

NANOMETRICS INC  
Form 10-K  
March 14, 2012  
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UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549

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FORM 10-K  
(Mark One)

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

For the fiscal year ended December 31, 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: 0-13470

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NANOMETRICS INCORPORATED  
(Exact name of registrant as specified in its charter)

Delaware

94-2276314

(State or other jurisdiction of incorporation or organization)

(I.R.S. Employer Identification Number)

1550 Buckeye Drive  
Milpitas, California

95035

(Address of principal executive offices)

(Zip Code)

Registrant's telephone number, including area code: (408) 545-6000

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

Title of each class

Name of each exchange  
on which registered

Common Stock, \$0.001 par value per share

The NASDAQ Stock Market LLC  
(NASDAQ Global Market)

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

None

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

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

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

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

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files). Yes  No .

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

Indicate by check mark whether the Registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer or a smaller reporting company. See the definitions of "large accelerated filer", "accelerated filer", and "smaller reporting company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer	<input type="checkbox"/>	Accelerated filer	<input checked="" type="checkbox"/>
Non-accelerated filer	<input type="checkbox"/>	Smaller reporting company	<input type="checkbox"/>

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

As of July 2, 2011, the last business day of the Registrant's most recently completed second fiscal quarter, the aggregate market value of the common stock of Registrant held by non-affiliates, based upon the closing sales price for the Registrant's common stock for such date, as quoted on the NASDAQ Global Market, was approximately \$401.1 million. Shares of common stock held by each officer and director and by each person who owned 5% or more of the outstanding common stock have been excluded because such persons may be deemed to be "affiliates" as that term is defined under the rules and regulations of the Exchange Act. This determination of affiliate status is not necessarily

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a conclusive determination for any other purpose.

The number of shares of the Registrant's common stock outstanding as of March 6, 2012 was 23,412,780.

DOCUMENTS INCORPORATED BY REFERENCE

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The Registrant has incorporated by reference into Part III of this Annual Report on Form 10-K portions of its Proxy Statement for its 2012 Annual Meeting of Stockholders to be filed pursuant to Regulation 14A. The Proxy Statement will be filed within 120 days of Registrant's fiscal year ended December 31, 2011.

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Forward-Looking Statements

Certain statements contained in this Annual Report on Form 10-K that are not purely historical are “forward-looking statements” within the meaning of the federal securities laws, including, without limitation, statements regarding our expectations, beliefs, anticipations, commitments, intentions and strategies regarding the future. In some cases you can identify forward-looking statements by terms such as “may,” “could,” “would,” “might,” “will,” “should,” “expect,” “plan,” “in,” “forecast,” “anticipate,” “believe,” “estimate,” “predict,” “potential,” “continue” or the negative of these terms or other comparable terminology. Actual results could differ from those projected in any forward-looking statements for the reasons, among others, detailed in “Risk Factors” in Item 1A of this Annual Report on Form 10-K or in our other filings made with the Securities and Exchange Commission. The forward-looking statements are made as of the date of this Annual Report on Form 10-K and we assume no obligation to update the forward-looking statements, or to update the reasons why actual results could differ from those projected in the forward-looking statements.

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PART I

ITEM 1. BUSINESS

Overview

Nanometrics Incorporated and its subsidiaries (“Nanometrics”, the “Company”, or “we”) is a leading provider of advanced, high-performance process control metrology and inspection systems used primarily in the fabrication of integrated circuits, high-brightness LEDs (“HB-LED”), data storage devices and solar photovoltaics (“solar PV”). Our automated and integrated systems address numerous process control applications, including critical dimension and film thickness measurement, device topography, defect inspection, overlay registration, and analysis of various other film properties such as optical, electrical and material characteristics. Our process control solutions are deployed throughout the fabrication process, from front-end-of-line substrate manufacturing, to high-volume production of semiconductors and other devices, to advanced wafer-scale packaging applications. Our systems enable device manufacturers to improve yields, increase productivity and lower their manufacturing costs.

We were incorporated in California in 1975, and reincorporated in Delaware in 2006. We have been publicly traded since 1984 (NASDAQ: NANO). We have been a pioneer and innovator in the field of optical metrology and we have an installed base of over 6,500 systems in over 150 production factories worldwide. Our major customers and original equipment manufacturer (“OEM”) partners include Samsung Electronics Co. Ltd., Intel Corporation, Hynix Semiconductor, Inc., Toshiba Corporation, Applied Materials, Inc., Taiwan Semiconductor Manufacturing Company Limited, and Micron, Inc.

Additional information about us is available on our website at <http://www.nanometrics.com>. The information that can be accessed through our website, however, is not part of this Annual Report. Our investor relations web page is located at <http://www.nanometrics.com/investor.html>. Our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and any amendments to those reports are available on our web page as soon as reasonably practicable after we electronically file or furnish such materials to the United States Securities and Exchange Commission (“SEC”). In addition, the reports and materials that we file with the SEC are available at the SEC's website (<http://www.sec.gov>) and at the SEC's Public Reference Room at 100 F Street, NE, Washington DC 20549. Interested parties may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330.

Industry Background

We participate in the sale, design, manufacture, marketing and support of process control systems for thin film metrology, optical critical dimension metrology, advanced 3-D packaging process control, overlay registration, and wafer defect inspection used for semiconductor manufacturing. Semiconductors are primarily packaged as integrated circuits within electronic devices, including consumer electronics, personal computing devices, cell phones, data storage devices, solar PVs and LEDs, and a multitude of other electronic products being proliferated worldwide. Integrated circuits are made up of semiconductor material layers integrating millions or billions of transistors and other electronic components, connected through a complex wiring scheme of small copper or aluminum wires, ultimately packaged into thin form factors to be mounted on circuit boards or other substrates. Our core focus is the measurement and control of the structure, composition, and geometry of the devices from the transistor layer through advanced wafer-scale packaging to improve device performance and manufacturing yields. Our end customers manufacture many types of integrated circuits for a multitude of applications, each having unique manufacturing challenges. This includes integrated circuits to enable information processing and management (logic integrated circuits), memory storage (NAND, NOR, and DRAM), thin film head components for hard disk drives, analog devices (e.g., Wi-Fi and 4G radio integrated circuits), and alternative energy devices such as LEDs and solar cells.

Demand for our products continues to be driven by our customers' desire for higher overall chip performance, and improvements in power efficiency, logic processing capability, data storage volume and manufacturing yield. To achieve these goals, our customers have increased their use of more complex materials and processing methods in

their manufacturing flow. The majority of our chip customers manufacture devices with features as small as 45nm (nanometer) to 22nm and below, and in some cases our customers are implementing new materials and methods in high volume manufacturing, including high dielectric constant (or high-k) materials and double or quadruple patterning lithography. The use of these new materials and methods requires additional process control and we believe has increased demand for our products. Next-generation devices with features smaller than 22nm are in early production, which in turn likely will require new advancements in metrology and inspection capabilities. DRAM memory makers are shifting to 3x node production with development for 2x node devices currently underway. Non-volatile memory makers of NAND and NOR devices are

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ramping 2x node devices into high volume manufacturing with work extending into early 1x node production and 1y node development. Foundry and logic manufacturers are ramping production of both 3x and 2x node devices and beginning investment into 1x node devices. Thin film head components for hard disk drives are also being driven to smaller sizes to support next generation hard disk drives with ever increasing storage capacity requiring continued improvements in read and write head component scaling. We also enable clean energy device manufacturers, such as for LEDs and solar PVs, to achieve higher yields and lower manufacturing costs.

### Our Business

We offer a diverse line of process control and inspection products and technologies to address the manufacturing requirements of the semiconductor (and other solid state device) manufacturing industry. Our metrology systems measure and characterize the physical dimensions, material composition, optical and electrical characteristics and other critical parameters of solid state devices, from initial wafer substrate manufacturing through final packaging. For the photolithographic process, thin-film metrology, critical-dimension and overlay systems provide control of device dimensions and layer alignment. Advanced packaging technology requires metrology systems to control wafer scale features for through-silicon-via (“TSV”) and flip-chip technologies. Our metrology systems for materials monitor the physical, optical, and electrical characteristics of materials including compound semiconductor, LEDs, solar PVs and silicon wafers. Our defect inspection systems locate large area and microscopic defects on patterned and unpatterned wafers. The system can be used for inspection at nearly every stage of the semiconductor production flow.

We are continually working to strengthen our competitive position by developing new technologies and products in our market segment. We have expanded our product offerings to address growing applications within the semiconductor manufacturing industry. In continuance of our goals, we have:

- Introduced new products in every core product line and primary market served;
- Diversified our product line and served markets through acquisitions, such as the 2006 acquisition of Accent Optical Technologies, Inc. a supplier of overlay and thin film metrology and process control systems; the 2008 acquisition of Tevet Process Control Technologies (“Tevet”), an integrated metrology supplier serving both semiconductor and solar PV industries; the 2009 acquisition of the Unifire™ product line from Zygo Corporation; and the 2011 acquisition of Nanda Technologies GmbH, a supplier of high sensitivity, high throughput defect inspection systems;
- Continued development of new measurement and inspection technologies for advanced fabrication processes; and
- Researched and developed innovative applications of existing technology to new market opportunities within the solar PV, HB-LED, and data storage industries.

### Nanometrics Products

We offer a diverse line of systems to address the broad range of process control requirements of the semiconductor manufacturing industry. In addition, we believe that our engineering expertise, strategic acquisitions, supplier alliances and short-cycle production strategies enable us to develop and offer advanced process control solutions in the future that should address industry advancement and trends.

### Automated Standalone Systems

Our automated systems are made up of both semi-automated and fully automated metrology systems which are employed in both high-volume and low-volume production environments. The Atlas® II, Atlas XP/Atlas XP+ and Atlas-M represent our line of high-performance metrology systems providing optical critical dimension (“OCD”), thin film metrology and wafer stress for transistor and interconnect metrology applications. The OCD technology is supported by our NanoCD™ suite of solutions including our NanoDiffract® software and NanoGen® scalable computing engine that enables visualization, modeling, and analysis of complex structures. The Mosaic II™ provides cost effective overlay metrology solutions, for today's advanced 300mm overlay process technologies, and is available on our Lynx™ platform. The Unifire™ system enables users to measure multiple parameters at any given process step in the advanced packaging process flow for critical dimension, overlay, and topography applications. Our SPARK defect inspection



system, offers ultra-fast inspection of patterned and unpatterned semiconductor wafers.

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We continue to offer automated products for 200mm factories running at 90nm nodes and above, as well as systems supporting micro-electrical mechanical systems (“MEMS”). Our Q240 is a 200mm overlay metrology system that incorporates the same measurement technology as the Mosaic™, which thereby extends the technology capability of our customers' existing factories. The IVS®-185 system supports critical dimension and overlay measurements for semiconductor, MEMS, and HB-LED manufacturing. The NanoSpec® 9100 thin film measurement system is capable of handling wafers ranging in size from 75 to 200 mm in diameter, and is used in all segments of semiconductor manufacturing, including data storage head manufacturing.

**System Platform**

The Lynx™ cluster metrology platform enables improved cost of ownership to our customers by combining our Mosaic™, Atlas® II and IMPULSE® metrology systems in configurations to provide high throughput, reduced footprint systems for leading 300mm wafer metrology applications including OCD, overlay, and thin film process control.

**Integrated Systems**

Our integrated metrology (“IM”) systems are installed directly onto wafer processing equipment to provide near real-time measurements for improved process control and maximum throughput. Our IM systems are sold directly to end customers and through OEM channels. The IMPULSE® system is our latest metrology platform for OCD, DBO, and thin film metrology and has been successfully qualified on numerous OEM platforms. Our 90x0 system is qualified for OEM and direct sales supporting thin film and OCD applications. Our NanoCD™ solutions suite is sold in conjunction with our IMPULSE® and legacy 90x0 systems. Our Trajectory™ system provides in-line measurement of layers in thin film thickness and composition in solar cell and semiconductor applications.

**Materials Characterization**

The Materials Characterization products include systems that are used to monitor the physical, optical, electrical and material characteristics of HB-LED, solar PV, compound semiconductor, strained silicon and silicon-on-insulator (“SOI”) devices, including composition, crystal structure, layer thickness, dopant concentration, contamination and electron mobility.

Our Vertex™ is a photoluminescence (“PL”) mapping system designed for high-volume compound semiconductor metrology applications including power control and photonics applications. The RPMBlue™ is our latest PL mapping system designed specifically for the HB-LED segment. We sell Fourier-Transform Infrared (“FTIR”) automated and manual systems in the QS2200/3300 and QS1200 respectively. The FTIR systems are spectrometers designed for non-destructive wafer analysis for various applications. The NanoSpec® line of products includes the 3000 and 6100 supporting thin film measurement across all segments in both low volume production and research applications. Our process control systems can be categorized as follows:

System	Market	Applications
System Platform		
Lynx™	Semiconductor	Platform
OCD Analysis		
NanoDiffract®	Semiconductor	OCD
NanoGen®	Semiconductor	OCD
Automated Standalone Systems		
Atlas II®/Atlas XP®/Atlas XP+®/Atlas-M®	Semiconductor	Film Thickness, Film Stress, CD
Mosaic II™	Semiconductor	Overlay
SPARK	Semiconductor	Defect Inspection and Advanced Packaging Applications
Unifire™	Semiconductor	Film Thickness, Overlay, CD, and Advanced Packaging Applications
IVS®-185		Overlay, CD

NanoSpec® 9100	Semiconductor, MEMS Semiconductor	Film Thickness
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System	Market	Applications
Integrated Systems		
IMPULSE®	Semiconductor	Film Thickness, CD
9010 Series	Semiconductor	Film Thickness, CD
9000 Series	Semiconductor	Film Thickness
Trajectory	Semiconductor, Solar	Film Thickness, Composition
Materials Characterization Instruments		
ECVPro	Compound Semiconductor, Solar, HB-LED	Electrical Properties
HL5500	Compound Semiconductor, Solar, HB-LED	Electrical Properties
QS1200	Substrate Semiconductor, Solar	Substrate Properties, Film Composition and Thickness
QS2200/3300	Substrate Semiconductor	Substrate Properties, Film Composition
NanoSpec® 3000	Semiconductor	Film Thickness (Tabletop)
NanoSpec® 6100	Semiconductor	Film Thickness (Tabletop)
RPMBLue™	HB-LED	Epitaxial Layer Properties
Stratus	Semiconductor	Substrate Properties, Film Composition and Thickness (Tabletop)
VerteX™	Compound Semiconductor, Solar PV, HB-LED	Epitaxial Layer Properties

## Customers

We sell our metrology and inspection systems worldwide to several semiconductor manufacturers and equipment suppliers, producers of HB-LEDs, solar PVs, data storage devices, silicon wafers and photomasks. The majority of our systems are sold to customers located in Asia and the United States. Three customers, Samsung Electronics Co. Ltd., Intel Corporation and Hynix Semiconductor, Inc. represented 30.0%, 16.9% and 11.4%, respectively, of our total net revenues in fiscal year 2011. Three customers, Samsung Electronics Co. Ltd., Intel Corporation and Hynix Semiconductor, Inc., represented 23.0%, 16.4% and 12.8%, respectively, of our total net revenues in the fiscal year 2010. Two customers, Samsung Electronics Co. Ltd., and Intel Corporation, represented 33.4% and 10.4%, respectively, of our total net revenues in the fiscal year 2009.

## Sales and Marketing

We believe that the capability for direct sales and support is beneficial for developing and maintaining close customer relationships and for rapidly responding to changing customer requirements. We provide local direct sales, service and application support through our worldwide offices located in the United States, South Korea, Japan, Europe, Taiwan, China and Singapore, and work with selected sales representatives in the United States and other countries. Our employees include our technical applications team, which is comprised of technically experienced sales engineers who are knowledgeable in the use of metrology systems generally and the unique features and advantages of our specific products. Supported by our technical applications team, our sales and support teams work closely with our customers to offer cost-effective solutions to complex measurement and process problems.

Direct exports of our metrology systems to our foreign customers and shipments to our foreign subsidiaries international offices require general export licenses.

Net revenues from customers located in the United States and in foreign countries, as a percentage of total net revenues, for fiscal years 2011, 2010 and 2009, were as follows:



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	2011		2010		2009	
United States	21.9	%	34.6	%	29.7	%
South Korea	38.1	%	28.8	%	39.1	%
Japan	15.1	%	10.5	%	14.7	%
China	6.2	%	9.3	%	4.1	%
Taiwan	4.7	%	8.5	%	4.7	%
Europe	6.0	%	3.8	%	5.0	%
All other countries	8.0	%	4.5	%	2.7	%

See Note 20 of our consolidated financial statements in Item 8, "Financial Statements and Supplementary Data" for segment and geographical financial information.

#### Customer Service and Support

We believe that customer service and technical support for our systems are important factors that distinguish us from our competitors and are essential to building and maintaining close, long-term relationships with our customers. We provide a standard one-year warranty on parts and labor for most of our products. We provide system support to our customers through factory technical support and globally deployed field service offices. The factory technical support operations provide both OEM and end-user customers with telephonic technical support access, direct training programs, operating manuals and other technical support information to enable effective use of our metrology and measurement instruments and systems. In addition, our systems support group provides online and telephonic technical support to both OEM and end-user customers with respect to the software that we sell in connection with our measurement systems hardware. We coordinate warranty and post-warranty field service and spare parts support from our corporate headquarters in Milpitas, California. We also have field service operations based in various locations throughout the United States and Europe. In Asia, service is provided by direct offices in Japan, South Korea, Taiwan, China and Singapore.

Service revenue, including sales of replacement parts, represented 15.3%, 17.8% and 35.9% of total net revenues in 2011, 2010 and 2009, respectively.

#### Backlog

As of December 31, 2011 and January 1, 2011, the end of fiscal year 2011 and 2010, respectively, our backlog was \$43.6 million and \$31.4 million, respectively. Backlog includes orders for products that we expect to ship within 12 months. Orders from our customers are subject to cancellation or delay by the customer without penalty. Historically, order cancellations have not been significant. However, orders presently in backlog could be canceled or rescheduled. Because only a portion of our revenues in prior fiscal quarters represented systems in backlog, we do not believe that current backlog is an accurate indication of our future revenues or financial performance.

#### Competition

We offer different products for various sectors of semiconductor manufacturing, and several of our products extend across the same process flow. However, in each of these sectors, we have multiple competitors. In every segment in which we participate, the global semiconductor equipment industry is intensely competitive, and driven by rapid technological adoption cycles. Our ability to effectively compete depends upon our ability to continually improve our products, applications and services, and our ability to develop new products, applications and services that meet constantly evolving customer requirements.

We believe that our competitive position in each of our markets is based on the ability of our products and services to address customer requirements related to numerous competitive factors. Competitive selections are based on many factors involving technological innovation, productivity, total cost of ownership of the system, including impact on end of line yield, price, product performance and throughput capability, quality, reliability and customer support. In the automated segment, our principal competitors are KLA-Tencor Corporation ("KLA-Tencor") and Nova Measuring Instruments Ltd. for thin film, overlay, and critical dimension metrology. Our primary competitor in the integrated metrology segment is Nova Measuring Instruments Ltd., while the HB-LED and solar PV markets are served by numerous competitors and no single competitor or group of competitors has established a majority position.

In the macro defect inspection market, the primary competitors are Rudolph Technologies and KLA-Tencor.

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In 2008, we consolidated our manufacturing operations to our Milpitas, California facility and various contract manufacturers. It is our strategy to outsource all assemblies that do not contain elements that we believe lead to a direct competitive advantage. The majority of our automated and integrated products are currently manufactured at our Milpitas facility. We perform limited sub-assembly for certain products at our York, England facility. We also use contract manufacturers in China, Israel, Japan and other locations in the United States. During the manufacturing process, we combine proprietary measurement technology produced in our facilities with components and sub-assemblies obtained from outside suppliers. We currently do not expect our manufacturing operations to require additional major investments in capital equipment.

We produce key parts and components and make reasonable efforts to ensure that any externally purchased parts or raw materials are available from multiple suppliers, but this is not always possible. Certain components, sub-assemblies and services necessary for the manufacture of our systems are obtained either from a sole supplier or limited group of suppliers. Although we seek to reduce our dependence on sole and limited source suppliers, partial or complete loss of certain of these sources could disrupt production, delay scheduled deliveries to customers and have a material adverse effect on our results of operations.

Our production processes require raw materials that meet specific standards, including some that are customized for, or are unique to, us. We generally have multiple sources and sufficient availability of supply but only a limited number of suppliers are capable of providing certain raw materials that meet our standards. If our supply of raw materials is interrupted, production and results of operations or financial condition could be adversely affected.

**Research and Development**

We continue to invest in R&D to provide our customers with products that add value to their manufacturing processes and attempt to provide a better solution than their other alternatives so that our products stay in the forefront of current and future market demands. Whether it is for an advancement of current technology, new technology, or the development of a new application in our core or emerging markets, we are committed to product excellence and longevity. We have several facilities located worldwide that focus on these objectives.

In 2011, our R&D investment was focused on new platforms as well as continuing to improve the metrology capabilities and lower the cost of ownership of our installed tools. R&D efforts for these improvements resulted in the successful product launch of the Atlas II<sup>®</sup> product in the marketplace. Additionally, the IMPULSE<sup>®</sup> IM system was enhanced by the development of the SR1+ version offering significant improvements in metrology performance and Cost of Ownership (COO) over the original model. Original equipment manufacturer (OEM) adoptions of the IMPULSE<sup>®</sup> continued with significant success in the market. Our Mosaic<sup>™</sup> line's capability was improved with system enhancements that addressed both the metrology performance and the COO to our customers. The Unifire<sup>™</sup> system development continued with new system configurations and applications development targeted at advanced packaging applications, including the through-silicon-via (TSV) market. After the acquisition of Nanda, R&D investment continued on SPARK technology for the Macro Inspection Markets including lithography, CMP, and advanced packaging applications. The new products and capabilities that we introduced to the market in 2011 were adopted by customers in key segments, which we believe indicates that our R&D spending is focused on appropriate products and technologies. Our R&D expenditures for each of the last three fiscal years were as follows:

	Fiscal Year			
	2011	2010	2009	
Research and Development				
R&D Expenditures (in millions)	\$23.3	\$19.0	\$14.7	
R&D Expenditures as percentage of revenues	10.1	% 10.1	% 19.1	%
Patents and Intellectual Property				

Our success depends in large part on the technical innovation of our products and protecting such innovations through a variety of methods. We actively pursue a program of filing patent applications to seek protection of technologically sensitive features of our metrology and inspection systems. We believe that our success will depend to a greater



degree upon innovation, technological expertise and our ability to adapt our products to new technology. While we attempt to establish our intellectual property rights through patents and trademarks and protect intellectual property rights through non-disclosure agreements, we may not be able to fully protect our technology, and competitors may be able to develop similar technology

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independently. Others may obtain patents and assert them against us. In addition, the laws of certain foreign countries may not protect our intellectual property to the same extent as do the laws of the United States. From time to time we receive communications from third parties asserting that our metrology systems may contain design features that the third parties claim, may infringe upon their proprietary rights. For more information, see Item 3, "Legal Proceedings."

**Employees**  
At December 31, 2011, we employed 552 persons worldwide with sales, applications and service support in key geographic areas aligned with our customer locations. None of our employees are represented by a union and we have never experienced a work stoppage as a result of union actions. Many of our employees have specialized skills that are of value to us. Our future success will depend in large part upon our ability to attract and retain highly skilled scientific, technical and managerial personnel, who are in great demand in our industry. We consider our employee relations to be good.

**Executive Officers of the Registrant**

The names of our executive officers and their ages, titles and biographies as of March 13, 2012 are set forth below:

Name	Age	Position
Timothy J. Stultz, Ph.D.	64	President, Chief Executive Officer and Director
Bruce A. Crawford	59	Chief Operating Officer
Ronald W. Kisling	51	Chief Financial Officer
Nancy E. Egan	45	General Counsel

Timothy Stultz has served as our President, Chief Executive Officer and as a director since August 2007. Prior to joining us, Dr. Stultz served in a number of executive management positions within the high tech community including President and CEO of Imago Scientific Instruments Corporation, President and Chief Executive Officer of ThauMDx, VP and General Manager of Veeco Metrology Systems and President and Chief Executive Officer of Peak Systems. Dr. Stultz received his B.S., M.S. and Ph.D. in Materials Science and Engineering from Stanford University. Bruce A. Crawford has served as our Chief Operating Officer since July 2006. From July 2005 to July 2006, Mr. Crawford served as President and Chief Operating Officer of Accent Optical Technologies, Inc., a supplier of process control and metrology systems to the global semiconductor manufacturing industry, which we acquired in July 2006. From February 2003 to July 2005, Mr. Crawford served as Accent Optical's Chief Operating Officer and Executive Vice President and from October 2000 to February 2003, he served as Vice President of Worldwide Operations. Mr. Crawford holds an A.S. degree from De Anza College.

Ronald W. Kisling was appointed as our Chief Financial Officer (and principal accounting officer) effective March 14, 2011. Prior to joining us, Mr. Kisling served as Chief Financial Officer of PGP Corporation (acquired by Symantec Corporation in June 2010) from May 2010 to September 2010 and Vice President of Finance from December 2006 to May 2010. Mr. Kisling has served as Chief Financial Officer of, or held other similar finance positions at, Portal Software, Inc. (acquired by Oracle Corporation in July 2006) from March 2004 to November 2006, Saba Software, Inc. from June 2001 to March 2004, SPL WorldGroup (acquired by Oracle Corporation in November 2006) from August 1998 to June 2001, and Symantec Corporation from April 1989 to August 1998. Mr. Kisling holds a B.A. in Economics from Stanford University and is an inactive Certified Public Accountant.

Nancy E. Egan joined us as General Counsel in October 2011. Ms. Egan was the Associate General Counsel of Varian, Inc. from 2004 until its acquisition by Agilent Technologies in 2010. Prior to Varian, Ms. Egan held positions as the Senior Vice President of Legal Affairs for LivePlanet, and the Vice President and Associate General Counsel of Excite@Home. Ms. Egan holds a Bachelor's degree in political science from the University of Buffalo and a juris doctor from the Notre Dame Law School.

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ITEM 1A. RISK FACTORS

In addition to the other information contained in this Annual Report on Form 10-K, we have identified the following risks and uncertainties that may have a material adverse effect on our business, financial condition or results of operations. Investors should carefully consider the risks described below before making an investment decision. The risks described below are not the only ones we face. Additional risks not presently known to us or that we currently believe are immaterial may also impair our business operations. Our business could be harmed by any of these risks. The trading price of our common stock could decline due to any of these risks and investors may lose all or part of their investment. This section should be read in conjunction with the Consolidated Financial Statements and Notes thereto, and Management's Discussion and Analysis of Financial Condition and Results of Operations contained in this Annual Report on Form 10-K.

The risks and uncertainties described below are not the only ones that we face. If any of the following risks actually occurs, our business, financial condition or operating results could be harmed. In such case, the trading price of our common stock could decline, and you could lose all or part of your investment.

The current global economic conditions and the cyclical nature of the semiconductor industry have caused us losses in the past and reductions in available cash, and may, in the future, negatively impact our financial performance. Current global economic conditions, the gradual recovery of the global economy and the cyclical nature of the semiconductor industry have impacted and could impact future customer demand for our products and our financial performance. The degree of this impact will depend on a number of factors, including the timing and extent of recovery of the U.S. and global economy from the recession. Demand for semiconductor equipment depends, in large parts, on consumer spending. Economic uncertainty, higher levels of unemployment, higher interest rates, higher tax rates and other economic factors may lead to a decrease in consumer spending and may cause certain customers to cancel or delay placing orders. If we are unable to timely and appropriately adapt to changes resulting from difficult economic conditions, our business, financial condition and results of operations may be adversely affected.

We may also experience supplier or customer issues as a result of adverse macroeconomic conditions. If our customers have difficulties in obtaining capital or financing, this could result in lower sales. Customers with liquidity issues could also result in an increase in bad debt expense. These conditions could also affect our key suppliers, which could affect their ability to supply parts and result in delays of our customer shipments.

The semiconductor industry is highly cyclical and is characterized by constant and rapid technological change, price erosion, product obsolescence, evolving standards, short product life cycles and significant volatility in supply and demand. Due to the cyclical nature of the industry, we may need to take actions to reduce costs in the future, which could reduce our ability to significantly invest in research and development at levels we believe are necessary. If we are unable to effectively align our cost structure with prevailing market conditions, our business, financial condition and results of operations may be materially and adversely affected.

Our largest customers account for a substantial portion of our revenue, and our revenue would materially decline if one or more of these customers were to purchase significantly fewer of our systems.

Historically, a significant portion of our revenues in each quarter and each year has been derived from sales to relatively few customers, and we expect this trend to continue. There are only a limited number of large companies operating in the semiconductor manufacturing industry. Accordingly, we expect that we will continue to depend on a small number of large customers for a significant portion of our revenues for the foreseeable future. If our current relationships with our large customers are impaired, or if we are unable to develop similar collaborative relationships with important customers in the future, our revenues could decline significantly.

We obtain some of the components and subassemblies included in our systems from a single source or a limited group of suppliers, and the partial or complete loss of one of these suppliers could cause production delays and significant loss of revenue.

We rely on outside vendors to manufacture many components and subassemblies. Certain components, subassemblies and services necessary for the manufacture of our systems are obtained from a sole supplier or a limited group of suppliers. We do not maintain long-term supply agreements with most of our suppliers. We have entered into arrangements with J.A. Woollam Co., Inc. for the purchase of the spectroscopic ellipsometer component incorporated into our advanced measurement systems. We also have supply agreements with MPA and Spectral Systems, and subcontract manufacturing agreements with Fox Semiconductor, IFAT and Toho Technologies. In June 2009, we signed a supply agreement with Zygo Corporation to

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supply OEM interferometer sensors for incorporation into the Unifire line of products as well as our family of automated metrology systems. Our reliance on a sole or a limited group of suppliers involves several risks, including the following:

- we may be unable to obtain an adequate supply of required components;
- we have reduced control over pricing and the timely delivery of components and subassemblies;
- our suppliers may be unable to develop technologically advanced products to support our growth and development of new systems.

Some of our suppliers have relatively limited financial and other resources. Because the manufacturing of certain of these components and subassemblies involves extremely complex processes and requires long lead times, we may experience delays or shortages caused by our suppliers. If we were forced to seek alternative sources of supply or to manufacture such components or subassemblies internally, we could be forced to redesign our systems, which could increase our cost structure, cause production delays and prevent us from shipping our systems to customers on a timely basis. Any inability to obtain adequate deliveries from our suppliers, or any other circumstance that would restrict our ability to ship our products, could damage relationships with current and prospective customers, harm our business and result in significant loss of revenue. Any inability to manage our manufacturing cost volatility from our suppliers could adversely impact our operating results. If we are successful in growing our sales, the risks to our business from dependence on single source or a limited group of suppliers will become significantly greater. Some of our current and potential competitors have significantly greater resources than we do, and increased competition could impair sales of our products.

We operate in the highly competitive semiconductor industry and face competition from a number of companies, many of which have greater financial, engineering, manufacturing, research and development, marketing and customer support resources than we do. As a result, our competitors may be able to respond more quickly to new or emerging technologies or market developments by devoting greater resources to the development, promotion and sale of products, which could impair sales of our products. Moreover, there has been merger and acquisition activity among our competitors and potential competitors. These transactions by our competitors and potential competitors may provide them with a competitive advantage over us by enabling them to rapidly expand their product offerings and service capabilities to meet a broader range of customer needs. Many of our customers and potential customers in the semiconductor industry are large companies that require global support and service for their metrology systems. Some of our larger or more geographically diverse competitors might be better equipped to provide this global support.

Because of the high cost of switching equipment vendors in our markets, it may be difficult for us to attract customer from our competitors even if our metrology systems are superior to theirs.

We believe that once a semiconductor customer has selected one vendor's metrology system, the customer generally relies upon that system and, to the extent possible, subsequent generations of the same vendor's system, for the life of the application. Once a vendor's metrology system has been installed, a customer must often make substantial technical modifications and may experience downtime in order to switch to another vendor's metrology system. Accordingly, unless our systems offer performance or cost advantages that outweigh a customer's expense of switching to our systems, it will be difficult for us to achieve significant sales from that customer once it has selected another vendor's system for an application.

We depend on Original Equipment Manufacturer ("OEM") suppliers for sales of our integrated metrology systems, and the loss of our OEM suppliers as customers could harm our business.

We believe that sales of integrated metrology systems will continue to be an important source of our revenues. Sales of our integrated metrology systems depend upon the ability of OEMs to sell semiconductor manufacturing equipment products that include our metrology systems as components. If our OEM customers are unable to sell such products, or if they choose to focus their attention on products that do not integrate our systems, our business could suffer. If we were to lose our OEM customers for any reason, our ability to realize sales from integrated metrology systems would be diminished, which would harm our business.

We are subject to order and shipment uncertainties. Our profitability will decline if we fail to accurately forecast customer demand when managing inventory.

We generally sell our products on the basis of purchase orders rather than long-term purchase commitments from our customers. Our customers can typically cancel purchase orders or defer product shipments for some period without incurring liabilities to us. We typically plan production and inventory levels based on internal forecasts of customer demand, which can be highly unpredictable and can fluctuate substantially, which could lead to excess inventory write-downs and resulting negative impacts on gross margin and net income. We have limited visibility into our customers' inventories, future customer

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demand and the product mix that our customers will require, which could adversely affect our production forecasts and operating margins. In addition, innovation in our industry could render significant portions of our inventory obsolete. If we overestimate our customers' requirements, we may have excess inventory, which could lead to obsolete inventory and unexpected costs. Conversely, if we underestimate our customers' requirements, we may have inadequate inventory, which could lead to foregone revenue opportunities, loss of potential market share and damage to customer relationships as product deliveries may not be made on a timely basis, disrupting our customers' production schedules. In response to anticipated long lead times to obtain inventory and materials from outside suppliers and foundries, we periodically order materials in advance of customer demand. This advance ordering has in the past and may in the future result in excess inventory levels or unanticipated inventory write-downs if expected orders fail to materialize, or other factors make our products less saleable. In addition, any significant future cancellation or deferral of product orders could adversely affect our revenue and margins, increase inventory write-downs due to obsolete inventory, and adversely affect our operating results and stock price.

If we choose to acquire new and complementary businesses, products or technologies instead of developing them ourselves, we may be unable to complete these acquisitions or may not be able to successfully integrate an acquired business in a cost-effective and non-disruptive manner.

Our success depends on our ability to continually enhance and broaden our product offerings in response to changing technologies, customer demands and competitive pressures. To achieve this, from time to time we have acquired complementary businesses, products, or technologies instead of developing them ourselves and may choose to do so in the future. For example, in November 2011, we acquired Nanda Technologies GmbH, a supplier of high-throughput, high-sensitivity defect inspection technology for semiconductor manufacturing. In June 2009, we entered into a strategic partnership with Zygo under an exclusive OEM supply agreement to provide interferometer sensors to us for incorporation into our Unifire™ line of products as well as our family of automated metrology systems. In May 2008, we acquired Tevet Process Control Technologies, Ltd., an integrated metrology company serving the worldwide semiconductor and solar manufacturing industry. However, we may not be able to identify suitable transactions in the future, or if we do identify such transactions, we may not be able to complete them on commercially acceptable terms, or at all. We also face intense competition for acquisitions from other acquirers in our industry. These competing acquirers may have significantly greater financial and other resources than us, which may prevent us from successfully pursuing a transaction.

Potential risks associated with acquisitions could include, among other things: our ability to realize the benefits or cost savings that we expect to realize as a result of the acquisition; diversion of management's attention; our ability to successfully integrate our businesses with the business of the acquired company; motivating, recruiting and retaining executives and key employees; conforming standards, controls, procedures and policies, business cultures and compensation structures among our company and the acquired company; consolidating and streamlining sales, marketing and corporate operations; potential exposure to unknown liabilities of acquired companies; loss of key employees and customers of the acquired business; and managing tax costs or inefficiencies associated with integrating our operations following completion of the acquisitions. If an acquisition is not successfully completed or integrated into our existing operations, our business, financial condition and results of operations could be adversely impacted.

In addition, in order to finance any acquisitions, we may be required to raise additional funds through public or private equity or debt financings; we may be unable to obtain financing at all; or we may be forced to obtain financing on terms that are not favorable to us and, in the case of equity or convertible debt financing, which may result in dilution to our stockholders.

Our success depends on the performance of key personnel, including our senior management and on our ability to identify, hire and retain key management personnel.

We believe our continued ability to recruit, hire, retain and motivate highly-skilled engineering, operations, sales, administrative and managerial personnel is key to our future success. Competition for these employees is intense, particularly with respect to attracting and retaining qualified senior management personnel. We have experienced

turnover in our senior management team in the past. Our business may be harmed if we are unable to effectively integrate our senior management into our business operations.

We do not have employment agreements with key members of our senior management team, and these individuals or other key employees may leave the Company. We do not have key person life insurance on any of our executives. In addition, to support our future growth, we will need to attract and retain additional qualified employees. If we fail to attract, motivate and retain qualified senior management personnel, our business could be harmed and our ability to implement our strategy could be compromised.

If we deliver systems with defects, our credibility will be harmed, revenue from, and market acceptance of, our systems will decrease and we could expend significant capital and resources as a result of such defects.



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Our products are complex and frequently operate in high-performance, challenging environments. Notwithstanding our internal quality specifications, our systems have sometimes contained errors, defects and bugs when introduced. If we deliver systems with errors, defects or bugs, our credibility and the market acceptance and sales of our systems would be harmed. Further, if our systems contain errors, defects or bugs, we may be required to expend significant capital and resources to alleviate such problems and incur significant costs for product recalls and inventory write-offs. Defects could also lead to product liability lawsuits against us or against our customers. We have agreed to indemnify our customers in some circumstances against liability arising from defects in our systems. In the event of a successful product liability claim, we could be obligated to pay damages significantly in excess of our product liability insurance limits.

If we experience significant delays in shipping our products to our customers, our business and reputation may suffer. Our products are complex and require technical expertise to design and manufacture properly. Various problems occasionally arise during the manufacturing process that may cause delays and/or impair product quality. Any significant delays stemming from the failure of our products to meet or exceed our internal quality specifications, or for any other reasons, would delay our shipments. Shipment delays could harm our business and reputation in the industry.

The average selling prices of our products may decrease over time, which could have a material adverse effect on our revenue.

It is common in our industry for the average selling price of a given product to decrease over time as production volumes increase, competing products are developed or new technologies featuring higher performance or lower cost emerge. To combat the negative effects that erosion of average selling prices have had in the past and may in the future have on our revenue, we attempt to actively manage the prices of our existing products and regularly introduce new process technologies and products in the market that exhibit higher performance, new features that are in demand, or lower manufacturing cost. Failure to maintain our current prices or to successfully execute on our new product development strategy will cause our revenue and gross margin to decline, which could decrease the value of your investment in our common stock.

Third party infringement claims could be costly to defend, and successful infringement claims by third parties could result in substantial damages, lost product sales and the loss of important intellectual property rights by us.

The semiconductor industry is generally subject to frequent litigation regarding patents and other intellectual property rights. Our commercial success depends, in part, on our ability to avoid infringing or misappropriating patents or other proprietary rights owned by third parties. From time to time we may receive communications from third parties asserting that our metrology systems may contain design features which are claimed to infringe on their proprietary rights. Our new or current products may infringe valid intellectual property rights, but even if our products do not infringe, we may be required to expend significant sums of money to defend against infringement claims, or to actively protect our intellectual property rights through litigation. In the event that a claim is made and there is an adverse result of any intellectual property rights litigation, we could be required to pay substantial damages for infringement, expend significant resources to develop non-infringing technology, incur material liability for royalty payments or fees to obtain licenses to the technology covered by the litigation, or be subjected to an injunction, which could prevent us from selling our products and materially and adversely affect our revenue and results of operations. We cannot be sure that we will be successful in any such non-infringing development or that any such license would be available on commercially reasonable terms, if at all. Any claims relating to the infringement of third-party proprietary rights, even if not meritorious, could result in costly litigation, lost sales or damaged customer relationships, and diversion of management's attention and resources.

Our intellectual property may be infringed by third parties despite our efforts to protect it, which could threaten our future success and competitive position and harm our operating results.

Our future success and competitive position depend in part upon our ability to obtain and maintain proprietary technology for our principal product families, and we rely, in part, on patent, trade secret and trademark law to protect that technology. If we fail to adequately protect our intellectual property, it will be easier for our competitors to sell

competing products. We own or may license patents relating to our systems, and have filed applications for additional patents. Any of our pending patent applications may be rejected, and we may not in the future be able to develop additional proprietary technology that is patentable. In addition, the patents we own, have been issued or licensed, may not provide us with competitive advantages and may be challenged by third parties. Third parties may also design around these patents.

In addition to patent protection, we rely upon trade secret protection for our confidential and proprietary information and technology. We routinely enter into confidentiality agreements with our employees. However, in the event that these agreements may be breached, we may not have adequate remedies. Our confidential and proprietary information and technology might also be independently developed by or become otherwise known to third parties. We may be required to

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initiate litigation in order to enforce any patents issued to or licensed by us, or to determine the scope or validity of a third party's patent or other proprietary rights. Any such litigation, regardless of outcome, could be expensive and time consuming, and could subject us to significant liabilities or require us to re-engineer our product or obtain expensive licenses from third parties, any of which would adversely affect our business and operating results.

Despite our efforts to protect our proprietary rights, unauthorized parties may attempt to copy or otherwise obtain or use our products or technology. Our ability to enforce our patents and other intellectual property is limited by our financial resources and is subject to general litigation risks. If we seek to enforce our rights, we may be subject to claims that the intellectual property rights are invalid, are otherwise not enforceable or are licensed to the party against whom we assert a claim. In addition, our assertion of intellectual property rights could result in the other party seeking to assert alleged intellectual property rights of its own against us, which is a frequent occurrence in such litigations. Our efforts to protect our intellectual property may be less effective in some foreign countries where intellectual property rights are not as well protected as in the United States.

In 2011, 2010 and 2009, 78.1%, 65.4% and 70.3%, respectively, of our total net revenues were derived from sales to customers in foreign countries, including certain countries in Asia, such as Japan, South Korea, China, Singapore and Taiwan. The laws of some foreign countries do not protect our proprietary rights to as great an extent as do the laws of the United States, and many U.S. companies have encountered substantial problems in protecting their proprietary rights against infringement in such countries. If we fail to adequately protect our intellectual property in these countries, it would be easier for our competitors to sell competing products and our business would suffer.

Variations in the amount of time it takes for us to sell our systems may cause volatility in our operating results, which could cause our stock price to decline.

Variations in the length of our sales cycles could cause our revenues to fluctuate widely from period to period. Our customers generally take long periods of time to evaluate our metrology systems. We expend significant resources educating and providing information to our prospective customers regarding the uses and benefits of our systems. The length of time that it takes for us to complete a sale depends upon many factors, including:

- the efforts of our sales force and our independent sales representatives;
- the complexity of the customer's metrology needs;
- the internal technical capabilities and sophistication of the customer;
- the customer's budgetary constraints; and
- the quality and sophistication of the customer's current processing equipment.

Because of the number of factors influencing the sales process, the period between our initial contact with a customer and the time at which we recognize revenue from that customer, if at all, varies widely. Our sales cycles, including the time it takes for us to build a product to customer specifications after receiving an order, typically range from three to nine months. Occasionally our sales cycles can be much longer, particularly with customers in Asia who may require longer evaluation periods. During the sales cycles, we commit substantial resources to our sales efforts in advance of receiving any revenue, and we may never receive any revenue from a customer despite our sales efforts.

If we do complete a sale, customers often purchase only one of our systems and then evaluate its performance for a lengthy period of time before purchasing additional systems. The purchases are generally made through purchase orders rather than through long-term contracts. The number of additional products that a customer purchases, if any, depends on many factors, including a customer's capacity requirements, and/or shifting to more and advanced manufacturing processes that require more or different products to control. If they change their rate of capacity or have technological change, we cannot compensate for this fluctuation in demand by adjusting the price of our products. The period between a customer's initial purchase and any subsequent purchases is unpredictable and can vary from three months to a year or longer. Variations in the length of this period could cause fluctuations in our operating results, which could adversely affect our stock price.

Relatively small fluctuations in our system sales volume may cause our operating results to vary significantly each quarter.

During any quarter, a significant portion of our revenue is derived from the sale of a relatively small number of systems. Our automated metrology systems range in price from approximately \$200,000 to over \$1,600,000 per system, and our integrated metrology systems range in price from approximately \$100,000 to \$500,000 per system. Accordingly, a small change in the number or mix of systems that we sell could cause significant changes in our operating results.

If we fail to develop new and enhanced metrology systems we will likely lose market share to our competitors.

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We operate in an industry that is subject to rapid technological changes, changes in customer demands and the introduction of new, higher performance systems with short product life cycles. To be competitive, we must continually design, develop and introduce in a timely manner new metrology systems that meet the performance and price demands of semiconductor manufacturers and suppliers. We must also continue to refine our current systems so that they remain competitive. We may experience difficulties or delays in our development efforts with respect to new systems, and we may not ultimately be successful in developing them. Any significant delay in releasing new systems could adversely affect our reputation, give a competitor a first-to-market advantage or allow a competitor to achieve greater market share.

Lack of market acceptance for our new products may affect our ability to generate revenue and may harm our business.

In 2009, we introduced the Atlas<sup>®</sup> XP+ system as the follow-on to our Atlas metrology system and our Mosaic<sup>™</sup> overlay system. In 2010, the capability of our NanoCD suite was extended with launches of our new modeling and analysis software, NanoDiffract<sup>®</sup>, and migration to the latest generation of cluster computers for fabrication wide analysis (NanoGen<sup>®</sup>). In 2011, we introduced the Mosaic II<sup>™</sup> overlay metrology solution and the Atlas FOC<sup>®</sup> system, a next-generation tool for high performance process control metrology. Our materials characterization products, including the RPMBlue<sup>™</sup> and Trajectory system continued to gain acceptance at established and emerging customers in the HB-LED and solar segments of the market. We have invested substantial time and resources into the development of these products. However, we cannot accurately predict the future level of acceptance of our new products by our customers. As a result, we may not be able to generate anticipated revenue from sales of these products or future new products or improvements.

We depend on new products and processes for our success. Consequently, we are subject to risks associated with rapid technological change.

Rapid technological changes in semiconductor manufacturing processes subject us to increased pressure to develop technological advances enabling such processes. We believe that our future success depends in part upon our ability to develop and offer new products with improved capabilities and to continue to enhance our existing products. We cannot make assurances if or when the products and solutions where we have focused our research and development expenditures will become commercially successful. If new products have reliability or quality problems, our performance could be impacted by reduced orders, higher manufacturing costs, delays in acceptance and payment for new products, and additional service and warranty expenses. We might not be able to develop and manufacture new products successfully, or new products that we introduce may fail in the marketplace. Our failure to complete commercialization of these new products in a timely manner could result in unanticipated costs and inventory obsolescence, which would adversely affect our financial results.

In order to develop new products and processes, we expect to continue to make significant investments in research and development and to pursue joint development relationships with customers, suppliers or other members of the industry. We must manage product transitions and joint development relationships successfully, as introduction of new products could adversely affect our sale of existing products.

We are subject to risks associated with our competitors' strategic relationships and their introduction of new products and we may lack the financial resources or technological capabilities of certain of our competitors needed to capture increased market share.

We expect to face significant competition from multiple current and future competitors. We believe that other companies are developing systems and products that are competitive to our products and are planning to introduce new products, which may affect our ability to sell our existing products. We face a greater risk if our competitors enter into strategic relationships with leading semiconductor manufacturers covering products similar to those we sell or may develop, as this could adversely affect our ability to sell products to those manufacturers.

Certain of our competitors have substantially greater financial resources and more extensive engineering, manufacturing, marketing and customer service and support resources than we do and therefore have the potential to increasingly dominate the semiconductor equipment industry. These competitors may deeply discount products similar to those that we sell, challenging or even exceeding our ability to make similar accommodations and

threatening our ability to sell those products. As a result, we may fail to continue to compete successfully worldwide. In addition, our competitors may provide innovative technology that may have performance advantages over systems we currently offer or may offer in the future. They may be able to develop products comparable or superior to those that we offer or may adapt more quickly to new technologies or evolving customer requirements. In particular, while we currently are developing additional product enhancements that we believe will address future customer requirements, we may fail in a timely manner to complete the development or introduction of these additional product enhancements successfully, or these product enhancements may not achieve market acceptance or be competitive. Accordingly, we may be unable to continue to compete in our markets and competition may intensify, or future competition, operating results, financial condition, and/or cash flows

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could suffer.

If we are unable to adjust the scale of our business in response to rapid changes in demand in the semiconductor equipment industry, our operating results and our ability to compete successfully may be impaired.

The business cycle in the semiconductor equipment industry has historically been characterized by frequent periods of rapid change in demand that challenge our management to adjust spending and resources allocated to operating activities. During periods of growth or decline in demand for our products and services, we face significant challenges in maintaining adequate financial and business controls, management processes, information systems and procedures and in training, managing, and appropriately sizing our supply chain, our work force, and other components of our business on a timely basis. Our success will depend, to a significant extent, on the ability of our executive officers and other members of our senior management to identify and respond to these challenges, our gross margins and earnings may be impaired during periods of demand decline, and we may lack the infrastructure and resources to scale up our business to meet customer expectations and compete successfully during periods of demand growth.

We manufacture all of our systems at a limited number of facilities, and any prolonged disruption in the operations of those facilities could reduce our revenues.

We produce all of our systems in our manufacturing facilities located in Milpitas, California. We use contract manufacturers in China, Israel, Japan and the United States. In addition, we perform limited subassembly for certain products at our York, England facility. Our manufacturing processes are highly complex and require sophisticated, costly equipment and specially designed facilities. As a result, any prolonged disruption in the operations of our manufacturing facilities, such as those resulting from acts of war, terrorism, political instability, health epidemics, fire, earthquake, flooding or other natural disaster could seriously harm our ability to satisfy our customer order deadlines.

Our results of operations could vary as a result of the methods, estimates and judgments we use in applying our accounting policies.

The methods, estimates and judgments we use in applying our accounting policies have a significant impact on our results of operations, see "Significant Accounting Policies" in Part II, Item 8, Note 1. Such methods, estimates and judgments are, by their nature, subject to substantial risks, uncertainties and assumptions, and factors may arise over time that leads us to change our methods, estimates and judgments. Changes in those methods, estimates and judgments could significantly affect our results of operations. In particular, our operating results have been affected by the calculation of share-based compensation expense and by the testing and potential impairment of long-lived assets such as goodwill and other intangible assets. The process of evaluating potential impairments is highly subjective and requires significant judgment, and our results of operations could vary significantly from estimates.

Our operating results have varied in the past and probably will continue to vary significantly in the future, which will cause volatility in our stock price.

Our quarterly and annual operating results have varied significantly in the past and are likely to vary in the future, which volatility could cause our stock price to decline. Some of the factors that may influence our operating results and subject our stock to extreme price and volume fluctuations include:

- general economic growth or decline in the U.S. or foreign markets;
- changes in customer demand for our systems;
- the gain or loss of a key customer or significant changes in the financial condition or one or more key customers;
- economic conditions in the semiconductor industries;
- the timing, cancellation or delay of customer orders and shipments;
- market acceptance of our products and our customers' products;
- our ability to recover the higher costs associated with meeting our customers' increasing service demands;
- competitive pressures on product prices and changes in pricing by our customers or suppliers;
- the timing of new product announcements and product releases by us or our competitors and our ability to design, introduce and manufacture new products on a timely and cost-effective basis;
- the occurrence of potential impairments of long-lived assets;
- the timing of acquisitions of businesses, products or technologies;

the effects of war, natural disasters, acts of terrorism or political unrest;  
the loss of key personnel;  
the levels of our fixed expenses, relative to our revenue levels; and  
fluctuations in foreign currency exchange rates, particularly the Japanese yen and the British pound sterling.



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The foregoing factors are difficult to forecast, and these, as well as other factors, could materially and adversely affect our quarterly and annual operating results. If our operating results in any period fall below the expectations of securities analysts and investors, the market price of our common stock would likely decline.

We are required to obtain an attestation report from independent registered public accounting firm on management's internal control over financial reporting for the 2011 fiscal year.

As a publicly traded company, we are subject to rules adopted by the SEC pursuant to Section 404 of the Sarbanes-Oxley Act of 2002. Section 404 requires us to include an internal control report from management in our Annual Report on Form 10-K. The internal control report must include the following: (1) a statement of management's responsibility for establishing and maintaining adequate internal control over financial reporting, (2) a statement identifying the framework used by management to conduct the required evaluation of the effectiveness of our internal control over financial reporting and (3) management's assessment of the effectiveness of our internal control over financial reporting as of the end of each fiscal year, including a statement as to whether or not internal control over financial reporting is effective. We are required to obtain an opinion that our independent registered public accounting firm has issued an attestation report on management's internal control over financial reporting for the 2011 fiscal year. If we report any material weakness in our internal controls, public perception of the Company may be adversely impacted, which in turn could cause a decline in the market value of our stock. We may also have to devote substantial resources to correcting any deficiencies.

We are highly dependent on international sales and operations, which exposes us to foreign political and economic risks.

We have operations in Japan, Taiwan, the United Kingdom, South Korea, China, Israel, Singapore and the European Union. As a result, we are subject to regulatory, geopolitical and other risks associated with doing business outside of the U.S. We anticipate that international sales will continue to account for a significant portion of our revenues.

International sales and operations carry inherent risks such as:

- regulatory limitations imposed by foreign governments;
- obstacles to the protection of our intellectual property, political, military and terrorism risks;
- foreign currency controls and currency exchange rate fluctuations;
- periodic local or international economic downturns;
- political instability, natural disasters, acts of war or terrorism in regions where we have operations;
- repatriation of cash earned in foreign countries;
- longer payment cycles and difficulties in collecting accounts receivable outside of the U.S.;
- disruptions or delays in shipments caused by customs brokers or other government agencies;
- uncertainty regarding liability under foreign laws;
- unexpected changes in regulatory requirements (including import and export requirements), tariffs, customs, duties and other trade barriers;
- difficulties in staffing and managing foreign operations;
- potentially adverse tax consequences resulting from changes in tax laws; and
- other challenges caused by distance, language and cultural differences.

If any of these risks materialize and we are unable to manage them, our international sales and operations would suffer.

We are exposed to fluctuations in the exchange rates of foreign currency.

As a global concern, we face exposure to adverse movements in foreign currency exchange rates. Our exposure to foreign exchange rate fluctuations arises in part from current intercompany accounts in which costs are charged between our U.S. headquarters and foreign subsidiaries. These exposures may change over time as business practices evolve and could have a material adverse impact on our financial results and cash flow.

We are subject to various environmental laws and regulations that could impose substantial costs upon us and may harm our business, operating results and financial condition.

Some of our operations use substances regulated under various federal, state, local, and international laws governing the environment, including those relating to the storage, use, discharge, disposal, labeling, and human exposure to hazardous and toxic materials. We could incur costs, fines and civil or criminal sanctions, third-party property damage or personal injury claims, or could be required to incur substantial investigation or remediation costs, if we were to violate or become liable under environmental laws. Liability under environmental laws can be joint and several and without regard to comparative fault. Compliance with current or future environmental laws and regulations could restrict our ability to expand our facilities or require us to acquire additional expensive equipment, modify our manufacturing processes, or incur other significant expenses.

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We may unintentionally violate environmental laws or regulations in the future as a result of human error, equipment failure or other causes.

Anti-takeover provisions in our charter documents and Delaware law could discourage, delay or prevent a change in control of our company and may affect the trading price of our common stock.

The anti-takeover provisions of the Delaware General Corporation Law may discourage, delay or prevent a change in control by limiting our ability to engage in a business combination with an interested stockholder for a period of three years after the person becomes an interested stockholder, even if a change of control would be beneficial to our existing stockholders. In addition, our certificate of incorporation and bylaws may discourage, delay or prevent a change in our management or control over us that stockholders may consider favorable. Our certificate of incorporation and bylaws:

- authorize the issuance of “blank check” preferred stock that could be issued by our board of directors to thwart a takeover attempt;

- establish a classified board of directors, as a result of which it will be more difficult for our stockholders to change the composition of our board of directors in a relatively short period of time;

- limit who may call special meetings of stockholders; and

- prohibit stockholder action by written consent, requiring all actions to be taken at a meeting of the stockholders.

We may experience periodic or prolonged disruption of our IT infrastructure, which may adversely affect our operations.

We rely on our Enterprise Resource Planning (“ERP”) system, SYSPRO, to manage our business and accurately and timely report key data with respect to our results of operations, financial position and cash flows. We may experience periodic or prolonged disruption of our IT infrastructure arising out of general use of such systems, periodic upgrades and updates, or external factors that are outside of our control. Any such disruption could adversely affect our ability to complete essential business processes, including our evaluation of our internal control over financial reporting pursuant to Section 404 of the Sarbanes-Oxley Act of 2002. If we encounter unforeseen problems with regard to our ERP system or other IT systems, our business, operations and financial condition could be adversely affected.

## ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

## ITEM 2. PROPERTIES

At December 31, 2011, our owned or leased facilities included those described below:

Type	Location	Square Footage	Use
Owned	Milpitas, California	133,000	Corporate headquarters and manufacturing
Owned	Milpitas, California	3,038	Corporate housing
Owned	Pyoungtack City, South Korea	1,139	Applications and service
Leased	United Kingdom	20,338	Sales, service and engineering
Leased	South Korea	20,241	Sales, service and corporate housing
Leased	Japan	12,286	Sales, service, application, logistics, corporate housing and administrations
Leased	United States	15,102	Engineering, sales and service
Leased	Taiwan	11,355	Sales and service
Leased	China	9,475	Sales and service
Leased	Israel	8,589	Engineering and service

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Leased	Germany	6,772	Manufacturing, sales and service
Leased	Singapore	4,529	Sales and service
Leased	France	570	Sales and service
Leased	Switzerland	387	Sales and service

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We believe that our existing facilities are suitable and adequate for our current needs and anticipated growth. The lease in York, United Kingdom with 20,338 square footage used by sales, service and engineering teams expires in October, 2017. The lease in Hwasung-City, South Korea with 13,544 square footage used as sales and service office expires in August, 2014. The lease in Unterschleissheim, Germany for our manufacturing facilities with 6,454 square footage expires December, 2012.

ITEM 3. LEGAL PROCEEDINGS

In August 2005, KLA-Tencor Corporation (“KLA”) filed a complaint against us in the United States District Court for the Northern District of California (the “California District Court”). The complaint alleged that certain of our products infringe two of KLA's patents. On January 30, 2006, KLA added a third patent to its complaint. The complaint sought a preliminary and permanent injunction against the sale of these products as well as the recovery of monetary damages and attorneys' fees. As part of our defense, we filed requests for re-examinations of the allegedly infringed KLA patents with the U.S. Patent & Trademark Office (“PTO”) to determine whether or not the patents should remain enforceable as written.

In March 2006, the California District Court stayed the patent litigation case until the re-examinations were completed. On November 4, 2008, the PTO issued an Ex Parte Reexamination Certificate (indicating completion of the reexamination process) on one of the three patents-in-suit. On December 8, 2009, the PTO issued an Ex Parte Reexamination Certificate for another of the KLA patents-in-suit. On September 21, 2009, while the reexamination of the third patent-in-suit was still pending, we filed a second request for re-examination relating to the third patent. On March 30, 2010, the PTO issued an Ex Parte Reexamination Certificate as to the first reexamination of the third patent.

In August 2011, we filed a complaint against KLA in the United States District Court for the District of Delaware. The complaint alleged that several of KLA's overlay metrology products infringe two of our patents. The complaint sought injunctive relief against KLA's sale of these products as well as a recovery of monetary damages and attorney's fees from KLA.

On January 13, 2012, we entered into a settlement and limited patent cross license agreement with KLA to resolve all existing patent litigation between the parties. Pursuant to the settlement agreement, we agreed to make a one-time payment of \$2.5 million to KLA and each party agreed to a cross-license of the patents that were subject to the litigation.

ITEM 4 MINE SAFETY DISCLOSURES

Not Applicable.

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## PART II

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

## Market Information for Common Stock

Our common stock is quoted on the NASDAQ Global Market under the symbol "NANO." The following table sets forth, for the periods indicated, the high and low sales prices per share of our common stock as reported on the NASDAQ Global Market.

2011	High	Low
First quarter	\$20.00	\$11.89
Second quarter	\$20.01	\$14.83
Third quarter	\$21.56	\$13.56
Fourth quarter	\$18.98	\$13.49
2010	High	Low
First quarter	\$13.42	\$7.98
Second quarter	\$12.25	\$6.60
Third quarter	\$15.74	\$8.00
Fourth quarter	\$15.80	\$10.92

## Stockholders

On March 6, 2012, there were approximately 246 holders of record of our common stock. Because brokers and the institutions on behalf of stockholders hold many of our shares of common stock, we are unable to estimate the total number of stockholders represented by these record holders.

## Dividend Policy

We have never declared or paid any cash dividends on our capital stock. We currently expect to retain future earnings, if any, for use in the operation and expansion of our business and do not anticipate paying any cash dividends in the foreseeable future.

## Stock Performance Graph

The following graph presentation compares cumulative five-year stockholder returns on an indexed basis, assuming a \$100 initial investment and reinvestment of dividends, of (a) Nanometrics Incorporated, (b) a broad-based equity market index and (c) an industry-specific index. The broad-based equity market index used is the NASDAQ Composite Index and the industry-specific index used is the RDG Technology Composite Index.

This performance graph shall not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended or otherwise subject to the liabilities under that Section, and shall not be deemed to be incorporated by reference into any of our filings under the Securities Act of 1933, as amended or the Exchange Act.

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## Recent Sales of Unregistered Securities

None.

## Issuer Purchases of Equity Securities

Pursuant to repurchase programs approved by the Board of Directors, the Company repurchased its common stock as follows (in thousands, except shares and per share data):

Plan	Period	Number of shares repurchased	Average price paid per share	Total shares repurchased under the plan	Amount remaining for repurchase
July 2007	August 2010	96,492	\$13.68	734,999	—
November 2010	December 2010	65,000	\$11.96	65,000	\$9,223
May 2011	June 2011	265,040	\$16.06	265,040	\$4,966

On July 26, 2007, our Board of Directors approved the repurchase shares of our common stock up to \$4.0 million.

During the fiscal year 2010, we repurchased and retired 96,492 shares of our common stock under this program for an aggregate consideration of \$1.3 million. As of January 1, 2011 the entire \$4.0 million approved by the Board for the repurchase of our shares of common stock had been used for the purpose.

On November 29, 2010, the Board of Directors approved another program to repurchase up to \$10.0 million of the Company's common stock. Share repurchases under this program may be made through open market and privately negotiated transactions, at times and in such amounts as management deems appropriate. The timing and actual number of shares repurchased is dependent on a variety of factors including price, corporate and regulatory requirements and other market conditions. During the fiscal year 2010, we repurchased and retired 65,000 shares of our common stock under this program for an aggregate consideration of \$0.8 million. As of January 1, 2011, there remained \$9.2 million available for the future repurchase of shares of our common stock. During the fiscal year 2011, we repurchased and retired 265,040 shares of our common stock under this program for an aggregate consideration of \$4.3 million. As of December 31, 2011, there remained \$5.0 million available for the future repurchase of shares of our common stock.

## ITEM 6. SELECTED FINANCIAL DATA

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The selected consolidated financial data set forth below should be read in conjunction with “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and the consolidated financial statements and related notes included elsewhere in this Annual Report on Form 10-K. Over the last five fiscal years, we have acquired a number of companies including Nanda Technologies GmbH in fiscal year 2011 and Tevet Process Control Technologies in fiscal year 2008, and also the Unifire™ product line from Zygo Corporation in fiscal year 2009. The results of these acquisitions have been included in our consolidated financial statements since the respective dates of these acquisitions and have contributed to our growth in revenues, income and income (loss) per share.

	Fiscal Year				
	2011	2010	2009(a)	2008	2007
	(in thousands, except per share data)				
Consolidated Statement of Operations Data:					
Net revenues:					
Products	\$ 194,774	\$ 154,548	\$ 49,153	\$ 75,596	\$ 126,049
Service	35,287	33,517	27,554	26,505	20,241
Total net revenues	230,061	188,065	76,707	102,101	146,290
Costs of revenues:					
Cost of products	88,579	66,484	26,594	38,692	63,938
Cost of service	18,304	19,328	13,992	18,675	20,717
Total cost of net revenues	106,883	85,812	40,586	57,367	84,655
Gross profit	123,178	102,253	36,121	44,734	61,635
Operating expenses:					
Research and development	23,290	18,973	14,672	17,110	18,577
Selling	27,019	21,320	15,072	17,798	19,561
General and administrative	22,901	18,617	15,168	19,689	21,704
Amortization of intangible assets	1,702	1,556	1,535	3,531	5,782
Restructuring charge	—	—	1,134	1,525	2,128
Gain on sale of assets	—	—	—	—	(2,100)
Legal settlement	2,500	—	—	—	—
Asset impairment and disposition	—	463	1,899	68,545	—
Total operating expenses	77,412	60,929	49,480	128,198	65,652
Income (loss) from operations	45,766	41,324	(13,359)	(83,464)	(4,017)
Other (expense) income, net	(1,182)	(635)	(3,532)	1,174	(22)
Provision (benefit) for income taxes	15,899	(15,259)	(586)	436	(31)
Net income (loss)	\$ 28,685	\$ 55,948	\$ (16,305)	\$ (82,726)	\$ (4,008)
Basic net income (loss) per share	\$ 1.26	\$ 2.56	\$ (0.87)	\$ (4.46)	\$ (0.22)
Diluted net income (loss) per share	\$ 1.22	\$ 2.43	\$ (0.87)	\$ (4.46)	\$ (0.22)
Shares used in per share computation:					
Basic	22,743	21,855	18,639	18,546	18,099
Diluted	23,480	22,998	18,639	18,546	18,099

(a) The fiscal year ended January 2, 2010 included 53 weeks, whereas the other periods presented included 52 weeks.



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	Fiscal Year End				
	2011	2010	2009	2008	2007
	(in thousands)				
Consolidated Balance Sheet Data:					
Cash, cash equivalents and short-term investments	\$97,699	\$66,460	\$43,526	\$23,980	\$14,919
Working capital	160,629	135,770	76,771	57,901	57,062
Total assets	267,221	220,025	147,470	123,854	207,076
Long-term liabilities including current portion of debt obligation	17,213	17,142	15,963	14,302	1,942
Total stockholders' equity	209,992	170,849	106,754	92,767	175,844

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

### Overview

You should read the following discussion and analysis of our financial condition and results of operations together with "Selected Financial Data" and our consolidated financial statements and related notes appearing elsewhere in this Annual Report on Form 10-K. This discussion and analysis contains forward-looking statements that involve risks, uncertainties and assumptions. The actual results may differ materially from those anticipated in these forward-looking statements as a result of certain factors, including, but not limited to, those presented under "Risk Factors" in Item 1A and elsewhere in this Annual Report on Form 10-K.

We are an innovator in the field of metrology and inspection systems for semiconductor manufacturing and other industries. Our systems are designed to precisely monitor film thickness and critical dimensions that are necessary to control the manufacturing process and to identify defects that can affect production yields and performance. Principal factors that impact our revenue growth include capital expenditures by manufacturers of semiconductors to increase capacity and to enable their development of new technologies, and our ability to take market share. The increasing complexity of the manufacturing processes for semiconductors is an important factor in the demand for our innovative metrology systems, as are the adoption of optical critical dimension ("OCD") metrology across fabrication processes, adoption of immersion lithography and double patterning, adoption of new types of thin film materials, the adoption of advanced packaging strategies and wafer backside inspection and the need for improved process control to drive process efficiencies. Our strategy is to continue to innovate organically as well as to evaluate strategic acquisitions in order to address business challenges and opportunities.

Our revenues are primarily derived from product sales but are also derived from customer service and system upgrades for the installed base of our products. In 2011, we derived 84.7% of our total net revenues from product sales and 15.3% of our total net revenues from services.

### Important Themes and Significant Trends

The semiconductor equipment industry is characterized by cyclical growth. Changing trends in the semiconductor industry continue to drive the need for metrology as a major component of manufacturing systems. These trends include:

- **Proliferation of Optical Critical Dimension Metrology across Fabrication Processes.** Our customers use photolithographic processes to create patterns on wafers. Critical dimensions must be carefully controlled during this process. In advanced node device definition, additional monitoring of thickness and profile dimensions on these patterned structures at CMP, Etch, and Thin Film processing is driving broader OCD adoption. Our proprietary OCD systems can provide the critical process control of these circuit dimensions that is necessary for successful manufacturing of these state of the art devices. Nanometrics OCD technology is broadly adopted across NAND, DRAM, HDD, and logic semiconductor manufacturing processes.

Adoption of Advanced Packaging Processes: Our customers use photolithographic, etching, metallization and wafer thinning to enable next generation advanced packaging solutions for semiconductor devices. The new packaging leads to increased functionality in smaller, less expensive form factors. Advanced packages can be broken down into high density flip chip or bump packages that increase pin density allowing for more complex I/O on advanced CPU parts. Or, similar or different devices can be stacked at the wafer level using a Through Silicon Via process. The TSV process enables high density small form factor parts, being primarily driven by mobile consumer products (i.e. cellular

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telephones with integrated CMOS camera sensors). Increasingly advanced packaging technologies are being adopted by our end customers.

**Adoption of New Types of Thin Film Materials.** The need for ever increasing device circuit speed coupled with lower power consumption has pushed semiconductor device manufacturers to begin the replacement of the traditional aluminum etch back interconnect flows as well as conventional gate dielectric materials, all which drive a broader adoption of thin film and OCD metrology systems. To achieve greater semiconductor device speed, manufacturers have adopted copper in Logic/IDM and it is now proliferating in next generation DRAM and Flash nodes.

Additionally, to achieve improved transistor performance in logic devices and higher cell densities in memory devices, new materials including high dielectric constant (or high-k) gate materials are increasingly being substituted for traditional silicon-oxide gate dielectric materials. High-k materials are comprised of complex thin films including layers of hafnium oxide and a bi-layer of thin film metals. Our advanced metrology and inspection solutions are required for control of process steps, which are critical to enable the device performance improvements that these new materials allow.

**Development of 3D Transistor Architectures.** Our end customers continue to improve device density and performance by scaling front end of line transistor architectures. Many of these designs have buried features and high aspect ratio stacked features that enable improved performance and density. The advanced designs require additional process control to manage the complex shapes and materials properties, driving additional applications for both OCD and our Unifire systems.

**Need for Improved Process Control to Drive Process Efficiencies.** Competitive forces influencing semiconductor device manufacturers, such as price-cutting and shorter product life cycles, place pressure on manufacturers to rapidly achieve production efficiency. Device manufacturers are using our integrated and automated systems throughout the fabrication to ensure that manufacturing processes scale rapidly, are accurate and can be repeated on a consistent basis.

**Reduced Number of Customers.** Our market is characterized by an ongoing oligopolistic trend which drives customer concentration. The largest customer accounted for 17.6% of our total revenue in the fiscal year 2001, and the largest customer accounted for 30.0% and 23.0% of our total revenue in the fiscal year 2011 and 2010, respectively.

### **Critical Accounting Policies**

The preparation of our financial statements conforms to accounting principles generally accepted in the United States of America, which requires management to make estimates and judgments in applying our accounting policies that have an important impact on our reported amounts of assets, liabilities, revenue, expenses and related disclosures at the date of our financial statements. On an on-going basis, management evaluates its estimates including those related to bad debts, inventory valuations, warranty obligations, impairment and income taxes. Management bases its estimates and judgments on historical experience and on various other factors that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from management's estimates. We believe that the application of the following accounting policies requires significant judgments and estimates on the part of management. For a summary of all of our accounting policies, including those discussed below, see Note 1 to the Consolidated Financial Statements.

**Revenue Recognition -** We recognize revenue when persuasive evidence of an arrangement exists, delivery has occurred or services have been rendered, the seller's price is fixed or determinable, and collectability is reasonably assured. We derive revenue from the sale of process control metrology and inspection systems ("product revenue") as well as spare part sales, billable services, service contracts, and upgrades (together "service revenue"). Upgrades are a group of parts and/or software that change the existing configuration of a product and are included in service revenue. They are distinguished from product revenue, which consists of complete, automated process control metrology systems (the "system(s)"). Nanometrics' systems consist of hardware and software components that function together to deliver the essential functionality of the system. Arrangements for sales of systems often include defined customer-specified acceptance criteria.

For product sales to existing customers, revenue recognition occurs when title and risk of loss transfer to the customer, which usually occurs upon shipment from the Company's manufacturing location, if it can be reliably demonstrated

that the product has successfully met the defined customer specified acceptance criteria and all other recognition criteria has been met. For initial sales where the Company has not previously met the defined customer specified acceptance criteria, product revenues are recognized upon the earlier of receipt of written customer acceptance or expiration of the contractual acceptance period. In Japan, where contractual terms with the customer specify risk of loss and title transfers upon customer acceptance, revenue is recognized upon receipt of written customer acceptance, provided that all other recognition criteria has been met.

We warrant our products against defects in manufacturing. Upon recognition of product revenue, a liability is recorded for anticipated warranty costs. On occasion, customers request a warranty period longer than our standard warranty. In those instances where extended warranty services are separately quoted to the customer, the associated revenue is deferred and recognized as service revenue ratably over the term of the contract. The portion of service contracts and extended warranty

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services agreements that are uncompleted at the end of any reporting period are included in deferred revenue.

As part of customer services, we also sell software that is considered to be an upgrade to a customer's existing systems. These standalone software upgrades are not essential to the tangible product's functionality and are accounted for under software revenue recognition rules which require vendor specific objective evidence ("VSOE") of fair value to allocate revenue in a multiple element arrangement. Revenue from upgrades is recognized when the upgrades are delivered to the customer, provided that all other recognition criteria have been met.

Revenue related to spare parts is recognized upon shipment. Revenue related to billable services is recognized as the services are performed. Service contracts may be purchased by the customer during or after the warranty period and revenue is recognized ratably over the service contract period.

Frequently, we deliver products and various services in a single transaction. Our deliverables consist of tools, installation, upgrades, billable services, spare parts, and service contracts. Our typical multi-element arrangements include a sale of one or multiple tools that include installation and standard warranty. Other arrangements may consist of a sale of tools bundled with service elements or delivery of different types of services. Tools, upgrades, and spare parts are delivered to customers within a period of up to six months from order date. Installation is usually performed soon after delivery of the tool. Billable services are billed on a time and materials basis and performed as requested by customers. Under service contract arrangements, services are provided as needed over the fixed arrangement term and such terms can be up to 12 months. We do not generally grant customers a general right of return or refund and impose a penalty on orders canceled prior to the scheduled shipment date.

On January 2, 2011, we adopted the new accounting guidance for arrangements with software elements and/or multiple deliverables. The amended guidance for multiple deliverable arrangements did not change the units of accounting for our revenue transactions, and most products and services qualify as separate units of accounting. The new guidance established a hierarchy of evidence to determine the standalone selling price of a deliverable based on vendor specific objective evidence ("VSOE"), third party evidence ("TPE"), or best estimated selling price ("BESP").

We regularly evaluate our revenue arrangements to identify deliverables and to determine whether these deliverables are separable into multiple units of accounting. In accordance with the new guidance, we allocate the arrangement consideration among the deliverables based on relative best estimated selling price. We have established VSOE for some of our products and services when a substantial majority of selling prices falls within a narrow range when sold separately. For deliverables with no established VSOE, we use best estimated selling price to determine standalone selling price for such deliverable. We do not use TPE to determine standalone selling price since this information is not widely available in the market as our products contain a significant element of proprietary technology and the solutions offered differ substantially from our competitors. We have established a process for developing estimated selling prices, which incorporates historical selling prices, the effect of market conditions, gross margin objectives, pricing practices, as well as entity-specific factors. We monitor and evaluate estimated selling price on a regular basis to ensure that changes in circumstances are accounted for in a timely manner. The adoption of the new accounting standards did not have a significant impact on our consolidated financial statements.

When certain elements in multiple-element arrangements are not delivered or accepted at the end of a reporting period, the relative selling prices of undelivered elements are deferred until these elements are delivered and/or accepted. If deliverables cannot be accounted for as separate units of accounting, the entire arrangement is accounted for as a single unit of accounting and revenue is deferred until all elements are delivered and all revenue recognition requirements are met.

Allowance for Doubtful Accounts – We maintain allowances for estimated losses resulting from the inability of our customers to make their required payments. Credit limits are established through a process of reviewing the financial history and stability of our customers. Where appropriate and available, we obtain credit rating reports and financial

statements of customers when determining or modifying their credit limits. We regularly evaluate the collectability of our trade receivable balances based on a combination of factors such as the length of time the receivables are past due, customary payment practices in the respective geographies and our historical collection experience with customers. We believe that our allowance for doubtful accounts adequately reflects our risk associated with our receivables. If however, the financial conditions of customers were to deteriorate, resulting in their inability to make payments, we would assess the necessity of recording additional allowances. This would result in additional general and administrative expenses being recorded for the period in which such determination was made.

Inventories – Inventories are stated at the lower of cost or market. We are exposed to a number of economic and industry-specific factors that could result in portions of our inventory becoming either obsolete or in excess of anticipated

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usage, or saleable only for amounts that are less than their carrying amounts. These factors include, but are not limited to, technological changes in our market, our ability to meet changing customer requirements, competitive pressures in products and prices, and the availability of key components from our suppliers. We have established inventory reserves when conditions exist that suggest that our inventory may be in excess of anticipated demand or is obsolete based upon our assumptions about future demand for our products and market conditions. Once a reserve has been established, it is maintained until the part to which it relates is sold or is otherwise disposed of. Therefore, reserved inventory sale has higher gross profit margin. We regularly evaluate our ability to realize the value of our inventory based on a combination of factors including the following: historical usage rates, forecasted sales of usage, product end-of-life dates, estimated current and future market values and new product introductions. Inventory includes evaluation tools placed at customer sites. For demonstration inventory, we also consider the age of the inventory and potential cost to refurbish the inventory prior to sale. Demonstration inventory is amortized over its useful life and the amortization expense is included in total depreciation and amortization on our cash flow statement. When recorded, our reserves are intended to reduce the carrying value of our inventory to its net realizable value. If actual demand for our products deteriorates, or market conditions are less favorable than those that we project, additional reserves may be required.

**Product Warranties** – We sell the majority of our products with a standard twelve (12)-month repair or replacement warranty from the date of acceptance or shipment date. We provide an accrual for estimated future warranty costs based upon the historical relationship of warranty costs to the cost of products sold. The estimated future warranty obligations related to product sales are reported in the period in which the related revenue is recognized. The estimated future warranty obligations are affected by the warranty periods, sales volumes, product failure rates, material usage and labor and replacement costs incurred in correcting a product failure. If actual product failure rates, material usage, labor or replacement costs differ from our estimates, revisions to the estimated warranty obligations would be required. For new product introductions where limited or no historical information exists, we may use warranty information from other previous product introductions to guide us in estimating our warranty accrual. The warranty accrual represents the best estimate of the amount necessary to settle future and existing claims on products sold as of the balance sheet date. We periodically assess the adequacy of our recorded warranty reserve and adjust the amounts in accordance with changes in these factors.

**Business Combinations** - We allocate the purchase price of acquired companies to the tangible and intangible assets acquired and liabilities assumed based upon their estimated fair values at the acquisition date. The purchase price allocation process requires management to make significant estimates and assumptions, especially at the acquisition date with respect to intangible assets and inventory acquired. While we use our best estimates and assumptions as a part of the purchase price allocation process to accurately value assets acquired and liabilities assumed at the acquisition date, our estimates are inherently uncertain and subject to refinement. As a result, during the measurement period, which may be up to one year from the acquisition date, we record adjustments to the assets acquired and liabilities assumed, with the corresponding offset to goodwill. Upon the conclusion of the measurement period or final determination of the values of assets acquired or liabilities assumed, whichever comes first, any subsequent adjustments are recorded to our consolidated statements of operations.

We estimate the fair value of inventory acquired by utilizing the net realizable value method which is based on the estimated sales price of the product less appropriate costs to complete and selling costs. Examples of critical estimates in valuing certain of the intangible assets we have acquired or may acquire in the future include but are not limited to:

- future expected cash flows from sales of products, services and acquired developed technologies and patents;
- expected costs to develop the in-process research and development into commercially viable products and estimated cash flows from the projects when completed;
- the value of the acquired company's customer relationships, as well as assumptions about the estimated useful lives of the relationships; and
- discount rates.

Unanticipated events and circumstances may occur which may affect the accuracy or validity of assumptions, estimates or actual results associated with business combinations.

Goodwill and Intangible Assets - Intangible assets with finite lives are amortized over their useful lives while goodwill and indefinite lived assets are not amortized but tested annually for impairment. Our impairment review process is completed as of November 30th of each year or whenever events or circumstances occur which indicate that an impairment may have occurred. During the fourth quarter of 2011, we early adopted the accounting standard update for testing goodwill for impairment. The accounting standard update provides companies with the option to assess qualitative factors to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying value. If, after assessing the qualitative factors, a company determines that it is not more likely than not that the fair value of a reporting unit is less than its carrying value, then performing the two-step impairment test is unnecessary. However, if a company concludes otherwise, then



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it is required to perform the first step of the two-step goodwill impairment test. The first step requires a comparison of the fair value of our reporting unit to its net book value. If the fair value is greater, then no impairment is deemed to have occurred. If the fair value is less, then the second step must be performed to determine the amount, if any, of actual impairment.

The process of evaluating the potential impairment of goodwill is highly subjective and requires significant judgment. In estimating the fair value of goodwill for the Company at the reporting unit level, we make estimates and judgments about future revenues and cash flows for the reporting unit. To determine the fair value, our review process includes the income method and is based on a discounted future cash flow approach that uses estimates including the following for the reporting unit: revenue, based on assumed market growth rates and our assumed market share; estimated costs; and appropriate discount rates based on the particular reporting unit's weighted average cost of capital. Our estimates of market segment growth, our market segment share and costs are based on historical data, various internal estimates and certain external sources, and are based on assumptions that are consistent with the plans and estimates we are using to manage the underlying businesses. Our business consists of both established and emerging technologies and our forecasts for emerging technologies are based upon internal estimates and external sources rather than historical information. We also consider our market capitalization on the dates of our impairment tests in determining the fair value of the respective businesses. As part of this assessment, we consider the trading value of our stock and implied value of as compared to our net assets as well as the valuation of acquired businesses. As part of the second step in determining the amount of goodwill impairment, if any, we allocate the fair value of the reporting unit to all of its assets and liabilities as if the reporting unit had been acquired in a business combination and the fair value of the reporting unit was the price paid to acquire the reporting unit. The excess of the fair value of the reporting unit over the amount assigned to its assets and liabilities is the implied fair value of goodwill. When impairment is deemed to have occurred, we will recognize an impairment charge to reduce the carrying amount of our goodwill to its implied fair value.

**Income Tax Assets and Liabilities** – We account for income taxes such that deferred tax assets and liabilities are recognized using enacted tax rates for the effect of temporary differences between the book and tax accounting for assets and liabilities. Also, deferred tax assets are reduced by a valuation allowance to the extent we cannot conclude that it is more likely than not that a portion of the deferred tax asset will be realized in the future. We evaluate the deferred tax assets on a continuous basis throughout the year to determine whether or not a valuation allowance is appropriate. Factors used in this determination include future expected income and the underlying asset or liability which generated the temporary tax difference. Our income tax provision is primarily impacted by federal statutory rates, state and foreign income taxes and changes in our valuation allowance.

**Stock-Based Compensation** – We estimate the value of employee stock options on the date of grant using the Black-Scholes model. The determination of fair value of share-based payment awards on the date of grant using an option-pricing model is affected by our stock price as well as assumptions regarding a number of highly complex and subjective variables. These variables include, but are not limited to the expected stock price volatility over the term of the awards, and actual and projected employee stock option exercise behaviors. The expected term of options granted is calculated based on the simplified method. The expected volatility is based on the historical volatility of our stock price.

**Restructuring Charges** - There were no restructuring or related charges during the fiscal years 2011 and 2010. During the fiscal year 2009, we implemented restructuring programs based on our business strategy and recorded significant accruals in connection with the restructuring program. In connection with the plan we recorded estimated expenses for severance and other costs. Costs associated with restructuring activities are recognized when they are incurred rather than the date of a commitment to an exit or disposal plan in accordance with ASC 420. A liability for post-employment benefits is incurred when payment is probable, the amount is reasonably estimable, and the obligation relates to rights that have vested or accumulated. Given the significance and complexity of restructuring activities, and the timing of the execution of such activities, the restructuring process involves periodic reassessments of the estimates made at the time the original decisions were made, including evaluating market conditions for expected disposals of assets and vacancy of space.

Recent Accounting Pronouncements

See Note 1 of the Consolidated Financial Statements for a description of recent accounting pronouncements, including the respective dates of adoption and effects on our results of operations and financial condition.

Results of Operations

The following table presents our consolidated statements of operations data as a percentage of total net revenues for fiscal years ended December 31, 2011, January 1, 2011 and January 2, 2010.

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	Fiscal Year				
	2011	2010	2009		
Net revenues:					
Products	84.7	% 82.2	% 64.1		%
Service	15.3	17.8	35.9		
Total net revenues	100.0	100.0	100.0		
Costs of net revenues:					
Cost of products	38.5	35.3	34.7		
Cost of service	8.0	10.3	18.2		
Total costs of net revenues	46.5	45.6	52.9		
Gross profit	53.5	54.4	47.1		
Operating expenses:					
Research and development	10.1	10.1	19.1		
Selling	11.7	11.3	19.6		
General and administrative	10.0	9.9	19.8		
Amortization of intangibles	0.7	0.8	2.0		
Restructuring charge	—	—	1.5		
Legal settlement	1.1				
Asset impairment	—	0.3	2.5		
Total operating expenses	33.6	32.4	64.5		
Income (loss) from operations	19.9	22.0	(17.4)		)
Other income (expense):					
Interest income	0.1	0.1	0.1		
Interest expense	(0.6)	) (0.8)	) (2.2)		)
Other, net	—	0.3	(2.5)		)
Total other income (expense), net	(0.5)	) (0.4)	) (4.6)		)
Income (loss) before income taxes	19.4	21.6	(22.0)		)
Provision (benefit) for income taxes	6.9	(8.1)	) (0.7)		)
Net income (loss)	12.5	% 29.7	% 22.7		%

Fiscal years 2011, 2010 and 2009 (ended December 31, 2011, January 1, 2011 and January 2, 2010, respectively)

Total net revenues. Our net revenues were comprised of the following product lines (in thousands, except percent):

	Fiscal Year				
	2011	2010	Change		
Automated systems	\$139,261	\$110,955	\$28,306	25.5	%
Integrated systems	25,413	17,437	7,976	45.7	%
Materials characterization	30,100	26,156	3,944	15.1	%
Total product revenue	194,774	154,548	40,226	26.0	%
Service	35,287	33,517	1,770	5.3	%
Total net revenues	\$230,061	\$188,065	\$41,996	22.3	%

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	Fiscal Year					
	2010	2009	Change			
Automated systems	\$110,955	\$36,554	\$74,401	203.5	%	
Integrated systems	17,437	2,767	14,670	530.2	%	
Materials characterization	26,156	9,832	16,324	166.0	%	
Total product revenue	154,548	49,153	105,395	214.4	%	
Service	33,517	27,554	5,963	21.6	%	
Total net revenues	\$188,065	\$76,707	\$111,358	145.2	%	

In 2011, revenue from products increased by \$40.2 million from 2010, principally due to increased demand from our customers associated with the expansion of their semiconductor fabrication plants, particularly in the first half of 2011. Approximately \$28.3 million of the increase was attributable to sales of our Automated Systems (primarily for Atlas®). Integrated Systems accounted for approximately \$8.0 million of the increase (principally 9010 Series and IMPULSE®) and Materials Characterization increased by \$3.9 million. Product revenue in the fourth quarter of 2011 decreased by \$13.0 million compared to the third quarter of 2011 due to a general pause in spending by some of our largest customers. We do not expect this trend to continue into the first quarter of 2012. Service revenue increased by \$1.8 million in 2011 principally due to increased demand for services provided under customer contracts.

In 2010 the revenue from products increased by \$105.4 million over the previous year, most of it attributable to increased capital spending by our customers. About \$74.4 million of this increase was attributable to Automated Systems (Atlas®, NanoGen®, Mosaic™, and Lynx™), Materials Characterization tools accounted for \$16.3 million of this increase and \$14.7 million represented increased sales of Integrated Systems. Service revenue increased by \$6.0 million in fiscal year 2010, compared to fiscal year 2009, a significant portion of this increase was due to increased parts sales of \$4.4 million.

Gross margins. Our gross margin breakdown was as follows:

	Fiscal Year					
	2011	2010	2009			
Products	54.5	% 57.0	% 45.9	%		
Service	48.1	% 42.3	% 49.2	%		

The gross margin on product revenue decreased from 57.0% in 2010 to 54.5% in 2011. The decrease is due to the approximately equivalent effects of higher warranty costs and higher installation costs driven by a change in product mix, and to a lesser extent due to lower factory absorption in the fourth quarter of 2011. The gross margin on service revenue improved in 2011 from 42.3% to 48.1%, principally due to reduction in field service labor costs and refinement of our allocation of warranty and installation costs between product and services.

The gross margin on product revenue increased significantly in 2010 compared to 2009 by 11.1 percentage points from 45.9% to 57.0%. Improved margins of 10.1 points were related to higher sales volume levels, which resulted in higher favorable absorption of manufacturing costs and lower warranty expense which was partially offset by increased royalties. The balance of the product margin improvement of 1.0 points was related to increased product margins due to a more favorable product mix of higher margin products. The margins on service revenue decreased from 49.2% in 2009 to 42.3% in 2010. This decrease was attributable to an 11.0 point decline in margins on upgrades and to cost increases related to hiring employees in the service organization to support the higher volume of sales and related service requirements.

Operating expenses. Our operating expenses were comprised of the following categories (in thousands):

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	Fiscal Year					
	2011	2010	Change			
Research and development	\$23,290	\$18,973	\$4,317	22.8		%
Selling	27,019	21,320	5,699	26.7		%
General and administrative	22,901	18,617	4,284	23.0		%
Amortization of intangible assets	1,702	1,556	146	9.4		%
Legal settlement	2,500	—	2,500	100.0		%
Asset impairment	—	463	(463)	(100.0)		)%
Total operating expenses	\$77,412	\$60,929	\$16,483	27.1		%

	Fiscal Year					
	2010	2009	Change			
Research and development	\$18,973	\$14,672	\$4,301	29.3		%
Selling	21,320	15,072	6,248	41.4		%
General and administrative	18,617	15,168	3,449	22.7		%
Amortization of intangible assets	1,556	1,535	21	1.4		%
Restructuring charge	—	1,134	(1,134)	(100.0)		)%
Asset impairment	463	1,899	(1,436)	(75.6)		)%
Total operating expenses	\$60,929	\$49,480	\$11,449	23.1		%

**Research and development.**

Research and development costs increased by \$4.3 million or 22.8% in fiscal year 2011 compared to 2010 primarily related to development of the Atlas II™ and costs associated with the acquisition of Nanda. This increase consisted of \$2.5 million of labor costs relating to increased hiring, incentive compensation and benefit costs, \$1.5 million of increased engineering materials and tooling, \$0.2 million from increased depreciation, and \$0.1 million from consulting.

Research and development costs increased by \$4.3 million or 29.3% in fiscal year 2010 when compared to 2009, this increase was a result of \$3.2 million increase in labor and consulting costs, \$0.7 million increase in cost of facilities, and \$0.4 million for engineering materials.

**Selling.**

Selling expenses increased by \$5.7 million or 26.7% in fiscal year 2011 compared to 2010. Higher costs are a result of labor costs of \$3.8 million related to increased hiring, compensation and benefits including commissions on higher revenues and stock-based compensation. The remainder of the increase represents principally \$0.9 million increase in travel expenses due to the increased number of sales personnel and transactions, \$0.4 million increase in facilities, \$0.3 million increase in marketing activities, \$0.2 million increase in depreciation, and \$0.1 million of other costs. Selling expenses increased by \$6.2 million or 41.4% in fiscal year 2010, when compared to 2009. Higher costs are a result of increased labor costs of \$4.8 million including increases in salaries, bonus, commission, severance and stock-based compensation and a \$1.1 million increase in travel expenses.

**General and administrative.**

General and administrative expenses increased by \$4.3 million or 23.0% in fiscal year 2011 compared to 2010. The higher costs are the result of \$1.8 million related to professional fees associated with the Nanda acquisition, \$0.9 million increase in other professional services, \$0.6 million increase in labor costs related to hiring of employees, \$0.3 million increase in facilities, \$0.2 million increase in depreciation, \$0.2 million increase in legal expenses and \$0.3 million aggregate increase in other costs including allowance for doubtful accounts, travel, and consulting services.

General and administrative expenses increased by \$3.4 million or 22.7% in fiscal year 2010, compared to 2009. Increases were the result of \$1.5 million in bonuses to executive officers related to the financial performance in 2010, increased salary expense of \$0.7 million attributed to increased headcount, a \$0.7 million increase in stock-based compensation and \$0.6 million increase in the cost of facilities.



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Amortization of intangible assets.

Amortization of intangibles assets in fiscal year 2011 increased by \$0.1 million, compared to 2010, primarily as a result of the amortization of intangible assets acquired from Nanda, partially offset by a reduction in amortization of other intangible assets that became fully amortized in 2011.

Amortization of intangibles assets in fiscal year 2010 was consistent with 2009.

Legal settlement.

In 2011, we incurred a one-time charge of \$2.5 million associated with a one-time payment to KLA-Tencor under a settlement agreement.

Restructuring charge.

The restructuring process was completed in fiscal year 2009; hence there were no restructuring charges in 2011 and 2010. Conversely, as a result of increases in revenue due to the increased capital spending in the semiconductor industry, we increased our headcount in fiscal years 2010 and 2011.

Asset impairment.

There were no asset impairment charges in 2011.

During the fiscal year 2010, we recognized impairment charges of \$0.5 million related to write-offs of various IT projects, compared to an impairment charge of \$1.9 million in 2009 related to the closure of our South Korea manufacturing facility.

Other income (expense), net. Our other income (expense), net consisted of the following items (in thousands, except percents):

	Fiscal Year				
	2011	2010	Change		
Interest income	\$220	\$107	\$113	105.6	%
Interest expense	(1,336	) (1,556	) 220	(14.1	)%
Other income (expense)	(66	) 814	(880	) NM	*
Total other expense, net	\$(1,182	) \$(635	) \$547	86.1	%

\*NM = not meaningful

	Fiscal Year				
	2010	2009	Change		
Interest income	\$107	\$53	\$54	101.0	%
Interest expense	(1,556	) (1,658	) 102	(6.2	)%
Other income (expense)	814	(1,927	) 2,741	NM	*
Total other expense, net	\$(635	) \$(3,532	) \$2,897	(82.0	)%

\*NM = not meaningful

During fiscal year 2011 interest expense decreased \$0.2 million compared to fiscal year 2010, the decrease was attributed to \$2.5 million of principal payments on the mortgage related to our headquarter facility. Other income decreased by \$0.9 million, to \$0.1 million of expense, principally as a result of \$0.6 million increase in foreign exchange loss, from a gain of \$0.3 million in fiscal 2010 to a loss of \$0.3 million in fiscal 2011. In addition, other income in 2010 included a \$0.2 million gain on the sale of fixed assets that did not recur in 2011.

During fiscal year 2010 our interest expense was relatively flat compared to fiscal year 2009, the slight decrease is attributed to the pay down of \$2.5 million on the mortgage related to our headquarter facility. Other income increased \$2.7 million, due to a \$2.0 million reduction in loss on foreign exchange from \$1.7 million loss in fiscal year 2009 to \$0.3 million





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gain in fiscal year 2010, and due to \$0.5 million change to the fair value of deferred payments to Zygo Corporation related to our acquisition of certain assets and our entry into a supply agreement with Zygo Corporation and \$0.2 million gain on sale of assets compared to 2009.

Provision/Benefit for income taxes.

Our effective tax rate was 35.7%, (37.5)%, and (3.4)% in 2011, 2010, and 2009, respectively. The Company's provision for income taxes for 2011 of \$15.9 million reflects an effective tax rate of 35.7%. This rate differs from the Federal statutory rate of 35% due to state income taxes and higher foreign tax expense due to net operating losses without current benefit, partially offset by the domestic production activities deduction and research tax credits. The Company's benefit for income taxes for 2010 of \$15.2 million or 37.5% was primarily due to the decrease in the deferred income tax valuation allowance against U.S. and Japan deferred tax assets and the utilization of all of the Company's U.S. Federal net operating loss carry-forwards.

The Company maintains valuation allowances when it is likely that all or a portion of a deferred tax asset will not be realized. Changes in valuation allowances from period to period are included in the Company's income tax provision in the period of change. In determining whether a valuation allowance is warranted, the Company takes into account such factors as prior earnings history, expected future earnings, unsettled circumstances that, if unfavorably resolved, would adversely affect utilization of a deferred tax asset, carry-back and carry-forward periods, and tax strategies that could potentially enhance the likelihood of realization of a deferred tax asset.

Net income (loss). Our net income for the fiscal year 2011 was \$28.7 million, compared to net income of \$55.9 million in fiscal year 2010. The decrease was primarily due to the change in the income tax provision as a result of the one-time release (benefit) of a deferred income tax valuation allowance, which contributed \$18.2 million to net income in 2010. The reduction in net income also was a result of the one-time expenses incurred in 2011 associated with the acquisition of Nanda and legal settlement with KLA-Tencor. These effects were partially offset by an increase in revenue.

Liquidity and Capital Resources

At December 31, 2011, our cash and cash equivalents totaled \$97.7 million and working capital was \$160.6 million, compared to cash of \$66.5 million and working capital of \$135.8 million as of January 1, 2011. Undistributed earnings that were not previously taxed amounted to \$0.8 million as of December 31, 2011.

Operations –

During year ended December 31, 2011, cash provided by operations was \$54.0 million which reflected net income of \$28.7 million, non-cash transactions of \$13.3 million and a \$12.1 million reduction in non-cash working capital.

Non-cash transactions primarily consisted of i) depreciation and amortization expense of \$6.5 million ii) stock based compensation of \$4.5 million, iii) excess tax benefit from equity awards of \$3.9 million, iv) inventory write down of \$1.9 million, and v) \$3.8 million increase in deferred income taxes. Changes in working capital were mostly due to a \$16.1 million decrease in receivables resulted from timing of sales and collections, an increase in inventory of \$12.2 million, and a \$12.4 million increase in accruals related to \$4.9 million in customer deposits, \$2.5 million in accrued legal settlement, and \$5.0 million in accrued income taxes.

During year ended January 1, 2011, cash provided by operations was \$27.6 million which reflected net income of \$55.9 million, partially offset by non-cash transactions of \$7.5 million and a \$20.8 million increase in working capital. Non-cash transactions primarily included i) \$17.2 million net tax benefit, consisting primarily of a \$18.2 million release of income tax valuation allowance, ii) stock based compensation of \$3.0 million, iii) depreciation, amortization and impairment expense of \$6.3 million, iv) increases in inventory reserves of \$1.5 million. Changes in working capital were mostly due to a \$21.0 million increase in receivables due to higher revenue and timing of collections, an increase of \$14.5 million in inventory and a \$11.5 million increase in payables and accruals as a result of tighter cash management.

During year ended January 2, 2010, operating activities used cash of \$5.8 million primarily as a result of our net loss of \$16.3 million, offset by certain non-cash charges including \$6.1 million amortization and depreciation, \$1.9 million of asset impairment, and \$2.1 million of stock-based compensation.

On June 17, 2009, we announced a strategic business partnership with Zygo Corporation whereby we have purchased inventory and certain other assets from Zygo Corporation, and the two companies have entered into a supply

agreement. We will make payments to Zygo Corporation (with an estimated present value of \$2.6 million as of January 1, 2011) over a period of time as acquired inventory is sold and other aspects of the supply agreement are executed. A payment of \$2.0 million of inventory and fixed assets was made to Zygo Corporation on January 7, 2010, in accordance with the terms of the acquisition agreement. We have evaluated and will continue to evaluate the acquisitions of products, technologies or business that are

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complementary to our business. These activities may result in product and business investments, which may affect our cash position and working capital balances. Some of these activities might require significant cash outlays.

Investing –

During the year ended December 31, 2011, investing activities accounted for the use of \$27.1 million of cash, of which \$23.9 million was for the acquisition of Nanda, \$2.8 million was for purchases of capital equipment and \$0.4 million was paid to Zygo related to royalties and sustaining engineering payments.

During the year ended January 1, 2011, investing activities accounted for the use of \$6.1 million of cash, of which \$3.1 million was for purchases of capital equipment and patents and \$3.5 million was paid to Zygo related to inventories and fixed assets associated with the Unifire acquisition. These were offset by \$0.5 million of cash received from the sale of assets, primarily related to the sale of the South Korean manufacturing facility.

During the year ended January 2, 2010, cash used of \$0.6 million related to cash outlays of \$0.8 million in capital equipment, offset by net cash received from the release of funds held in escrow in connection with our acquisition of Tevet Process Control Technologies, Ltd. (“Tevet”).

Financing –

Fiscal 2011 - Financing activities contributed \$4.1 million of cash, primarily attributed to \$7.2 million from issuance of common stock for purchases under the employee stock purchase program and the exercise of options and a \$3.9 million excess tax benefit related to equity awards. These activities were partially offset by \$4.3 million used for repurchases and retirements of our common stock and \$2.6 million paid on the mortgage on our corporate headquarters.

Fiscal 2010 - Financing activities contributed \$1.2 million of cash, primarily attributed to \$5.8 million from issuance of common stock for stock options exercised and stock purchased under the employee stock purchase program, partially offset by payment of \$3.0 million on the mortgage on our corporate headquarters and \$2.1 million for repurchases of our common stock.

Fiscal 2009 - Financing activities contributed cash of \$26.0 million. Proceeds were from a follow-on public offering of our common stock of \$23.3 million, plus \$3.0 million from the issuance of common stock to employees under the Company's Stock Option and Stock Purchase plan. This was partially offset by \$0.3 million of repayments for the Company's debt obligations.

The follow-on public offering of our common stock was completed in December 2009 and net proceeds of \$23.3 million were used to repay \$2.0 million of certain obligations related to the Company's acquisition of certain assets of Zygo Corporation in June 2009 with the remainder used for general corporate purposes, including working capital.

Line of Credit -In February 2007, we entered into a two-year agreement for a revolving line of credit facility with a maximum principal amount of \$15.0 million. On April 30, 2009, we negotiated an extension to the maturity date of the revolving line of credit facility of an additional two years, to April 30, 2011. On June 15, 2009, we amended the financial covenants governing the credit facility to reduce the tangible net worth requirements, effective as of June 27, 2009. On April 13, 2010, we amended the revolving line of credit facility to (i) increase the maximum principal amount available there under from \$15.0 million to \$20.0 million, (ii) extend the maturity date of such facility by one year to April 30, 2012, and (iii) decrease the unused revolving line commitment fee from 0.25% per annum to 0.1875% per annum.

The instrument governing the facility includes certain financial covenants regarding net tangible net worth. The revolving line of credit agreement includes a provision for the issuance of commercial or standby letters of credit by the bank on our behalf. The value of all letters of credit outstanding reduces the total line of credit available. The revolving line of credit is collateralized by a blanket lien on all of our domestic assets excluding intellectual property and real estate. The minimum borrowing interest rate is 5.75% per annum. The maximum borrowing allowed on the line of credit is \$20.0 million. Borrowing is limited to the lesser of (a) \$7.5 million plus the borrowing base or (b) \$20.0 million. The borrowing base available as of December 31, 2011 was \$18.1 million. As of December 31, 2011, we were not in breach of any restrictive covenants in connection with our line of credit and debt obligations.

There were no borrowing against (or payments to) the line of credit during the fiscal year 2011 and 2010 and there are no amounts outstanding on this facility as of December 31, 2011 or January 1, 2011. We borrowed \$7.0 million during fiscal year 2009 and repaid the amounts in full during fiscal year 2009. Although we have no current plans to request

advances under this credit facility, we may use the proceeds of any future borrowing for general corporate purposes, future acquisitions or expansion of our business.

Mortgage Loan -In July 2008, we entered into a loan agreement with General Electric Commercial Finance ("GE") pursuant to which we borrowed \$13.5 million secured, in part, by a lien on and security interest in the building and land comprising our principal offices in Milpitas, California. The loan initially bears interest at the rate of 7.18% per annum, which

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rate will be reset in August 2013 to 3.03% over the weekly average yield of five-year U.S Dollar Interest Rate Swaps as published by the Federal Reserve. Monthly principal and interest payments are based on a twenty year amortization for the first sixty months and fifteen year amortization thereafter. The remaining principal balance of the loan and any accrued but unpaid interest will be due on August 1, 2018. According to the terms of the loan agreement, we can make annual pre-payments of up to 20% of the outstanding principal balance without incurring any penalty. GE subsequently sold the mortgage on March 31, 2011 to Sterling Saving Bank; however, no changes were made to the terms of the original loan agreement with GE as a result of the sale. In July 2011, we prepaid \$1.95 million of the loan, representing 20% of the outstanding balance.

Repurchases of Common Stock -On November 29, 2010, the Company's Board of Directors approved a program to repurchase up to \$10.0 million of our common stock. Share repurchases under this program may be made through open market or privately negotiated transactions, at times and in such amounts as management deems appropriate. The timing and actual number of shares repurchased is dependent on a variety of factors including price, corporate and regulatory requirements and other market conditions.

During 2011, the Company repurchased and retired a total of 265,040 shares of our common stock under this program at a weighted average price of \$16.00 per share for total aggregate consideration of \$4.3 million. As of December 31, 2011 there remained \$5.0 million available for the future repurchase of shares of our common stock. During the fiscal year 2010, the Company repurchased and retired 161,492 shares of our common stock under this program at a weighted average price of \$12.99 per share for total aggregate consideration of \$2.1 million.

Business Partnership - On June 17, 2009, we announced a strategic business partnership with Zygo Corporation whereby we have purchased inventory and certain other assets from Zygo Corporation, and the two companies entered into a supply agreement. We will make payments to Zygo Corporation (with an estimated present value of \$2.6 million as of December 31, 2011) over a period of time as acquired inventory is sold and other aspects of the supply agreement are executed. We made royalty and sustaining engineering payments of \$0.4 million to Zygo in each of fiscal years 2011 and 2010, respectively. We have evaluated and will continue to evaluate the acquisitions of products, technologies or businesses that are complementary to our business. These activities may result in product and business investments, which may affect our cash position and working capital balances. Some of these activities might require significant cash outlays.

We believe our cash, cash equivalents and borrowing availability will be sufficient to meet our needs through at least the next twelve months.

## Off-Balance Sheet Arrangements

As of December 31, 2011 and January 1, 2011, we had no off-balance sheet arrangements or obligations.

## Contractual Obligations

The following table summarizes our contractual cash obligations as of December 31, 2011, and the effect such obligations are expected to have on liquidity and cash flow in future periods (in thousands):

	Total	Payments due by period			
		Less than 1 year	1-3 years	3-5 years	More than 5 years
Debt obligations (1)	\$9,515	\$1,176	\$1,937	\$1,623	\$4,779
Fair value of deferred payments to Zygo Corporation related to acquisition	2,633	679	1,511	292	151
Other long-term liabilities	875	—	—	875	—
Operating lease obligations	4,094	1,642	1,397	695	360

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Total	\$17,117	\$3,497	\$4,845	\$3,485	\$5,290
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(1)Includes interest.

We maintain certain open inventory purchase agreements with our suppliers to ensure a smooth and continuous supply availability for key components. Our liability under these purchase commitments is generally restricted to a forecasted time-horizon as mutually agreed upon between the parties. This forecast time-horizon can vary among different suppliers. We estimate our open inventory purchase commitment as of December 31, 2011 was approximately \$23.3 million. Actual

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expenditures will vary based upon the volume of the transactions and length of contractual service provided. In addition, the amounts paid under these arrangements may be less in the event that the arrangements are renegotiated or cancelled. Certain agreements provide for potential cancellation penalties.

Excluded from the contractual obligation table above, are \$2.4 million of future payments related to uncertain tax positions because we cannot reliably estimate the timing of the settlements with the respective tax authorities.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

We are exposed to financial market risks related to foreign currency exchange rates and interest rates. We do not use derivative financial instruments.

Foreign Currency Risk

A substantial part of our business consists of sales made to customers outside the United States: 78.1%, 65.4% and 70.3% of sales in 2011, 2010 and 2009, respectively; 19.52%, 15.24%, and 19.70% of the net revenues in 2011, 2010 and 2009, respectively, were denominated in currencies other than the U.S. dollar. Additionally, portions of our costs of net revenues and our operating expenses are incurred by our international operations and denominated in local currencies.

Our exposure to foreign exchange rate fluctuations arises in part from intercompany balances in which costs are charged between our U.S. headquarters and our foreign subsidiaries. On our consolidated balance sheet these intercompany balances are eliminated and thus no consolidated balances are associated with these intercompany balances; however, since each foreign entity's functional currency is generally its respective local currency, there is exposure to foreign exchange risk on a consolidated basis. Intercompany balances are denominated in U.S. dollars and other local currencies, and the net payable from the United States parent amounted to \$0.7 million as of December 31, 2011. A hypothetical change of 10% in the foreign currency exchange rate at December 31, 2011 could result in an increase or decrease of approximately \$0.1 million in transaction gains or losses which would be included in our statement of operations.

Foreign currency transactions resulted in a loss for 2011 of \$0.3 million, a gain for 2010 of \$0.3 million, and a loss for 2009 of \$1.7 million.

Interest Rate Risk

At December 31, 2011, January 1, 2011 and January 2, 2010, the Company did not hold investments in marketable securities. As of December 31, 2011, there were no amounts borrowed against the line of credit and the interest rate on the GE loan is fixed, therefore, there are no significant interest rate risks.

In July 2008, we entered into a loan agreement pursuant to which we borrowed \$13.5 million. The loan initially bears interest at the rate of 7.18% per annum, which rate will be reset after five years in 2013 to 3.03% over the then weekly average yield of five-year U.S. Dollar Interest Rate Swaps as published by the Federal Reserve. Monthly principal and interest payments are based on a twenty year amortization for the first sixty months and fifteen year amortization thereafter. The remaining principal balance of the loan and any accrued but unpaid interest will be due on August 1, 2018. The loan is secured, in part, by a lien on and security interest in the building and land comprising our principal offices in Milpitas, California. At December 31, 2011 and January 1, 2011 our total debt obligation was \$7.5 million and \$10.0 million, respectively, with a long-term portion of \$6.7 million and \$9.5 million, respectively.

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ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

The information required by Item 8 of Form 10-K is presented here in the following order:

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

	Page
<u>Report of Independent Registered Public Accounting Firm (PricewaterhouseCoopers LLP)</u>	<u>39</u>
<u>Report of Independent Registered Public Accounting Firm (BDO, USA, LLP (formerly BDO Seidman, LLP))</u>	<u>40</u>
<u>Consolidated Balance Sheets</u>	<u>41</u>
<u>Consolidated Statements of Operations</u>	<u>42</u>
<u>Consolidated Statements of Stockholders' Equity and Comprehensive Income (Loss)</u>	<u>43</u>
<u>Consolidated Statements of Cash Flows</u>	<u>44</u>
<u>Notes to Consolidated Financial Statements</u>	<u>45</u>



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Report of Independent Registered Public Accounting Firm  
To the Board of Directors and Stockholders of  
Nanometrics Incorporated

In our opinion, the consolidated financial statements listed in the accompanying index present fairly, in all material respects, the financial position of Nanometrics, Inc. and its subsidiaries (the Company) at December 31, 2011 and January 1, 2011, and the results of their operations and their cash flows for each of the two years then ended in conformity with accounting principles generally accepted in the United States of America. In addition, in our opinion, the financial statement schedule listed in the accompanying index appearing under Item 15(a)2(a) presents fairly, in all material respects, the information set forth therein when read in conjunction with the related consolidated financial statements. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2011, based on criteria established in Internal Control - Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). The Company's management is responsible for these financial statements and financial statement schedule, for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in "Report of Management on Internal Control over Financial Reporting" appearing under Item 9A. Our responsibility is to express opinions on these financial statements, on the financial statement schedule, and on the Company's internal control over financial reporting based on our integrated audits. We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement and whether effective internal control over financial reporting was maintained in all material respects. Our audits of the financial statements included examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

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

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

/s/ PricewaterhouseCoopers LLP  
San Jose, California  
March 12, 2012



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Report of Independent Registered Public Accounting Firm

Board of Directors and Stockholders

Nanometrics Incorporated

Milpitas, California

We have audited the accompanying consolidated statements of operations, stockholders' equity and comprehensive income (loss), and cash flows of Nanometrics Incorporated for the year ended January 2, 2010. In connection with our audit of the financial statements, we have also audited the information included in the consolidated financial statement schedule listed in Item 15 for the year ended January 2, 2010. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit 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. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. Our audit included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion. An audit also includes 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, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the results of operations of Nanometrics Incorporated and its cash flows for the year ended January 2, 2010, in conformity with accounting principles generally accepted in the United States of America.

Also, in our opinion, the aforementioned information included in the financial statement schedule, when considered in relation to the basic consolidated financial statements taken as a whole, present fairly, in all material respects, the information set forth therein.

/s/ BDO USA, LLP

(formerly known as BDO Seidman, LLP)

San Francisco, CA

March 26, 2010

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CONSOLIDATED BALANCE SHEETS

(In thousands, except share amounts)

	December 31, 2011	January 1, 2011
<b>ASSETS</b>		
Current assets:		
Cash and cash equivalents	\$97,699	\$66,460
Accounts receivable, net of allowances of \$117 and \$63, respectively	29,289	44,523
Inventories	52,260	43,168
Inventories - delivered systems	1,637	1,466
Prepaid expenses and other	8,119	2,986
Deferred income taxes	12,406	9,644
Total current assets	201,410	168,247
Property, plant and equipment, net	35,521	35,186
Goodwill	11,990	—
Intangible assets, net	14,394	5,972
Deferred income tax assets - long term	2,864	9,256
Other assets	1,042	1,235
Total assets	\$267,221	\$219,896
<b>LIABILITIES AND STOCKHOLDERS' EQUITY</b>		
Current liabilities:		
Accounts payable	\$7,975	\$11,486
Accrued payroll and related expenses	8,837	8,813
Deferred revenue	5,788	4,063
Other current liabilities	16,709	7,293
Income taxes payable	707	250
Current portion of debt obligations	765	572
Total current liabilities	40,781	32,477
Deferred revenue	4,547	3,191
Income taxes payable	2,401	—
Other long-term liabilities	2,813	3,912
Debt obligations	6,687	9,467
Total liabilities	57,229	49,047
Stockholders' equity:		
Preferred stock, \$0.001 par value; 3,000,000 shares authorized; no shares issued or outstanding	—	—
Common stock, \$0.001 par value per share; 47,000,000 shares authorized; 23,182,771 and 22,314,783 respectively, issued and outstanding	23	22
Additional paid-in capital	236,735	225,755
Accumulated deficit	(28,315	) (57,000 )
Accumulated other comprehensive income	1,549	2,072
Total stockholders' equity	209,992	170,849
Total liabilities and stockholders' equity	\$267,221	\$219,896
See notes to consolidated financial statements.		

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NANOMETRICS INCORPORATED  
CONSOLIDATED STATEMENTS OF OPERATIONS

(In thousands, except per share amounts)

	Years Ended		
	December 31, 2011	January 1, 2011	January 2, 2010
Net revenues:			
Products	\$194,774	\$154,548	\$49,153
Service	35,287	33,517	27,554
Total net revenues	230,061	188,065	76,707
Costs of net revenues:			
Cost of products	88,579	66,484	26,594
Cost of service	18,304	19,328	13,992
Total costs of net revenues	106,883	85,812	40,586
Gross profit	123,178	102,253	36,121
Operating expenses:			
Research and development	23,290	18,973	14,672
Selling	27,019	21,320	15,072
General and administrative	22,901	18,617	15,168
Amortization of intangible assets	1,702	1,556	1,535
Restructuring charge	—	—	1,134
Legal settlement	2,500	—	—
Asset impairment	—	463	1,899
Total operating expenses	77,412	60,929	49,480
Income (loss) from operations	45,766	41,324	(13,359 )
Other income (expense):			
Interest income	220	107	53
Interest expense	(1,336 )	(1,556 )	(1,658 )
Other, net	(66 )	814	(1,927 )
Total other income (expense), net	(1,182 )	(635 )	(3,532 )
Income (loss) before income taxes	44,584	40,689	(16,891 )
Provision (benefit) for income taxes	15,899	(15,259 )	(586 )
Net income (loss)	\$28,685	\$55,948	\$(16,305 )
Basic net income (loss) per share	\$1.26	\$2.56	\$(0.87 )
Diluted net income (loss) per share	\$1.22	\$2.43	\$(0.87 )
Shares used in per share computation:			
Basic	22,743	21,855	18,639
Diluted	23,480	22,998	18,639

See notes to consolidated financial statements.

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NANOMETRICS INCORPORATED  
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY AND  
COMPREHENSIVE INCOME (LOSS)

(In thousands, except share amounts)

	Common Stock		Additional	Accumulated	Other	Total	Comprehensive
	Shares	Amount	Paid-In Capital	Deficit	Comprehensive Income (Loss)	Stockholders Equity	Income (Loss)
Balances, December 27, 2008	18,413,054	\$ 18	\$ 189,927	\$ (96,643 )	\$ (535 )	\$ 92,767	
Comprehensive loss:							
Net income (loss)	—	—	—	(16,305 )	—	(16,305 )	\$ (16,305 )
Other comprehensive income							
Employee benefit plan adjustment					110	110	110
Foreign currency translation adjustments	—	—	—	—	1,798	1,798	1,798
Comprehensive loss	—	—	—	—	—	—	\$ (14,397 )
Issuance of common stock under stock-based compensation plans, net of tax	786,585	1	3,037	—	—	3,038	
Common stock offering, net of \$426 offering costs	2,307,152	2	23,290	—	—	23,292	
Stock-based compensation expense	—	—	2,054	—	—	2,054	
Balances, January 2, 2010	21,506,791	21	218,308	(112,948 )	1,373	106,754	
Comprehensive loss:							
Net income	—	—	—	55,948	—	55,948	\$ 55,948
Other comprehensive income							
Employee benefit plan adjustment	—	—	—	—	(51 )	(51 )	(51 )
Foreign currency translation adjustments	—	—	—	—	750	750	750
Comprehensive income	—	—	—	—	—	—	\$ 56,647
Issuance of common stock under stock-based compensation plans, net of tax	969,484	1	6,622	—	—	6,623	
Common stock offering costs	—	—	(28 )	—	—	(28 )	
Stock-based compensation expense	—	—	2,950	—	—	2,950	
Repurchases and retirement of common stock	(161,492 )	—	(2,097 )	—	—	(2,097 )	
Balances, January 1, 2011	22,315	22	225,755	(57,000 )	2,072	170,849	
Comprehensive loss:							
Net income	—	—	—	28,685	—	28,685	\$ 28,685
Other comprehensive income							
Employee benefit plan adjustment	—	—	—	—	(39 )	(39 )	(39 )
	—	—	—	—	(484 )	(484 )	(484 )

Foreign currency translation adjustments							
Comprehensive income	—	—	—	—	—		\$ 28,162
Issuance of common stock under stock-based compensation plans, net of tax	1,133,028	1	10,764	—	—	10,765	
Stock-based compensation expense	—	—	4,473	—	—	4,473	
Repurchases and retirement of common stock	(265,040 )	—	\$(4,257 )			(4,257 )	
Balances, December 31, 2011	23,182,771	\$23	\$236,735	\$(28,315 )	\$ 1,549	\$ 209,992	
See notes to consolidated financial statements.							

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NANOMETRICS INCORPORATED  
CONSOLIDATED STATEMENTS OF CASH FLOWS

(In thousands, excepts)

	Years Ended		
	December 31, 2011	January 1, 2011	January 2, 2010
Cash flows from operating activities:			
Net income (loss)	\$28,685	\$55,948	\$(16,305 )
Reconciliation of net income (loss) to net cash provided by (used in) operating activities:			
Depreciation and amortization	6,488	5,858	6,092
Asset impairment	—	463	1,899
Stock-based compensation	4,473	2,950	2,054
Excess tax benefit from equity awards	(3,915 )	(801 )	—
(Gain) Loss on disposal of asset	113	(140 )	82
Inventory write down	1,916	1,457	376
Deferred taxes	3,770	(17,233 )	(426 )
Unrealized foreign exchange loss (gain)	—	(523 )	939
Change in the fair value of contingent payments to Zygo	413	467	596
Changes in assets and liabilities, net of effects of assets acquired and liabilities assumed in acquisitions:			
Accounts receivable	16,172	(20,996 )	(5,971 )
Inventories	(12,169 )	(14,495 )	1,572
Inventories – delivered systems	446	244	(975 )
Prepaid expenses and other	(4,747 )	(398 )	(113 )
Accounts payable, accrued and other liabilities	4,241	11,533	775
Deferred revenue	3,088	1,414	3,941
Income taxes payable	5,054	1,879	(291 )
Net cash provided by (used in) operating activities	54,028	27,627	(5,755 )
Cash flows from investing activities:			
Cash received from Tevet on escrow settlement	—	—	215
Payments to Zygo, related to acquisition	(432 )	(3,503 )	—
Purchase of Nanda's net assets, net of cash received	(23,912 )	—	—
Purchases of property, plant and equipment	(2,755 )	(3,096 )	(822 )
Proceeds from sale of property, plant and equipment	—	492	9
Net cash used in investing activities	(27,099 )	(6,107 )	(598 )
Cash flows from financing activities:			
Borrowings from line of credit	—	—	7,000
Repayment of line of credit	—	—	(7,000 )
Repayments of debt obligations	(2,571 )	(2,999 )	(319 )
Proceeds from sale of stock under employee stock purchase and stock option plans	7,186	5,784	3,038
Proceeds (payments) related to issuance of common stock offering, net of \$426 offering cost in 2009	—	(28 )	23,292
Excess tax benefit from equity awards	3,915	801	—
Taxes on net issuance of stock awards	(126 )	(299 )	—
Repurchases of common stock	(4,257 )	(2,097 )	—
Net cash provided by financing activities	4,147	1,162	26,011



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Effect of exchange rate changes on cash and cash equivalents	163	252	(112 )
Net increase in cash and cash equivalents	31,239	22,934	19,546
Cash and cash equivalents, beginning of year	66,460	43,526	23,980
Cash and cash equivalents, end of year	\$97,699	\$66,460	\$43,526
Supplemental disclosure of cash flow information:			
Cash paid for interest	\$757	\$965	\$1,038
Cash paid for income taxes	\$11,149	\$1,572	\$153
See notes to consolidated financial statements.			

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NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Years Ended December 31, 2011, January 1, 2011 and January 2, 2010

Note 1. Significant Accounting Policies

Description of Business – Nanometrics Incorporated (“Nanometrics” or the “Company”) and its wholly owned subsidiaries design, manufacture, market, sell and support thin film, optical critical dimension and overlay dimension metrology and inspection systems used primarily in the manufacturing of semiconductors, solar PVs and HB-LEDs, as well as by customers in the silicon wafer and data storage industries. Nanometrics' metrology systems precisely measure a wide range of film types deposited on substrates during manufacturing in order to control manufacturing processes and increase production yields in the fabrication of integrated circuits. The thin film metrology systems use a broad spectrum of wavelengths, high-sensitivity optics, proprietary software, and patented technology to measure the thickness and uniformity of films deposited on silicon and other substrates as well as their chemical composition. The Company's optical critical dimension technology is a patented critical dimension measurement technology that is used to precisely determine the dimensions on the semiconductor wafer that directly control the resulting performance of the integrated circuit devices. The overlay metrology systems are used to measure the overlay accuracy of successive layers of semiconductor patterns on wafers in the photolithography process. Nanometrics' inspection systems are used to find defects on patterned and unpatterned wafer at nearly every stage of the semiconductor production flow. The corporate headquarters of Nanometrics is located in Milpitas, California.

Basis of Presentation – The consolidated financial statements include Nanometrics Incorporated and its wholly-owned subsidiaries. All significant intercompany accounts and transactions have been eliminated in consolidation.

Fiscal Year – The Company uses a 52/53 week fiscal year ending on the Saturday nearest to December 31.

Accordingly, 2011 consisted of 52 weeks ending December 31, 2011 (fiscal year 2011), 2010 consisted of 52 weeks ending January 1, 2011 (fiscal year 2010), and 2009 consisted of 53 weeks ending January 2, 2010 (fiscal year 2009).

Reclassification – Certain prior year amounts have been reclassified to conform to the current year presentation.

Use of Estimates – 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 the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reported period. Actual results could differ materially from those estimates. Estimates are used for, but not limited to, revenue recognition, the provision for doubtful accounts, the provision for excess, obsolete, or slow moving inventories, depreciation and amortization, valuation of intangible assets and long-lived assets, warranty reserves, income taxes, valuation of stock-based compensation, and contingencies.

Foreign Currency Translation – The assets and liabilities of foreign subsidiaries are translated from their respective local functional currencies at exchange rates in effect at the balance sheet date and income and expense accounts are translated at average exchange rates during the reporting period. Resulting translation adjustments are reflected in “Accumulated other comprehensive income,” a component of stockholders' equity. Foreign currency transaction gains and losses are reflected in “Other income (expense)” in the consolidated statements of operations in the period incurred and consist of \$0.3 million loss for 2011, \$0.3 million income for 2010, and a loss for 2009 of \$1.7 million, respectively.

Revenue Recognition – The Company derives revenue from the sale of process control metrology systems (“product revenue”) as well as spare part sales, billable service, service contracts, and upgrades (together “service revenue”).

Upgrades are a group of parts and/or software that change the existing configuration of a product and are included in service revenue. They are distinguished from product revenue, which consists of complete, automated process control metrology systems (the “system(s)”). Nanometrics' systems consist of hardware and software components that function together to deliver the essential functionality of the system. Arrangements for sales of systems often include defined customer-specified acceptance criteria.

In summary, the Company recognizes revenue when persuasive evidence of an arrangement exists, delivery has occurred or services have been rendered, the seller's price is fixed or determinable, and collectability is reasonably

assured.

For product sales to existing customers, revenue recognition occurs at the time title and risk of loss transfer to the customer, which usually occurs upon shipment from the Company's manufacturing location, if it can be reliably demonstrated that the product has successfully met the defined customer specified acceptance criteria and all other recognition criteria has been met. For initial sales where the Company has not previously met the defined customer specified acceptance criteria, product revenues are recognized upon the earlier of receipt of written customer acceptance or expiration of the contractual acceptance period. In Japan, where contractual terms with the customer specify risk of loss and title transfers upon customer acceptance, revenue is recognized upon receipt of written customer acceptance, provided that all other recognition criteria have

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been met.

The Company warrants its products against defects in manufacturing. Upon recognition of product revenue, a liability is recorded for anticipated warranty costs. On occasion, customers request a warranty period longer than the Company's standard warranty. In those instances where extended warranty services are separately quoted to the customer, the associated revenue is deferred and recognized as service revenue ratably over the term of the contract. The portion of service contracts and extended warranty services agreements that are uncompleted at the end of any reporting period are included in deferred revenue.

As part of its customer services, the Company sells software that is considered to be an upgrade to a customer's existing systems. These standalone software upgrades are not essential to the tangible product's functionality and are accounted for under software revenue recognition rules which require vendor specific objective evidence ("VSOE") of fair value to allocate revenue in a multiple element arrangement. Revenue from upgrades is recognized when the upgrades are delivered to the customer, provided that all other recognition criteria have been met.

Revenue related to spare parts is recognized upon shipment. Revenue related to billable services is recognized as the services are performed. Service contracts may be purchased by the customer during or after the warranty period and revenue is recognized ratably over the service contract period.

Frequently, the Company delivers products and various services in a single transaction. The Company's deliverables consist of tools, installation, upgrades, billable services, spare parts, and service contracts. The Company's typical multi-element arrangements include a sale of one or multiple tools that include installation and standard warranty. Other arrangements consist of a sale of tools bundled with service elements or it includes delivery of different types of services. The Company's tools, upgrades, and spare parts are delivered to customers within a period of up to six months from order date. Installation is usually performed right after delivery of the tool. Billable services are billed on a time and materials basis and performed as requested by customers. Under service contract arrangements, services are provided as needed over the fixed arrangement term, such terms can be up to 12 months. The Company does not grant its customers a general right of return or any refund terms and imposes a penalty on orders canceled prior to the scheduled shipment date.

On January 2, 2011, the Company adopted the new accounting guidance for arrangements with software elements and/or multiple deliverables. The amended guidance for multiple deliverable arrangements did not change the units of accounting for the Company's revenue transactions, and most products and services qualify as separate units of accounting. The new guidance established a hierarchy of evidence to determine the standalone selling price of a deliverable based on vendor specific objective evidence ("VSOE"), third party evidence ("TPE"), or best estimated selling price ("BESP").

The Company regularly evaluates its revenue arrangements to identify deliverables and to determine whether these deliverables are separable into multiple units of accounting. In accordance with the new guidance, the Company allocates the arrangement consideration among the deliverables based on relative selling price. The Company has established VSOE for some of its products and services when a substantial majority of selling prices falls within a narrow range when sold separately. For deliverables with no established VSOE, the Company uses best estimated selling price to determine standalone selling price for such deliverable. The Company does not use TPE to determine standalone selling price since this information is not widely available in the market as our products contain a significant element of proprietary technology and the solutions offered differ substantially from our competitors. The Company has established a process for developing estimated selling prices, which incorporates historical selling prices, the effect of market conditions, gross margin objectives, pricing practices, as well as entity-specific factors. The Company monitors and evaluates estimated selling price on a regular basis to ensure that changes in circumstances are accounted for in a timely manner. The adoption of the new accounting standards did not have a

significant impact on our consolidated financial statements.

When certain elements in multiple-element arrangements are not delivered or accepted at the end of a reporting period, the relative selling prices of undelivered elements are deferred until these elements are delivered and/or accepted. If deliverables cannot be accounted for as separate units of accounting, the entire arrangement is accounted for as a single unit of accounting and revenue is deferred until all elements are delivered and all revenue recognition requirements are met.

Business Combinations - We allocate the purchase price of acquired companies to the tangible and intangible assets acquired and liabilities assumed based upon their estimated fair values at the acquisition date. The purchase price allocation process requires management to make significant estimates and assumptions, especially at the acquisition date with respect to intangible assets and inventory acquired. While we use our best estimates and assumptions as a part of the purchase price allocation process to accurately value assets acquired and liabilities assumed at the acquisition date, our estimates are inherently uncertain and subject to refinement. As a result, during the measurement period, which may be up to one year from the acquisition date, we record adjustments to the assets acquired and liabilities assumed, with the corresponding offset to

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goodwill. Upon the conclusion of the measurement period or final determination of the values of assets acquired or liabilities assumed, whichever comes first, any subsequent adjustments are recorded to our consolidated statements of operations.

We estimate the fair value of inventory acquired by utilizing the net realizable value method which is based on the estimated sales price of the product less appropriate costs to complete and selling costs. Examples of critical estimates in valuing certain of the intangible assets we have acquired or may acquire in the future include but are not limited to: future expected cash flows from sales of products, services and acquired developed technologies and patents; expected costs to develop the in-process research and development into commercially viable products and estimated cash flows from the projects when completed; the acquired company's customer relationships, as well as assumptions about the estimated useful lives of the relationships; and discount rates.

Unanticipated events and circumstances may occur which may affect the accuracy or validity of assumptions, estimates or actual results associated with business combinations.

**Cash and Cash Equivalents** – The Company considers all highly liquid investments with original maturities of three months or less, when purchased, to be cash equivalents.

**Fair Value of Financial Instruments** – Financial instruments include cash and cash equivalents, accounts receivable, accounts payable and debt obligations. Cash equivalents are stated at fair market value based on quoted market prices. The carrying values of accounts receivable and accounts payable approximate their fair values because of the short-term maturity of these financial instruments. The estimated fair market value of debt is based on the discounted cash flow with inputs that are observable in the market or that could be derived from or corroborated with observable market data including interest rates based on yield curves of similar debt issued by parties with credit ratings similar to the Company's level.

**Allowance for Doubtful Accounts** – The Company maintains allowances for estimated losses resulting from the inability of its customers to make required payments. Credit limits are established through a process of reviewing the financial history and stability of its customers. Where appropriate and available, the Company obtains credit rating reports and financial statements of customers when determining or modifying their credit limits. The Company regularly evaluates the collectability of its trade receivable balances based on a combination of factors such as the length of time the receivables are past due, customary payment practices in the respective geographies and historical collection experience with customers. The Company believes that its allowance for doubtful accounts adequately reflects the risk associated with its receivables. If however, the financial conditions of customers were to deteriorate, resulting in their inability to make payments, the Company may need to record additional allowances which would result in additional general and administrative expenses being recorded for the period in which such determination was made.

**Inventories** – Inventories are stated at the lower of cost or market. The Company is exposed to a number of economic and industry factors that could result in portions of inventory becoming either obsolete or in excess of anticipated usage, or saleable only for amounts that are less than their carrying amounts. These factors include, but are not limited to, technological changes in the market, the Company's ability to meet changing customer requirements, competitive pressures in products and prices, and the availability of key components from suppliers. The Company has established inventory reserves when conditions exist that suggest that inventory may be in excess of anticipated demand or is obsolete based upon assumptions about future demand for the Company's products and market conditions. Once a reserve has been established, it is maintained until the part to which it relates is sold or is otherwise disposed of. The Company regularly evaluates its ability to realize the value of inventory based on a combination of factors including the following: historical usage rates, forecasted sales of usage, product end-of-life dates, estimated current and future market values and new product introductions. For demonstration inventory, the Company also considers the age of the inventory and potential cost to refurbish the inventory prior to sale. Demonstration inventory is amortized over its useful life and the amortization expense is included in total depreciation and amortization on the cash flow statement. When recorded, reserves are intended to reduce the carrying value of the Company's inventory to its net realizable

value. If actual demand for the Company's products deteriorates, or market conditions are less favorable than those that the Company projects, additional reserves may be required.

Inventories – delivered systems – The Company reflects the cost of systems that were invoiced upon shipment but deferred for revenue recognition purposes separate from its inventory held for sale as “Inventories – delivered systems”.

Property, Plant and Equipment – Property, plant and equipment are stated at cost. Depreciation is computed using the straight-line method over the following estimated useful lives of the assets:

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Building and improvements	5–40 years
Machinery and equipment	3–10 years
Furniture and fixtures	3–10 years

Goodwill and Intangible Assets – Goodwill is initially recorded when the purchase price paid for an acquisition exceeds the estimated fair value of the net identified tangible and intangible assets acquired. Intangible assets with finite lives are amortized over their respective useful lives on a straight-line basis while goodwill and indefinite lived assets are not amortized but tested annually for impairment. The Company's impairment review process is completed as of November 30th of each year or whenever events or circumstances occur which indicate that an impairment may have occurred. During the fourth quarter of 2011, we early adopted the accounting standard update for testing goodwill for impairment. The Company assesses qualitative factors to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying value. If, after assessing the qualitative factors, the Company determines that it is not likely that the fair value of a reporting unit is less than its carrying value, then performing the two-step impairment test is unnecessary. However, if the Company concludes otherwise, then it is required to perform the first step of the two-step goodwill impairment test. The first step requires a comparison of the fair value of Nanometrics' reporting unit to its net book value. If the fair value is greater, then no impairment is deemed to have occurred. If the fair value is less, then the second step must be performed to determine the amount, if any, of actual impairment. Amortization of intangible assets with finite lives is computed using the straight-line method over the following estimated useful lives of the assets:

Developed technology	5-10 years
Customer relationships	2-10 years
Brand name	5-10 years
Patented technology	7-10 years
Trademark	5 years

Long-Lived Assets – The Company evaluates its long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. When the sum of the undiscounted future net cash flows expected to result from the use of the asset and its eventual disposition is less than its carrying amount, impairment may exist. To determine the amount of impairment, the Company compares the fair value of the asset to its carrying value. If the carrying value of the asset exceeds its fair value, an impairment loss equal to the difference is recognized. See Note 6 "Goodwill and Long-Lived Asset Impairment".

Restructuring Charge – The Company records estimated expenses for severance and other costs as incurred as restructuring plans are executed. Costs associated with restructuring activities have been recognized when they are incurred rather than the date of a commitment to an exit or disposal plan. A liability for post-employment benefits is recorded when payment is probable, the amount is reasonably estimable, and the obligation relates to rights that have vested or accumulated. Given the significance and complexity of restructuring activities, and the timing of the execution of such activities, the restructuring process involves periodic reassessments of the estimates made at the time the original decisions were made, including evaluating market conditions for expected disposals of assets and vacancy of space. Although the Company believes that these estimates accurately reflect the costs of the restructuring programs, actual results may vary or differ, thereby requiring us to record additional provisions or reverse a portion of such provisions.

Income Tax Assets and Liabilities – The Company accounts for income taxes such that deferred tax assets and liabilities must be recognized using enacted tax rates for the effect of temporary differences between the book and tax accounting for assets and liabilities. Also, deferred tax assets are reduced by a valuation allowance to the extent that management cannot conclude that it is more likely than not that a portion of the deferred tax asset will be realized in the future. The Company evaluates the deferred tax assets on a continuous basis throughout the year to determine whether or not a valuation allowance is appropriate. Factors used in this determination include future expected income and the underlying asset or liability which generated the temporary tax difference. The income tax provision is primarily impacted by federal statutory rates, state and foreign income taxes and changes in the valuation allowance.



Accumulated Other Comprehensive Income (Loss) – The composition of accumulated other comprehensive income (loss) is as follows:

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	Years Ended		
	Foreign Currency Translations	Defined Benefit Pension Plans	Accumulated Other Comprehensive Income (Loss)
Balance as of January 2, 2010	\$1,451	\$(78	) \$1,373
Current period change	750	(51	) 699
Balance as of January 1, 2011	2,201	(129	) 2,072
Current period change	(484	) (39	) (523
Balance as of December 31, 2011	\$1,717	\$(168	) \$1,549

The items above, did not impact the Company's income tax provision.

**Product Warranties** – The Company sells the majority of its products with a 12 month repair or replacement warranty from the date of acceptance which generally represents the date of shipment. The Company provides an accrual for estimated future warranty costs based upon the historical relationship of warranty costs to the cost of products sold. The estimated future warranty obligations related to product sales are reported in the period in which the related revenue is recognized. The estimated future warranty obligations are affected by the warranty periods, sales volumes, product failure rates, material usage and labor and replacement costs incurred in correcting a product failure. If actual product failure rates, material usage, labor or replacement costs differ from the Company's estimates, revisions to the estimated warranty obligations would be required. For new product introductions where limited or no historical information exists, the Company may use warranty information from other previous product introductions to guide us in estimating the warranty accrual. The warranty accrual represents the best estimate of the amount necessary to settle future and existing claims on products sold as of the balance sheet date. The Company periodically assesses the adequacy of its recorded warranty reserve and adjusts the amounts in accordance with changes in these factors.

**Guarantees** – In addition to product warranties, from time to time, in the normal course of business, the Company indemnifies certain customers with whom it enters into a contractual relationship. The Company has agreed to hold the other party harmless against third party claims that its products, when used for their intended purpose(s), infringe the intellectual property rights of such third party or other claims made against certain parties. It is not possible to determine the maximum potential amount of liability under these indemnification obligations due to the limited history of prior indemnification claims and the unique facts and circumstances that are likely to be involved in each particular claim. Historically, the Company has not made payments under these obligations and believes the estimated fair value of these agreements is minimal. Accordingly, no liabilities have been recorded for these obligations on the balance sheets as of December 31, 2011 and January 1, 2011.

**Shipping and Handling Costs** – Shipping and handling costs are included as a component of cost of revenues.

**Advertising Costs** – The Company expenses advertising costs as incurred. Advertising costs were \$0.2 million in 2011, \$0.2 million in 2010, and these costs were immaterial in 2009.

**Stock-Based Compensation** – The Company estimates the value of employee stock options on the date of grant using the Black-Scholes model. The determination of fair value of share-based payment awards on the date of grant using an option-pricing model is affected by the Company's stock price as well as assumptions regarding a number of highly complex and subjective variables. These variables include, but are not limited to the expected stock price volatility over the term of the awards, and actual and projected employee stock option exercise behaviors. The expected term of options granted is calculated based on the simplified method allowed under SEC Staff Accounting Bulletin ("SAB") 107("SAB 107"). The expected volatility is based on the historical volatility of the Company's stock price.

**Defined Employee Benefit Plans** – The Company maintains a defined benefit pension plan in Taiwan for which current service costs are charged to operations as they accrue based on services rendered by employees during the year.

Pension benefit obligations are determined by using management's actuarial assumptions, including discount rates, assumed asset rates of return, compensation increases and employee turnover rates.

**Net Income Per Share** - Basic net income (loss) per share excludes dilution and is computed by dividing net income (loss) by the number of weighted average common shares outstanding for the period. Diluted net income (loss) per

share reflects the potential dilution from outstanding dilutive stock options (using the treasury stock method) and shares issuable under the employee stock purchase plan. The Company had net income in fiscal year 2011 and 2010, therefore, the potential dilutive effect of stock options was considered to calculate the diluted income per share. In applying the treasury stock method, 0.5 million of stock option shares and 0.7 million of stock option shares for fiscal years 2011 and 2010 respectively were excluded because their effect was anti-dilutive. While these stock option shares are currently anti-dilutive, they could be dilutive in the

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future. During fiscal year 2009, the Company incurred a net loss, therefore, diluted net loss per share excludes 2.4 million of anti-dilutive common equivalent shares. The reconciliation of the share denominator used in the basic and diluted net income per share computations is as follows (in thousands):

	Years Ended		
	December 31, 2011	January 1, 2011	January 2, 2010
Weighted average shares outstanding – shares used in basic net income per share computation	22,743	21,855	18,639
Dilutive effect of stock options, using the treasury stock method	737	1,143	—
Shares used in diluted net income per share computation	23,480	22,998	18,639

Certain Significant Risks and Uncertainties – Financial instruments which potentially subject the Company to concentration of credit risk consist of cash and cash equivalents, and accounts receivable. See also Note 7, Sale of Accounts Receivable.

Cash and cash equivalent deposits with financial institutions may, at times, exceed federally insured limits; however, the Company has not experienced any losses on such accounts. The Company maintains its cash and cash equivalents in deemed deposit accounts and money market accounts with large financial institutions.

The Company sells its products primarily to end users in the United States, Asia and Europe and, generally, does not require its customers to provide collateral or other security to support accounts receivable. Management performs ongoing credit evaluations of its customers' financial condition and maintains an allowance for estimated potential bad debt losses. The Company's customer base is highly concentrated and historically, a relatively small number of customers have accounted for a significant portion of its revenues. Aggregate revenue from the Company's top five largest customers in 2011, 2010 and 2009 consisted of 67%, 61% and 60%, respectively, of its total net revenues. The Company participates in a dynamic high technology industry and believes that changes in any of the following areas could have a material adverse effect on its future financial position, results of operations or cash flows. Advances and trends in new technologies and industry standards; competitive pressures in the form of new products or price reductions on current products; changes in product mix; changes in the overall demand for products offered; changes in third-party manufacturers; changes in key suppliers; changes in certain strategic relationships or customer relationships; litigation or claims against the Company based on intellectual property, patent, product, regulatory or other factors; fluctuations in foreign currency exchange rates; risk associated with changes in domestic and international economic and/or political regulations; availability of necessary components or sub-assemblies; disruption of manufacturing facilities; and its ability to attract and retain employees necessary to support its growth.

Certain components and sub-assemblies used in the Company's products are purchased from a sole supplier or a limited group of suppliers. In particular, the Company currently purchases its spectroscopic ellipsometer and robotics used in its advanced measurement systems from a sole supplier or a limited group of suppliers located in the United States. Any shortage or interruption in the supply of any of the components or sub-assemblies used in its products or its inability to procure these components or sub-assemblies from alternate sources on acceptable terms could have a material adverse effect on its business, financial condition and results of operations.

#### Recently Issued Accounting Pronouncements

In September 2011, the FASB issued Accounting Standards Update ("ASU") 2011-08, Intangibles-Goodwill and Other (Topic 350): Testing Goodwill for Impairment which is intended to simplify how an entity tests goodwill for impairment. The amendment will be effective for the Company beginning in the first quarter of fiscal 2012. Under this accounting standard update, an entity is allowed to first assess qualitative factors to determine whether it is necessary to perform the two-step quantitative goodwill impairment test. An entity no longer will be required to calculate the fair value of a reporting unit unless the entity determines, based on a qualitative assessment, that it is more likely than not that its fair value is less than its carrying amount. This guidance is effective for goodwill impairment tests performed for fiscal years beginning after December 15, 2011, with early adoption permitted. The Company early adopted this

standard during the fourth quarter of 2011. Refer to Note 6 "Goodwill and Long-Lived Asset Impairment" for a summary of the accounting impact.

In June 2011, the FASB issued ASU 2011-05, Comprehensive Income: Presentation of Comprehensive Income (ASU 2011-05), which provides amendments to FASB Accounting Standards Codification ("ASC") Topic 220, Comprehensive Income. The objective of ASU 2011-05 is to require an entity to present the total of comprehensive income, the components of net income

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and the components of other comprehensive income either in a single continuous statement of comprehensive income or in two separate but consecutive statements. ASU 2011-05 eliminates the option to present the components of other comprehensive income as part of the statement of equity. ASU 2011-05 is effective for interim and annual periods beginning after December 15, 2011 and should be applied retrospectively. Adoption of the standard is not expected to have a material impact on the Company's consolidated financial statements.

In May 2011, the FASB issued ASU 2011-04, Fair Value Measurement (Accounting Standards Codification ("ASC") Topic 820) - Amendments to Achieve Common Fair Value Measurement and Disclosure Requirements in U.S. GAAP and IFRSs (ASU 2011-04), which is effective for annual reporting periods beginning after December 15, 2011. This guidance amends certain accounting and disclosure requirements related to fair value measurements. The Company is currently evaluating ASU 2011-04 and has not yet determined the impact the adoption will have on its consolidated financial statements.

In December 2010, the FASB issued ASU 2010-29, Business Combinations (ASC Topic 805): Disclosure of Supplementary Pro Forma Information for Business Combinations - a consensus of the FASB Emerging Issues Task Force, (ASU 2010-29), which clarifies existing disclosure requirements for public entities with business combinations that occur in the current reporting period. The ASU stipulates that if an entity is presenting comparative financial statements, revenue and earnings of the combined entity should be disclosed as though the business combinations that occurred during the current year had occurred as of the beginning of the comparative prior annual reporting period. The ASU also expands the supplemental pro forma disclosures required by ASC Topic 805 to include a description of the nature and amount of material, nonrecurring pro forma adjustments directly attributable to the business combination included in the reported pro forma revenue and earnings. This guidance was effective prospectively for business combinations with acquisition dates on or after the beginning of the first annual reporting period beginning on or after December 15, 2010. The adoption of the standard did not have a material impact on the Company's consolidated financial statements.

In January 2010, the FASB issued ASU 2010-06, Improving Disclosures about Fair Value Measurements, which amends ASC 820 to add two new disclosures: (1) transfers in and out of Level 1 and 2 measurements and reasons for the transfers, and (2) a gross presentation of activity within the Level 3 roll forward. The ASU also includes clarifications to existing disclosure requirements on the level of disaggregation and disclosures regarding inputs and valuation techniques. The ASU is effective for interim and annual reporting periods beginning after December 15, 2009, except for the separate disclosures about purchases, sales, issuances, and settlements in the roll forward of activity in Level 3 fair value measurements. Those disclosures were effective for fiscal years beginning after December 15, 2010, and for interim periods within those fiscal years. The adoption of the disclosure requirements included in this pronouncement did not have a material impact on the consolidated financial statements of the Company.

In September 2009, the FASB ratified ASU 2009 -13, previously Emerging Issues Task Force ("EITF") Issue No. 08-1, Revenue Arrangements with Multiple Deliverables (ASC 605-25) which provides principles and application guidance on whether multiple deliverables exist, how the arrangement should be separated, and how the consideration should be allocated. It also requires an entity to allocate revenue in an arrangement using estimated selling prices of deliverables if a vendor does not have vendor-specific objective evidence or third-party evidence of the selling price. The guidance eliminates the use of the residual method, requires entities to allocate revenue using relative pricing and significantly expands the disclosure requirements for multiple-deliverable revenue arrangements.

Also in September 2009, the FASB ratified ASU 2009-14 (previously EITF Issue No. 09-3, Certain Revenue Arrangement That Include Software Elements). ASU 2009-14 modifies the scope of software revenue recognition to remove tangible products from the scope of the software revenue guidance if the products contain both software and non-software components that function together to deliver a product's essential functionality, and provides guidance on determining whether software deliverables in an arrangement that includes a tangible product are within the scope of the software revenue guidance.

The new revenue standards are currently effective. Refer to Note 1 - Revenue Recognition for a summary of the accounting impact.

Note 2. Fair Value Measurements and Disclosures

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The standard assumes that the transaction to sell the asset or transfer the liability occurs in the principal or most advantageous market for the asset or liability and establishes that the fair value of an asset or liability shall be determined based on the assumptions that market participants would use in pricing the asset or liability.

Fair Value Hierarchy

The Company determines the fair values of its financial instruments based on the fair value hierarchy established in ASC 820, which requires an entity to maximize the use of observable inputs and minimize the use of unobservable inputs when

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measuring fair value. The classification of a financial asset or liability within the hierarchy is based upon the lowest level input that is significant to the fair value measurement. The fair value hierarchy prioritizes the inputs into three levels that may be used to measure fair value:

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

Level 2 — Inputs other than Level 1 that are observable, either directly or indirectly, such as quoted prices for similar assets and liabilities in active markets or inputs that are observable for the asset or liability, either directly or indirectly through market corroboration, for substantially the full term of the financial instrument.

Level 3 — Unobservable inputs that are supported by little or no market activity and are significant to the fair value of the assets or liabilities. Such unobservable inputs include an estimated discount rate used in our discounted present value analysis of future cash flows.

The following table presents the Company's fair value measurements that are measured at the estimated fair value, on a recurring basis, categorized in accordance with the fair value hierarchy (in thousands):

	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
As of December 31, 2011				
Fair value of royalty payment to RTM related to acquisition of Nanda	\$—	\$—	\$561	\$561
Fair value of deferred payments to Zygo Corporation related to acquisition	—	—	2,633	2,633
Total financial liabilities	\$—	\$—	\$3,194	\$3,194
As of January 1, 2011				
Fair value of deferred payments to Zygo Corporation related to acquisition	\$—	\$—	\$2,652	\$2,652
Total financial liabilities	\$—	\$—	\$2,652	\$2,652

Changes in the Company's Level 3 liabilities for fiscal 2011 were as follows (in thousands):

Fair value at January 2, 2010	Level 3	\$5,688
Payments made to Zygo Corporation	(3,503	)
Change in fair value included in earnings	467	
Fair value at January 1, 2011	2,652	
Payments made to Zygo Corporation	(432	)
Addition: Fair value of royalty payment to RTM related to acquisition of Nanda	586	
Change in fair value related to foreign currency exchange rate	(25	)
Change in fair value included in earnings	413	
Fair value at December 31, 2011	\$3,194	

As of December 31, 2011, the Company has liabilities of \$0.6 million resulting from the acquisition of Nanda and \$2.6 million resulting from the acquisition of certain assets from Zygo Corporation ("Zygo") which are measured at fair value on a recurring basis. Of the \$2.6 million of Zygo liability, \$0.7 million is a current liability and \$1.9 million is a long-term liability. The fair value of these liabilities were determined using level 3 inputs. See Note 3 for discussion



of assumptions used to measure the fair value of the RTM royalty liability and the Zygo liability.

As of January 2, 2010, the Company had assets held for sale of \$0.2 million related to the Company's South Korean manufacturing facility. The assets primarily included semiconductor equipment and buildings. The fair value of these assets was determined based on level 3 inputs, including a third party appraisal. Losses recognized in fiscal year 2009 due to fair

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value measurements using level 3 inputs was \$1.9 million. These assets were subsequently sold in the second quarter of year 2010 for a gain of \$0.2 million. The Company had no assets held for sale as of December 31, 2011 and January 1, 2011.

	Year ended January 2, 2010	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total Gains (Losses)
Assets held for sale	220	—	—	220	(1,899 )

Other financial instruments include cash and cash equivalents, accounts receivable, accounts payable and debt obligations. Cash equivalents are stated at fair market value based on quoted market prices. The carrying values of accounts receivable and accounts payable approximate their fair values because of the short term maturity of these financial instruments.

Refer to Note 12 "Line of Credit and Debt Obligations" for the carrying value and fair value of our debt obligations.

## Note 3. Acquisitions

## Acquisition of Nanda Technologies GmbH in 2011

On November 21, 2011, the Company acquired 100% of the outstanding shares of Nanda Technologies GmbH ("Nanda"), a privately-held company with headquarters near Munich, Germany. The total purchase price consisted of approximately \$25.2 million in cash, subject to certain post-closing adjustments associated with Nanda's working capital as of the acquisition date. As a result of the acquisition, Nanometrics obtained a new technology and product line which enables the capture of full-wafer surface inspection images at high-volume production speeds. The technology is expected to enable the Company to address a significant market opportunity incremental to the metrology segments currently served by the Company's optical process control products. The transaction meets the conditions of a business combination under ASC 805 and is accounted for under this guidance.

Recognized amounts of identifiable assets acquired and liabilities assumed:	Amount
Cash and equivalents	\$1,239
Account receivables	724
Inventories	1,440
Property, plant and equipment – machinery and equipment	616
Other assets	227
Developed technology (included in intangibles)	9,200
Customer relationships (included in intangibles)	1,040
In-process research and development (included in intangibles)	330
Liabilities	(1,603 )
RTM contingent liabilities	(586 )
Total identifiable net assets	12,627
Goodwill	12,524
Total Purchase Consideration	\$25,151

Inventories were measured at fair value as of the date of the acquisition. In estimating the fair value of finished goods and work-in-process inventory, the Company made assumptions about the selling price and selling costs associated with inventory.

With the acquisition, the Company recorded intangible assets of \$9.2 million of developed technology, \$1.0 million of customer relationships, and \$0.3 million of in-process research and development. The developed technology

represents Nanda's full wafer, high volume inspection technology and was valued by discounting the estimated future net cash flows of this technology to their net present value utilizing the income approach. The value of the developed technology will be amortized over its estimated useful life of five years. The value of the customer relationship asset was determined based on management's estimates of the costs that would have been incurred to replicate Nanda's existing customer relationships. Based on industry

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experience, management estimates the useful life of the customer relationship asset to be three years, and the value of this asset will be amortized over this period. The in-process research and development asset was valued by discounting the estimated future net cash flows of the asset to their net present value utilizing the income approach. The value associated with the in-process research and development will be carried on the balance sheet until the efforts are completed. At that time, management will estimate the asset's useful life and amortize the value accordingly.

The purchase price for this transaction exceeded the fair value allocated to tangible and identifiable intangible assets. The excess purchase price over the fair value of identifiable assets and liabilities of approximately \$12.5 million was recorded as goodwill. The Company establishes reporting units based on its reporting structure. The acquisition of Nanda did not trigger any significant changes to the existing reporting structure of the Company. Therefore, the Company continues to operate as a single reporting unit.

The Company expects to benefit from the goodwill through utilization of Nanda's technology in existing Nanometrics products, estimated future sales of existing Nanometrics products to Nanda's established customer base, incremental sales of Nanda's products through Nanometrics worldwide sales and service channels, and efficiencies expected to be achieved from the manufacturing of Nanda's products using Nanometrics operational facilities and processes.

The following table summarizes the identifiable intangible assets acquired as part of the acquisition:

	Fair Value as of acquisition date, November 21, 2011	Accumulated amortization as of December 31, 2011	Net carrying amount as of December 31, 2011
Developed technology	\$9,200	\$ (208	) \$8,992
Customer relationships	1,040	(39	) 1,001
In-process research and development	330	—	330
Total identifiable intangible assets acquired	\$ 10,570	\$ (247	) \$ 10,323

Prior to the acquisition, the Company had a pre-existing relationship with Nanda. In December 2010, the Company acquired certain patents from Real Time Metrology Inc. ("RTM") under an asset purchase agreement. As part of the asset purchase, the Company assumed an existing license agreement between Nanda and RTM. Under the license agreement, Nanda is obligated to pay Nanometrics an annual royalty based on the number of tools sold with a minimum royalty payment. Under the asset purchase agreement with RTM, Nanometrics is required to remit to RTM 100% of the royalty payments received from Nanda for the first three years subsequent to the acquisition of the patents, and 50% of the royalty payments received subsequently until March 2018. In 2011, the amount of minimum royalty payments received by Nanometrics and remitted to RTM was immaterial.

As a result of the acquisition of Nanda in November 2011, a contingent liability of \$0.6 million has been recognized for the estimated royalty payments due to the existing license agreement between Nanda and RTM that Nanometrics assumed. The fair value of the contingent liability was estimated based on the projected system sales and the related estimated royalty obligations. As of December 31, 2011, there has been no significant change to the amount recognized for the liability as of the date of the acquisition.

The unaudited pro forma financial information in the table below summarizes the combined results of operations for Nanometrics and Nanda as though the acquisition of Nanda occurred as of the beginning of fiscal 2010. The pro forma financial information for all periods presented also includes the business combination accounting effects resulting from the acquisition including additional amortization charges of \$2.4 million and \$2.6 million in fiscal 2011 and 2010 respectively relating to acquired intangible assets. Additional adjustments were made to account for additional stock-based compensation charges for restricted stock units awarded of \$0.8 million and \$1.9 million in fiscal 2011 and 2010 respectively, and there were no related tax effects in fiscal 2011 and fiscal 2010 of the pro forma adjustment. The pro forma financial information as presented below is for informational purposes only and is not indicative of the results of operations that would have been achieved had Nanda been combined with the Company as of the beginning of fiscal 2010.

The unaudited pro forma financial information combines the historical results of Nanometrics for fiscal year 2011 and 2010, the historical results of Nanda for the twelve months ended December 31, 2011 and December 31, 2010, respectively, and the effects of the pro forma adjustments described above.

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(In thousands, except per share amounts)	Fiscal Years Ended	
	December 31, 2011 (unaudited)	January 1, 2011 (unaudited)
Total revenues	\$ 232,418	\$ 188,685
Net income	\$ 24,939	\$ 45,544
Net income per share:		
Basic	\$ 1.10	\$ 2.08
Diluted	\$ 1.06	\$ 1.98

There were no business acquisitions made by the Company during fiscal year 2010.

#### Asset Purchase from Zygo Corporation in 2009

On June 17, 2009 (“acquisition date”), Nanometrics announced that it had purchased inventory and certain other assets of Zygo Corporation (“Zygo”) and that the two companies had entered into a supply agreement. The supply agreement is an exclusive Original Equipment Manufacturer (“OEM”) arrangement in which Zygo will provide interferometer sensors to Nanometrics for incorporation into the Unifire™ line of products as well as the Nanometrics family of automated metrology systems. The arrangement is structured as an asset transfer and exclusive OEM supply agreement aimed at wafer-based markets. Nanometrics will assume all inventory and customer sales and support responsibilities and Zygo will provide measurement sensors for integration by Nanometrics. By completing this acquisition, Nanometrics anticipates expanding its served markets to include the high end of dimensional control metrology for the rapidly-growing back-end-of-line packaging market, while also enhancing our product offerings to front-end-of-line metrology customers. In addition to the applications currently addressed by Nanometrics and Zygo products, the business partnership allows for the joint development of additional technology solutions targeted at the semiconductor and related industries. This transaction met the conditions of a business combination as defined in ASC 805, and as such is accounted for under ASC 805. The results from the Unifire line of business were included in the Company’s condensed consolidated statements of operations from the acquisition date.

The following table summarizes the fair value of consideration recorded and the fair value of acquired assets (in thousands):

	Amounts
Assets acquired:	
Tangible assets:	
Inventories – raw materials	\$2,014
Property, plant and equipment – machinery and equipment	1,378
Total tangible assets acquired	3,392
Intangible assets:	
Developed technology	1,362
Customer relationships	338
Total intangible assets acquired	1,700
Total assets acquired	\$5,092

The fair value of the purchase consideration at the time of the acquisition was \$5.1 million, which consisted of deferred payments to Zygo for inventory and fixed assets, as well as future royalty and sustaining engineering support fees. The future royalty and sustaining engineering support fees are considered contingent consideration. On the acquisition date, the consideration was recorded as a liability on the Company’s consolidated balance sheet at January 2, 2010, with \$3.1 million being recorded as a current liability and \$2.0 million being recorded as a long term liability.

The Company was required to make payments to Zygo after each sale of the Company’s product which incorporates inventory acquired from Zygo. If the Company did not sell sufficient products that incorporate the acquired inventory from Zygo, within one year from the acquisition date, the Company was required to remit the remaining unpaid

portion relating to inventory and fixed assets at that time. The purchase agreement also stipulated that if the Company received greater than \$5.0 million in a financing transaction, 20% of the financing proceeds, not to exceed \$2.0 million, must be paid to Zygo for any unpaid portion of the amounts related to inventory and fixed assets. In December 2009, the Company completed a common stock offering with net proceeds of \$23.3 million, therefore, \$2.0 million became immediately due and payable to Zygo. The

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\$2.0 million payment was made to Zygo on January 7, 2010. In March 2010, the Company sold products that incorporate the acquired inventory from Zygo, at levels sufficient to trigger the Company's payment obligations under the purchase agreement, and therefore, the remaining unpaid portion relating to inventory and fixed assets of \$1.4 million became due and was paid by the Company to Zygo on April 15, 2010.

In addition, the Company agreed to pay Zygo a royalty based on net revenues of approved products and the expected sustaining engineering payments based on volumes of heads purchased from Zygo starting in 2010 and over a 10 year period. As of December 31, 2011, our payments to Zygo Corporation over the next nine years may be up to \$3.8 million depending on the numbers of tools sold. The Company made royalty and sustaining engineering payments of \$0.4 million and \$0.2 million to Zygo in each fiscal year of 2011 and 2010, respectively. The fair value of the future royalty and sustaining engineering support fees was determined using a relief from royalty method based on the following: (a) the amount of the acquired assets that the business will generate, and (b) a discount rate of 20 percent, which was utilized to adjust the royalty and sustaining engineering payments to their present value, based on the consideration of both a weighted average cost of capital calculation and venture capital rates.

The fair value of inventory acquired from Zygo, which consisted of raw materials, was \$2.0 million. Recent purchases by the Company of raw material were considered a reasonable proxy for fair value. The fair value of demonstration equipment was \$1.4 million as determined by considering the purchase date and recent usage of the products. Fair value of developed technology of \$1.4 million and customer relationships of \$0.3 million were determined by a similar methodology to the methodology used above for calculating contingent consideration, with the following assumptions of (a) royalty rate of 3 percent, and (b) discount rate of 30 percent, and will be amortized over a period of 10 years on a straight-line basis and over a two years on an accelerated basis, respectively. Amortization expense of \$0.2 million, \$0.3 million and \$0.2 million was recorded for the acquired intangible assets from the Zygo transaction in fiscal years 2011, 2010 and 2009, respectively.

The acquired Zygo business contributed no revenues and a net loss of \$1.8 million to the consolidated results of operations for the period from June 17, 2009 to January 2, 2010. The following unaudited pro forma summary presents consolidated information of Nanometrics as if the business combination had occurred at the beginning of fiscal year 2008 (in thousands):

(In thousands, except per share amounts)	Pro Forma Year Ended	
	January 2, 2010 (unaudited)	December 27, 2008 (unaudited)
Net revenues	\$78,864	\$105,118
Net loss	(20,095)	(91,797)
Net loss per share:		
Basic	\$(1.08)	\$(4.95)
Diluted	\$(1.08)	\$(4.95)

#### Note 4. Asset Held for Sale

In May 2009, the Company decided to close the Pyeongtek, South Korea manufacturing facility due to the prevailing industry and economic conditions facing the semiconductor industry at that time. The premises were vacated prior to the end of the second quarter 2009. The facility in South Korea met all the requirements as long-lived assets held for sale and the Company ceased recording depreciation on the facility. The fair value of the South Korean manufacturing facility was determined using a cost approach and a sale comparison approach. The cost approach uses the characteristics of the facility to determine the cost of replacement if the facility were new, adjusted for depreciation to date considering the age of the facility. The sale comparison approach considers market comparable sales activity. An average of the two approaches was used to determine the facility fair value of approximately \$0.2 million, which included an estimate for selling costs at 10% of the building fair value. An impairment loss of \$1.9 million was recorded on the South Korean facility in the second quarter of 2009. On April 29, 2010, the sale of the property was completed and a gain on the sale of \$0.2 million was recorded in the second quarter of 2010.



Note 5. Stock-Based Compensation

The Company measured and recognized compensation expense for all share-based payment awards made to employees and directors including employee stock options, restricted stock units and employee stock purchases related to the Employee Stock Purchase Plan (collectively "Employee Stock Purchases") based on estimated fair values. The fair value of share-based payment awards is estimated on the date of grant using an option-pricing model. The value of the portion of the

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award that is ultimately expected to vest is recognized as expense over the requisite service periods in the Company's consolidated statement of operations.

Stock-based compensation expense recognized during the period is based on the value of the portion of share-based payment awards that is ultimately expected to vest during the period. As stock-based compensation expense recognized in the consolidated statement of operations for the years ended December 31, 2011, January 1, 2011 and January 2, 2010 is based on awards expected to vest, it has been reduced for estimated forfeitures. ASC 740 requires forfeitures to be estimated at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differ from those estimates. The Company's estimated forfeiture rate in 2011, 2010 and 2009 of 6.3% 8.6%, and 19.5%, respectively, was based on historical forfeiture experience, which the Company believes is the best available information to estimate the future forfeiture rate. Tax benefits resulting from tax deductions in excess of the compensation cost recognized for those options are required to be classified as financing cash flows. The Company recognized \$3.9 million and \$0.8 million of excess tax benefit in fiscal years 2011 and 2010, respectively. There were no such tax benefits during fiscal 2009.

Valuation and Expense Information

The fair value of stock-based awards to employees is calculated using the Black-Scholes option pricing model, which requires subjective assumptions, including future stock price volatility and expected time to exercise. The expected term of options granted was calculated using the simplified method allowed by the SAB 107. The risk-free rate is based on the U.S Treasury rates in effect during the corresponding period of grant. The expected volatility is based on the historical volatility of Nanometrics' stock price. These factors could change in the future, which would affect the stock-based compensation expense in future periods.

The weighted-average fair value of stock-based compensation to employees is based on the single option valuation approach. Forfeitures are estimated and it is assumed no dividends will be declared. The estimated fair value of stock-based compensation awards to employees is amortized over the vesting period of the options. The weighted-average fair value calculations are based on the following average assumptions:

	Fiscal Year 2011	Fiscal Year 2010	Fiscal Year 2009
Stock Options:			
Expected life	4.5 years	4.5 years	4.1 years
Volatility	77.0%	74.2%	67.6%
Risk free interest rate	1.82%	2.04%	2.08%
Dividends	—	—	—
Employee Stock Purchase Plan:			
Expected life	0.5 years	0.5 years	0.5 years
Volatility	73.4%	80.3%	99.1%
Risk free interest rate	0.19%	0.20%	0.33%
Dividends	—	—	—

Stock Options and Restricted Stock Units ("RSUs")

Prior to December 2008, the majority of options granted by the Compensation Committee vested at a rate of 33 1/3 percent over the first three years of the seven-year option term on each of the first, second and third anniversary of such grants. Starting in December 2008, the majority of the options granted to employees employed for less than one year vest one-third ( 1/3<sup>rd</sup> ) of the shares subject to the option on the first anniversary of the grant date, and vest one thirty sixth ( 1/36<sup>th</sup> ) each month for the following two years, for a total three year vesting period with a seven-year option term. Starting in November 2008, the majority of the options granted for employees employed for more than one year vest one thirty-sixth ( 1/36<sup>th</sup> ) of the shares subject to the options in equal monthly installments starting on the monthly anniversary of the date of grant with a seven-year option term. On February 22, 2010, the Compensation Committee reviewed best practice with regard to stock option vesting and made the following changes; existing

employees generally receive vesting terms of monthly ratable vesting for a total period of four years. New employees, in general, receive vesting terms that are equivalent to 25% vesting on the one year anniversary of the grant with monthly vesting thereafter for a total of four years. All other terms remain the same. Grant of each Restricted Stock Unit ("RSU") counts against our available for grant pool at a ratio of 2:1 against the 2005 Equity Incentive Plan as depicted below under "RSUs granted". The number of RSUs granted during the fiscal year 2011 was 315,472 which counted as 630,944 against the stock option plan. Each RSU represents an amount equal to the fair value of one share of

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the Company's common stock.

A summary of activity under the Company's stock option plans including options and RSUs during fiscal year 2011, and shares available for grant at December 31, 2011 is as follows:

	Shares Available for Grant (Options and RSUs)	
Options and RSUs		
Outstanding at January 2, 2011	537,991	
Options granted	(683,047	)
Options canceled	155,252	
Shares added	2,000,000	
RSUs granted	(630,944	)
RSUs canceled	46,000	
Plan shares expired	(33,322	)
Shares available for grant at December 31, 2011	1,391,930	

## Options

The weighted average fair value per share of the stock options awarded in fiscal years 2011, 2010 and 2009 is \$9.98, \$6.42, and \$2.84, respectively. A summary of activity of stock options in 2011 is as follows:

	Number of Shares Outstanding (Options)	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term (in Years)	Aggregate Intrinsic Value (in Thousands)
Options				
Outstanding at January 2, 2011	2,763,686	\$7.43		
Exercised	(943,319	) 6.07		
Granted	683,047	16.51		
Canceled	(155,252	) 8.83		
Outstanding at December 31, 2011	2,348,162	\$10.53	\$4.86	\$18,556
Exercisable at December 31, 2011	1,210,299	\$7.77	\$3.98	\$12,886

The aggregate intrinsic value in the preceding table represents the total pretax intrinsic value, based on the Company's closing stock price of \$18.42 as of December 31, 2011, which would have been received by the option holders had all option holders exercised their options as of that date. The total intrinsic value of options exercised during 2011, 2010 and 2009 was \$11.6 million, \$6.2 million and \$2.2 million, respectively. The fair value of options vested during 2011, 2010 and 2009 was \$2.9 million, \$2.8 million, \$3.4 million, respectively.

The following table summarizes significant ranges of outstanding and exercisable options as of December 31, 2011.

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Exercise Prices	Options Outstanding			Options Exercisable	
	Number Outstanding	Weighted Average Remaining Contractual Life (Years)	Weighted Average Exercise Price	Number Exercisable	Weighted Average Exercise Price
\$0.93–\$0.98	240,795	3.78	\$0.94	240,795	\$0.94
\$1.13–\$6.65	246,093	2.60	\$4.33	211,827	\$4.44
\$6.83–\$7.50	280,165	4.75	\$7.42	211,669	\$7.40
\$7.78–\$10.21	216,963	3.53	\$9.25	155,439	\$9.12
\$10.46–\$10.46	256,590	5.30	\$10.46	74,856	\$10.46
\$10.83–\$11.77	235,519	5.60	\$11.33	91,017	\$11.23
\$12.03–\$15.74	242,847	5.44	\$14.46	70,955	\$13.33
\$15.88–\$16.59	178,742	5.23	\$16.10	84,942	\$15.98
\$16.70–\$16.70	389,748	6.22	\$16.70	68,799	\$16.70
\$17.23–\$19.84	60,700	6.71	\$18.02	—	\$—
\$0.93–\$19.84	2,348,162	4.86	\$10.53	1,210,299	\$7.77

As of December 31, 2011 the total unrecognized compensation costs related to unvested stock options was \$7.6 million which is expected to be recognized as an expense over a weighted average remaining amortization period of 2.7 years.

In August 2011, the Company added an additional 2 million shares of common stock to the Company's 2005 Equity Incentive Plan available for grant.

In September 2009, the Company completed an offer to exchange certain employee stock options under Nanometrics' Option Exchange Program (the "Option Exchange Program"). Under the Option Exchange Program, certain previously granted options were exchanged by eligible option holders for new options with a lower exercise price using the following exchange ratios: a) 2 replacement options were provided for every 3 options surrendered with an original exercise price less than or equal to \$10.00, and b) 1 replacement option was provided for every 2 options surrendered with an original exercise price greater than \$10.00.

As a result of the Option Exchange Program, a total of 448,945 options to purchase shares of common stock were tendered for exchange, and 237,838 options to purchase shares of common stock were issued. A total of 103 employees participated in the Option Exchange Program. Options granted pursuant to the Option Exchange Program have an exercise price of \$7.50 based on the NASDAQ closing price of the Company's common stock on September 3, 2009. For options granted pursuant to the Option Exchange Program, one third vested immediately on the re-grant date, and the remaining two thirds vest on a monthly basis beginning on the 13th month anniversary through the 36th month anniversary provided that the individual remains employed by the Company during that period. The incremental stock based compensation from the Option Exchange Program was \$0.2 million which is being recorded ratably over the requisite service period of three years.

#### Restricted Stock Units ("RSUs")

Each RSU counts against our "2005 Equity Incentive Plan" at a ratio of two shares for each unit granted but represents an amount equal to the fair value of one share of the Company's common stock. The Company granted 315,472 and 73,232 RSUs during the years ended December 31, 2011 and January 1, 2011, respectively, to key employees with vesting periods spanning from one to three years. The Company granted 286,180 RSUs on November 21, 2011 as part of employment agreements with personnel hired by the Company subsequent to the acquisition of Nanda. The RSU's

granted to these newly hired employees generally vest as follows: 10% on date of grant; the remaining vest one-third per year over each of the three years from date of grant, to the extent the participant continues to be employed at Nanometrics.

A summary of activity for RSUs is as follows:

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RSU	Number of RSU	Weighted Average Fair Value
Outstanding RSU as of January 1, 2011	83,307	\$9.98
Granted	315,472	\$16.44
Released	(75,721	) \$15.65
Cancelled	(23,000	) \$10.55
Outstanding RSU as of December 31, 2011	300,058	\$15.30

As of December 31, 2011 the total unrecognized compensation costs related to unvested RSU's was \$4.0 million which is expected to be recognized as an expense over a weighted average remaining amortization period of 2.7 years.

## Stock-based Compensation Expense

The following table summarizes stock-based compensation expense for all share-based payment awards made to the Company's employees and directors pursuant to the Employee Stock Purchases as follows (in thousands):

	Fiscal Year 2011	Fiscal Year 2010	Fiscal Year 2009
Cost of products	\$176	\$126	\$34
Cost of service	218	206	180
Research and development	984	514	495
Selling	1,366	596	472
General and administrative	1,729	1,508	873
Total stock-based compensation expense related to employee stock options and employee stock purchases	\$4,473	\$2,950	\$2,054

## Note 6. Goodwill and Long-Lived Asset Impairment

Goodwill represents the excess of the purchase price paid over the fair value of tangible and identifiable intangible net assets acquired in a business combination. Goodwill is reviewed annually or whenever events or circumstances occur which indicate that goodwill might be impaired.

On November 21, 2011, the Company acquired Nanda and recorded approximately \$12.5 million of goodwill as the purchase price exceeded the fair value allocated to net tangible assets and identifiable intangible assets. See Note 3 Acquisitions. The Company's impairment review process is completed as of November 30th of each year or whenever events or circumstances occur which indicate that an impairment may have occurred. The accounting standard update provides the option to assess qualitative factors to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying value. If, after assessing the qualitative factors, a company determines that it is not more likely than not that the fair value of a reporting unit is less than its carrying value, then performing the two-step impairment test is unnecessary. However, if a company concludes otherwise, then it is required to perform the first step of the two-step goodwill impairment test.

The Company completed its annual goodwill impairment assessment as of November 30, 2011 by first performing a qualitative assessment. As part of this assessment, the Company considered the trading value of the Company's stock and the implied value of the Company as compared to the Company's net assets as well as the valuation of Nanda that was performed as of the acquisition on November 21, 2011. The Company concluded that it was not more likely than not that the fair value was less than the carrying values of the Company's reporting unit and therefore did not proceed to the Step 1 of the goodwill impairment test.

The process of evaluating the potential impairment of long-lived assets is highly subjective and requires significant judgment. In estimating the fair value of these assets, the Company made estimates and judgments about future revenues and cash flows. The Company's forecasts were based on assumptions that are consistent with the plans and estimates the Company is using to manage the business. Changes in these estimates could change the Company's

conclusion regarding impairment of the long-lived assets and potentially result in future impairment charges for all or a portion of their balance at December 31, 2011. The Company did not record any impairment charges in the fiscal year 2011.

During the fiscal year 2010, the Company recorded \$0.5 million of impairment related to certain software



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implementation projects that were abandoned, and in the fiscal year 2009, the Company recorded \$1.9 million impairment related to its manufacturing facility in South Korea.

## Note 7. Sale of Accounts Receivable

The Company maintains arrangements under which eligible accounts receivable in Japan are sold without recourse to unrelated third-party financial institutions. These receivables were not included in the consolidated balance sheet as the criteria for sale treatment had been met. After a transfer of financial assets, an entity stops recognizing the financial assets when the control has been surrendered. The agreement met the criteria of a true sale of these assets since the acquiring party retained the title to these receivables and had assumed the risk that the receivables will be collectible. The Company pays administrative fees as well as interest ranging from 1.319% to 1.475% based on the anticipated length of time between the date the sale is consummated and the expected collection date of the receivables sold. In 2011, 2010 and 2009 there were no material gains or losses on the sale of such receivables. In 2011 and 2010, the Company sold \$19.5 million and \$7.6 million, respectively, of receivables under the terms of the agreement. There were no amounts due from the acquiring party financial institution at December 31, 2011 and January 1, 2011.

## Note 8. Inventories

Inventories consist of the following (in thousands):

	At	
	December 31, 2011	January 1, 2011
Raw materials and sub-assemblies	\$24,963	\$22,352
Work in process	11,143	10,295
Consignment inventory	10,547	8,263
Finished goods	5,607	2,258
Total inventories	\$52,260	\$43,168

## Note 9. Property, Plant and Equipment

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

	At	
	December 31, 2011	January 31, 2011
Land	\$15,570	\$15,570
Building and improvements	19,191	18,829
Machinery and equipment	14,693	11,432
Furniture and fixtures	2,285	2,161
Capital in progress	516	2,669
	52,255	50,661
Accumulated depreciation and amortization	(16,734	) (15,475
Total property, plant and equipment, net	\$35,521	\$35,186

Depreciation expense was \$ 4.8 million, \$4.4 million and \$4.6 million for 2011, 2010 and 2009, respectively. The amounts associated with capital in progress for 2011 and 2010 of \$0.5 million and \$2.7 million, respectively, were related to machinery and equipment projects.

## Note 10. Intangible Assets

In November 2011, the Company acquired 100% of the outstanding shares of Nanda. In accounting for the transaction, the Company recorded \$10.5 million of specifically identified intangible assets. See Note 3 - Acquisitions.

On December 9, 2010, Nanometrics purchased three patents from RTM. The company paid RTM \$0.4 million cash for these patents. Nanometrics also incurred approximately \$62,000 of legal expenses, which were capitalized and included with

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the cost of the patents acquired. The primary patent expires on March 31, 2018. Nanometrics will amortize the patents on a straight line basis over a period of 7 years and 3 months (from January 2011 through March 2018).

Intangible assets with an indefinite life are evaluated annually for impairment or whenever events or circumstances occur which indicate that those assets might be impaired. As a result of the Company's acquisition of Soluris Inc. during 2006, the Company acquired a trademark with a value of \$0.4 million with an indefinite life. During 2008, the Company determined the trademark no longer had an indefinite life, a remaining life of five years was assigned, and the Company began amortizing the asset. Also, during 2008, the Company added \$1.5 million of finite-lived intangible assets consisting of developed technology of \$1.3 million and backlog of \$0.2 million through its acquisition of Tevet.

Finite-lived intangible assets are recorded at cost, less accumulated amortization. Finite-lived intangible assets as of December 31, 2011 and January 1, 2011 consist of the following (in thousands):

	Carrying amount as of January 1, 2011	Additions during 2011 at cost	Carrying amount as of December 31, 2011	Accumulated amortization as of December 31, 2011	Net carrying amount as of December 31, 2011
Developed technology	\$ 8,681	\$ 9,200	\$ 17,881	\$(6,254)	) \$ 11,627
Customer relationships	8,521	1,040	9,561	(7,961)	) 1,600
Brand names	1,927	—	1,927	(1,498)	) 429
Patented technology	2,252	—	2,252	(1,856)	) 396
In-process research and development	—	330	330	—	) 330
Trademark	80	—	80	(68)	) 12
Total	\$ 21,461	\$ 10,570	\$ 32,031	\$(17,637)	) \$ 14,394

	Carrying amount as of January 2, 2010 (1)	Additions during 2010 at cost	Carrying amount as of January 1, 2011	Accumulated amortization as of January 1, 2011	Net carrying amount as of January 1, 2011
Developed technology	\$ 8,681	\$—	\$ 8,681	\$(4,796)	) \$ 3,885
Customer relationships	8,521	—	8,521	(7,467)	) 1,054
Brand names	1,927	—	1,927	(1,376)	) 551
Patented technology	1,790	462	2,252	(1,790)	) 462
Trademark	80	—	80	(60)	) 20
Total	\$ 20,999	\$ 462	\$ 21,461	\$(15,489)	) \$ 5,972

(1) The Carrying amount as of January 2, 2010 is presented net of intangible asset impairment charges of approximately \$0.5 million and \$1.9 million recorded in fiscal years 2010 and 2009, respectively.

The amortization of finite-lived intangibles is computed using the straight-line method except for certain customer relationship assets related to acquisitions in prior years which were computed using an accelerated method. Estimated lives of finite-lived intangibles range from five to ten years. Total amortization expense was \$1.7 million, \$1.5 million and \$1.5 million for fiscal 2011, 2010, and 2009, respectively.

The estimated future amortization expense as of December 31, 2011 is as follows (in thousands):



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Fiscal Years	Amounts
2012	\$2,992
2013	3,302
2014	2,946
2015	2,500
2016	2,209
Thereafter	445
Total amortization	\$14,394

## Note 11. Other Current Liabilities

Other current liabilities consist of the following (in thousands):

	At	
	December 31, 2011	January 1, 2011
Accrued warranty	\$4,797	\$3,129
Accrued professional services	1,497	722
Customer deposits	4,912	397
Fair value of deferred payments to Zygo Corporation related to acquisition	679	750
Legal settlement	2,500	—
Other	2,324	2,295
Total other current liabilities	\$16,709	\$7,293

A reconciliation of the changes to the Company's warranty accrual for fiscal years 2011 and 2010 is as follows (in thousands):

	Years Ended	
	December 31, 2011	January 1, 2011
Balance as of beginning of period	\$3,129	\$1,200
Accruals for warranties issued during the period	4,747	5,008
Aggregate changes in liabilities relating to existing warranties	4,194	(238)
Settlements during the period	(7,273)	(2,841)
Balance as of end of period	\$4,797	\$3,129

## Note 12. Line of Credit and Debt Obligations

Debt obligations consist of the following (in thousands):

	December 31, 2011	January 1, 2011
Line of Credit		
Balance on line of credit	\$—	\$—
Debt Obligations		
Milpitas building mortgage	7,452	10,039
Total debt obligations	7,452	10,039
Current portion of debt obligations	(765)	(572)
Long-term debt obligations	\$6,687	\$9,467



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In February 2007, the Company entered into a two-year agreement for a revolving line of credit facility in a maximum principal amount of \$15.0 million. On April 30, 2009, Nanometrics re-negotiated its revolving line of credit facility to extend the maturity date of the facility by an additional two years, to April 30, 2011. On June 15, 2009, the Company amended the financial covenants governing the credit facility to reduce the net tangible net worth requirements, effective as of June 27, 2009. On April 13, 2010, the Company amended the revolving line of credit facility to (i) increase the maximum principal amount available there under from \$15.0 million to \$20.0 million, (ii) extend the maturity date of such facility by one year to April 30, 2012, and (iii) decrease the unused revolving line commitment fee from 0.25% per annum to 0.1875% per annum.

The instrument governing the facility includes certain financial covenants regarding net tangible net worth. The revolving line of credit agreement includes a provision for the issuance of commercial or standby letters of credit by the bank on behalf of the Company. The value of all letters of credit outstanding reduces the total line of credit available. The revolving line of credit is collateralized by a blanket lien on all of the Company's domestic assets excluding intellectual property and real estate. The minimum borrowing interest rate is 5.75% per annum. The maximum borrowing allowed on the line of credit is \$18.1 million. Borrowing is limited to the lesser of (a) \$7.5 million plus the borrowing base or (b) \$20.0 million. As of December 31, 2011, the Company was not in breach of any restrictive covenants in connection with its line of credit and debt obligations. There are no outstanding amounts drawn on this facility as of December 31, 2011. Although the Company has no current plans to request advances under this credit facility, it may use the proceeds of any future borrowing for general corporate purposes, future acquisitions or expansion of the Company's business.

In July 2008, the Company entered into a mortgage agreement with General Electric Commercial Finance pursuant to which it borrowed \$13.5 million. The mortgage initially bears interest at the rate of 7.18% per annum, which rate will be reset in August 2013 to 3.03% over the then weekly average yield of five-year U.S. Dollar Interest Rate Swaps as published by the Federal Reserve. Monthly principal and interest payments are based on a twenty year amortization for the first sixty months and fifteen year amortization thereafter. The remaining principal balance of the mortgage and any accrued but unpaid interest will be due on August 1, 2018. The mortgage is secured, in part, by a lien on and security interest in the building and land comprised of the Company's principal offices in Milpitas, California. GE subsequently sold the mortgage on March 31, 2011 to Sterling Savings Bank; however, no changes were made to the terms of the original loan agreement with GE as a result of the sale.

According to the terms of the loan agreement, the Company can make pre-payments of up to 20% of the outstanding principal balance without incurring any penalty. In July 2010 and 2011, the Company prepaid \$2.6 million and \$1.95 million, respectively, representing 20% of the then outstanding balance.

Based on the discounted cash flow with inputs that are observable in the market or that could be derived from or corroborated with observable market data (referred to as Level 2) including interest rates based on yield curves of similar debt issued by parties with credit ratings similar to the Company's, the fair value of the loan as of December 31, 2011 and January 1, 2011 was \$8.3 million and \$9.9 million, respectively.

At December 31, 2011, future annual maturities of all debt obligations were as follows (in thousands):

	Amounts
2012	\$1,176
2013	1,126
2014	811
2015	811
2016	812
Thereafter	4,779
Total obligations	9,515
(less) Interest	(2,063 )
Total loan amount	\$7,452

Note 13. Legal Settlement

In August 2005, KLA-Tencor Corporation (“KLA”) filed a complaint against the Company in the United States

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District Court for the Northern District of California (the “California District Court”). The complaint alleged that certain of Nanometrics' products infringe two of KLA's patents. In January 2006, KLA added a third patent to its complaint. In August 2011, the Company filed a complaint against KLA in the United States District Court for the District of Delaware. The complaint alleged that several of KLA's overlay metrology products infringe two of the Company's patents. On January 13, 2012, the Company entered into a settlement and limited patent cross license agreement with KLA to resolve all existing patent litigation between the parties. Pursuant to the settlement agreement, the Company agreed to make a one-time payment of \$2.5 million to KLA. The settlement additionally included other features including limited cross-licenses of the patents that were subject to the litigation. The Company determined the principal benefit of the settlement was the economic benefit of avoiding litigation expenses and that the value attributable to the other settlement features was de minimus. As a result, the Company recorded a \$2.5 million charge to legal settlement in operating expense in the fourth quarter of fiscal 2011.

## Note 14. Commitments and Contingencies

In the normal course of business, we are a party to a variety of agreements pursuant to which we may be obligated to indemnify the other party. It is not possible to predict the maximum potential amount of future payments under these types of agreements due to the conditional nature of our obligations and the unique facts and circumstances involved in each particular agreement. Historically, our payments under these types of agreements have not had a material adverse effect on our business, results of operations or financial condition.

The Company leases facilities and certain equipment under non-cancelable operating leases. Rent expense, which is recorded on a straight-line basis over the term of the respective lease, for 2011, 2010 and 2009, was approximately \$1.8 million \$1.4 million and \$1.4 million, respectively. Future minimum lease payments under its operating leases are as follows (in thousands):

	Operating Leases
2012	\$1,642
2013	850
2014	547
2015	361
2016	334
2017	266
Thereafter	94
Total	\$4,094

## Note 15. Stockholders' Equity

## Preferred and Common Stock

The authorized capital stock of Nanometrics consists of 47,000,000 shares of common stock, par value \$0.001 per share, and 3,000,000 shares of preferred stock, par value \$0.001 per share.

On July 26, 2007, our Board of Directors approved the repurchase shares of our common stock up to \$4.0 million. During the fiscal year 2010, we repurchased and retired 96,492 shares of our common stock under this program for an aggregate consideration of \$1.3 million. As of January 1, 2011 the entire \$4.0 million approved by the Board for the repurchase of our shares of common stock had been used for the purpose.

On November 29, 2010, the Company's Board of Directors approved a program to repurchase up to \$10.0 million of our common stock. Share repurchases under this program may be made through open market and privately negotiated transactions, at times and in such amounts as management deems appropriate. The timing and actual number of shares repurchased is dependent on a variety of factors including price, corporate and regulatory requirements and other

market conditions.

During 2011, the Company repurchased and retired a total of 265,040 shares of our common stock under this program at a weighted average price of \$16.00 per share for total aggregate consideration of \$4.3 million. During the fiscal year 2010, the Company repurchased and retired 65,000 shares of our common stock under this program at a weighted average price of \$11.91 per share for total aggregate consideration of \$0.8 million. As of December 31, 2011 there remained \$5.0 million available for the future repurchase of shares of our common stock.

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In December 2009, the Company completed a public offering of its common stock resulting in the issuance of 2,307,152 shares at net proceeds of \$23.3 million.

## Stock Option Plans

The Nanometrics option plans are as follows:

Plan Name	Participants	Shares Authorized
2005 Equity Incentive Plan	Employees, consultants and directors	4,692,594
2002 Non-statutory Stock Option Plan	Employees and consultants	1,200,000
2000 Employee Stock Option Plan	Employees and consultants	2,450,000
2000 Director Stock Option Plan	Non-employee directors	250,000
Accent Optical Technologies, Inc. Stock Incentive Plan	Employees and consultants	205,003

See Note 5 above for information on option activity in 2011.

## Employee Stock Purchase Plan

Under the 2003 Employee Stock Purchase Plan (“ESPP”), eligible employees are allowed to have salary withholdings of up to 10% of their base compensation to purchase shares of common stock at a price equal to 85% of the lower of the market value of the stock at the beginning or end of each six-month offering period, subject to an annual limitation. At the end of the fiscal year ended December 31, 2011, Nanometrics had 0.8 million shares remaining for issuance under the ESPP. Shares issued under the ESPP were 112,491 shares, 56,326 shares and 352,356 shares in 2011, 2010 and 2009 at a weighted average price of \$12.92, \$8.88 and \$1.71, respectively. For the ESPP purchase in December 2011, 48,157 shares were issued subsequent to end of fiscal year 2011.

## Note 16. Restructuring Charge

In the first and second quarters of 2009, the Company reduced the global workforce by 51 and 25 employees, respectively, and recorded a restructuring charge of \$0.7 million and \$0.4 million in each respective quarter. Twelve (12) of the employees terminated in the second quarter of 2009 were in connection with the South Korea manufacturing facility closure.

The following shows the activity primarily related to severance and benefits expenses related to the restructuring:

	Severance and Other Benefits	Total
Reserve balance at the beginning of 2009	\$80	\$80
Restructuring charges during 2009	1,134	1,134
Cash paid	(1,214)	(1,214)
Reserve balance at January 2, 2010	\$—	\$—

## Note 17. Defined Benefit Pension Plan

Nanometrics sponsors a statutory government mandated defined benefit pension plan (the “Benefit Plan”) in Taiwan for its local employees. The fair value of plan assets was \$0.1 million for each of the fiscal years ended 2011, 2010 and 2009 respectively; and the net funding deficiency of the Benefit Plan was \$0.2 million, \$0.3 million and \$0.2 million for the fiscal years ended December 31, 2011, January 1, 2011 and January 2, 2010, respectively. Based on the nature and limited extent of the pension plan, we have determined this pension plan is not material for separate disclosure.

Note 18. Income Taxes

Income Tax Assets and Liabilities – The Company accounts for income taxes whereby that deferred tax assets and liabilities are recognized using enacted tax rates for the effect of temporary differences between the book and tax accounting for assets and liabilities. Also, deferred tax assets are reduced by a valuation allowance to the extent that management cannot conclude that it is more likely than not that a portion of the deferred tax asset will be realized in the future. The Company evaluates the deferred tax assets on a continuous basis throughout the year to determine whether or not a valuation allowance is

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appropriate. Factors used in this determination include future expected income and the underlying asset or liability which generated the temporary tax difference. The income tax provision is primarily impacted by federal statutory rates, state and foreign income taxes and changes in the valuation allowance.

Income (loss) before provision (benefit) for income taxes consists of the following (in thousands):

	Years Ended		
	December 31, 2011	January 1, 2011	January 2, 2010
Domestic	\$41,773	\$37,640	\$(14,111 )
Foreign	2,811	3,049	(2,780 )
Income (loss) before income taxes	\$44,584	\$40,689	\$(16,891 )

The provision (benefit) for income taxes consists of the following (in thousands):

	Years Ended		
	December 31, 2011	January 1, 2011	January 2, 2010
Current:			
Federal	\$11,059	\$2,031	\$(75 )
State	1,048	659	6
Foreign	354	55	(111 )
	12,461	2,745	(180 )
Deferred:			
Federal	2,366	(14,266 )	—
State	(158 )	(459 )	—
Foreign	1,230	(3,279 )	(406 )
	3,438	(18,004 )	(406 )
Provision (benefit) for income taxes	\$15,899	\$(15,259 )	\$(586 )

The fiscal year 2011 income tax provision reflects a benefit of \$0.5 million recorded in the fourth quarter of fiscal year 2011 resulting from certain return-to-provision and other adjustments that related to prior periods. The correction of these out of period errors in the current quarter are immaterial to both the consolidated quarterly and annual financial statements.

Significant components of the Company's deferred tax assets and liabilities are as follows (in thousands):

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	At	
	December 31, 2011	January 1, 2011
Deferred tax assets:		
Reserves and accruals	\$12,441	\$9,625
Deferred revenue	1,308	338
Goodwill	396	825
Shared based compensation	2,242	2,411
Tax credit carry-forwards	999	2,819
Net operating losses	10,133	7,220
Depreciation & amortization	2,957	3,190
Other	571	415
Total deferred tax assets	31,047	26,843
Less: Valuation allowance	(8,142)	(7,002)
Total deferred tax assets net of valuation allowance	22,905	19,841
Deferred tax liabilities:		
Depreciation & amortization	(6,229)	(664)
Other	(1,406)	(277)
Total deferred tax liabilities	(7,635)	(941)
Net deferred tax assets	\$15,270	\$18,900

As of December 31, 2011, the Company had net operating loss carryforwards of \$27.4 million in California and \$33.3 million in foreign countries, which begin to expire in 2016 and 2013 respectively. A total of \$1.6 million of the California net operating loss carryforward and \$1.3 million of the foreign net operating loss carryforwards are related to excess tax benefits as a result of stock option exercises and therefore will be recorded in additional paid-in capital in the period that they become realized. During the year ended December 31, 2011, the Company realized excess benefits as a result of stock option exercises in the amount of \$3.9 million, which was appropriately recorded to additional paid-in-capital.

As of December 31, 2011, the Company had available for carryforward state research and experimental tax credits and other credits of \$2.6 million. State research and experimental tax credits carryforward indefinitely. A total of \$0.3 million of the state research and experimental tax credits are related to excess tax benefits as a result of stock option exercises and therefore will be recorded to additional paid-in-capital in the period that they become realized. During the years ended December 31, 2011 and January 1, 2011 the valuation allowance increased by \$1.1 million and decreased by \$32.1 million, respectively. The valuation allowance increase in 2011 is primarily related to foreign losses without benefit.

Changes in tax laws and tax rates could affect our recorded deferred tax assets and liabilities in the future. Our tax liabilities involve dealing with uncertainties in the application of complex tax laws and regulations in a multitude of jurisdictions across our global operations. Management will account for any such changes or factors in the period in which such law changes are enacted.

Differences between income taxes computed by applying the statutory federal income tax rate to income before income taxes and the provision (benefit) for income taxes consist of the following (in thousands):

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	Years Ended		
	December 31, 2011	January 1, 2011	January 2, 2010
Income taxes computed at U.S. statutory rate	\$15,604	\$14,241	\$(5,912 )
State income taxes	636	1,766	6
Foreign tax rate differential	907	(3,512 )	(229 )
Change in valuation allowance	17	(28,825 )	4,237
Domestic production activities deduction	(1,033 )	(404 )	—
Tax credits	(601 )	(869 )	927
Liabilities for uncertain tax positions	153	1,793	(207 )
Other, net	216	551	592
Provision (benefit) for income taxes	\$15,899	\$(15,259 )	\$(586 )

As of December 31, 2011, approximately \$0.8 million of undistributed earnings from non-U.S. operations held by our foreign subsidiaries are designated as permanently reinvested outside the U.S. Accordingly, no additional U.S. income taxes or additional foreign withholding taxes have been provided thereon. Determination of the amount of unrecognized deferred tax liability related to these earnings is not practicable.

We recognize tax liabilities for uncertain tax positions and adjust these liabilities when our judgment changes as a result of the evaluation of new information not previously available. Due to the complexity of some of these uncertainties, the ultimate resolution may result in a payment that is materially different from our current estimate of the tax liabilities. These differences will be reflected as increases or decreases to income tax expense in the period in which they are determined. The Company does not expect a material change in its unrecognized tax benefits within the next 12 months.

The accounting for uncertainty in income taxes recognized in an enterprise's financial statements prescribes a recognition threshold and measurement attribute for the financial statement recognition and measurement of a tax position taken or expected to be taken on a tax return, and the derecognition of tax benefits, classification on the balance sheet, interest and penalties, accounting in interim periods, disclosure, and transition.

A reconciliation of the beginning and ending amount of unrecognized tax benefits is as follows (in thousands):

	Rollforward Table (at Gross): As of		
	December 31, 2011	January 1, 2011	January 2, 2010
Unrecognized tax benefits – beginning of the period	\$3,370	\$1,032	\$1,374
Foreign currency movements	—	(15 )	—
Gross increases – tax positions in prior period	154	1,971	15
Gross decreases – tax positions in prior period	—	—	(345 )
Gross increases – current-period tax positions	622	530	81
Settlements	—	—	—
Lapse of statute of limitations	(547 )	(148 )	(93 )
Unrecognized tax benefits – end of the period	\$3,599	\$3,370	\$1,032

The unrecognized tax benefits at December 31, 2011 were \$3.6 million, of which \$2.9 million would impact the effective tax rate if the Company determined the tax benefit to be more likely than not realizable. The Company accrues interest and penalties related to unrecognized tax benefits in its provision for income taxes. The total amount of penalties and interest are not material as of December 31, 2011, January 1, 2011, and January 2, 2010. The Company expects that approximately \$0.2 million of its unrecognized tax benefits may be recognized within the next 12 months as a result of the lapse of the statute of limitations.

The Company is subject to taxation in the U.S. and various states including California, and foreign jurisdictions including Korea, Japan and United Kingdom. Due to tax attribute carry-forwards, the Company is subject to examination for tax years 2003 forward for U.S. tax purposes. The Company was also subject to examination in

various states for tax years 2002 forward. The Company is subject to examination for tax years 2006 forward for various foreign jurisdictions.



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## Note 19. Major Customers

The following customers accounted for 10% or more of total revenue:

	Years Ended				
	December 31, 2011	January 1, 2011	January 2, 2010		
Samsung Electronics Co. Ltd.	30.0	% 23.0	% 33.4	%	
Intel Corporation	16.9	% 16.4	% 10.4	%	
Hynix Semiconductor, Inc.	11.4	% 12.8	% ***	%	

\*\*\*The customer accounted for less than 10% of revenue during the period.

The following customer accounted for 10% or more of total accounts receivable:

	At			
	December 31, 2011	January 1, 2011	January 2, 2010	
Samsung Electronics Co. Ltd.	41.1	% 19.2	%	%

## Note 20. Product, Segment and Geographic Information

The Company has one operating segment, which is the sale, design, manufacture, marketing and support of thin film, optical critical dimension and overlay dimension metrology systems. The Chief Executive Officer has been identified as the Chief Operating Decision Maker (“CODM”) because he has the final authority over resource allocation decisions and performance assessment. The CODM does not receive discrete financial information about individual components of the Company’s business. For the years ended December 31, 2011, January 1, 2011, and January 2, 2010, the Company recorded revenue from customers primarily in the United States, Asia and Europe. The following table summarizes total net revenues and long-lived assets (excluding intangible assets) attributed to significant countries (in thousands):

	Years Ended		
	December 31, 2011	January 1, 2011	January 2, 2010
Total net revenues:			
United States	\$50,447	\$65,099	\$22,755
South Korea	87,533	54,156	29,992
Japan	34,806	19,776	11,293
China	14,267	17,532	3,157
Taiwan	10,853	15,990	3,615
Europe	13,893	7,119	3,868
All other	18,262	8,393	2,027
Total net revenues*	\$230,061	\$188,065	\$76,707

\*Net revenues are attributed to countries based on the customer’s deployment and service locations of systems.



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	At	
	December 31, 2011	January 1, 2011
Long-lived tangible assets:		
United States	\$33,127	\$33,377
Europe	1,268	915
South Korea	503	1,229
Japan	159	518
Taiwan	113	60
China	36	28
All other	315	294
Total long-lived assets	\$35,521	\$36,421

The Company's product lines differ primarily based on the environment in which the systems will be used. Automated systems are used primarily in high-volume production environments. Materials characterization products are primarily used to measure the composition, band gap, structure, and other physical and electrical properties of semiconducting materials for high brightness LED and solar/photovoltaic structures in both development and high volume environments. Integrated systems are installed inside wafer processing equipment to provide near real-time measurements for improving process control and increasing throughput. Revenues by product type were as follows (in thousands):

	Years Ended		
	December 31, 2011	January 1, 2011	January 2, 2010
Automated Systems	\$139,261	\$110,955	\$36,554
Integrated Systems	25,413	17,437	2,767
Materials Characterization	30,100	26,156	9,832
Total product revenues	\$194,774	\$154,548	\$49,153

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## SUPPLEMENTAL FINANCIAL INFORMATION

## Selected Quarterly Financial Results (Unaudited)

The following table sets forth selected consolidated quarterly results of operations for the year ended December 31, 2011, and January 1, 2011 (in thousands, except per share amounts):

	Quarters Ended			
	Dec. 31, 2011	Oct. 1, 2011	July 2, 2011	Apr. 2, 2011
Total net revenues	\$45,277	\$58,269	\$64,372	\$62,143
Gross profit	21,120	30,799	36,104	35,155
Income (loss) from operations	(528	) 11,746	17,485	17,063
Net income (loss)	(531	) 7,619	11,087	10,510
Net income (loss) per share:				
Basic	\$(0.02	) \$0.33	\$0.49	\$0.47
Diluted	\$(0.02	) \$0.32	\$0.47	\$0.45
Shares used in per share computations:				
Basic	23,074	22,875	22,709	22,568
Diluted	23,074	23,526	23,442	23,397

	Quarters Ended			
	Jan. 1, 2011	Oct. 2, 2010	July 3, 2010	Apr. 3, 2010
Total net revenues	\$46,130	\$53,935	\$50,835	\$37,165
Gross profit	24,303	29,397	28,006	20,547
Income (loss) from operations	8,668	13,818	12,892	5,946
Net income (loss)	26,129	12,327	11,567	5,925
Net income (loss) per share:				
Basic	\$1.18	\$0.56	\$0.53	\$0.28
Diluted	\$1.12	\$0.53	\$0.51	\$0.26
Shares used in per share computations:				
Basic	22,235	21,978	21,672	21,537
Diluted	23,323	23,168	22,847	22,655

\* \* \* \* \*

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

We maintain disclosure controls and procedures that are designed to ensure that information required to be disclosed in our reports under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to management, including our Chief



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Executive Officer (“CEO”) and Chief Financial Officer (“CFO”), as appropriate, to allow timely decisions regarding required disclosure. Our management, with participation of our CEO and CFO, has evaluated the effectiveness of our disclosure controls and procedures as of the end of the fiscal year covered by this Annual Report on Form 10-K.

As described below under “Report of Management on Internal Control over Financial Reporting”, based upon that evaluation, our CEO and CFO have concluded that, as of the end of the period covered in this report, our disclosure controls and procedures were effective to ensure that information required to be disclosed by us in reports that we file or submit under the Exchange Act is recorded, processed, summarized, and reported within the time periods specified in SEC rules and forms and is accumulated and communicated to our management, including our principal executive officer and principal financial officer, as appropriate, to allow timely decisions regarding required disclosure.

### Report of Management on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act. Our internal control over financial reporting was designed to provide reasonable, not absolute, assurance regarding the integrity, reliability and fair presentation of our financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles.

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

A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the control system’s objectives will be met. Further, the design of a control system must reflect the fact that there are resource constraints. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, within our company have been detected. Under the supervision and with the participation of our management, including our CEO and CFO, we assessed the effectiveness of our internal control over financial reporting as of December 31, 2011. In making this assessment, we used the criteria established in the framework on Internal Control – Integrated Framework issued by the Committee of Sponsoring Organizations (“COSO”) of the Treadway Commission.

Based on our assessment, which was conducted according to the COSO criteria, we have concluded that our internal control over financial reporting was effective in achieving its objectives as of December 31, 2011.

The effectiveness of our internal control over financial reporting as of December 31, 2011 has been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, as stated in their report which appears herein.

### Changes in Internal Control over Financial Reporting

No change in our internal controls over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) occurred during the fourth quarter ended December 31, 2011, that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

## ITEM 9B. OTHER INFORMATION

None.

## PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information required by this Item is incorporated by reference to our Proxy Statement for our 2012 Annual Meeting of Stockholders (the "Proxy Statement") to be filed with the SEC not later than 120 days after the end of our fiscal year ended December 31, 2011. Information regarding our executive officers is set forth at the end of Part I of this Annual Report on Form 10-K under the caption "Executive Officers of the Registrant."

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ITEM 11. EXECUTIVE COMPENSATION

Information required by this Item is incorporated by reference to the information in the Proxy Statement.

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

Information required by this Item is incorporated by reference to the information in the Proxy Statement.

Equity Compensation Plan Information

The following table gives information about the common stock that may be issued under all of our existing equity compensation plans as of December 31, 2011.

Plan category	Number of securities to be issued upon exercise of outstanding options, warrants and rights	Weighted-average exercise price of outstanding options	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in first column)
Equity compensation plans approved by security holders	2,334,561	\$ 9.73	1,391,930
Equity compensation plans not approved by security holders(1)	313,659	\$ 15.72	8,512
Total	2,648,220	\$ 10.53	1,400,442

(1) The material features of the 2002 Non-statutory Stock Plan, which was adopted without the approval of security holders, is set forth in Note 15 to the consolidated financial statements.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS AND DIRECTOR INDEPENDENCE

Information required by this Item is incorporated by reference to the information in the Proxy Statement.

ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES

The information required by this Item is incorporated by reference to the information in the Proxy Statement.

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULE

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

(1) Consolidated Financial Statements.



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See Index to Consolidated Financial Statements in Item 8 on page 38 of this Annual Report on Form 10-K.

(2) Consolidated Financial Statement Schedule.

The following consolidated financial statement schedule of Nanometrics Incorporated is filed as part of this Annual Report on Form 10-K and should be read in conjunction with the Consolidated Financial Statements:

Schedule	Page
<u>II (a) – Valuation and Qualifying Accounts as of and for the years ended December 31, 2011 and January 1, 2011</u>	<u>81</u>
<u>II (b) – Valuation and Qualifying Accounts as of January 2, 2010 and for the year then ended</u>	<u>81</u>

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Schedules not listed above have been omitted because they are not applicable or are not required or the information required to be set forth therein is included in the Consolidated Financial Statements or notes thereto.

(3) Exhibits.

See Exhibit Index beginning on page 77 of this Annual Report on Form 10-K.

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## 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.

Dated: March 13, 2012

## NANOMETRICS INCORPORATED

By: /S/ TIMOTHY J. STULTZ  
 Timothy J. Stultz  
 President and Chief Executive Officer  
 (Duly Authorized Officer and Principal Executive Officer)

Pursuant to the requirements of the Securities Exchange Act of 1934, this Report on Form 10-K has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Signature	Title	Date
/S/ TIMOTHY J. STULTZ Timothy J. Stultz	President, Chief Executive Officer and Director (Principal Executive Officer)	March 13, 2012
/S/ RONALD W. KISLING Ronald W. Kisling	Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	March 13, 2012
/S/ BRUCE C. RHINE Bruce C. Rhine	Chairman of the Board of Directors	March 13, 2012
/S/ HOWARD A. BAIN III Howard A. Bain III	Director	March 13, 2012
/S/ J. THOMAS BENTLEY J. Thomas Bentley	Director	March 13, 2012
/S/ NORMAN COATES Norman Coates	Director	March 13, 2012
/S/ STEPHEN G. NEWBERRY Stephen G. Newberry	Director	March 13, 2012
/S/ WILLIAM G. OLDHAM William G. Oldham	Director	March 13, 2012
/S/ STEPHEN J. SMITH Stephen J. Smith	Director	March 13, 2012

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EXHIBIT INDEX

Exhibit No.	Description
2	Plan of Acquisition, Reorganization, Arrangement, Liquidation or Succession
2.1 (1) #	Equity Purchase Agreement among Nanometrics (Switzerland) GmbH, Nanda Technologies GmbH, the stockholders of Nanda Technologies GmbH and Shareholder Representative Services LLC, dated November 21, 2011
3.(i)	Certificate of Incorporation
3.1(2)	Certificate of Incorporation of the Registrant
3.(ii)	Bylaws
3.2 (3)	Bylaws of the Registrant
4	Instruments Defining the Rights of Security Holders, Including Indentures
4.1 (4)	Form of Common Stock Certificate
10	Material Contracts
	Management Contracts, Compensatory Plans, Contracts or Arrangements
10.1 (5)	Form of Indemnification Agreement between the Registrant and each of its directors and executive officers
10.2 (6)	Registrant's 2000 Employee Stock Option Plan and form of Stock Option Agreement
10.3 (7)	Registrant's 2000 Director Stock Option Plan and form of Stock Option Agreement
10.4 (8)	Registrant's 2002 Non-statutory Stock Option Plan and form of Stock Option Agreement
10.5 (9)	Registrant's Amended and Restated 2003 Employee Stock Purchase Plan
10.6 (10)	Form of Subscription Agreement Under the Registrant's Amended and Restated 2003 Employee Stock Purchase Plan
10.7 (9)	Registrant's Amended and Restated 2005 Equity Incentive Plan
10.8 (7)	Registrant's Amended and Restated 2005 Equity Incentive Plan forms of Stock Option and Restricted Stock Unit Agreements
10.9 (11)	2011 Executive Performance Bonus Plan



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10.10 (12)	Form of Offer Letter to Timothy J. Stultz
10.11 (13)	Amended and Restated Executive Severance Agreement between the Registrant and Timothy J. Stultz, dated February 23, 2010
10.12 (13)	Amended and Restated Executive Severance Agreement between the Registrant and Bruce A. Crawford, dated February 23, 2010
10.13 (14)	Employment Agreement between Registrant and Ronald W. Kisling, dated February 28, 2011
10.14*	Employment Agreement between Registrant and Nancy E. Egan, dated October 31, 2011
	All Other Material Contracts
10.15 (8)	Loan and Security Agreement effective as of February 14, 2007 by and between Comerica Bank, the Registrant, Accent Optical Technologies, Nanometrics, Inc. and Nanometrics IVS Division, Inc.
10.16 (15)	First Amendment to the Loan and Security Agreement dated September 14, 2007
10.17 (15)	Second Amendment to the Loan and Security Agreement dated May 11, 2009, with an effective date of April 29, 2009
10.18 (16)	Third Amendment to the Loan and Security Agreement dated June 15, 2009
10.19 (17)	Fourth Amendment to the Loan and Security Agreement dated April 13, 2010
10.20 (18)	Security Agreement, Balloon Promissory Note, and Deed of Trust by and between GE Commercial Finance Business Property Corporation and the Registrant, each dated July 25, 2008
10.21 (16)	Asset Transfer Agreement by and between Zygo Corporation and the Registrant, dated June 17, 2009
10.22 (16)	Supply Agreement by and between Zygo Corporation and the Registrant dated June 17, 2009
14	Code of Ethics
14.1 (19)	Registrant's Code of Business Conduct and Ethics
21	Subsidiaries
21.1*	Subsidiaries of the Registrant
23	Consents of Experts and Counsel
23.1*	Consent of PricewaterhouseCoopers LLP Independent Registered Public Accounting Firm



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23.2*	Consent of BDO USA, LLP (formerly known as BDO Siedman, LLP), Independent Registered Public Accounting Firm
31	Rule 13a-14(a)/15d-14(a) Certifications
31.1*	Certification of Timothy J. Stultz, principal executive officer of the Registrant, pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2*	Certification of Ronald W. Kisling, principal financial officer and principal accounting officer of the Registrant, pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32	Section 1350 Certifications
32.1*	Certification of Timothy J. Stultz, principal executive officer of the Registrant, and Ronald W. Kisling, principal financial officer and principal accounting officer of the Registrant pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
101**	XBRL - Related Documents
	The following financial statements, formatted in XBRL: (i) Condensed Consolidated Balance Sheets as of December 31, 2011 and January 1, 2011, (ii) Condensed Consolidated Statements of Operations for the years ended December 31, 2011, January 1, 2011 and January 2, 2010 (iii) Condensed Consolidated Statements of Cash Flows for the years ended December 31, 2011, January 1, 2011 and January 2, 2010 and (v) Notes to Unaudited Condensed Consolidated Financial Statements, tagged as blocks of text. The information is Exhibit 101 is “furnished” and not “filed”, as provided in Rule 402 of Regulation S-T.

- (1) Incorporated by reference to Exhibit 2.1 filed with the Registrant's Current Report on Form 8-K filed November 23, 2011.
- (2) Incorporated by reference to exhibits filed with the Registrant's Current Report on Form 8-K filed October 5, 2006.
- (3) Incorporated by reference to exhibits filed with the Registrant's Current Report on Form 8-K filed May 9, 2008.
- (4) Incorporated by reference to Exhibit 4.1 filed with the Registrant's Quarterly Report on Form 10-Q filed November 9, 2006.
- (5) Incorporated by reference to Exhibit 10.1 filed with the Registrant's Annual Report on Form 10-K filed March 15, 2007.
- (6) Incorporated by reference to Exhibit 4.2 filed with the Registrant's Registration Statement on Form S-8 (File No. 333-40866) filed on July 6, 2000.
- (7) Incorporated by reference to exhibits filed with the Registrant's Annual Report on Form 10-K filed March 13, 2008.
- (8) Incorporated by reference to exhibits filed with the Registrant's Quarterly Report on Form 10-Q filed May 10, 2007.
- (9) Incorporated by reference to the appendices filed with the Registrant's definitive proxy statement on Schedule 14A filed April 21, 2009.
- (10) Incorporated by reference to Exhibit 4.1 filed with the Registrant's Registration Statement on Form S-8 (File No.333-108474) filed on September 3, 2003.
- (11) Incorporated by reference to exhibits filed with the Registrant's Quarterly Report on Form 10-Q filed on May 22, 2011.



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- (12) Incorporated by reference to Exhibit 10.1 filed with the Registrant's Current Report on Form 8-K filed August 8, 2007.
- (13) Incorporated by reference to exhibits filed with the Registrant's Annual Report on Form 10-K filed on March 26, 2010.
- (14) Incorporated by reference to exhibits filed with the Registrant's Annual Report on Form 10-K filed March 14, 2011.
- (15) Incorporated by reference to exhibits filed with the Registrant's Quarterly Report on Form 10-Q filed May 12, 2009.
- (16) Incorporated by reference to exhibits filed with the Registrant's Quarterly Report on Form 10-Q filed August 11, 2009.
- (17) Incorporated by reference to Exhibit 99.1 filed with the Registrant's Current Report on Form 8-K filed April 19, 2010.
- (18) Incorporated by reference to Exhibit 10.2 filed with the Registrant's Quarterly Report on Form 10-Q filed November 6, 2008.
- (19) Incorporated by reference to Exhibit 14 filed with the Registrant's Annual Report on Form 10-K filed April 1, 2004.

\* Filed herewith.

\*\* Furnished herewith.

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Schedules and similar attachments have been omitted pursuant to Item 601(b)(2) of Regulations S-K under the Exchange Act. We hereby undertake to supplementally furnish copies of any omitted schedules to the SEC upon request.

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## SCHEDULE II

## NANOMETRICS INCORPORATED

## (a) VALUATION AND QUALIFYING ACCOUNTS

Our allowance for doubtful accounts receivable consists of the following (in thousands):

Year Ended	Balance at beginning of period	Charged to costs and expenses	Deductions – write-offs of accounts	Balance at end of period
December 31, 2011	\$63	\$81	\$(27 )	\$117
January 1, 2011	\$241	\$(131 )	\$47	\$63

Our valuation allowance for deferred tax assets consists of the following (in thousands):

Year Ended	Balance at beginning of period	Charged to costs and expenses	Deductions – write-offs of accounts	Balance at end of period
December 31, 2011	\$7,002	\$1,140	\$—	\$8,142
January 1, 2011	\$39,145	\$(32,143 )	\$—	\$7,002

## (b) VALUATION AND QUALIFYING ACCOUNTS

Our allowance for doubtful accounts receivable consists of the following (in thousands):

Year Ended	Balance at beginning of period	Charged to costs and expenses	Deductions – write-offs of accounts	Balance at end of period
January 2, 2010	\$309	381	\$449	\$241

Our valuation allowance for deferred tax assets consists of the following (in thousands):

Year Ended	Balance at beginning of period	Charged to costs and expenses	Deductions – write-offs of accounts	Balance at end of period
January 2, 2010	\$34,902	\$4,243	\$—	\$39,145