agreement of the same effective date herewith, by and among Photronics and the Company.

1.26 "Product" or "Products" means photomasks and photomask prototypes that are to be manufactured by the Company or Photronics in accordance with Micron's Specifications and requirements.

1.27 "Process Node" shall have the meaning set forth in the Technology License Agreement.

1.28 "Purchase Order" shall mean a written purchase order or blanket purchase order that is delivered to Photronics in accordance with Section 3.2.

1.29 "Qualified" shall have the meaning set forth in the Technology License Agreement.

1.30 "Qualified Product(s)" shall have the meaning set forth in Section 2.7.

1.31 "Specifications" shall mean the specifications provided by Micron to Photronics for each Product in accordance with Micron's photomask ordering procedures and node requirements.

1.32 "Technology License Agreement" shall mean the Technology License Agreement of the same effective date herewith, by and among Micron, Photronics and the Company.

1.33 "Warranty Period" shall have the meaning set forth in Section 6.1.

## 2. PURCHASES; MANUFACTURE AND SUPPLY; PRODUCT TRANSITION; FORECASTS

2.1 Micron Purchases. Micron shall purchase Products from Photronics in accordance with the terms and conditions of this Agreement. [\*\*\*\*].

2.2 Photronics Manufacture and Supply of Product. Photronics shall accept Purchase Orders from Micron for Product and shall either manufacture Product at a Micron Qualified Photronics Facility or subcontract the manufacture of such Product to the Company pursuant to the terms of the Photronics Supply Agreement. [\*\*\*\*].

2.3 Photronics Manufacturing Approach. [\*\*\*\*].

2.4 Loading Requirement. Photronics shall maintain the Loading Requirement at all times during the Term, as measured on the basis of orders or releases thereto, as applicable, placed each Fiscal Month, so as to ensure the most efficient and cost effective utilization of the Company.

2.5 Forecasts. [\*\*\*\*].

2.6 Micron Purchase Commitment. [\*\*\*\*].

2.7 [\*\*\*\*].



### 3. PURCHASE ORDERS

3.1 Purchase Orders. Micron shall purchase Products from Photronics by issuing a Purchase Order or a release to a blanket Purchase Order that references this Agreement. Micron and Photronics agree that a Purchase Order sent to Photronics by confirmed facsimile or electronic transmission shall constitute a writing for all legal purposes. All Purchase Orders submitted to Photronics shall be governed by the terms of this Agreement. Nothing contained in any Purchase Order or the Parties' other documents of purchase or sale shall in any way modify the terms of purchase or add any additional terms or conditions except as specifically agreed in writing by the Parties.

3.2 Acknowledgment of Purchase Orders. For Micron's orders from Photronics Facilities, Photronics shall notify Micron of the receipt and acceptance of a Purchase Order or releases thereto and of the accepted delivery date for accepted orders within two (2) business days after receipt of the Purchase Order and any Purchase Order not specifically rejected in writing by Photronics during such period shall be deemed accepted hereunder. Photronics may not reject a Purchase Order or release issued in compliance with this Agreement and seeking delivery of Products within established lead times and the Forecasted amounts (subject to the Maximum Capacity Commitment, if applicable).

3.3 Revision of Purchase Orders. Micron shall have the right, without charge, to issue change orders to Purchase Orders by providing written notice to Photronics prior to the beginning of the production of the Product impacted by such change order. Photronics shall use all commercially reasonable efforts to accommodate Micron's revised Purchase Order in accordance with the lead times in effect at the time the Purchase Order change is requested.

3.4 Cancellations. Micron may cancel all or any part of a Purchase Order, without charge, by providing written notice to Photronics prior to the beginning of the production of the Product impacted by such cancellation. [\*\*\*\*\*].

3.5 Reschedules. Micron may reschedule the delivery of any Purchase Order or portion thereof for Products, without charge, upon notice to Photronics.

### 4. SHIPPING; DELIVERY; ACCEPTANCE

4.1 Packaging Requirements. All shipments shall be in packaging that complies with Micron's packaging requirements provided to Photronics and the Specifications. In addition, all shipments shall be accompanied by a detailed packing list which will reference the Products, Purchase Order number, and the quantity in each shipment covered by the packing list.

4.2 Shipping. Photronics shall ensure that Product orders are delivered on the applicable delivery date(s). Orders will be shipped to the delivery address set forth in the applicable Purchase Order.

4.3 Delivery. Photronics' liability for delivery shall cease and title and all risk of loss or damage shall transfer to Micron when Product is delivered to Micron's designated receiving facility as specified in the Purchase Order. Micron shall be the importer of record and pay all related duties, fees and charges. Photronics shall immediately notify Micron in writing of any anticipated delay in meeting the delivery schedule, stating the reasons for the delay. No shipment will be deemed complete until all ordered units have been delivered.

4.4 Dead on Arrival. In the event that any Product is found by Micron to be Dead-on-Arrival, Photronics shall use reasonable efforts consistent with the Company's practices to ship, at Photronics' sole expense, a replacement Product to the site designated by Micron within fourteen (14) business days of receipt of notice from Micron, and Micron shall return the Dead-on-Arrival Product in accordance with the Product return procedures described under Section 6.2.

## 5. PRICE; PAYMENTS; TAXES; AUDIT

5.1 Purchase Price for Products. The purchase price for each Product purchased by Micron from Photronics shall be as set forth in Schedule 5.1.

5.2 Payments Terms. Photronics shall issue and deliver an invoice to Micron for any amounts payable to Photronics pursuant to this Agreement. [\*\*\*\*]. Unless otherwise agreed by the Parties, payments for Products delivered in accordance with Section 4, and any other payments required hereunder, shall be made within thirty (30) days after the receipt of final invoice. Payment does not constitute acceptance. In no event shall Photronics deliver an invoice before shipping the Products to which such invoice relates. Photronics may suspend performance hereunder if Micron fails to make any material overdue and undisputed payments hereunder within thirty (30) days after receipt of written notice from Photronics that such payment is overdue.

5.3 Taxes. All amounts payable for Product sold by Photronics to Micron hereunder are exclusive of any taxes. Micron shall be responsible for and shall pay any applicable sales, use, excise or similar taxes, including value added taxes and customs duties due on the importation of Products and arising from purchases made by Micron under this Agreement, excluding any taxes based on Photronics' income. All such taxes shall be determined based upon the final shipment designation of the items identified on the invoice.

5.4 Audit of Books and Records. Upon Micron's request from time to time (not to exceed two (2) times per year), Micron shall, upon reasonable advance notice to Photronics, have the right to have an independent auditor reasonably acceptable to Photronics perform an audit of Photronics' books and records to verify Photronics' compliance with the terms and conditions of this Agreement, [\*\*\*\*]. In the event an audit reveals an overpayment by Micron, Photronics shall immediately issue a refund to Micron for any such overpayment. Any audit performed hereunder shall be performed in a manner that does not unreasonably interfere with Photronics' business and ensures compliance with all Applicable Laws and confidentiality requirements.

5.5 Inspection and Audit of Photronics Facilities. Upon Micron's reasonable advance request from time to time, Micron shall have the right to perform a reasonable inspection and audit of Photronics' facilities used to manufacture Product hereunder, as necessary to verify that the manufacturing facilities are Qualified in respect of any part type family or Process Node. In the event an inspection of a Photronics' Facility reveals any deficiency in meeting Micron's Specifications and requirements or any other failure to be Qualified, Photronics shall promptly take action to remedy such deficiency.

## 6. WARRANTIES

6.1 Product Warranty. [\*\*\*\*]. This warranty does not apply to any Product failures resulting from any misuse, abuse, neglect, alteration, modification, improper installation of or repairs to the Product by anyone other than Photronics or the Company.

6.2 Remedies. In the event that Micron notifies Photronics during the applicable Warranty Period that any Product does not conform to the warranty provisions set forth in Section 6.1, Photronics shall, at Micron's option, (a) replace such defective Product at no cost to Micron in accordance with Photronics' Product return material authorization procedures within ten (10) days of Photronics' receipt of the defective Product, (b) repair such defective Product at no cost to Micron, or (c) provide a refund of any amounts paid by Micron for such defective Product. Photronics shall bear all packing, transportation, insurance and other costs incurred in connection with the replacement or repair of defective Products. Except for resulting personal injury or property damage, this paragraph states the exclusive remedy of Micron for failure of any Product to conform to the warranty provisions set forth in Section 6.1.

6.3 Disclaimer. EXCEPT AS OTHERWISE EXPRESSLY SET FORTH IN THIS AGREEMENT, NEITHER PARTY MAKES (AND EACH PARTY HEREBY EXPRESSLY DISCLAIMS) ANY REPRESENTATIONS OR WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT, AND ANY WARRANTIES THAT MAY ARISE FROM COURSE OF PERFORMANCE, COURSE OF DEALING OR USAGE OF TRADE.

## 7. CONFIDENTIAL INFORMATION

7.1 Protection and Use of Confidential Information. All information provided, disclosed or obtained in connection with this Agreement or the performance of either of the Parties' activities under this Agreement shall be subject to all applicable provisions of the Nondisclosure Agreement. Furthermore, the terms and conditions of this Agreement shall be considered "Confidential Information" under the Nondisclosure Agreement for which each Party is considered a "Receiving Party" under such agreement. To the extent there is a conflict between this Agreement and the Nondisclosure Agreement, the terms of this Agreement shall control. If the Nondisclosure Agreement is terminated or expires and is not replaced, such Nondisclosure Agreement shall continue with respect to confidential information provided in connection with this Agreement, notwithstanding such expiration or termination, for the duration of the Initial Term and any and all extension periods or until a new nondisclosure agreement is entered into between the Parties.

## 8. LIMITATION OF LIABILITY

[\*\*\*\*], IN NO EVENT WILL EITHER PARTY BE LIABLE TO THE OTHER PARTY OR ANY THIRD PARTY CLAIMING THROUGH OR UNDER EACH SUCH PARTY, FOR ANY LOST PROFITS, LOST DATA, EQUIPMENT DOWNTIME, OR FOR ANY INDIRECT, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES, WHETHER IN AN ACTION IN CONTRACT OR TORT, BASED ON A WARRANTY, SALE OF PRODUCT OR OTHERWISE, ARISING OUT OF OR IN CONNECTION WITH THIS AGREEMENT, EVEN IF EACH SUCH PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. [\*\*\*\*]. Each Party acknowledges that the foregoing limitations are an essential element of the Agreement between the Parties and that in the absence of such limitations the pricing and other terms set forth in this Agreement would be substantially different. Except for Product to be supplied pursuant to Section 9.4.3, in no other event shall Photronics be liable for "cover" damages claimed by Micron arising out of any failure by Photronics to supply Products hereunder after expiration or termination of this Agreement. Each Party shall have a duty to mitigate any damages hereunder in accordance with applicable law.

## 9. TERM AND TERMINATION

9.1 Term. This Agreement will be effective as of the Effective Date, and shall remain in force for ten (10) years (the "Initial Term"). The expiration of this Agreement after its initial term or any renewal terms shall not be a termination for purposes of Section 9.4.3 below.

9.2 Termination for Breach. Either Micron or Photronics may terminate this Agreement at any time in the event that the other Party materially breaches any of the provisions of this Agreement or the Photronics Supply Agreement and does not cure such material breach within ninety (90) days following receipt of notice of such breach. Provided that if the breach is capable of being cured and the breaching Party has worked diligently and in good faith since the receipt of the notice to cure such breach, the cure period will be extended for an additional thirty (30) days.

9.3 Cross-Termination. Unless otherwise expressly agreed in writing by the Parties, this Agreement shall automatically terminate upon the dissolution of the Company or the termination of the Operating Agreement, Micron's purchase of Photronics' Membership Interests or termination of the Photronics Supply Agreement.

### 9.4 Effect of Termination.

9.4.1 Continuing Liability. The termination of this Agreement for any reason shall not release either Party from any liability, obligation or agreement which has already accrued at the time of termination. Termination of this Agreement for any reason shall not constitute a waiver or release of, or otherwise be deemed to prejudice or adversely affect, any rights, remedies or claims, whether for damages or otherwise, which a Party may have hereunder, at law or otherwise, or which may arise out of or in connection with such termination.

9.4.2 Outstanding Purchase Order Fulfillment. Except as provided in Section 9.4.3 below, Photronics shall complete all Purchase Orders that have been previously accepted by Photronics and not specifically cancelled upon termination by Micron, and shall accept and fulfill any Purchase Orders issued by Micron for a period of [\*\*\*\*] after termination of this Agreement, provided that the reason for termination was not a failure by Micron to pay undisputed amounts to Photronics under this Agreement.

9.4.3 [\*\*\*\*].

9.4.4 Payment Obligation. Micron shall pay for all Products previously delivered by Photronics and all Products subsequently delivered by Photronics pursuant to the Purchase Orders referred to in Section 9.4.2.

9.5 Survival. The provisions of Sections 2.7 (to the extent implicated by Section 9.4.3), 5.3, 6, 7, 8, 9.4, 9.5, 10 and 11 shall survive any termination of this Agreement.

## 10. INTELLECTUAL PROPERTY INFRINGEMENT INDEMNIFICATION

10.1 Micron Indemnity. Micron shall defend Photronics at Micron's expense, subject to the limits contained herein, against any third party suits, actions, claims or proceedings alleging that photomasks manufactured by Photronics strictly in accordance with Micron Specifications at Copy Exact Photronics Facilities or the Company facility for sale to Micron hereunder infringe such third party's patent rights, copyrights or trademarks, or misappropriate such third party's trade secrets, and Micron agrees to indemnify Photronics and hold Photronics harmless from and against any damages, losses, costs and expenses (including reasonable attorneys' fees) awarded by a court or in settlement against Photronics in connection with any such third party claim, [\*\*\*\*]; provided that (i) Photronics notifies Micron promptly in writing of the claim; (ii) Micron has sole control of the defense and all related settlement negotiations; and (iii) Photronics provides Micron (at Micron's request and reasonable expense) with all necessary assistance, information, and authority to perform these duties.

10.2 Exclusions. Notwithstanding the foregoing, Micron shall not indemnify Photronics against claims, and shall have no liability for any claims of infringement based on or arising from (i) use of any superseded Licensed Technology where Micron has made available specific replacements for such Licensed Technology, to the extent the infringement would have been avoided by use of the replacement Licensed Technology; (ii) modification of the Licensed Technology by Photronics or any third party to the extent such infringement would have been avoided but for such modification; (iii) the combination or use of the Licensed Technology with materials or technology not furnished by Micron, to the extent such infringement would have been avoided but for such combination; or (iv) any claims that the customer products produced as a result of using the photomasks specified and purchased by Micron infringe or misappropriate the Intellectual Property Rights of any third party.

10.3 Photronics Indemnity. Photronics shall defend Micron at Photronics' expense, subject to the limits contained herein, against any third party suits, actions, claims or proceedings alleging that any photomasks manufactured by Photronics at Photronics facilities or the Company facility, infringe such third party's patent rights, copyrights or trademarks, or misappropriate such third party's trade secrets, and Photronics agrees to indemnify Micron and hold Micron harmless from and against any damages, losses, costs and expenses (including reasonable attorneys' fees) awarded by a court or in settlement against Micron in connection with any such third party claim [\*\*\*\*]; provided that (i) Micron notifies Photronics promptly in writing of the claim; (ii) Photronics has sole control of the defense and all related settlement negotiations; and (iii) Micron provides Photronics (at Photronics' request and reasonable expense) with all necessary assistance, information, and authority to perform these duties.

10.4 Exclusions. Notwithstanding the foregoing, Photronics shall not indemnify Micron against claims, and shall have no liability for any claims, of infringement with respect to which Photronics is indemnified by Micron under Section 10.1 above, or based on or arising from any claims that the customer products produced as a result of using the photomasks specified and purchased by Micron infringe or misappropriate the Intellectual Property Rights of any third party.

## 11. MISCELLANEOUS TERMS

11.1 Amendments. This Agreement may not be amended without the prior written consent of both Parties.

11.2 No Waiver. Any provision of this Agreement may be waived if, and only if, such waiver is in writing and is duly executed by the Party against whom the waiver is to be enforced. No failure or delay by any Party in exercising any right, power or privilege under this Agreement shall operate as a waiver thereof nor shall any single or partial waiver or exercise thereof preclude the enforcement of any other right, power or privilege.

11.3 Notices and Other Communications. All notices required or permitted under this Agreement shall reference this Agreement and will be deemed given: (a) when sent by confirmed facsimile; (b) five (5) business days after having been sent by registered or certified mail, return receipt requested, postage prepaid; or (c) three (3) business days after deposit with an internationally recognized commercial overnight carrier specifying next-day delivery, with written verification of receipt. All such notices, requests, demands and other communications shall be addressed as follows:

If to Photronics:

Photronics, Inc.  
15 Secor Road  
Brookfield, CT 06804  
Attention: Edwin L. Lewis, Senior Vice President and General Counsel  
Facsimile: (203) 775-5601

and

Photronics, Inc.  
15 Secor Road Brookfield, CT 06804  
Attention: Sean Smith, Senior Vice President and Chief Financial Officer  
Facsimile: (203) 775-5601

If to Micron:

Micron Technology, Inc.  
8000 S. Federal Way  
Boise, Idaho 83716  
Attention: General Counsel  
Facsimile: (208) 368-4540

or to such other address or facsimile number as a Party may have specified to the other Parties in writing delivered in accordance with this Section.

11.4 Governing Law. This Agreement will be governed by and construed in accordance with the laws of the State of Delaware, United States of America, as applied to agreements among Delaware residents entered into and wholly to be performed within the State of Delaware (without reference to any choice or conflicts of laws rules or principles that would require the application of the laws of any other jurisdiction).

#### 11.5 Construction; Interpretation.

11.5.1 Certain Terms. The words "hereof," "herein," "hereunder" and similar words refer to this Agreement as a whole and not to any particular provision of this Agreement. The term "including" is not limited and means "including without limitation."

11.5.2 Section References; Titles and Subtitles. Unless otherwise noted, all references to Sections and Schedules herein are to Sections and Schedules of this Agreement. The titles, captions and headings of this Agreement are inserted for convenience of reference only and are not intended to be a part of or to affect the meaning or interpretation of this Agreement.

11.5.3 Reference to Persons, Agreements, Statutes. Unless otherwise expressly provided herein, (i) references to a Person include its successors and permitted assigns, (ii) references to agreements (including this Agreement) and other contractual instruments shall be deemed to include all subsequent amendments, restatements and other modifications thereto or supplements thereof and (iii) references to any statute or regulation are to be construed as including all statutory and regulatory provisions consolidating, amending, replacing, supplementing or interpreting such statute or regulation.

11.5.4 Presumptions. No party, nor its counsel, shall be deemed the drafter of this Agreement for purposes of construing the provisions of this Agreement, and all provisions of this Agreement shall be construed in accordance with their fair meaning, and not strictly for or against any party.

11.6 Rights and Remedies Cumulative. Except as provided in Section 6.2 and subject to the limitations of liability provided in Section 8, above, all remedies provided for in this Agreement shall be cumulative and in addition to and not in lieu of any other remedies available to any Party at law, in equity or otherwise.

11.7 No Assignment; Binding Effect. Except as otherwise expressly provided in this Agreement, neither Party may assign, delegate or otherwise transfer any of its rights or obligations hereunder to any third party, whether by assignment, transfer, Change in Control, or other means, without the prior written consent of the other Party; provided, however, that this Agreement may be assigned in connection with a Permitted Photonics Change of Control if Micron does not elect to exercise its purchase rights pursuant to Section 7.4.2 of the Operating Agreement. Any attempted assignment in violation of the foregoing shall be null and void. Subject to the foregoing, this Agreement shall be binding on and inure to the benefit of the Parties, their heirs, executors, administrators, and successors.

11.8 Relationship of the Parties; Non-exclusivity. In the exercise of their respective rights and the performance of their respective obligations hereunder the Parties are, and will remain independent contractors. Nothing in this Agreement will be construed to constitute the Parties as partners or principal and agent for any purpose whatsoever. Neither Party will bind, or attempt to bind, the other Party hereto to any contract or other obligation, and neither Party will represent to any third party that it is authorized to act on behalf of the other Party to this Agreement. Subject to Section 2.6, nothing in this Agreement shall obligate Micron to purchase Products exclusively from Photronics or the Company, and Micron may at any time purchase Products from other third party manufacturers. In addition and notwithstanding anything in this Agreement, Micron may make direct purchases from the Company in accordance with the terms and conditions of the Micron Supply Agreement.

11.9 Severability. If any provision in this Agreement will be found or be held to be invalid or unenforceable, then the meaning of said provision will be construed, to the extent feasible, so as to render the provision enforceable, and if no feasible interpretation would save such provision, it will be severed from the remainder of this Agreement which will remain in full force and effect unless the severed provision is essential and material to the rights or benefits received by any Party. In such event, the Parties will use their respective best efforts to negotiate, in good faith, a substitute, valid and enforceable provision or agreement which most nearly effects the Parties' intent in entering into this Agreement.

11.10 Execution. This Agreement may be executed in counterparts, each of which so executed will be deemed to be an original and such counterparts together will constitute one and the same agreement. Execution and delivery of this Agreement by exchange of facsimile copies bearing the facsimile signature of a Party shall constitute a valid and binding execution and delivery of this Agreement by such Party.

11.11 Dispute Resolution. The Parties hereby agree that claims, disputes or controversies of whatever nature, arising out of, in connection with, or in relation to the interpretation, performance or breach of this Agreement (or any other agreement contemplated by or related to this Agreement), shall be resolved in accordance with the dispute resolution procedures set forth in Section 11.3 of the Operating Agreement.

11.12 Entire Agreement. This Agreement, together with the other documents, exhibits and schedules referred to herein and therein, constitute the entire agreement among the Parties hereto pertaining to the subject matter hereof, and supersede any and all prior oral and written, and all contemporaneous oral, agreements or understandings pertaining thereto. There are no agreements, understandings, restrictions, warranties or representations relating to such subject matter between the Parties other than those set forth herein and in the other documents, exhibits and schedules referred to herein and therein.

11.13 No Third Party Beneficiaries. The terms and provisions of this Agreement are intended solely for the benefit of the Parties and their respective successors and permitted assigns, and the Parties do not intend to confer third party beneficiary rights upon any other Entity or person.



11.14 Force Majeure. Neither Party shall be deemed in default if its performance or obligations hereunder are delayed or become impossible or impractical due to causes beyond its reasonable control, including acts of God, war, fire, earthquake, flood, riot and acts of civil or military authority. Force majeure events shall not include delays in transportation, shortages of material or delays by subcontractors or suppliers, unless such delay by a subcontractor or a supplier was caused by an event that would qualify as a force majeure event under this Section 11.14. Under no circumstances shall economic considerations or economic impossibilities or inefficiencies delay performance or be considered a force majeure. The time for performance of any such obligation shall be extended for the time period lost by reason of the delay. During any period in which Photronics is unable to fulfill Micron purchase orders due to a force majeure event and for ninety (90) days after the effect of the force majeure event ends, Micron shall be relieved of its purchase commitment pursuant to Section 2.6.

[Signature Page Follows]

\*\*\*\* Material omitted pursuant to a request for confidential treatment under Rule 24b-2 of the Exchange Act of 1934. Material filed separately with the Securities and Exchange Commission.

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IN WITNESS WHEREOF, the Parties hereto have duly executed this Agreement as of the day and year first above written.

Photronics, Inc.

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Micron Technology, Inc.

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

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SCHEDULE 5.1

PRICING

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S-1

\*\*\*\* Material omitted pursuant to a request for confidential treatment under Rule 24b-2 of the Exchange Act of 1934. Material filed separately with the Securities and Exchange Commission.

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## COMPANY TO PHOTRONICS SUPPLY AGREEMENT

THIS COMPANY TO PHOTRONICS SUPPLY AGREEMENT is made and entered into as of May 5, 2006 (the "Effective Date"), by and between MP Mask Technology Center, LLC, a Delaware limited liability company (the "Company"), and Photronics, Inc., a Connecticut corporation ("Photronics"). The Company and Photronics are hereinafter collectively referred to as the "Parties" and individually as a "Party."

## RECITALS

WHEREAS, pursuant to the Limited Liability Company Operating Agreement of the Company of the same Effective Date herewith (the "Operating Agreement"), by and between Micron Technology, Inc. ("Micron") and Photronics, Micron and Photronics have formed the Company for the purpose of developing, producing and manufacturing photomasks and prototypes for photomasks ("Products");

WHEREAS, Micron and Photronics have entered into a technology license agreement of the same Effective Date herewith (the "Technology License Agreement"), under which the necessary technology has been licensed to the Company in order for it to fulfill its obligations under this Agreement;

WHEREAS, Micron and Photronics have entered into a separate supply agreement of the same Effective Date herewith (the "Photronics to Micron Supply Agreement"), which details the terms under which Photronics will supply to Micron the products it has purchased from the Company under this Agreement; and

WHEREAS, Photronics and the Company desire to enter into this Agreement so that Photronics may purchase the products manufactured by the Company;

NOW, THEREFORE, in consideration of the mutual representations, warranties, covenants and other terms and conditions contained herein, the Parties hereby agree as follows:

## 1. DEFINITIONS; INTERPRETATION

For purposes of this Agreement, the definitions set forth in this Section 1 shall apply to the respective capitalized terms. All capitalized terms not defined herein shall have the meaning set forth in the Operating Agreement.

1.1 "Company Location" shall mean the Company's photomask production facility located at [\*\*\*\*\*].

1.2 "Cost" shall have the meaning set forth in Schedule 5.1

1.3 "Dead-on-Arrival" shall mean any Products that are discovered to contain a Material Defect within thirty (30) calendar days after receipt of shipment of the Product.

1.4 "Entity" means a corporation, partnership, limited liability company, unincorporated organization, business association, firm, joint venture or other legal entity.

1.5 "Fiscal Month" shall mean a fiscal month of Micron.

1.6 "Fiscal Quarter" shall mean a fiscal quarter of Micron.

1.7 "Loading Requirement" shall have the meaning defined in the Photronics to Micron Supply Agreement.

1.8 "Material Defect" shall mean any malfunction, error or other defect in a Product that constitutes a material nonconformity with the Specifications for such Product under conditions of normal and proper use.

1.9 "Micron Supply Agreement" shall mean the Company to Micron Supply Agreement of the same Effective Date herewith, by and between Micron and the Company.

1.10 "Micron's Specifications" shall mean the specifications provided by Micron for each Product in accordance with Micron's photomask ordering procedures and node requirements.

1.11 "Product" or "Products" means photomasks and photomask prototypes that are to be manufactured by the Company or Photronics in accordance with Micron's Specifications and requirements or in accordance with a Photronics' customer's specifications and requirements, as applicable.

1.12 "Purchase Order" shall mean a written purchase order that is delivered to the Company in accordance with Section 3.2.

1.13 "Qualified" shall have the meaning set forth in the Technology License Agreement.

1.14 "Specifications" shall mean the specifications provided by Photronics to the Company for each Product in accordance with Photronics' photomask ordering procedures and node requirements.

1.15 "Technology License Agreement" shall mean the Technology License Agreement of the same effective date herewith, by and among Micron, Photronics and the Company.

## 2. PURCHASES; MANUFACTURE AND SUPPLY; FORECASTS

2.1 Photronics Purchases. Photronics shall purchase Products from the Company in accordance with the terms and conditions of this Agreement. Subject to the terms of this Agreement and the Operating Agreement, Photronics may subcontract to the Company the manufacture of Product for which it has received purchase orders (x) from Micron pursuant to the Photronics to Micron Supply Agreement and (y) from other customers of Photronics, and will purchase Product manufactured by the Company at the purchase price set forth in Section 5.1.

2.2 Company Manufacture and Supply of Product; Micron Purchases. Except as set forth in this paragraph, the Photronics to Micron Supply Agreement and the Micron Supply Agreement, the Company shall sell Product to Photronics for resale to Micron and other customers of Photronics and shall not sell Products manufactured by the Company directly to Micron. In addition, in the event Photronics is (i) in default of any of its material obligations under any of the Transaction Documents, or (ii) unable, unwilling or otherwise fails, for any or no reason, to become or remain Qualified with respect to any Product, then notwithstanding any other provision herein or in the Photronics to Micron Supply Agreement, Micron may purchase Products directly from the Company, at the Company's actual documented cost and in accordance with the terms of this Agreement, until Photronics (a) cures any default hereunder or (b) demonstrates, to Micron's reasonable satisfaction, that it can and does meet Micron's specified qualification requirements with respect to Products, as applicable.

2.3 Forecasts. [\*\*\*\*].

2.4 Capacity Commitment. [\*\*\*\*].

### 3. PURCHASE ORDERS

3.1 Purchase Orders. Photronics shall purchase Products from the Company by issuing a Purchase Order or a release to a blanket Purchase Order that references this Agreement. Photronics and the Company agree that a Purchase Order sent to the Company by confirmed facsimile or electronic transmission shall constitute a writing for all legal purposes. All Purchase Orders submitted to the Company shall be governed by the terms of this Agreement. Nothing contained in any Purchase Order or the Parties' other documents of purchase or sale shall in any way modify the terms of purchase or add any additional terms or conditions except as specifically agreed in writing by the parties.

3.2 Acknowledgment of Purchase Orders. The Company shall notify Photronics of the receipt and acceptance of a Purchase Order and of the accepted delivery date for accepted orders within two (2) business days after receipt of the Purchase Order and any Purchase Order not specifically rejected in writing by the Company during such period shall be deemed accepted hereunder. The Company may not reject a Purchase Order or release issued in compliance with this Agreement and seeking delivery of Products within Forecasted amounts and established lead times.

3.3 Revision of Purchase Orders. Photronics shall have the right, without charge, to issue change orders to Purchase Orders by providing written notice to the Company prior to the beginning of the production of the Product impacted by such change order. The Company shall use all commercially reasonable efforts to accommodate Photronics' revised Purchase Order in accordance with the Company's lead times in effect at the time the Purchase Order change is requested.

3.4 Cancellations. [\*\*\*\*].

3.5 Reschedules. Photronics may reschedule the delivery of any Purchase Order or portion thereof for Products, without charge upon notice to the Company.

### 4. SHIPPING; DELIVERY; ACCEPTANCE

4.1 Packaging Requirements. All shipments shall be in packaging that complies with the Specifications and, if applicable, Micron's packaging requirements. In addition, all shipments shall be accompanied by a detailed packing list which will reference the Products, Purchase Order number, and the quantity in each shipment covered by the packing list.

4.2 Shipping. The Company shall ensure that Product orders are delivered on the applicable delivery date(s). Orders will be shipped to the delivery address set forth in the applicable Purchase Order.

4.3 Delivery. The Company's liability for delivery shall cease and title and all risk of loss or damage shall transfer to Photronics when the Product is delivered to Photronics' or its customer's designated receiving facility, as specified in the Purchase Order. Photronics or its customer shall be the importer of record and pay all related duties, fees and charges. The Company shall immediately notify Photronics in writing of any anticipated delay in meeting the delivery schedule, stating the reasons for the delay. No shipment will be deemed complete until all ordered units have been delivered.

4.4 Dead on Arrival. In the event that any Product is found by Photronics or Micron to be Dead-on-Arrival, the Company shall use reasonable efforts consistent with the Company's practices to ship, at the Company's sole expense, a replacement Product to the site designated by Photronics or Micron within fourteen (14) business days of receipt of notice from Photronics or Micron and Photronics or Micron shall return the Dead-on-Arrival Product in accordance with the Product return procedures described under Section 6.2.

## 5. PRICE; PAYMENTS; TAXES; AUDIT

5.1 Purchase Price for Products. The purchase price for each Product purchased by Photronics from the Company shall be the Company's cost of the Product as set forth in Schedule 5.1.

5.2 Payments Terms. The Company shall provide an invoice to Photronics with an estimated price upon the shipment of Product hereunder. Each such invoice shall specify the Purchase Order for each Product and the estimated price per photomask. After each Fiscal Month end, the Company shall provide Photronics with a final invoice and Photronics' payment obligation shall be calculated from the date of Photronics' receipt of such invoice. Unless otherwise agreed by the Parties, payments for Product delivered in accordance with Section 4, and any other payments required hereunder, shall be made within thirty (30) days after the receipt of the final invoice. Payment does not constitute acceptance. In no event shall the Company deliver an invoice before shipping the Products to which such invoice relates. All amounts payable by Photronics to the Company shall be paid in U.S. Dollars.

5.3 Taxes. All amounts payable for Product sold by the Company to Photronics hereunder are exclusive of any taxes. Photronics shall be responsible for and shall pay any applicable sales, use, excise or similar taxes, including value added taxes and customs duties due on the importation of Products and arising from purchases made by Photronics under this Agreement, excluding any taxes based on the Company's income. All such taxes shall be determined based upon the final shipment designation of the items identified on the invoice.

5.4 Audit of Books and Records. Upon Photronics' request from time to time (not to exceed two (2) times per year), Photronics shall have the right to perform an audit of the Company's books and records to verify its compliance with the terms and conditions of this Agreement. In the event an audit reveals an overpayment by Photronics, the Company shall immediately issue a refund to Photronics for any such overpayment. Any audit performed hereunder shall be performed in a manner that ensures compliance with all applicable Laws and confidentiality requirements.

5.5 Inspection of Company Location. Upon Photronics' reasonable request from time to time, Photronics shall have the right to perform a reasonable inspection of the Company's Location, as necessary to verify that the facility meets Micron's Specifications and requirements. In the event an inspection of the Company's Location reveals any deficiency in meeting Micron's Specifications and requirements, the Company shall promptly take action to remedy such deficiency.

## 6. WARRANTIES

6.1 Company Product Warranty. [\*\*\*\*]. This warranty does not apply to any Product failures resulting from any misuse, abuse, neglect, alteration, modification, improper installation of or repairs to the Product by anyone other than the Company.

6.2 Remedies. In the event that Photronics or Micron notifies the Company during the applicable Warranty Period that any Product does not conform to the warranty provisions set forth in Section 6.1, the Company shall, at its option, (a) replace such defective Product at no cost to Photronics or Micron, as applicable, in accordance with the Company's Product return material authorization procedures within ten (10) days of the Company's receipt of the defective Product, (b) repair such defective Product at no cost to Photronics or Micron, as applicable, or (c) provide a refund of any amounts paid by Photronics or Micron, as applicable, for such defective Product. The Company shall bear all packing, transportation, insurance and other costs incurred in connection with the replacement or repair of defective Products. Except for resulting personal injury or property damage, this paragraph states the exclusive remedy of Photronics for failure of any Product to conform to the warranty provisions set forth in Section 6.1.

6.3 No Warranty Pass Through. Photronics shall have the right to make Product warranties to its customers consistent with the Product warranty made by the Company under this Agreement. Photronics hereby indemnifies and holds the Company harmless from and against any liabilities, losses, damages, costs and expenses, including attorneys' fees and costs, incurred by the Company resulting from any claims based on or related to any representation or warranty made by Photronics regarding the Products that is inconsistent with the warranty made by the Company hereunder.

6.4 Disclaimer. EXCEPT AS OTHERWISE EXPRESSLY SET FORTH IN THIS AGREEMENT, NEITHER PARTY MAKES (AND EACH PARTY HEREBY EXPRESSLY DISCLAIMS) ANY REPRESENTATIONS OR WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT, AND ANY WARRANTIES THAT MAY ARISE FROM COURSE OF PERFORMANCE, COURSE OF DEALING OR USAGE OF TRADE.



## 7. CONFIDENTIAL INFORMATION

7.1 Protection and Use of Confidential Information. All information provided, disclosed or obtained in connection with this Agreement or the performance of either of the Parties' activities under this Agreement shall be subject to all applicable provisions of the Nondisclosure Agreement. Furthermore, the terms and conditions of this Agreement shall be considered "Confidential Information" under the Nondisclosure Agreement for which each Party is considered a "Receiving Party" under such agreement. To the extent there is a conflict between this Agreement and the Nondisclosure Agreement, the terms of this Agreement shall control. For purposes of this Section 7.1 only, Micron shall be considered a "Party." If the Nondisclosure Agreement is terminated or expires and is not replaced, such Nondisclosure Agreement shall continue with respect to confidential information provided in connection with this Agreement, notwithstanding such expiration or termination, for the duration of the Initial Term and any and all extension periods or until a new nondisclosure agreement is entered into between the Parties.

8. LIMITATION OF LIABILITY. [\*\*\*\*], IN NO EVENT WILL EITHER PARTY BE LIABLE TO THE OTHER PARTY OR ANY THIRD PARTY CLAIMING THROUGH OR UNDER EACH SUCH PARTY, FOR ANY LOST PROFITS, LOST DATA, EQUIPMENT DOWNTIME, OR FOR ANY INDIRECT, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES, WHETHER IN AN ACTION IN CONTRACT OR TORT, BASED ON A WARRANTY, OR OTHERWISE, ARISING OUT OF OR IN CONNECTION WITH THIS AGREEMENT, EVEN IF EACH SUCH PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. [\*\*\*\*]. Each Party acknowledges that the foregoing limitations are an essential element of the Agreement between the Parties and that in the absence of such limitations the pricing and other terms set forth in this Agreement would be substantially different. Each Party shall have a duty to mitigate any damages hereunder in accordance with applicable law.

## 9. TERM AND TERMINATION

9.1 Term. This Agreement will be effective as of the Effective Date, and shall remain in force for ten (10) years (the "Initial Term").

9.2 Termination for Breach. The Company may terminate this Agreement in the event that Photronics materially breaches any of the provisions of this Agreement or the Photronics to Micron Supply Agreement and does not cure such material breach within ninety (90) days following receipt of notice of such breach. Provided that if the breach is capable of being cured and the breaching Party has worked diligently and in good faith since the receipt of the notice to cure such breach, the cure period will be extended for an additional thirty (30) days.

9.3 Cross-Termination. Unless otherwise expressly agreed in writing by the parties, this Agreement shall automatically terminate upon the dissolution of the Company or the termination of the Operating Agreement or the Photronics to Micron Supply Agreement.

#### 9.4 Effect of Termination.

9.4.1 Continuing Liability. The termination of this Agreement for any reason shall not release either party from any liability, obligation or agreement which has already accrued at the time of termination. Termination of this Agreement for any reason shall not constitute a waiver or release of, or otherwise be deemed to prejudice or adversely affect, any rights, remedies or claims, whether for damages or otherwise, which a party may have hereunder, at law or otherwise, or which may arise out of or in connection with such termination.

9.4.2 Outstanding Purchase Order Fulfillment. The Company shall complete all Purchase Orders that have been previously accepted by the Company and not specifically cancelled upon termination by Photronics or Micron and shall accept and fulfill any Purchase Orders issued by Photronics or Micron for a period of [\*\*\*\*] after termination of this Agreement, provided that the reason for termination was not a failure by Photronics to pay amounts previously due to the Company under this Agreement.

9.4.3 Payment Obligation. Photronics shall pay for all Products previously delivered by the Company and all Products subsequently delivered by the Company pursuant to the Purchase Orders referred to in Section 9.4.2.

9.5 Survival. The provisions of Sections 5.3, 6, 7, 8, 9.4, 9.5 and 10 shall survive any termination of this Agreement.

#### 10. MISCELLANEOUS TERMS

10.1 Amendments. This Agreement may not be amended without the prior written consent of both parties.

10.2 No Waiver. Any provision of this Agreement may be waived if, and only if, such waiver is in writing and is duly executed by the party against whom the waiver is to be enforced. No failure or delay by any party in exercising any right, power or privilege under this Agreement shall operate as a waiver thereof nor shall any single or partial waiver or exercise thereof preclude the enforcement of any other right, power or privilege.

10.3 Notices and Other Communications. All notices required or permitted under this Agreement shall reference this Agreement and will be deemed given: (a) when sent by confirmed facsimile; (b) five (5) business days after having been sent by registered or certified mail, return receipt requested, postage prepaid; or (c) three (3) business days after deposit with an internationally recognized commercial overnight carrier specifying next-day delivery, with written verification of receipt. All such notices, requests, demands and other communications shall be addressed as follows:

If to the Company:

MP Mask Technology Center, LLC  
3851 East Columbia Road  
Boise, Idaho 83716  
Attention: General Manager  
Facsimile: (208) 363-5099

If to Photronics:

Photronics, Inc.  
15 Secor Road  
Brookfield, CT 06804  
Attention: Edwin L. Lewis, Senior Vice President and General Counsel  
Facsimile: (203) 775-5601

and

Photronics, Inc.  
15 Secor Road Brookfield, CT 06804  
Attention: Sean Smith, Senior Vice President and Chief Financial Officer  
Facsimile: (203) 775-5601

or to such other address or facsimile number as a Party may have specified to the other Parties in writing delivered in accordance with this Section 10.3.

10.4 Governing Law. This Agreement will be governed by and construed in accordance with the laws of the State of Delaware, United States of America, as applied to agreements among Delaware residents entered into and wholly to be performed within the State of Delaware (without reference to any choice or conflicts of laws rules or principles that would require the application of the laws of any other jurisdiction).

#### 10.5 Construction; Interpretation.

10.5.1 Certain Terms. The words "hereof," "herein," "hereunder" and similar words refer to this Agreement as a whole and not to any particular provision of this Agreement. The term "including" is not limited and means "including without limitation."

10.5.2 Section References; Titles and Subtitles. Unless otherwise noted, all references to Sections and Schedules herein are to Sections and Schedules of this Agreement. The titles, captions and headings of this Agreement are inserted for convenience of reference only and are not intended to be a part of or to affect the meaning or interpretation of this Agreement.

10.5.3 Reference to Persons, Agreements, Statutes. Unless otherwise expressly provided herein, (i) references to a Person include its successors and permitted assigns, (ii) references to agreements (including this Agreement) and other contractual instruments shall be deemed to include all subsequent amendments, restatements and other modifications thereto or supplements thereof and (iii) references to any statute or regulation are to be construed as including all statutory and regulatory provisions consolidating, amending, replacing, supplementing or interpreting such statute or regulation.

10.5.4 Presumptions. No party, nor its counsel, shall be deemed the drafter of this Agreement for purposes of construing the provisions of this Agreement, and all provisions of this Agreement shall be construed in accordance with their fair meaning, and not strictly for or against any party.

10.6 Rights and Remedies Cumulative. All remedies provided for in this Agreement shall be cumulative and in addition to and not in lieu of any other remedies available to any Party at law, in equity or otherwise.

10.7 No Assignment; Binding Effect. Except as otherwise expressly provided in this Agreement, neither Party may assign, delegate or otherwise transfer any of its rights or obligations hereunder to any third party, whether by assignment, transfer, Change in Control, or other means, without the prior written consent of the other Party; provided, however, that this Agreement may be assigned in connection with a Permitted Photonics Change of Control if Micron does not elect to exercise its purchase rights pursuant to Section 7.4.2 of the Operating Agreement. Any attempted assignment in violation of the foregoing shall be null and void. Subject to the foregoing, this Agreement shall be binding on and inure to the benefit of the Parties, their heirs, executors, administrators, and successors.

10.8 Relationship of the Parties. In the exercise of their respective rights and the performance of their respective obligations hereunder the Parties are, and will remain independent contractors. Nothing in this Agreement will be construed to constitute the Parties as partners or principal and agent for any purpose whatsoever. Neither Party will bind, or attempt to bind, the other Party hereto to any contract or other obligation, and neither Party will represent to any third party that it is authorized to act on behalf of the other Party to this Agreement.

10.9 Severability. If any provision in this Agreement will be found or be held to be invalid or unenforceable, then the meaning of said provision will be construed, to the extent feasible, so as to render the provision enforceable, and if no feasible interpretation would save such provision, it will be severed from the remainder of this Agreement which will remain in full force and effect unless the severed provision is essential and material to the rights or benefits received by any party. In such event, the Parties will use their respective best efforts to negotiate, in good faith, a substitute, valid and enforceable provision or agreement which most nearly effects the Parties' intent in entering into this Agreement.

10.10 Execution. This Agreement may be executed in counterparts, each of which so executed will be deemed to be an original and such counterparts together will constitute one and the same agreement. Execution and delivery of this Agreement by exchange of facsimile copies bearing the facsimile signature of a Party shall constitute a valid and binding execution and delivery of this Agreement by such Party.

10.11 Force Majeure. Neither Party shall be deemed in default if its performance or obligations hereunder are delayed or become impossible or impractical due to causes beyond its reasonable control, including acts of God, war, fire, earthquake, and acts of civil or military authority. Force majeure events shall not include delays in transportation, shortages of material or delays by subcontractors or suppliers, unless such delay by a subcontractor or a supplier was caused by an event that would qualify as a force majeure event under this Section 10.11. Under no circumstances shall economic considerations or economic impossibilities or inefficiencies delay performance or be considered a force majeure. The time for performance of any such obligation shall be extended for the time period lost by reason of the delay.

10.12 Dispute Resolution. The parties hereby agree that claims, disputes or controversies of whatever nature, arising out of, in connection with, or in relation to the interpretation, performance or breach of this Agreement (or any other agreement contemplated by or related to this Agreement), shall be resolved in accordance with the dispute resolution procedures set forth in Section 11.3 of the Operating Agreement.

10.13 Entire Agreement. This Agreement, together with the other documents, exhibits and schedules referred to herein and therein, constitute the entire agreement among the parties hereto pertaining to the subject matter hereof, and supersede any and all prior oral and written, and all contemporaneous oral, agreements or understandings pertaining thereto. There are no agreements, understandings, restrictions, warranties or representations relating to such subject matter between the parties other than those set forth herein and in the other documents, exhibits and schedules referred to herein and therein.

10.14 No Third Party Beneficiaries. The terms and provisions of this Agreement are intended solely for the benefit of the Parties and their respective successors and permitted assigns, and the Parties do not intend to confer third party beneficiary rights upon any other Entity or person. Notwithstanding the foregoing, Micron shall be deemed a third party beneficiary to the extent it purchases Product directly from the Company pursuant to Section 2.2 and shall have the right to directly enforce the obligations of the Company set forth in Sections 2.2, 4, 6 and 9.4.2 against the Company.

[Signature Page Follows]

IN WITNESS WHEREOF, the Parties hereto have duly executed this Agreement as of the day and year first above written.

Photronics, Inc.

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

MP Mask Technology Center, LLC

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

\*\*\*\* Material omitted pursuant to a request for confidential treatment under Rule 24b-2 of the Exchange Act of 1934. Material filed separately with the Securities and Exchange Commission.

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SCHEDULE 5.1

PRODUCT COST

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\*\*\*\* Material omitted pursuant to a request for confidential treatment under Rule 24b-2 of the Exchange Act of 1934. Material filed separately with the Securities and Exchange Commission.

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Exhibit 21

SUBSIDIARIES OF PHOTRONICS, INC.

	State or Jurisdiction of Incorporation or Organization
Align-Rite International, Inc.	(California, USA)
Align-Rite, Inc.	(Florida, USA)
Align-Rite International, Ltd.	(United Kingdom)
Photronics (Wales) Limited	(United Kingdom)
Photronics, B.V.	(Netherlands)
Photronics Arizona, Inc.	(Arizona, USA)
Photronics California, Inc.	(California, USA)
Photronics Idaho, Inc.	(Idaho, USA)
Photronics Texas, Inc.	(Texas, USA)
Photronics Texas I, LLC	(Delaware, USA)
Photronics Texas I, LP (1)	(Texas, USA)
Photronics Texas Allen, Inc.	(Texas, USA)
Photronics Texas II, LLC	(Delaware, USA)
Photronics Texas II, LP (2)	(Texas, USA)
Photronics MZD, GmbH	(Germany)
Photronics Imaging Technologies (Shanghai) Co., Ltd.	(China)
Photronics Semiconductor Mask Corporation (3)	(Taiwan, R.O.C.)
Photronics Switzerland, S.a.r.L	(Switzerland)
Photronics Singapore Pte, Ltd.	(Singapore)
Photronics UK, Ltd.	(United Kingdom)
Photronics France SAS (4)	(France)
PK, Ltd. (5)	(Korea)
PKLT	(Taiwan)
Trianja Technologies, Inc.	(Texas, USA)

Note: Entities directly owned by subsidiaries of Photronics, Inc. are indented and listed below their immediate parent. Ownership is 100% unless otherwise indicated.

- (1) 99.0% owned by Photronics Texas I, LLC, and 1.0% owned by Photronics Texas, Inc. (directly and indirectly, in the aggregate, wholly owned by Photronics, Inc.).
- (2) 99.0% owned by Photronics Texas II, LLC., and 1.0% owned by Photronics Texas Allen, Inc. (directly and indirectly, in the aggregate, wholly owned by Photronics, Inc.).
- (3) 62.25% owned by Photronics, Inc.
- (4) 99% owned by Photronics UK, Ltd., and 1% owned by Photronics MZD, GmbH (directly and indirectly, in the aggregate, wholly owned by Photronics, Inc.).
- (5) 79.98% owned by Photronics, Inc., and 19.71% owned by Photronics Singapore Pte Ltd.



**EXHIBIT 23**

**Consent of Independent Registered Public Accounting Firm**

We consent to the incorporation by reference in Registration Statement Nos. 333-160235 and 333-161857 on Form S-3 and Registration Statement Nos. 333-02245, 333-42010, 333-50809, 333-86846, 33-78102, 333-151763, 333-169295 and 333-169296 on Form S-8 of our reports dated January 12, 2012 relating to the consolidated financial statements and financial statement schedule of Photonics, Inc. and subsidiaries and the effectiveness of Photonics, Inc. and subsidiaries internal control over financial reporting appearing in this Annual Report on Form 10-K of Photonics, Inc. and subsidiaries for the year ended October 30, 2011.

**/s/Deloitte & Touche LLP**  
**Hartford, Connecticut**  
**January 12, 2012**

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## EXHIBIT 31.1

I, Constantine S. Macricostas, certify that:

1. I have reviewed this Annual Report on Form 10-K of Photronics, Inc.
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report.
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report.
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
  - a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
  - b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;
  - c) evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this annual report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this annual report based on such evaluation; and
  - d) disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
  - a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
  - b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

/s/ CONSTANTINE S. MACRICOSTAS

Constantine S. Macricostas

Chief Executive Officer

January 12, 2012

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**EXHIBIT 31.2**

I, Sean T. Smith, certify that:

1. I have reviewed this Annual Report on Form 10-K of Photronics, Inc.
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report.
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report.
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
  - a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
  - b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;
  - c) evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this annual report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this annual report based on such evaluation; and
  - d) disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
  - a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
  - b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

/s/ SEAN T. SMITH

Sean T. Smith

Chief Financial Officer

January 12, 2012

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**EXHIBIT 32.1**

**Section 1350 Certification of the Chief Executive Officer**

I, Constantine S. Macricostas, Chief Executive Officer of Photonics, Inc. (the "Company"), certify, pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, 18 U.S.C. Section 1350, that:

- (1) the Annual Report on Form 10-K of the Company for the year ended October 30, 2011 (the "Report") fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ CONSTANTINE S. MACRICOSTAS

Constantine S. Macricostas

Chief Executive Officer

January 12, 2012

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**EXHIBIT 32.2**

**Section 1350 Certification of the Chief Financial Officer**

I, Sean T. Smith, Chief Financial Officer of Photonics, Inc. (the "Company"), certify, pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, 18 U.S.C. Section 1350, that:

- (1) the Annual Report on Form 10-K of the Company for the year ended October 30, 2011 (the "Report") fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ SEAN T. SMITH

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Sean T. Smith

Chief Financial Officer

January 12, 2012

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