NANOMETRICS INC
Form 10-K
March 26, 2010
Table of Contents

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

(Mark One)

x ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended January 2, 2010

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

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:

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

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

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 x.

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

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

Indicate by check mark whether the Registrant is a shell company (as defined by Rule 12b-2 of the Securities Exchange Act of 1934) Yes ¨ No x.

As of June 27, 2009, 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 $35,537,595. 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 a conclusive determination for any other purpose.

The number of shares of the Registrant s common stock outstanding as of March 19, 2010 was 21,572,108.

DOCUMENTS INCORPORATED BY REFERENCE

The Registrant has incorporated by reference into Part III of this Annual Report on Form 10-K portions of its Proxy Statement for its 2010 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 January 2, 2010.

Table of Contents

NANOMETRICS INCORPORATED

FORM 10-K

FOR THE FISCAL YEAR ENDED JANUARY 2, 2010

TABLE OF CONTENTS

PART I		**4**
ITEM 1.	BUSINESS	4
ITEM 1A.	RISK FACTORS	10
ITEM 1B.	UNRESOLVED STAFF COMMENTS	19
ITEM 2.	PROPERTIES	19
ITEM 3.	LEGAL PROCEEDINGS	19
ITEM 4.	REMOVED AND RESERVED	19
PART II		**20**
ITEM 5.	MARKET FOR REGISTRANT S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES	20
ITEM 6.	SELECTED FINANCIAL DATA	24
ITEM 7.	MANAGEMENT S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS	25
ITEM 7A.	QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK	37
ITEM 8.	FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA	38
ITEM 9.	CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE	74
ITEM 9A.	CONTROLS AND PROCEDURES	74
ITEM 9B.	OTHER INFORMATION	75
PART III		**76**
ITEM 10.	DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE	76
ITEM 11.	EXECUTIVE COMPENSATION	76
ITEM 12.	SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS	76
ITEM 13.	CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS AND DIRECTOR INDEPENDENCE	76
ITEM 14.	PRINCIPAL ACCOUNTING FEES AND SERVICES	76
PART IV		**77**
ITEM 15.	EXHIBITS AND FINANCIAL STATEMENT SCHEDULE	77
SIGNATURES		**78**

Table of Contents

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, intend, 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. The forward-looking statements are made as of the date of this 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.

Table of Contents

PART I

ITEM 1. BUSINESS

Overview

Nanometrics is a leading supplier of advanced process control metrology systems used primarily in the manufacturing of semiconductors, solar photovoltaics (PV), high-brightness LEDs (HB-LED), advanced wafer scale packaging, as well as by customers in the silicon wafer and data storage industries. Nanometrics standalone and integrated metrology systems measure various thin film properties, critical dimensions, overlay control and optical, electrical and material properties, including the structural composition of silicon, compound semiconductor and PV devices, during various steps of the manufacturing process. These systems enable device manufacturers to improve yields, increase productivity and lower their manufacturing costs.

Nanometrics was incorporated in California in 1975, has been publicly traded since 1984 (NASDAQ: NANO), and reincorporated in Delaware in 2006. We have been a pioneer and innovator in the field of optical metrology. Nanometrics has an extensive installed base of over 6,000 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., Western Digital Corporation, Toshiba Corporation, Applied Materials, Inc., Micron Technology, Inc., Taiwan Semiconductor Manufacturing Company Limited, and Philips Lumileds Lighting Company.

Additional information about Nanometrics 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).

Industry Background

We participate in one principle reporting segment metrology for semiconductor manufacturing. Semiconductor devices are primarily packaged as chips within electronic devices, including cell phones, MP3 players and personal computers. Chips 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. 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 yield. Our end customers manufacture many types of chips for a multitude of applications, each having unique manufacturing challenges. This includes chips to enable information management (logic chip), data storage (NAND, NOR, and DRAM memory), and analog devices (i.e. Wi-Fi and 3G radio chips).

Semiconductors are also the principle component in solar photovoltaic cells (Solar PV) for power generation and used in devices for power control (compound semiconductors) and HB-LEDs for consumer, architectural, and industrial lighting applications. Our systems measure properties of these devices for improving efficiency and manufacturing yield.

Demand for our products continues to be driven by our customers ever increasing desire for higher chip performance, improvements in power efficiency, logic processing capability, and the data storage volume of chips. To facilitate the manufacturing of these chips, our customers use more complex materials and processing methods in their manufacturing flow. The majority of our chip customers manufacture devices with features as small as 65nm-45nm. New materials and methods are being implemented in high volume manufacturing including high-k materials and double patterning lithography with features as small as 32nm. The use of these new materials and methods require additional levels of process control and metrology and increase demand for our products. Currently, next-generation devices based on 22nm are in development, which in turn will require new advancements in metrology capabilities.

Our Business

We offer a comprehensive line of metrology products and technologies to address the manufacturing requirements of the semiconductor manufacturing industry. Our systems measure and characterize the physical dimensions, material

4

Table of Contents

composition, optical and electrical characteristics and other critical parameters of semiconductors from initial wafer substrate manufacturing through final packaging. For the photolithographic process, overlay and critical dimension systems provide control of layer alignment and device dimensions. 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, and silicon wafers.

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. We have:

- Introduced new products in every core product line and primary market served;
- Restructured our business and practices for operational and earnings leverage;
- Diversified our product line and served markets through acquisitions, such as the 2006 acquisition of Accent Optical Technologies, Inc.; the 2008 acquisition of Tevet Process Control Technologies (Tevet), an integrated metrology supplier serving both semiconductor and solar PV industries; and the acquisition of the Unifire product line from Zygo Corporation in June 2009;
- Continued development of new integrated measurement technologies for advanced fabrication processes; and
- Researched innovative applications of existing technology to new market opportunities within the solar PV, HB-LED, and data storage industries.

Nanometrics Products

We offer a complete line of systems to address the broad range of metrology requirements in the market. 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 that address industry trends.

Automated Standalone Systems

Our standalone systems are made up of manual, semi-automated and fully automated metrology systems which are employed in high-volume and low-volume production environments. The *Atlas® XP/Atlas XP+ and Atlas-M* represent our line of high-performance metrology systems providing thin film, wafer stress, optical critical dimension (OCD), and diffraction-based overlay (DBO) 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 *Caliper Mosaic* provides overlay metrology solutions, providing cost-effective solutions for today s advanced 300mm overlay process technologies, 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.

We continue to offer automated products for 200mm factories running nominally at 90nm nodes and above, as well as systems supporting micro-electrical mechanical systems (MEMS). Our *Q240* is a 200mm overlay metrology system incorporating the same measurement technology as the Caliper, extending 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 millimeters 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 *Caliper Mosaic* and *IMPULSE*® metrology systems in configurations to provide high throughput, reduced footprint systems for leading 300mm wafer metrology applications including OCD, DBO, overlay, and thin film process control.

Table of Contents

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* series is our latest metrology platform for OCD, DBO, and thin film metrology and has been successfully qualified on numerous OEM platforms. Our *90x0* series is qualified for OEM and direct sales supporting thin film and OCD applications. Our *NanoCD* is sold in conjunction with our *IMPULSE* and *90x0* systems. The *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, compound semiconductor, strained silicon and silicon-on-insulator (SOI) devices, including composition, crystal structure, layer thickness, dopant concentration, contamination and electron mobility. Tabletop systems are used to manually or semi-automatically measure thin films in engineering and low-volume production environments. Our tabletop models have multiple capabilities and several available configurations, depending on wafer handling, range of films to be measured, uniformity mapping and other customer needs.

Our *VerteX* is a photoluminescence (PL) mapping system designed for high-volume compound semiconductor metrology applications. The *RPMBlue* is our latest PL mapping system designed specifically for the HB-LED segment. We support 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 *SiPHER* is a fully automated photoluminescence metrology system for the detection and mapping of 300mm substrate defects and metallic contamination. 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 metrology systems can be categorized as follows: See Note 21 of the Notes to Consolidated Financial Statements for an analysis of our net revenues by principal product group.

System	Market	Applications
System Platform		
Lynx	Semiconductor	Platform
OCD Analysis		
NanoDiffract	Semiconductor	OCD
NanoGen	Semiconductor	OCD
Automated Standalone Systems		
AtlasXP/Atlas XP+/ AtlasXPM	Semiconductor	Film Thickness, Film Stress, CD
Caliper Mosaic	Semiconductor	Overlay
Unifire	Semiconductor	Film Thickness, Overlay, CD, and Advanced Packaging Applications
Q240^{AT}	Semiconductor	Overlay
IVS-185	Semiconductor, MEMS	Overlay, CD
NanoSpec 9100	Semiconductor	Film Thickness

Table of Contents

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		
RPMBlue	HB-LED	Epitaxial Layer Properties
VerteX	Compound Semiconductor, Solar PV, HB-LED	Epitaxial Layer Properties
QS1200	Substrate Semiconductor, Solar PV	Substrate Properties, Film Composition and Thickness
QS2200/3300	Substrate Semiconductor	Substrate Properties, Film Composition
SiPHER	Substrate Semiconductor	Substrate Defects, Metallic Contamination
NanoSpec 3000	Semiconductor	Film Thickness (Tabletop)
NanoSpec 6100	Semiconductor	Film Thickness (Tabletop)

Customers

We sell our metrology systems worldwide to many semiconductor manufacturers and equipment suppliers, producers of HB-LEDs, solar PV panels, data storage devices, silicon wafers and photomasks. The majority of our systems are sold to customers located in Asia and the United States. Two customers, Samsung Electronics Co. Ltd., and Intel Corporation, represented 33.4% and 10.4% of our total net revenues in 2009, respectively. See Note 20 of the Notes to Consolidated Financial Statements for information regarding our major customers.

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 direct sales, service and application support locally from our worldwide offices located in the USA, South Korea, Japan, Europe, Taiwan, China and Singapore and work with selected sales representatives in the USA and other countries. We maintain a direct force of technically experienced sales engineers who are knowledgeable in the use of metrology systems 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 subsidiaries require general export licenses. See Note 21 of the Notes to Consolidated Financial Statements for information regarding total net revenues and long-lived assets of our foreign operations. See Item 1A, Risk Factors for information regarding risks related to our foreign operations.

Net revenues from customers located in the United States and in foreign countries, as a percentage of total net revenues, were as follows:

	2009	2008	2007
South Korea	39.1%	20.5%	13.8%
United States	29.7%	29.5%	31.8%
Japan	14.7%	28.0%	27.8%
Taiwan	4.7%	5.8%	7.8%
China	4.1%	7.3%	7.3%
Europe	5.0%	5.2%	10.0%
All other countries	2.7%	3.7%	1.5%

7

Table of Contents

Customer Service and Support

We believe that customer service and technical support for our measurement systems are important factors to distinguish us from our competitors and are essential to building and maintaining close, long-term relationships with our customers. We provide support of our measurement systems to our customers with 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. Our software is sold as an adjunction to our measurement systems hardware, and is supported through the systems groups. 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 and China.

We provide a standard one-year warranty on parts and labor for all of products. Service revenue, including sales of replacement parts, represented 35.9%, 26.0% and 13.8% of total net revenues in 2009, 2008 and 2007, respectively.

Backlog

As of January 2, 2010 and December 27, 2008, the end of fiscal year 2009 and 2008, respectively, our backlog was $8.1 million and $4.4 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 and order rescheduling have not been significant. However, orders presently in backlog could be canceled or rescheduled. As only a portion of our revenues for any fiscal quarter represent systems in backlog, we do not believe that backlog is necessarily 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 processing flow. However, in each of these markets, we have multiple competitors. In every segment in which we participate, the global semiconductor equipment industry is intensely competitive, driven by rapid technological adoption cycles. Our ability to compete depends upon our ability to continually improve our products and services, and our ability to develop new products and applications 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 standalone segment, our principal competitors are KLA-Tencor and Nova Measuring Instruments. Our principal competitor in the integrated metrology segment is Nova Measuring Instruments, while the HB-LED and solar PV markets are served by numerous competitors with no single competitor establishing a majority position.

Manufacturing

In 2008, we consolidated manufacturing to our Milpitas, California facility and contract manufacturers. It is our strategy to outsource all assemblies that do not contain elements that lead to a direct competitive advantage. The majority of our standalone 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 USA. We combine proprietary measurement technology produced in our facilities with components and subassemblies obtained from outside suppliers. We currently do not expect our manufacturing operations to require additional major investments in capital equipment.

We have internalized the production of key parts and components. However, certain components, subassemblies and services necessary for the manufacture of our systems are obtained either from a sole supplier or limited group of suppliers.

Table of Contents

Research and Development

We continue to invest in R&D to ensure that Nanometrics 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 this objective.

In 2009, many of the new products that we introduced to the market were adopted by customers in key segments, which we believe indicates that our R&D spending is targeted and focused on appropriate products and technologies.

Our R&D expenditures for each of the last three fiscal years were as follows:

	Fiscal Year		
	2009	2008	2007
Research and Development			
R&D Expenditures (in millions)	$ 14.7	$ 17.1	$ 18.6
R&D Expenditures as percentage of revenues	19.1%	16.8%	12.7%

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 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 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 are claimed to infringe their proprietary rights. We typically refer such matters to our legal counsel; see Item 3, Legal Proceedings.

Employees

At January 2, 2010, we employed 399 persons worldwide with 45 in manufacturing and manufacturing support, 116 in customer service, 64 in applications, 82 in research and development, 39 in sales and marketing and 53 in general administration and finance. 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.

Our Executive Officers

The names of our executive officers and their ages, titles and biographies as of January 2, 2010 are set forth below:

Name	Age	Position
Timothy J. Stultz, Ph.D.	62	President, Chief Executive Officer and Director
Bruce A. Crawford	57	Chief Operating Officer
James P. Moniz	52	Chief Financial Officer

Timothy J. Stultz, Ph.D., 62, has served as President, Chief Executive Officer and a director since August 2007. From June 2003 to August 2007, Dr. Stultz served as the President and Chief Executive Officer and a member of the board of directors of Imago Scientific Instruments Corporation, a supplier of proprietary 3-D atom probe microscopes to the research materials and microelectronics industries. Prior to Imago, Dr. Stultz served as President and Chief Executive Officer for ThauMDx, a developer of diagnostic systems and technologies for the analysis of biomolecules, drugs and chemicals. Dr. Stultz received his B.S., M.S. and Ph.D. in Materials Science and Engineering from Stanford University.

9

Table of Contents

Bruce A. Crawford, 57, 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.

James P. Moniz, 52, was appointed as Chief Financial Officer (and our principal accounting officer) on February 18, 2009. Prior to joining the Company, Mr. Moniz served as Chief Financial Officer of Photon Dynamics, Inc., a global supplier of flat panel display test equipment, from April 2008 until October 2008. From October 2000 until February 2008, Mr. Moniz was Chief Financial Officer, Treasurer and Assistant Secretary of Nextest Systems Corporation. Mr. Moniz holds bachelor degrees in Accounting and Marketing, as well as an MBA in Finance, from San Jose State University.

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 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 severe slowing in the general economy and in the semiconductor industry have caused us recent losses and reductions in available cash, and may continue to negatively impact our financial performance.

The current recession in the global economy and the current downturn in the semiconductor industry have severely impacted and could further impact customer demand for our products and our financial performance. The degree of this impact will depend on a number of factors, including whether the U.S. economy and the global economy continue a prolonged recession. Demand for semiconductor equipment depends on consumer spending. Economic uncertainty 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 the difficult economic environment, our business, financial condition and results of operations will be adversely affected, and we may be required to raise additional funds through public or private equity or debt financings. In that event, financing may not be available or we could 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.

We may also experience supplier or customer issues as a result of current 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. These conditions make it difficult for us to accurately predict our business.

Because of the negative effects of the current recession, we may have to take further actions to reduce costs, 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, we will experience additional losses and additional reductions in our cash and equivalents.

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

Table of Contents

operating in the semiconductor 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 significantly decline.

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, 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.

We depend on 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 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 any long-term supply agreements with any of our suppliers. We have entered into arrangements with J.A. Woolam 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 supply OEM interferometer sensors for incorporation into the Unifire line of products as well as Nanometrics 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; and
- 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.

11

Table of Contents

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

Our Chief Executive Officer joined the Company in August 2007 and in September 2008, our former Chief Financial Officer and Vice President, Administration, who joined us in November 2007, was replaced, on an interim basis, by Bruce Crawford, our Chief Operating Officer. Our former Chief Accounting Officer also resigned in December 2008. James P. Moniz was appointed as Chief Financial Officer (and our principal accounting officer) on February 18, 2009. Although we have employment agreements with certain key members of our senior management team, including Messrs. Stultz, Crawford and Moniz, these individuals or other key employees may still leave us. 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. Competition for such personnel in our industry is intense, and we may not be successful in attracting and retaining 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**.**

Restructuring of our operations may disrupt our business and adversely affect our financial condition and operating results.

Since 2007, we have taken steps, including reductions in force, facility closures, and internal reorganizations to reduce the size and cost of our operations and to better match our resources with our market opportunities. We may take similar steps in the future to improve efficiency and match our resources with market opportunities, and as a result of such actions, we may incur restructuring expenses. In the first and third quarters of 2008, we undertook a restructuring that involved a reduction of our global workforce by approximately 30 and 34 employees, respectively, which action caused us to record restructuring and reorganization charges of $0.9 million and $0.6 million, respectively. In the first and second quarters of 2009, we reduced the global workforce further by 51 and 25 employees, respectively, and recorded restructuring charges of $0.7 million and $0.4 million, respectively.

Several factors could cause a restructuring to adversely affect our business, financial condition and results of operations. These include potential disruption of our operations, the development of our technology, our supply chain and other aspects of our business. Employee morale and productivity could also suffer and result in unintended employee attrition. Loss of sales, service and engineering talent, in particular, could damage our business. Any restructuring would require substantial management time and attention and may divert management from other important work. If we undertake further employee reductions or other restructuring activities, we will likely record restructuring and related expenses and accounting charges. Accounting charges may include inventory and technology-related write-offs, workforce reduction costs and charges relating to consolidation of excess facilities, and if we are required to take a substantial charge related to any future restructuring activities, our results of operations would be adversely affected in the period in which we take such a charge. Moreover, we could encounter delays in executing any restructuring plans, which could cause further disruption and additional unanticipated expense.

Failure to achieve and maintain effective internal controls in accordance with Section 404 of the Sarbanes-Oxley Act of 2002 could have a material effect on our business.

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. A statement that our independent registered public accounting firm has issued an attestation report on management s internal control over financial reporting was not required for 2009 as we are not an accelerated filer. The Company will be required to obtain such an attestation report for the 2010 fiscal year.

Table of Contents

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.

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. 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.

Successful infringement claims by third parties could result in substantial damages, lost product sales and the loss of important intellectual property rights by us.

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. For example, in August 2005, we were served with a complaint by KLA-Tencor, or KLA, alleging that certain of our products infringe two of KLA s patents, Patent No. 6,483,580 and Patent No. 6,590,656. In January 2006, KLA added Patent No. 6,611,330 to its claim. For additional information, refer to Part I, Item 3 Legal Proceedings. 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.

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 metrology 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 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.

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 2009, 2008 and 2007, 70.3%, 70.5% and 68.2%, 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 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.

13

Table of Contents

Variations in the amount of time it takes for us to sell our systems may cause fluctuations 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. 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 $1,300,000 per system, and our integrated metrology systems range in price from approximately $80,000 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.

We depend on orders that are received and shipped in the same quarter, and therefore our results of operations may be subject to significant variability from quarter to quarter.

Our net sales in any given quarter depend upon a combination of orders received in that quarter for shipment in that quarter and shipments from backlog. Our backlog at the beginning of each quarter does not include all systems sales needed to achieve expected revenues for that quarter. Consequently, we are dependent on obtaining orders for systems to be shipped in the same quarter that the order is received. Moreover, customers may reschedule shipments, and production difficulties could delay shipments. Accordingly, we have limited visibility into future product shipments, and our results of operations may be subject to significant variability from quarter to quarter.

Because of the high cost of switching equipment vendors in our markets, it may be difficult for us to attract customers 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.

Table of Contents

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

We operate in an industry that is subject to 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 2008, we introduced several products to the market including the NanoCD Suite, Impulse and the Lynx platform. In 2009, we introduced the Atlas XP+ system as the follow-on to our Atlas metrology system and our Caliper Mosaic Overlay system. 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. While we anticipate that our new products will become an increasingly larger component of our business, their failure to gain acceptance with our customers could materially harm our business. Additionally, if our new products do gain market acceptance, our ability to sell our existing products may be impeded and our business would suffer.

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. If new products have reliability or quality problems, our performance 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 R&D 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. Moreover, future technologies, processes or product developments may render our current product offerings obsolete, leaving us with non-competitive products, or obsolete inventory, or both.

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.

We believe that to remain competitive we will require significant financial resources to offer a broad range of products, to maintain customer service and support centers worldwide, and to invest in product and process R&D. 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.

Table of Contents

In addition, our competitors may provide innovative technology that may have performance advantages over systems we currently expect to offer. 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 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.

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. On June 17, 2009, we entered into a strategic partnership with Zygo under an exclusive OEM supply agreement to provide interferometer sensors to Nanometrics for incorporation into the Unifire line of products as well as Nanometrics 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. We do not know if we will be able to complete any additional acquisitions, or whether we will be able to successfully integrate any acquired business, operate them profitably or retain their key employees. Integrating any business, product or technology that we acquire could be expensive and time consuming, disrupt our ongoing business and distract our management. In addition, in order to finance any acquisitions, we may be required to raise additional funds through public or private equity or debt financings. In that event, we could 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. If we are unable to integrate any acquired entities, products or technologies effectively, our business will suffer.

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

Table of Contents

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 in the future if the forecasts used in subjective assessments are inaccurate.

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:

- changes in customer demand for our systems;
- 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 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.

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 incur significant costs as a result of complying with laws and regulations affecting public companies.

Compliance with laws and regulations affecting public companies, including the provisions of the Sarbanes-Oxley Act of 2002, has resulted in and, we expect, will continue to result in substantial accounting, legal and administrative costs. In particular, Section 404 of the Sarbanes-Oxley Act of 2002 and the rules of the SEC and the Public Company Accounting Oversight Board impose requirements with respect to the evaluation of the effectiveness of our internal controls. The cost of complying with these requirements is substantial.

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

We maintain facilities in Japan, Taiwan, the United Kingdom, South Korea, China, Israel and the European Union. 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;

disruptions or delays in shipments caused by customs brokers or other government agencies;

unexpected changes in regulatory requirements, tariffs, customs, duties and other trade barriers;

difficulties in staffing and managing foreign operations; and

potentially adverse tax consequences resulting from changes in tax laws.

Table of Contents

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. With our operations in Japan, South Korea, the United Kingdom, Taiwan, China and Israel, a significant percentage of our cash flows are exposed to foreign currency risk. In 2009, 2008 and 2007, 70.3%, 70.5% and 68.2%, respectively, of our total net revenues were derived from sales to customers in foreign countries, including certain countries in Asia, such as Japan and South Korea. 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. 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.

18

Table of Contents

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

At January 2, 2010, our owned or leased facilities included those described below:

Type	Location	Square Footage	Use
Owned	Milpitas, California	133,000	Corporate headquarters and manufacturing
Owned(1)	Pyongtaek-city, South Korea	39,000	Vacant
Owned	Milpitas, California	3,038	Corporate housing
Leased	Tokyo, Japan	7,500	Sales, service and corporate housing
Leased	Kumamoto, Japan	3,250	Sales, service and engineering
Leased	Osaka, Japan	1,000	Sales and service
Leased	Yokkaichi, Japan	1,750	Sales and service
Leased	York, England	20,338	Sales, service and engineering
Leased	Whasung-City, South Korea	4,780	Sales and service
Leased	Dong-Guang, Taiwan	9,400	Sales and service
Leased	Tainan, Taiwan	1,100	Sales and service
Leased	Tainan, Taiwan	700	Sales and service
Leased	Shanghai, China	3,000	Sales and service
Leased	Redhill, Singapore	1,000	Sales and service
Leased	Austin, Texas	1,130	Engineering, Sales and service
Leased	Bend, Oregon	5,200	Engineering, sales and service
Leased	Yokneam, Israel	2,625	Engineering, sales and service
Leased	Hillsboro, Oregon	6,410	Engineering, sales and service

(1) Real estate improvements on this property are owned. The underlying land, however, is leased.

We believe that our existing facilities are suitable and adequate for our current needs and anticipated growth.

ITEM 3. LEGAL PROCEEDINGS

In August 2005, KLA-Tencor Corporation (KLA) filed a complaint against the Company in the United States District Court for the Northern District of California. The complaint alleges that certain of the Company s products infringe two of KLA s patents. On January 30, 2006, KLA added a third patent to their claim. The complaint seeks 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 its defense, the Company has filed a request for re-examination of two of the allegedly infringed KLA patents with the U.S. Patent & Trademark Office (PTO). In March 2006, the Company filed a motion for and was granted a stay in the patent litigation case until such re-examination is completed. On July 28, 2008, the PTO issued a Notice of Intent to issue a Reexamination Certificate for one of the KLA patents, and subsequently on June 23, 2009 issued an additional Notice of Intent to issue a Reexamination Certificate on the second of three patents. The reexamination of the final KLA patent-in-suit remains pending and on September 21, 2009 the Company filed an additional request for re-examination relating to this patent. The case has been stayed, and the Company is waiting for a response from the Patent and Trademark Office before taking any additional action. In all three of the reexamination proceedings, the PTO has issued Office Actions rejecting numerous claims and KLA has amended the claims in response.

ITEM 4. REMOVED AND RESERVED

19

Table of Contents

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 bid prices per share of our common stock as reported on the NASDAQ Global Market. These quotations represent prices between dealers and do not include retail markups, markdowns or commissions and may not necessarily represent actual transactions.

2009	High	Low
First quarter	$ 1.64	$ 1.08
Second quarter	$ 2.50	$ 1.11
Third quarter	$ 8.70	$ 2.56
Fourth quarter	$ 13.27	$ 6.08

2008	High	Low
First quarter	$ 9.93	$ 5.00
Second quarter	$ 8.50	$ 5.75
Third quarter	$ 6.09	$ 2.20
Fourth quarter	$ 3.04	$ 0.80

2007	High	Low
First quarter	$ 8.51	$ 6.63
Second quarter	$ 6.94	$ 5.74
Third quarter	$ 9.00	$ 6.12
Fourth quarter	$ 11.71	$ 7.48

Stockholders

On March 19, 2010, the last reported sales price of our common stock on the NASDAQ Global Market was $8.57 per share and there were approximately 256 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.

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 January 2, 2010.

Table of Contents

Plan category	Number of securities to be issued upon exercise of outstanding options, warrants and rights	Weighted-average exercise price of outstanding options, warrants and rights	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	2,624,990	$ 5.72	1,506,555
Equity compensation plans not approved by security holders(1)	328,304	$ 7.71	266,674
Total	2,953,294	$ 5.95	1,773,229

(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 14 to the consolidated financial statements.

Table of Contents

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.

Table of Contents

Recent Sales of Unregistered Securities

None.

Issuer Purchases of Equity Securities

We did not purchase any shares of our common stock during the three and twelve months periods ended January 2, 2010.

On July 26, 2007, our Board of Directors approved the repurchase of up to $4.0 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 will depend on a variety of factors including price, corporate and regulatory requirements and other market conditions. The stock repurchase program may be limited or terminated at any time without prior notice. As of January 2, 2010 there remained $1.3 million available for the future purchase of shares of our common stock.

Table of Contents

ITEM 6. SELECTED FINANCIAL DATA

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 statements and related notes included elsewhere in this Form 10-K.

	Fiscal Year				
	2009(a)	2008	2007	2006(b)	2005
	(in thousands, except per share data)				
Consolidated Statement of Operations Data:					
Net revenues:					
Products	$ 49,153	$ 75,596	$ 126,049	$ 80,636	$ 61,012
Service	27,554	26,505	20,241	15,738	9,531
Total net revenues	76,707	102,101	146,290	96,374	70,543
Costs of revenues:					
Cost of products	26,594	38,692	63,938	44,016	28,917
Cost of service	13,992	18,675	20,717	16,610	10,695
Total cost of net revenues	40,586	57,367	84,655	60,626	39,612
Gross profit	36,121	44,734	61,635	35,748	30,931
Operating expenses:					
Research and development	14,672	17,110	18,577	14,253	12,533
Selling	15,072	17,798	19,561	16,977	10,945
General and administrative	15,168	19,689	21,704	21,305	11,882
Amortization of intangible assets	1,535	3,531	5,782	5,338	256
Restructuring charge	1,134	1,525	2,128		
Gain on sale of assets			(2,100)		
Merger termination fee					(8,300)
Asset impairment and disposition	1,899	68,545			2,232
Total operating expenses	49,480	128,198	65,652	57,873	29,548
(Loss) income from operations	(13,359)	(83,464)	(4,017)	(22,125)	1,383
Other (expense) income, net	(3,532)	1,174	(22)	(325)	346
Provision (benefit) for income taxes	(586)	436	(31)	(323)	218
Net (loss) income	$ (16,305)	$ (82,726)	$ (4,008)	$ (22,127)	$ 1,511
Basic net (loss) income per share	$ (0.87)	$ (4.46)	$ (0.22)	$ (1.47)	$ 0.12
Diluted net (loss) income per share	$ (0.87)	$ (4.46)	$ (0.22)	$ (1.47)	$ 0.11
Shares used in per share computation:					
Basic	18,639	18,546	18,099	15,075	12,760
Diluted	18,639	18,546	18,099	15,075	13,471

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

(b) We adopted Statement of Financial Accounting Standards No 123(R) Share-Based Payment , as codified by ASC 718, effective January 1, 2006.

	Fiscal Year End				
	2009	2008	2007	2006	2005
			(in thousands)		
Consolidated Balance Sheet Data:					
Cash, cash equivalents and short-term investments	$ 43,526	$ 23,980	$ 14,919	$ 7,957	$ 45,394
Working capital	76,771	57,901	57,062	49,721	76,731
Total assets	147,470	123,854	207,076	212,376	136,300
Long-term liabilities incl. current portion of debt obligation	15,317	14,140	1,560	1,807	1,796
Total stockholders equity	106,754	92,767	175,844	174,631	120,343

Table of Contents

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 systems for the 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 provide increased production yields and performance.

Capital expenditures by manufacturers of semiconductors, especially in Asia, are critical to our success. Purchases of our systems by these manufacturers are driven by the expected market demand for their new products and new applications. 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 OCD metrology across fabrication processes, adoption of immersion lithography and double patterning, adoption of new types of thin film materials and the need for improved process control to drive process efficiencies. Our strategy is to continue to innovate organically as well 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 2009, we derived 64.1% of our total net revenues from product sales and 35.9% 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:

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 packages lead to increased functionality in smaller, less expensive form factors. The 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. Additionally, 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 telephones with integrated CMOS camera sensors). Increasingly advanced packaging technologies are being adopted by our end customers.

Adoption 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.

Adoption of Immersion Lithography and Development of Double Patterning for Critical Photolithographic Layers. In an effort to reduce costs and increase device performance, semiconductor manufacturers are decreasing both the die size and feature size. Both immersion processing and double patterning techniques are being implemented to achieve the requisite device linear dimension and density. The additional rigors of these technologies increase the burden on overlay and registration capability as well as critical dimension monitoring and control. These techniques are shrinking total available process windows faster than the scaling predicted by Moore s Law, resulting in the need for additional metrology and process control for both overlay and OCD systems.

Table of Contents

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 solutions are required for thickness control of these layers, which is critical to enable the device performance improvements that these new materials allow.

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 standalone metrology systems throughout the fab to ensure that manufacturing processes scale rapidly, are accurate and can be repeated on a consistent basis.

Reduced Number of Customers. Because of the escalating cost of 300mm manufacturing facilities, fewer semiconductor manufacturers can afford the significant investment in these next generation facilities. Therefore, fewer opportunities for semiconductors equipment companies exist. Given that the available number of potential customers is decreasing, pre-existing customer relationships, product positioning and critical mass take on greater importance.

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 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 systems (Product revenue) as well as spare part sales, billable service, service contracts, and upgrades (together Service revenue). Upgrades are a group of parts that change the existing configuration of a product and are included in Service revenue. They are distinguished from Product revenue, which consists of complete, standalone process control metrology systems. Our systems consist of hardware and of software which is incidental to the systems. We periodically review the software element of our systems to ascertain that the software continues to be incidental. Our arrangements for sales of our systems often include customer-specified objective acceptance criteria.

For product sales to existing customers, revenue recognition occurs at the time title and risk of loss transfer, which usually occurs upon delivery, if we have reliably demonstrated that the product has successfully met the defined customer specified criteria, and all other recognition criteria has been met. This occurs at the time of shipment, as our terms are FOB shipping point. For initial sales of product where we have not previously met the defined customer 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 our 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 been met.

Table of Contents

All of our products are assembled prior to shipment to our customers. We often perform installation for our customers; however such installation is inconsequential and perfunctory as it may also be performed by third parties and is not considered essential to the functionality of the equipment.

Revenue related to spare part sales is recognized upon shipment. Revenue related to billable service is recognized as the services are performed and if billable service and spare parts are sold together, revenue is recognized when both the parts are delivered and the service is completed. For service contracts, revenue is recognized ratably over the service contract period. Revenue on upgrades is recognized when the upgrade has been delivered to the customer. For initial upgrade sales where we have not previously met the defined customer acceptance criteria, if any, revenue is recognized upon the early of receipt of written customer acceptance or expiration of the contractual acceptance period. On occasion, customers request a warranty period longer than our standard 12 month 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. Furthermore, we generally do not provide our customers with any return rights.

In cases where certain elements of a sales arrangement are not delivered and accepted at the same time, we defer the relative fair value of the undelivered element until that element is delivered and accepted by the customer if we have fair value of all elements. In multiple-element arrangements where we only have fair value of the undelivered elements, then we apply the residual method. In order to recognize revenue associated with delivered elements, the following criteria must be met: (a) the delivered item(s) has value to the customer on a standalone basis; (b) there is objective and reliable evidence of the fair value of the undelivered item(s); and (c) delivery or performance of the undelivered item(s) is considered probable and substantially in our control. If the arrangement does not meet all the above criteria, the entire amount of the sales contract is deferred until the criteria have been met or all elements have been delivered to the customer. Objective and reliable evidence of the fair value is based on the amounts for which we sell equivalent products or services on a standalone basis. Upon recognition of product revenue, a liability is recorded for anticipated warranty costs. Service contracts may be purchased by the customer during or after the warranty period.

Allowance for Doubtful Accounts We maintain allowances for estimated losses resulting from the inability of our customers to make 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 reflects our risk associated with smaller rather than larger customers and that our reported allowances are adequate. If however, the financial conditions of customers were to deteriorate, resulting in their inability to make payments, we would assess the necessity to record 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 standard cost (which approximates actual cost on a first-in, first-out basis), or market. We are exposed to a number of economic and industry factors that could result in portions of our 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 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. 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. 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.

Inventories delivered systems We reflect the cost of systems that were invoiced upon shipment but deferred for revenue recognition purposes separate from our inventory held for sale as Inventories delivered systems .

Table of Contents

Product Warranties We sell the majority of our products with a twelve-month repair or replacement warranty from the date of acceptance which generally represents the date of shipment. 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.

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 useful lives while goodwill and indefinite lived assets are not amortized but tested annually for impairment. Our impairment review process is completed as of the last day of November of each year or whenever events or circumstances occur which indicate that an impairment might have occurred. The standard provides for a two-step approach to determining whether and how much goodwill has been impaired. The first step requires a comparison of the fair value of Nanometrics reporting units (product and service) 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 Nanometrics, we make estimates and judgments about future revenues and cash flows for each 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 each reporting unit: revenue, based on assumed market growth rates and our assumed market share; estimated costs; and appropriate discount rates based on the particular business 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 the second step in determining the amount of goodwill impairment, if any, we allocate the fair value of the reporting units to all of its assets and liabilities as if the reporting units had been acquired in a business combination and the fair value of the reporting units was the price paid to acquire the reporting unit. The excess of the fair value of each 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 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 must be reduced by a valuation allowance if it is more likely than not that a portion of the deferred tax asset will not be realized in the future. We evaluate the deferred tax assets on a quarterly basis 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 Charge During 2009, 2008 and 2007, 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 have recorded estimated expenses for severance and other costs. 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.

Table of Contents

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 we believe 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.

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 results of operations and financial condition.

Table of Contents

Results of Operations

The following table presents our consolidated statements of operations data as a percentage of total net revenues for fiscal years ended January 2, 2010, December 27, 2008 and December 29, 2007.

	Fiscal Year		
	2009	2008	2007
Net revenues:			
Products	64.1%	74.0%	86.2%
Service	35.9	26.0	13.8
Total net revenues	100.0	100.0	100.0
Costs of net revenues:			
Cost of products	34.7	37.9	43.7
Cost of service	18.2	18.3	14.2
Total costs of net revenues	52.9	56.2	57.9
Gross profit	47.1	43.8	42.1
Operating expenses:			
Research and development	19.1	16.8	12.7
Selling	19.6	17.4	13.4
General and administrative	19.8	19.3	14.8
Amortization of intangibles	2.0	3.5	3.9
Restructuring charge	1.5	1.5	1.5
Gain on sale of assets			(1.4)
Asset impairment	2.5	67.1	
Total operating expenses	64.5	125.6	44.9
Loss from operations	(17.4)	(81.8)	(2.8)
Other income (expense):			
Interest income	0.1	0.2	0.1
Interest expense	(2.2)	(0.6)	(0.1)
Other, net	(2.5)	1.6	
Total other income (expense), net	(4.6)	1.2	
Loss before income taxes	(22.0)	(80.6)	(2.8)
Provision (benefit) for income taxes	(0.7)	0.4	(0.1)
Net loss	(21.3)%	(81.0)%	(2.7)%

Table of Contents

Fiscal years 2009, 2008 and 2007 (ended January 2, 2010, December 27, 2008 and December 29, 2007, respectively)

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

	Fiscal Year			
	2009	2008	Change	
Automated Systems	$ 46,386	$ 59,632	$ (13,246)	(22.2)%
Integrated Systems	2,767	15,964	(13,197)	(82.7)%
Total product revenue	49,153	75,596	(26,443)	(35.0)%
Service	27,554	26,505	1,049	4.0%
Total net revenues	$ 76,707	$ 102,101	$ (25,394)	(24.9)%

	Fiscal Year			
	2008	2007	Change	
Automated Systems	$ 59,632	$ 97,125	$ (37,493)	(38.6)%
Integrated Systems	15,964	28,924	(12,960)	(44.8)%
Total product revenue	75,596	126,049	(50,453)	(40.0)%
Service	26,505	20,241	6,264	(30.9)%
Total net revenues	$ 102,101	$ 146,290	$ (44,189)	(30.2)%

In 2009, net revenues from automated systems decreased by $13.2 million compared to the comparable period in 2008, which decreases were primarily the result of a global reduction in capital spending by semiconductor manufacturers, though in the third and fourth quarters of 2009, we experienced an increase in revenues in automated metrology, in part due to increases in multi-system orders and technology upgrades in both the memory and logic sections, strong sales of our thin-film and OCD systems, increasing traction with our Caliper Mosaic overlay product, and further penetration into high-growth segments such as high-brightness LEDs. In 2009, integrated systems decreased by $13.2 million when compared to 2008 due primarily to reduced market demand. Sales of our integrated systems are highly dependent on, and driven by, manufacturing companies expanding their capacity. Given current global economic conditions, manufacturing companies have not been expanding their capacity; and therefore, sales of our systems to these companies have declined. Service revenue improved by $1.0 million over the comparable period in 2008, primarily due to higher in-the-field tool upgrades.

In 2008, net revenues from automated systems decreased by $37.5 million, and from integrated systems by $13.0 million when compared to 2007 due to global reductions in capital spending by the majority of semiconductor manufacturers. Service revenue improved by $6.3 million over 2007 primarily due to increased demand for OCD in-the-field upgrades to existing tools, as well as improved service field practices.

Gross margins. Our gross margin breakdown was as follows (in percent):

	Fiscal Year		
	2009	2008	2007
Products	45.9%	48.8%	49.3%
Service	49.2%	29.5%	(2.4)%

The product gross margin in 2009 moved downward from 2008, from 48.8% to 45.9%, as a result of lower revenues and also changes in product mix. Service gross margin improved in 2009 from 29.5% to 49.2% due to a significant increase in service upgrade revenues, which have a higher gross margin relative to our core service revenues. The continued operation of our core service department in a more efficient manner, including improvements to our job scheduling process also contributed to the improvement of our service gross margins.

The product gross margin in 2008 moved slightly downward from 2007, from 49.3% to 48.8%, as a result of lower volume partially offset by manufacturing spending cuts. Service gross margin improved in 2008 from (2.4)% to 29.5%, with the favorable contribution from in-the-field tool upgrades, which tend to achieve higher gross margins than our core service revenues, and our focus on controlling personnel-related expenses.

Table of Contents

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

	Fiscal Year 2009	2008	Change	
Research and development	$ 14,672	$ 17,110	$ (2,438)	(14.2)%
Selling	15,072	17,798	(2,726)	(15.3)%
General and administrative	15,168	19,689	(4,521)	(23.0)%
Amortization of intangible assets	1,535	3,531	(1,996)	(56.5)%
Operating expenses before restructuring or impairment	$ 46,447	$ 58,128	$ (11,681)	(20.1)%
Restructuring charge	1,134	1,525	(391)	(25.6)%
Asset impairment	1,899	68,545	(66,646)	(97.2)%
Total operating expenses	$ 49,480	$ 128,198	$ (78,718)	(61.4)%

	Fiscal Year 2008	2007	Change	
Research and development	$ 17,110	$ 18,577	$ (1,467)	(7.9)%
Selling	17,798	19,561	(1,763)	(9.0)%
General and administrative	19,689	21,704	(2,015)	(9.3)%
Amortization of intangible assets	3,531	5,782	(2,251)	(38.9)%
Operating expenses before restructuring, impairment or gain on asset sale	$ 58,128	$ 65,624	$ (7,496)	(11.4)%
Restructuring charge	1,525	2,128	(603)	(28.3)%
Asset impairment	68,545		68,545	100.0%
Gain on sale of assets		(2,100)	2,100	(100.0)%
Total operating expenses	$ 128,198	$ 65,652	$ 62,546	95.3%

Research and development.

Research and development costs decreased by $2.4 million in 2009 compared to 2008, primarily due to lower labor costs of $2.1 million as a result of headcount reduction from 92 to 82, respectively, and forced time off, and a $0.4 million reduction in travel costs.

The $1.5 million decrease in research and development expenses in 2008 compared to 2007 was primarily due to lower patent legal fees of $0.5 million, lower stock-based compensation expense of $0.3 million and reduced outside consulting fees related to the development of next generation products of $0.3 million.

Selling.

Selling expenses decreased by $2.7 million in 2009 primarily due to lower labor costs of $1.5 million as a result of headcount reduction from 111 to 103, respectively, and forced time off in 2009, reduction in travel costs of $0.7 million, and lower trade show expenses of $0.2 million.

Selling expenses decreased by $1.8 million in 2008 compared to 2007. Contributing to the decrease were lower commission expenses of $0.4 million, lower selling labor costs of $0.8 million, lower depreciation expenses of $0.2 million and lower costs for the Company s Taiwanese pension plan of $0.3 million.

Table of Contents

General and administrative.

General and administrative expenses decreased by $4.5 million in 2009 primarily due to lower labor costs of $3.0 million as a result of headcount reduction from 60 to 53, respectively, and forced time off in 2009, lower stock- based compensation of $0.9 million, lower costs associated with regulatory and compliance accounting of $0.7 million, and lower travel costs of $0.3 million, offset by increased legal fees of $0.7 million primarily related to the Zygo acquisition, ongoing litigation and the Option Exchange Program.

General and administrative expenses decreased by $2.0 million in 2008 as a result of a $1.0 million decrease in litigation expenses, a $0.8 million decrease in headcount-related expenses as a result of a contraction of our administrative staff headcount, and a $0.6 million decrease in regulatory and compliance accounting costs. These decreases were offset by increased stock-based compensation expense of $0.4 million. The decrease in litigation expenses resulted from an agreement on our patent infringement lawsuit with Nova Measuring during 2007 and the granting of a stay pending re-examination of the patents-in-suit in the KLA-Tencor litigation.

Amortization of intangible assets.

Amortization of intangible assets for 2009 decreased by $2.0 million from the comparable period in 2008, primarily as a result of an impairment charge taken against these assets in 2008.

Amortization of intangible assets for 2008 decreased $2.3 million from the comparable period in 2007 as impairment charges were recorded in the second and third quarters of 2008. The reductions in the fair values were associated with certain brand names, customer relationships and developed technology.

Restructuring charge.

Restructuring costs decreased by $0.4 million in 2009. The restructuring charges associated with 51 and 25 employees respectively for the first and second quarter of 2009 were $0.7 million and $0.4 million. Twelve (12) of the employees terminated in the second quarter of 2009 were in connection with the closure of our South Korea manufacturing facility. The higher restructuring costs in 2008, compared to 2009, were attributed to workforce reduction of higher salaried and longer tenure employees.

Restructuring costs decreased by $0.6 million in 2008. The restructuring charges associated with 30 and 34 employees respectively for the first and third quarter of 2008 were $0.9 million and $0.7 million. Costs in 2008 included amounts associated with reductions in our global workforce and was aimed at improving our variable to fixed cost ratio and elimination of overlap within our business entities. Costs in 2007 of $2.1 million were primarily associated with a write-down of our Milpitas, California machine shop and plating facility as part of a strategy to reverse manufacturing vertical integration and lower the breakeven point.

Asset impairment.

During 2009, we recognized an impairment charge of $1.9 million from the closure of our South Korea manufacturing facility, which closure was primarily due to the challenging economic conditions facing the semiconductor industry. See Note 4 for discussion in Assets held for sale .

During 2008, we recognized an impairment charge of $54.0 million, representing a write-off of the entire amount of our previously recorded goodwill, and an impairment charge $13.1 million was recorded to reflect certain brand names and developed technology intangible assets at their fair value. We also recorded an impairment charge of $1.5 million to account for machine shop related assets at its fair value.

Gain on the sale of assets.

In August 2007 we entered into a contract to sell a parcel of land and building in Japan and realized a gain on the sale of $1.1 million. In addition, the sale of a condominium in California was consummated in July 2007 and we realized a gain of $0.2 million in the third quarter of 2007. We also sold other non-strategic assets during the third quarter of 2007 realizing a gain of $0.8 million. We had no asset sale gains in 2008 and 2009.

Table of Contents

Other income (expense). Our net other income (expense) consisted of the following categories (in thousands):

	Fiscal Year 2009	2008	Change	
Interest income	$ 53	$ 185	$ (132)	(71.4)%
Interest expense	(1,658)	(635)	(1,023)	161.1%
Other income (expense)	(1,927)	1,624	(3,551)	NM*
Total other income (expense), net	$ (3,532)	$ 1,174	$ (4,706)	NM*

* NM = not meaningful

	Fiscal Year 2008	2007	Change	
Interest income	$ 185	$ 202	$ (17)	(8.4)%
Interest expense	(635)	(211)	(424)	200.9%
Other income (expense)	1,624	(13)	1,637	NM*
Total other income (expense), net	$ 1,174	$ (22)	$ 1,196	NM*

* NM = not meaningful

We incurred higher interest expenses from the comparable period in 2008 due to the Company s borrowing of $13.5 million in connection with a mortgage against our headquarter premises entered into during July 2008 and the imputed interest of $0.6 million on fair value of deferred payments to Zygo Corporation related to our acquisition of certain assets and entry into a supply agreement with Zygo Corporation. We incurred foreign exchange loss of $1.7 million due to exchange rate fluctuations associated with our intercompany balances among our various global entities.

Interest income decreased slightly in 2008 from the comparable period in 2007 as a result of slightly higher average cash and cash equivalent balances being offset by lower yields obtained on our investments. Higher interest expense in 2008 resulted from the issuance of debt obligations in the third quarter of 2008 and the sale of receivables without recourse in Japan. Other income (expense) includes foreign exchange gains/losses, commission income and rental income and miscellaneous expenses. Higher other income in 2008 resulted from foreign exchange gains due to exchange rate fluctuations associated with foreign entities balances denominated in non-US currencies that were settled during 2008, or for intercompany balances otherwise considered non-permanent investments.

Provision/Benefit for income taxes.

The Company s benefit for income taxes for 2009 of $0.6 million was primarily a result of release of foreign income tax reserves and benefiting from refundable tax credits in the US and UK. A provision for income taxes for 2008 of $0.4 million was primarily a result of foreign income taxes. A benefit for income taxes in 2007 is nominal, which was primarily due to benefiting the losses of certain foreign jurisdictions where sufficient deferred tax liabilities exist. Our effective tax rate was (3.4)%, 0.5% and (0.8)% in 2009, 2008 and 2007, respectively. In the future, we will continue to review our expectations for future taxable income to determine the amount of valuation allowance necessary to reserve against deferred tax assets.

Liquidity and Capital Resources

At January 2, 2010, our cash and cash equivalents totaled $43.5 million compared to $24.0 million as of December 27, 2008. At January 2, 2010, we had working capital of $76.8 million compared to $57.9 million at December 27, 2008.

Operating activities used cash of $5.8 million for the twelve-month period ended January 2, 2010 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. Operating activities provided cash of $2.4 million for the twelve-month period ended December 27, 2008 resulting from our $82.7 million net loss being offset by certain non-cash charges including $68.5 million of impairment charges for long-lived assets, $8.4 million of amortization and depreciation and $3.9 million in stock-based compensation, and increases attributable to changes in our net current assets and liabilities of $6.7 million. Operating activities provided cash of $2.9 million for the twelve-month period ended December 29, 2007 resulting from our net loss of $4.0 million being offset by certain non-cash charges such as $10.9 million of amortization and depreciation, $3.8 million of stock-based compensation and increases in working capital of $7.0 million due primarily to increases in accounts receivable of $9.5 million reflecting the increase in our revenues.

Table of Contents

Investing activities for the twelve-month period ended January 2, 2010 used cash 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). Investing activities for the twelve-month period ended December 27, 2008 used cash of $6.0 million primarily related to cash outlays of $3.4 million for the Tevet acquisition and capital equipment acquisitions of $3.2 million. Investing activities provided net cash of $2.4 million in 2007. In 2007, we received sales proceeds of $3.8 million from the sale of assets (see preceding discussion for Gain on sale of assets) offset by capital expenditures of $1.4 million.

For the twelve-month period ended January 2, 2010, financing activities provided cash of $26.0 million. Proceeds were from a follow-on public offering of our common stock of $23.3 million, combined with $3.0 million of proceeds from the sale of Company shares to employees through the Company s Stock Option and Stock Purchase plans, and were offset by $0.3 million for repayment of debt obligation. For the twelve-month period ended December 27, 2008, financing activities provided cash of $11.8 million. Proceeds were from the issuance of $13.2 million of debt, and $0.8 million from the sale of stock from employee stock plans and purchase plan and were offset by $1.9 million used for the repurchase of our common stock and $0.2 million for debt payments. Financing activities provided net cash of $1.8 million 2007. Cash provided by financing activities for 2007 resulted from the $4.1 million of proceeds of sale of common stock under our employee stock purchase and stock option plans offset by the repayment of debt of $1.5 million and repurchases of stock of $0.7 million.

In December 2009, we completed a public offering of our common stock resulting in the net proceeds of $23.3 million. We plan to use approximately $2.0 million of the net proceeds from the offering to repay certain obligations related to the Company s acquisition of certain assets of Zygo Corporation in June 2009, with the remainder to be used for general corporate purposes, including working capital.

In February 2007, we entered into a two year agreement for a revolving line of credit facility with a maximum principal amount of up to $15.0 million. On April 30, 2009, Nanometrics renegotiated its revolving line of credit facility and extended the term for an additional two years, to April 30, 2011. The instrument governing the facility includes certain financial covenants regarding minimum liquidity ratio and net tangible worth. All borrowings under this credit line bear interest, at our election, at a per annum rate equal to the bank s prime referenced rate plus 2.75% 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. We had no outstanding letters of credit against this line as of January 2, 2010. The revolving line of credit is collateralized by a blanket lien on all of our domestic assets excluding intellectual property and real estate. We may use the proceeds of any future borrowing under this credit facility for general corporate purposes. On June 15, 2009, we amended the financial covenants governing the credit facility to reduce the net tangible worth requirements, effective as of June 27, 2009.

We borrowed $7.0 million during fiscal year 2009 and also repaid the amounts in full during fiscal year 2009.

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 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. 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.

On June 17, 2009, we announced a strategic business partnership with Zygo Corporation whereby Nanometrics has purchased inventory and certain other assets from Zygo Corporation and the two companies have entered into a supply agreement. The Company will make payments to Zygo Corporation (with a present value of $5.7 million as of January 2, 2010) 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 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. For example in the third quarter of 2007, our Board of Directors authorized a $4.0 million stock repurchase program, of which there remains $1.3 million available for future purchases. We believe our working capital will be sufficient to meet our needs through the next twelve months.

Table of Contents

Off-Balance Sheet Arrangements

None.

Contractual obligations

The following table summarizes our contractual cash obligations as of January 2, 2010, and the effect such obligations are expected to have on liquidity and cash flow in future periods (in thousands):

		Payments due by period			
	Total	Less than 1 Year	1-3 Years	3-5 Years	More than 5 Years
Debt obligations	$ 13,082	$ 343	$ 764	$ 884	$ 11,091
Fair value of deferred payments to Zygo Corporation related to acquisition	$ 5,688	$ 3,655	$ 957	$ 930	$ 146
Other long-term liabilities	$ 847	$	$ 646	$	$ 201
Operating lease obligations	$ 4,153	$ 1,317	$ 1,132	$ 691	$ 1,013
Total	$ 23,770	$ 5,315	$ 3,499	$ 2,505	$ 12,451

We maintain certain open inventory purchase agreements with our suppliers to ensure a smooth and continuous supply chain for key components. Our liability in 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 January 2, 2010 was approximately $13.4 million. Actual 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.

Table of Contents

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: 70.3%, 70.5% and 68.2% of sales in 2009, 2008 and 2007, respectively. A portion of the net revenues we receive from such sales is denominated in currencies other than the U.S. dollar. Additionally, portions of our costs of net revenues and our other operating expenses are incurred by our international operations and denominated in local currencies. Foreign currency transactions resulted in a loss for 2009 of $1.7 million, a gain for 2008 of $1.5 million, and a loss for 2007 of $0.2 million, respectively. In addition, our exposure to foreign exchange rate fluctuations arises in part from current intercompany accounts in which costs from the United States and the United Kingdom are charged to our foreign subsidiaries. These current intercompany accounts are denominated in U.S. dollars, Japanese yen and British pounds sterling and the net payable from the United States parent amounted to $6.6 million as of January 2, 2010. A hypothetical 10% change in the foreign currency exchange rate at January 2, 2010 would result in an increase or decrease of approximately $0.7 million in transaction gains or losses which would be included in our statement of operations.

In foreign locations we have $5.5 million of net liabilities, including long-term loans payable of $27.2 million to the United States. A hypothetical 10% increase in the foreign currency exchange rate at January 2, 2010 would result in $3.3 million in exchange losses in the statement of operations and a $2.7 million increase in other comprehensive income.

Interest Rate Risk

At January 2, 2010, December 27, 2008 and December 29, 2007, the Company did not hold investments in marketable securities. 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 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 January 2, 2010 and December 27, 2008, our total debt obligation was $13.1 million and $13.5million, respectively, with a long-term portion of $12.7 million and $13.1million, respectively. A hypothetical 10% change in interest rates at January 2, 2010, would have an impact of about $0.1 million on our results of operations.

Table of Contents

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
Report of Independent Registered Public Accounting Firm	39
Consolidated Balance Sheets	40
Consolidated Statements of Operations	41
Consolidated Statements of Stockholders Equity and Comprehensive Income (Loss)	42
Consolidated Statements of Cash Flows	43
Notes to Consolidated Financial Statements	44
Valuation and Qualifying Accounts	82

Table of Contents

Report of Independent Registered Public Accounting Firm

Board of Directors and Stockholders

Nanometrics Incorporated

Milpitas, California

We have audited the accompanying consolidated balance sheets of Nanometrics Incorporated as of January 2, 2010 and December 27, 2008, and the related consolidated statements of operations, stockholders equity and comprehensive income (loss), and cash flows for each of the three years in the period ended January 2, 2010. In connection with our audits of the financial statements, we have also audited the consolidated financial statement schedule listed in Item 15. These financial statements and schedule are the responsibility of the Company s management. Our responsibility is to express an opinion on these financial statements and schedule based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. Our audits 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 presentation of the financial statements and schedule. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of Nanometrics Incorporated at January 2, 2010 and December 27, 2008, and the results of its operations and its cash flows for each of the three years in the period ended January 2, 2010**,** in conformity with accounting principles generally accepted in the United States of America.

Also, in our opinion, 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.

As discussed in Note 1 to the consolidated financial statements, the Company adopted FASB No. 141(R) Business Combinations, codified in ASC 805, Business Combinations, effective December 28, 2008.

/s/ BDO Seidman, LLP

San Francisco, California

March 26, 2010

Table of Contents

NANOMETRICS INCORPORATED

CONSOLIDATED BALANCE SHEETS

(In thousands, except share amounts)

	January 2, 2010	December 27, 2008
ASSETS		
Current assets:		
Cash and cash equivalents	$ 43,526	$ 23,980
Accounts receivable, net of allowances of $241 and $309, respectively	23,047	17,143
Inventories	31,472	31,583
Inventories- delivered systems	1,175	205
Assets held for sale	220	
Prepaid expenses and other	2,182	1,838
Deferred income taxes	245	350
Total current assets	101,867	75,099
Property, plant and equipment, net	36,365	40,136
Intangible assets, net	7,067	6,901
Deferred income tax assets long term	612	
Other assets	1,559	1,718
Total assets	$ 147,470	$ 123,854
LIABILITIES AND STOCKHOLDERS EQUITY		
Current liabilities:		
Revolving line of credit	$	$
Accounts payable	5,762	4,824
Accrued payroll and related expenses	4,012	3,435
Deferred revenue	5,162	1,539
Other current liabilities	8,952	5,800
Income taxes payable	865	1,187
Current portion of debt obligations	343	413
Total current liabilities	25,096	17,198
Deferred revenue	646	162
Other long-term liabilities	2,235	644
Debt obligations	12,739	13,083
Total liabilities	40,716	31,087
Commitments and contingencies (See Note 13)		
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; 21,506,791 and 18,413,054 respectively, outstanding	21	18
Additional paid-in capital	218,308	189,927
Accumulated deficit	(112,948)	(96,643)
Accumulated other comprehensive income (loss)	1,373	(535)
Total stockholders equity	106,754	92,767

Total liabilities and stockholders equity	$ 147,470	$ 123,854

See notes to consolidated financial statements.

Table of Contents

NANOMETRICS INCORPORATED

CONSOLIDATED STATEMENTS OF OPERATIONS

(In thousands, except per share amounts)

	Years Ended		
	January 2, 2010	December 27, 2008	December 29, 2007
Net revenues:			
Products	$ 49,153	$ 75,596	$ 126,049
Service	27,554	26,505	20,241
Total net revenues	76,707	102,101	146,290
Costs of net revenues:			
Cost of products	26,594	38,692	63,938
Cost of service	13,992	18,675	20,717
Total costs of net revenues	40,586	57,367	84,655
Gross profit	36,121	44,734	61,635
Operating expenses:			
Research and development	14,672	17,110	18,577
Selling	15,072	17,798	19,561
General and administrative	15,168	19,689	21,704
Amortization of intangibles assets	1,535	3,531	5,782
Restructuring charge	1,134	1,525	2,128
Gain on sale of assets			(2,100)
Asset impairment	1,899	68,545	
Total operating expenses	49,480	128,198	65,652
Loss from operations	(13,359)	(83,464)	(4,017)
Other income (expense):			
Interest income	53	185	202
Interest expense	(1,658)	(635)	(211)
Other, net	(1,927)	1,624	(13)
Total other income (expense), net	(3,532)	1,174	(22)
Loss before income taxes	(16,891)	(82,290)	(4,039)
Provision (benefit) for income taxes	(586)	436	(31)
Net loss	$ (16,305)	$ (82,726)	$ (4,008)
Basic net loss per share	$ (0.87)	$ (4.46)	$ (0.22)
Diluted net loss per share	$ (0.87)	$ (4.46)	$ (0.22)
Shares used in per share computation:			
Basic	18,639	18,546	18,099

Diluted	18,639	18,546	18,099

See notes to consolidated financial statements.

Table of Contents

NANOMETRICS INCORPORATED

CONSOLIDATED STATEMENTS OF STOCKHOLDERS EQUITY AND

COMPREHENSIVE LOSS

(In thousands, except share amounts)

	Common Stock		Additional Paid-In Capital	Accumulated Deficit	Accumulated Other Comprehensive Income (Loss)	Total Stockholders Equity	Comprehensive Income (Loss)
	Shares	Amount					
Balances, December 30, 2006	18,141,589	$ 18	$ 182,096	$ (9,909)	$ 2,426	$ 174,631	
Comprehensive loss:							
Net loss				(4,008)		(4,008)	$ (4,008)
Other comprehensive income, net of tax:							
Employee benefit plan adjustment					(345)	(345)	(345)
Foreign currency translation adjustments					481	481	481
Comprehensive loss							$ (3,872)
Issuance of common stock under stock-based compensation plans	717,374	1	4,093			4,094	
Stock-based compensation expense			3,767			3,767	
Accent purchase price adjustment	(146,826)		(2,037)			(2,037)	
Repurchases of common stock	(91,455)		(739)			(739)	
Balances, December 29, 2007	18,620,682	$ 19	$ 187,180	$ (13,917)	$ 2,562	$ 175,844	
Comprehensive loss:							
Net loss				(82,726)		(82,726)	$ (82,726)
Other comprehensive income, net of tax:							
Employee benefit plan adjustment					157	157	157
Foreign currency translation adjustments					(3,254)	(3,254)	(3,254)
Comprehensive loss							$ (85,823)
Issuance of common stock under stock-based compensation plans	339,424		806			806	
Stock-based compensation expense			3,881			3,881	
Repurchases of common stock	(547,052)	(1)	(1,940)			(1,941)	
Balances, December 27, 2008	18,413,054	$ 18	$ 189,927	$ (96,643)	$ (535)	$ 92,767	
Comprehensive loss:							
Net loss				(16,305)		(16,305)	$ (16,305)
Other comprehensive income, net of tax:							
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	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

See notes to consolidated financial statements.

Table of Contents

NANOMETRICS INCORPORATED

CONSOLIDATED STATEMENTS OF CASH FLOWS

(In thousands, except share amounts)

	Years Ended		
	January 2, 2010	December 27, 2008	December 29, 2007
Cash flows from operating activities:			
Net loss	$ (16,305)	$ (82,726)	$ (4,008)
Reconciliation of net loss to net cash provided by (used in) operating activities:			
Depreciation and amortization	6,092	8,429	10,936
Stock-based compensation	2,054	3,881	3,767
Asset impairment	1,899	68,545	
Loss (gain) on disposal of asset	82	(72)	(2,100)
Accounts receivable reserves	381		
Deferred taxes	(426)	(771)	(847)
Non-cash portion of restructuring charges			1,910
Unrealized foreign exchange loss (gain)	939	(1,518)	216
Fair value changes of deferred payments to Zygo Corporation related to acquisition	596		
Changes in assets and liabilities, net of effects of assets acquired and liabilities assumed in acquisitions:			
Accounts receivable	(6,352)	18,304	(9,519)
Inventories	1,948	(145)	1,905
Inventories delivered systems	(975)	580	3,427
Prepaid expenses and other	(113)	1,172	1,403
Accounts payable, accrued and other liabilities	775	(12,714)	3,302
Deferred revenue	3,941	(777)	(7,748)
Income taxes payable	(291)	261	243
Net cash provided by (used in) operating activities	(5,755)	2,449	2,887
Cash flows from investing activities:			
Cash received from Tevet on escrow settlement	215		
Purchase of Tevet s net assets, net of cash received		(3,357)	
Purchases of property, plant and equipment	(822)	(3,237)	(1,434)
Proceeds from sale of property, plant and equipment	9	625	3,863
Net cash provided by (used in) investing activities	(598)	(5,969)	2,429
Cash flows from financing activities:			
Proceeds from issuance of debt obligations, net of issuance costs		13,203	
Borrowings from line of credit	7,000		
Repayment of line of credit	(7,000)		
Repayments of debt obligations	(319)	(243)	(1,536)
Repurchase of stock		(1,941)	(739)
Proceeds from issuance of common stock under employee stock purchase and stock option plans	3,038	806	4,094
Proceeds from issuance of common stock offering, net of $426 offering costs	23,292		
Net cash provided by financing activities	26,011	11,825	1,819
Effect of exchange rate changes on cash and cash equivalents	(112)	756	(173)

Net increase in cash and cash equivalents	19,546	9,061	6,962
Cash and cash equivalents, beginning of year	23,980	14,919	7,957
Cash and cash equivalents, end of year	$ 43,526	$ 23,980	$ 14,919
Supplemental disclosure of cash flow information:			
Cash paid for interest	$ 1,038	$ 623	$ 149
Cash paid for income taxes	$ 153	$ 797	$ 462
Capitalization of inventory as property, plant and equipment	$ 1,166	$ 255	$ 6,746
Goodwill decrease deferred tax liability adjustment and settlement of escrow shares related to Accent acquisition	$	$	$ 2,685
Fair value of deferred payments to Zygo Corporation related to acquisition (see Note 3)	$ 5,092	$	$

See notes to consolidated financial statements.

Table of Contents

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Years Ended January 2, 2010, December 27, 2008 and December 29, 2007

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 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. These 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. 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, 2009 consisted of 53 weeks ending January 2, 2010 (fiscal year 2009), 2008 consisted of 52 weeks ending December 27, 2008 (fiscal year 2008), and 2007 consisted of 52 weeks and ended on December 29, 2007 (fiscal year 2007).

Reclassification In the cash flow statement for fiscal years 2008 and 2007, the Company reclassified $(1.5) million and $0.2 million, respectively, from the effect of exchange rate changes on cash and cash equivalents line item to unrealized foreign exchange loss (gain) to conform to the current presentation. During 2008, the Company determined that amortization of demonstration systems, which was previously recorded on the cash flow statement as a reduction in the carrying value of its inventories, should be reclassified to the depreciation and amortization line item on the cash flow statement. Amortization of demonstration systems which was reclassified for the year 2007 was $1.6 million.

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 a loss for 2009 of $1.7 million, income for 2008 of $1.5 million, and a loss for 2007 of $0.2 million, respectively. As of December 27, 2008, the Company reclassified loans with our Japanese subsidiary from permanent to non-permanent in order to repatriate cash back to the U.S to fund the Company s working capital requirements. When intercompany loans are no longer considered permanent, any changes in foreign currency rates for such loans are to be recorded as a period charge on the statement of operations rather than a component in equity. As a result of the loan reclassification and substantial strengthening of foreign currencies versus the dollar during the fiscal year ended 2009, there were expenses of $1.7 million included in Other, net expense on the statement of operations for that period, $0.9 million of which was non-cash expense.

Table of Contents

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years Ended January 2, 2010, December 27, 2008 and December 29, 2007

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 systems (Product revenue) as well as spare part sales, billable service, service contracts, and upgrades (together Service revenue). Upgrades are a group of parts that change the existing configuration of a product and are included in Service revenue. They are distinguished from Product revenue, which consists of complete, standalone process control metrology systems. Our systems consist of hardware and of software which is incidental to the systems. We periodically review the software element of our systems to ascertain that the software continues to be incidental. Our arrangements for sales of our systems often include customer-specified objective acceptance criteria.

For product sales to existing customers, revenue recognition occurs at the time title and risk of loss transfer, which usually occurs upon delivery, if we have reliably demonstrated that the product has successfully met the defined customer specified criteria, and all other recognition criteria has been met. This occurs at the time of shipment, as our terms are FOB shipping point. For initial sales of product where we have not previously met the defined customer 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 our 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 been met.

All of our products are assembled prior to shipment to our customers. We often perform installation for our customers; however such installation is inconsequential and perfunctory as it may also be performed by third parties and is not considered essential to the functionality of the equipment.

Revenue related to spare part sales is recognized upon shipment. Revenue related to billable service is recognized as the services are performed and if billable service and spare parts are sold together, revenue is recognized when both the parts are delivered and the service is completed. For service contracts, revenue is recognized ratably over the service contract period. Revenue on upgrades is recognized when the upgrade has been delivered to the customer. For initial upgrade sales where we have not previously met the defined customer acceptance criteria, if any, revenue is recognized upon the early of receipt of written customer acceptance or expiration of the contractual acceptance period. On occasion, customers request a warranty period longer than our standard 12 month 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. Furthermore, we generally do not provide our customers with any return rights.

In cases where certain elements of a sales arrangement are not delivered and accepted at the same time, we defer the relative fair value of the undelivered element until that element is delivered and accepted by the customer if we have fair value of all elements. In multiple-element arrangements where we only have fair value of the undelivered elements, then we apply the residual method. In order to recognize revenue associated with delivered elements, the following criteria must be met: (a) the delivered item(s) has value to the customer on a standalone basis; (b) there is objective and reliable evidence of the fair value of the undelivered item(s); and (c) delivery or performance of the undelivered item(s) is considered probable and substantially in our control. If the arrangement does not meet all the above criteria, the entire amount of the sales contract is deferred until the criteria have been met or all elements have been delivered to the customer. Objective and reliable evidence of the fair value is based on the amounts for which we sell equivalent products or services on a standalone basis. Upon recognition of product revenue, a liability is recorded for anticipated warranty costs. Service contracts may be purchased by the customer during or after the warranty period.

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 carrying values of long-term debt obligations approximate their fair value because the interest rate is fixed with a reset provision after five years.

45

Table of Contents

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years Ended January 2, 2010, December 27, 2008 and December 29, 2007

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 reflects the risk associated with smaller rather than larger customers and that reported allowances are adequate. 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 standard cost (which approximates actual cost on a first-in, first-out basis), 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. 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:

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 useful lives while goodwill and indefinite lived assets are not amortized but tested annually for impairment. The Company s impairment review process is completed as of the last day of November of each year or whenever events or circumstances occur which indicate that an impairment might have occurred. The Company follows the two-step approach to determining whether and by how much goodwill has been impaired. The first step requires a comparison of the fair value of Nanometrics reporting units (product and service) 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. During 2008, the company wrote off the entire Goodwill and certain intangible assets. See Note 6, Goodwill and Long-Lived Asset Impairment.

Long-Lived Assets The Company evaluate 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.

Table of Contents

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years Ended January 2, 2010, December 27, 2008 and December 29, 2007

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 whereby 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 must be reduced by a valuation allowance to the extent that management concludes that it is more likely than not that a portion of the deferred tax asset will not be realized in the future. The Company evaluates the deferred tax assets on an annual basis 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 is as follows:

	Years Ended		
	Foreign Currency Translations	Defined Benefit Pension Plans	Accumulated Other Comprehensive Income
Balance as of December 29, 2007	$ 2,907	$ (345)	$ 2,562
Current period change	(3,254)	157	(3,097)
Balance as of December 27, 2008	(347)	(188)	(535)
Current period change	1,798	110	1,908
Balance as of January 2, 2010	$ 1,451	$ (78)	$ 1,373

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.

A reconciliation of the changes to the Company s warranty accrual for 2009, 2008 and 2007 is as follows (in thousands):

	Years Ended		
	January 2, 2010	December 27, 2008	December 29, 2007
Balance as of beginning of period	$ 2,075	$ 4,545	$ 4,349
Actual warranty costs	(2,376)	(5,259)	(3,207)
Provision for warranty	1,501	2,789	3,403
Balance as of end of period	$ 1,200	$ 2,075	$ 4,545

Table of Contents

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years Ended January 2, 2010, December 27, 2008 and December 29, 2007

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 January 2, 2010 and December 27, 2008.

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 immaterial in 2009, and were $0.1 million in both 2008 and 2007, respectively, and did not include expenses related to trade shows.

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 by the Staff. 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. Actuarial gains and losses are recorded under the corridor method.

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. During 2009, 2008 and 2007, diluted net loss per share excludes common equivalent shares outstanding, as their effect is anti-dilutive. The total number of common equivalent shares outstanding during 2009, 2008 and 2007 was 2.4 million, 3.0 million and 2.3 million, respectively. The total number of common equivalent shares includes stock options with exercise prices in excess of the fair market value of our common stock, which are always excluded from diluted weighted average shares outstanding, as their effect is anti-dilutive. The reconciliation of the share denominator used in the basic and diluted net income per share computations is as follows (in thousands):

	Years Ended		
	January 2, 2010	December 27, 2008	December 29, 2007
Weighted average shares outstanding shares used in basic net income per share computation	18,639	18,546	18,099
Dilutive effect of stock options, using the treasury stock method			
Shares used in diluted net income per share computation	18,639	18,546	18,099

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 Note 7, Sale of Accounts Receivable.

48

Table of Contents

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years Ended January 2, 2010, December 27, 2008 and December 29, 2007

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 a relatively small number of customers have accounted for a significant portion of its revenues. Aggregate revenue from the Company s top twenty five largest customers in 2009, 2008 and 2007 consisted of 83%, 75% and 76%, respectively, of its total net revenues. See Note 20, Major Customers.

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 subassemblies; disruption of manufacturing facilities; and its ability to attract and retain employees necessary to support its growth.

Certain components and subassemblies 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 subassemblies used in its products or its inability to procure these components or subassemblies 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 2009, the FASB ratified Accounting Standards Update (ASU) 2009 -13 (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.

Both ASU 2009-13 and ASU 2009-14 have the same disclosure requirements, effective date, and transition methods. They are effective on a prospective basis for revenue arrangements entered into or materially modified in fiscal years beginning on or after June 15, 2010. Alternatively, an entity can elect to adopt on a retrospective basis. Early application is permitted; however, entities must adopt both ASU 2009-13 and ASU 2009-14 in the same period using the same transition method. In the initial year of application, companies are required to make qualitative and quantitative disclosures about the impact of the changes. The Company is currently evaluating the potential impact, if any, of these two standards and whether it will adopt the standards early.

In June 2009, the FASB issued SFAS No. 168, *The FASB Accounting Standards Codification and the Hierarchy of Generally Accepted Accounting Principles a replacement of FASB Statement 162* (SFAS 168), as codified by ASC 105 *Generally Accepted Accounting Principles* (ASC 105). In this standard, the FASB Accounting Standards Codification

Table of Contents

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years Ended January 2, 2010, December 27, 2008 and December 29, 2007

was established as the single source of authoritative accounting principles to be applied to financial statements of nongovernmental entities in conformity with U.S. General Accepted Accounting Principles. This standard is effective for financial statements issued for interim and annual periods ended after September 15, 2009. The provisions of this code were reflected starting with the filing of the Company s Form 10-Q for the period ended September 26, 2009 and had no impact on the financial results of the Company.

In June 2009, the FASB issued FAS 166, *Accounting for Transfers of Financial Assets an amendment of FASB Statement No. 140* as codified by ASC 860 *Transfers and Servicing* (ASC 860). ASC 860 removes the exemption from consolidation for Qualifying Special Purpose Entities. This Statement also limits the circumstances in which a financial asset, or portion of a financial asset, should be derecognized when the transferor has not transferred the entire original financial asset to an entity that is not consolidated with the transferor in the financial statements being presented and/or when the transferor has continuing involvement with the transferred financial asset. ASC 860 is applies to all transfers of financial assets occurring in the first fiscal year beginning after November 15, 2009 and in interim periods in those years. Its disclosure requirements, however, apply to transfers before and after the effective date. Companies are not required to provide comparative disclosures for periods for which the information was not already required. The Company is currently evaluating the potential impact of this standard to the financial results of the Company.

In May 2009, the FASB issued SFAS No. 165, *Subsequent Events*, as codified by ASC 855 *Subsequent Events*. This Statement sets forth: (1) the period after the balance sheet date during which management of a reporting entity should evaluate events or transactions that may occur for potential recognition or disclosure in the financial statements; (2) the circumstances under which an entity should recognize events or transactions occurring after the balance sheet date in its financial statements; and (3) the disclosures that an entity should make about events or transactions that occurred after the balance sheet date. This Statement is effective for interim and annual periods ending after June 15, 2009. The Company adopted this Statement in the quarter ended September 26, 2009. This Statement had no impact on the financial results of the Company.

In April 2009, the FASB issued FSP FAS 157-4, *Determining Fair Value When the Volume and Level of Activity for the Asset or Liability Have Significantly Decreased and Identifying Transactions That Are Not Orderly* (FSP 157-4), which amends SFAS No. 157, *Fair Value Measurements* (SFAS 157), as codified by ASC 820 *Fair Value Measurement* (ASC 820). This standard provides additional guidance on estimating fair value when the volume and level of activity for an asset or liability have significantly decreased and is effective for interim and annual reporting periods ended after June 15, 2009. The Company s adoption of this standard did not affect the Company s consolidated results of operations or financial condition.

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 the reasons for the transfers, and (2) a gross presentation of activity within the Level 3 rollforward. 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 are effective for fiscal years beginning after December 15, 2010, and for interim periods within those fiscal years. In the period of initial adoption, entities will not be required to provide the amended disclosures for any previous periods presented for comparative purposes. However, comparative disclosures are required for periods ending after initial adoption.

In December 2007, the FASB issued SFAS 141 (R), *Business Combinations* (SFAS 141(R)), as codified by ASC 805 *Business Combinations* (ASC 805). In this standard, an acquiring entity will be required to recognize all the assets acquired and liabilities assumed in a transaction at the acquisition-date fair value with limited exceptions. The accounting treatment for certain specific items will change: acquisition costs will generally be expensed as incurred, non-controlling interests will be valued at fair value at the acquisition date, acquired contingent liabilities will be recorded at fair value at the acquisition date and subsequently measured at either the higher of such amount or the amount determined under existing guidance for non-acquired contingencies, in-process research and development will be recorded at fair value as an indefinite-lived intangible asset at the acquisition date, restructuring costs associated with a business combination will be generally expensed subsequent to the acquisition date, and changes in the deferred tax asset valuation allowances and income tax uncertainties after the acquisition date generally will affect income tax expense. This standard also includes a substantial number of new disclosure requirements. The standard applies prospectively to business combinations for which the acquisition date is on or after the beginning of the first annual reporting period beginning on or after

December 15, 2008, or the first quarter of 2009. Earlier adoption is prohibited.

Table of Contents

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years Ended January 2, 2010, December 27, 2008 and December 29, 2007

In April 2009, the FASB issued FSP SFAS No. 141(R)-1, *Accounting for Assets Acquired and Liabilities Assumed in a Business Combination That Arise from Contingencies*, as codified by ASC 805 *Business Combination* (ASC 805). This standard amends the provisions related to the initial recognition and measurement, subsequent measurement and disclosure of assets and liabilities arising from acquired contingencies in a business combination, thereby requiring that such contingencies be recognized at fair value on the acquisition date if fair value can be reasonably estimated during the allocation period. Otherwise, entities would typically account for the acquired contingencies in accordance with SFAS No. 5, *Accounting for Contingencies,* as codified by ASC 450 *Contingencies*. This standard applies prospectively to business combinations for which the acquisition date is on or after the beginning of the first annual reporting period beginning on or after December 15, 2008, or the first quarter of 2009. On June 17, 2009, the Company completed a business combination with Zygo Corporation as discussed in Note 3, which is accounted for in accordance with ASC 805.

In April 2008, the FASB issued FSP FAS 142-3, *Determination of the Useful Life of Intangible Assets*, as codified by ASC 350-30 *General Intangibles Other than Goodwill* (ASC 350-30), which amended the factors to be considered in developing renewal or extension assumptions used to determine the useful life of a recognized intangible asset under ASC 350, Intangibles Goodwill and Other. ASC 350-30 applies to intangible assets that are acquired, individually or with a group of other assets, in either a business combination or asset acquisition. ASC 350-30 is effective for financial statements issued for fiscal years beginning after December 15, 2008, and interim periods within those fiscal years. Adoption of ASC 350-30 had no impact on the financial results of the Company.

In June 2008, the FASB issued FASB Staff Position EITF 03-6-1, *Accounting for Determining Whether Instruments Granted in Share-Based Payment Transactions Are Participating Securities*, as codified by ASC 260 *Determining Whether Instruments Granted in Shared-Based Payment Transactions Are Participating Securities* (ASC 260). This standard addresses whether participating share based payment awards, that contain non-forfeitable rights to dividends or dividend equivalents (paid or unpaid) prior to vesting, should be included in the computation of earnings per share under the two-class method. This standard is effective for financial statements issued for fiscal years beginning after December 15, 2008. The Company s adoption of this standard did not affect the Company s consolidated results of operations or financial condition.

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 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, which reflects our estimate of debt with similar terms in the current credit markets. As there is currently minimal activity in such markets, the actual rate could be materially different.

Table of Contents

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years Ended January 2, 2010, December 27, 2008 and December 29, 2007

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):

As of 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
Cash and cash equivalents (all short term):				
Cash	$ 8,609	$	$	$ 8,609
Money market account	34,917			34,917
Total cash and cash equivalents	43,526			43,526
Total financial assets	$ 43,526	$	$	$ 43,526
Fair value of deferred payments to Zygo Corporation related to acquisition	$	$	$ 5,688	$ 5,688
Total financial liabilities	$	$	$ 5,688	$ 5,688

As of December 27, 2008	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
Cash and cash equivalents (All short term):				
Cash	$ 19,717	$	$	$ 19,717
Money market account	4,263			4,263
Total cash and cash equivalents	23,980			23,980
Total financial assets	$ 23,980	$	$	$ 23,980

Changes in the Company s Level 3 liabilities for fiscal 2009 were as follows (in thousands):

	Level 3
Aggregate estimated fair value of Level 3 liability at December 27, 2008	$
Zygo Acquisition	5,092
Total unrealized loss included in earnings	596

Aggregate estimated fair value of Level 3 liability at January 2, 2010	$ 5,688

Table of Contents

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years Ended January 2, 2010, December 27, 2008 and December 29, 2007

As of January 2, 2010, the Company has a liability of $5.7 million resulting from the acquisition of certain assets from Zygo Corporation (Zygo) which is measured at fair value on a recurring basis. Of that amount, $3.7 million is included in other current liabilities and $2.0 million is included in other long-term liabilities on the Company s consolidated balance sheet. The fair value of this liability was determined using level 3 inputs. See Note 3 for discussion of assumptions used to measure the fair value of the Zygo liability.

Certain assets are measured at fair value on a nonrecurring basis; that is, the instruments are not measured at fair value on an ongoing basis but are subject to fair value adjustments only in certain circumstances (for example, when there is evidence of impairment). During 2009 the Company recorded an impairment charge of $1.9 million related to the Company s South Korean manufacturing facility. See Note 4 for discussion of the measurement criteria used. We classify these measurements as Level 3.

	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. The carrying value of long-term debt obligations approximates their fair value because while the interest rate is fixed, it will reset after five years.

Note 3. Acquisitions

Zygo acquisition

On June 17, 2009 (acquisition date), Nanometrics announced that it had purchased inventory and certain other assets of Zygo Corporation and that the two companies had entered into a supply agreement. The terms of the agreement is an exclusive OEM arrangement in which Zygo Corporation will provide interferometer sensors to Nanometrics for incorporation into the Unifire line of products as well as 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. The results from the Unifire line of business were included in the Company s consolidated statements of operations from the acquisition date.

Table of Contents

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years Ended January 2, 2010, December 27, 2008 and December 29, 2007

The following table summarizes the fair value of consideration recorded and the fair value of acquired assets:

Fair value of purchase consideration transferred $5,092 (in thousands):

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

The fair value of the purchase consideration at the time of the acquisition for the assets acquired 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 acquisition did not involve any cash payments to Zygo. The fair value of purchase consideration transferred including contingent consideration was recorded as a liability on the Company s consolidated balance sheet at January 2, 2010, with $3.1 million current and $2.0 million long-term.

The Company will be required to make payments to Zygo after each sale of the Company s product which incorporates inventory acquired from Zygo. If the Company has not sold sufficient products which incorporate the acquired inventory from Zygo, within one year from the date of the acquisition, the Company must 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, then 20% of the financing proceeds, not to exceed $2 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. That $2.0 million payment was made to Zygo on January 7, 2010.

The fair value of the purchase consideration relating to the inventory and fixed assets was determined using an analysis based on management s expected revenue from products which incorporate the acquired inventory from Zygo, discounted by 20 percent to arrive at the present value.

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) amount of the acquired assets that business will generate, (b) a discount rate of 20 percent was utilized to adjust the purchase price payments to the present, based on the consideration of both a weighted average cost of capital calculation and venture capital rates. The Company will 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. The range of the undiscounted amounts Nanometrics could pay under the contingent consideration discussed here ranges from $3.4 million to $10.2 million.

The fair value of inventory acquired was $2.0 million consisting of raw materials. Recent purchases 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 similar methodology used above for the contingent consideration, with the following assumptions of (a) royalty rate of 3 percent, and (b) discount rate of 30 percent, and have definite lives amortizable over a period of 10 years on a straight-line basis and accelerated basis amortized over a two-year period, respectively. The amortization expense of $0.2 million was recorded for the acquired intangible assets from the Zygo transaction for the year ended January 2, 2010.

A total of $0.2 million of legal expenses were incurred related to the net asset purchase and supply agreement of Zygo. These acquisition-related expenses are included in general and administrative expense of the consolidated statement of operations. Such acquisition-related costs are treated as goodwill for tax purposes and are expected to be deductible for tax purposes.

Table of Contents

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years Ended January 2, 2010, December 27, 2008 and December 29, 2007

The fair value of the purchase contingent consideration is evaluated each reporting period with an appropriate adjustment to the recorded liability if required. As of January 2, 2010, the fair value of the purchase contingent consideration had increased by $0.6 million due mainly to the accelerated repayment of $2.0 million currently due as a result of the common stock offering. The $0.6 million is included in interest expense as the reason for the liability increase was due to financing activities of the Company.

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 the respective periods (in thousands):

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

Tevet acquisition

On May 19, 2008, Nanometrics announced that it had acquired Tevet Process Control Technologies, Ltd., (Tevet) an Israel-based privately held corporation. The acquisition of Tevet, an integrated metrology company serving the worldwide semiconductor and solar manufacturing industry, is expected to further Nanometrics strategy to offer a breadth of process control metrology solutions that address both advanced technology as well as cost of ownership. Under the terms of the asset purchase agreement, which was an all-cash transaction, the total consideration to purchase all assets and assume specified liabilities of Tevet was $3.6 million, including $0.2 million in transaction fees, which include legal, valuation and accounting fees. Under the purchase method of accounting, the total estimated purchase price is allocated to the net tangible and identifiable intangible assets of Tevet acquired in connection with the transaction, based on their respective estimated fair values. The results of operations of Tevet were included in the Company s consolidated statements of operations from the date of the acquisition. The final allocation of the Tevet purchase price is summarized below (in thousands):

	Amounts
Assets acquired:	
Cash	$ 448
Accounts receivable	12
Inventories	467
Other assets	24
Property, plant and equipment	62
Total assets acquired:	1,013
Liabilities assumed:	
Accounts payable	129
Deferred revenue	250
Other accrued liabilities	393

Total liabilities assumed	772
Net assets acquired	241
Goodwill and other intangible assets:	
Goodwill	1,848
Developed technology	1,269
Backlog	230
Total goodwill and other intangible assets:	3,347
Net purchase price	$ 3,588

Table of Contents

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years Ended January 2, 2010, December 27, 2008 and December 29, 2007

The purchase price of $3.6 million was finalized on the escrow close date of April 7, 2009. A settlement of $0.2 million was received from Tevet by the Company at the escrow close date. The developed technology and backlog are being amortized over their estimated useful lives of seven years and one year, respectively. In the third quarter of 2008, $1.8 million in goodwill arising from the Tevet acquisition was written off.

If the Company had acquired Tevet at the beginning of the periods presented, the Company s unaudited pro forma net revenues, net income (loss) and net income (loss) per share from operations would have been as follows (in thousands, except per share amounts):

	Pro Forma	
	Year Ended December 27, 2008 (unaudited)	Year Ended December 29, 2007 (unaudited)
Net revenues	$ 102,644	$ 148,193
Net loss	(84,438)	(7,020)
Net loss per share:		
Basic	$ (4.55)	$ (0.38)
Diluted	$ (4.55)	$ (0.38)

Note 4. Asset Held for Sale

In May 2009, the management of Nanometrics decided to close the Pyeongtaek, South manufacturing facility due to the prevailing industry and economic conditions facing the semiconductor industry. The premises have effectively been vacated prior to the end of the second quarter 2009 and the Company began actively pursuing the sale of the facility and related manufacturing assets at that time. The Company also ceased recording depreciation on the facility at that time. The fair value of the South Korea 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 Korea facility for the second quarter of 2009. The facility in South Korea remains an asset held for sale as January 2, 2010. On December 30, 2009, the Company entered into a sale and purchase agreement with a buyer for approximately $0.4 million, of which $0.2 million was received as deposit and recorded as part of current liabilities. No gain on sale was recorded in 2009 as the sale transactions has not yet closed and the Company is not yet in receipt of the final $0.2 million.

Note 5. Stock-Based Compensation

The Company measured and recognized of compensation expense for all share-based payment awards made to employees and directors including employee stock options 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 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 January 2, 2010, December 27, 2008 and December 29, 2007 is based on awards ultimately expected to vest, it has been reduced for estimated forfeitures. SFAS 123(R) 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 2009, 2008 and 2007 of 19.5%, 19.7% and 22.7%, 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 were required to be classified as financing cash flows. There were no such tax benefits during fiscal 2009, 2008 and 2007.

Table of Contents

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years Ended January 2, 2010, December 27, 2008 and December 29, 2007

Valuation and Expense Information

The fair value of stock-based awards to employees is calculated using the Black-Scholes option pricing model, even though this model was developed to estimate the fair value of freely tradable, fully transferable options without vesting restrictions, which differ significantly from the Company s stock options. The Black-Scholes model requires subjective assumptions, including future stock price volatility and expected time to exercise, which greatly affect the calculated values. The expected term of options granted was calculated using the simplified method allowed by the Staff. 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 2009	Fiscal Year 2008	Fiscal Year 2007
Stock Options:			
Expected life	4.1 years	4.3 years	4.4 years
Volatility	67.6%	56.9%	59.3%
Risk free interest rate	2.08%	2.22%	4. 96%
Dividends			
Employee Stock Purchase Plan:			
Expected life	0.5 years	0.5 years	0.5 years
Volatility	99.1%	87.7%	35.0%
Risk free interest rate	0.33%	1.02%	2.52%
Dividends			

The weighted average fair value per share of the stock options awarded in 2009, 2008 and 2007 of $2.84, $3.04 and $7.69, respectively, was based on the fair market value of the Company s common stock on the grant dates.

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 was allocated as follows (in thousands):

	Fiscal Year 2009	Fiscal Year 2008	Fiscal Year 2007
Cost of products	$ 34	$ 310	$ 287
Cost of service	180	363	337
Research and development	495	696	997
Selling	472	751	755
General and administrative	873	1,761	1,391
Total stock-based compensation expense related to employee stock options and employee stock purchases	$ 2,054	$ 3,881	$ 3,767

During the fourth quarter 2009, the Company recorded an out of period adjustment with an impact of decreasing stock compensation by $0.2 million to correct errors in recording true-ups for forfeitures of stock options that were not material to any prior reporting period.

Table of Contents

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years Ended January 2, 2010, December 27, 2008 and December 29, 2007

A summary of activity under the Company s stock option plans during 2009 is as follows:

	Shares Available for Grant (Options and RSUs)	Number of Shares Outstanding (Options)	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term (in Years)	Aggregate Intrinsic Value (in Thousands)
Options					
Outstanding at December 27, 2008	1,665,043	3,562,437	$ 7.29		
Exercised		(410,995)	5.93		
Granted	(726,838)	726,838	5.82		
RSU allocation	(62,000)				
Canceled	897,024	(924,986)	11.03		
Outstanding at January 2, 2010	1,773,229	2,953,294	$ 5.95	5.1	$ 16,692
Exercisable at January 2, 2010		1,481,629	$ 7.54	4.3	$ 6,250

The Company granted 62,000 and 20,000 Restricted Stock Units (RSU) during the year-end January 2, 2010 and December 27, 2008, respectively to key employees with vesting periods spanning from one to three years.

Prior to December 2008, the majority for 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 for employees employed for less than one year vest one-third (1/3rd) of the shares subject to the option on the first anniversary of the grant date, and vest one thirty sixth (1/36th) 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 (1/36th) 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.

The aggregate intrinsic value in the preceding table represents the total pretax intrinsic value, based on the Company s closing stock price of $11.33 as of January 2, 2010, 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 2009, 2008 and 2007 was $2.2 million, $0.1 million, and $0.6 million, respectively. The fair value of options vested during 2009, 2008 and 2007 was $3.4 million, $6.3 million and $6.6 million, respectively.

The following table summarizes significant ranges of outstanding and exercisable options as of January 2, 2010.

	Options Outstanding			Options Exercisable	
Exercise Prices	Number Outstanding	Weighted Average Remaining Contractual Life (Years)	Weighted Average Exercise Price	Number Exercisable	Weighted Average Exercise Price
$0.49 $0.49	3,311	1.01	$ 0.49	3,311	$ 0.49
$0.93 $0.93	552,835	5.91	$ 0.93	159,153	$ 0.93

$0.98	$1.50	300,000	5.92	$	1.11	61,525	$ 1.01
$1.88	$5.69	319,495	5.62	$	4.18	60,238	$ 4.90
$5.70	$6.25	312,874	2.77	$	5.95	231,897	$ 5.92
$6.27	$7.35	372,862	6.20	$	7.13	238,489	$ 7.21
$7.47	$7.50	308,338	6.27	$	7.49	67,937	$ 7.50
$7.63	$8.89	310,518	3.60	$	8.63	298,780	$ 8.66
$9.07	$13.08	318,119	4.31	$	10.99	205,357	$ 10.28
$13.10	$20.14	154,942	3.89	$	15.27	154,942	$ 15.27
$0.49	$20.14	2,953,294	5.09	$	5.95	1,481,629	$ 7.54

As of January 2, 2010 the total unrecognized compensation costs related to unvested stock options was $2.1 million which is expected to be recognized as an expense over the weighted average remaining amortization period of 2.0 years.

Table of Contents

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years Ended January 2, 2010, December 27, 2008 and December 29, 2007

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 will 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 will be recorded ratably over the requisite service period of three years.

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. A two-step approach is provided to determining whether and by how much goodwill has been impaired. The first step requires a comparison of the fair value of the Company (reporting units, product and service) 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. Prior to performing step one of the goodwill impairment testing process for a reporting unit, if there is reason to believe that other non-goodwill related intangible assets (finite or indefinite lived) and/or long-lived assets may be impaired, these other intangible assets and long-lived assets must first be tested for impairment. Assets require a recoverability test whereby the gross undiscounted cash flows are determined specific to the asset. If the sum of gross undiscounted cash flows for the fixed-life intangible asset or long-lived asset exceeds the carrying value of that asset, the test results in no impairment to the asset. If not, then the fair value of the asset must be determined and the impairment is measured by the differential between the fair value and the carrying value. For non-goodwill related indefinite-lived assets, a fair value determination is made. If the carrying value of the asset exceeds the fair value, then impairment occurs. The carrying values of these assets are impaired as necessary to provide the appropriate carrying value for the goodwill impairment calculation.

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 27, 2008.

Due to the decline in our forecasted revenues for certain product lines relating to specific intangible assets acquired in the 2006 acquisitions of Accent Optical Technologies, Inc. and Soluris, Inc., as well as the weakening conditions in the semiconductor equipment market, the Company determined that the net book value exceeded the undiscounted future cash flows for certain intangible assets. As a result of this analysis, in the second and third quarters of 2008 the Company recorded $13.1 million in impairment charges for intangible assets, of which $3.7 million was developed technology, $7.5 million was customer relationships, $1.6 million was brand names and $0.3 million was trade mark.

Also the Company performed impairment tests for other long-lived assets such as property, plant and equipment during 2008. The Company performed an impairment analysis on its long-lived assets associated with its machine shop and plating facility, which was subcontracted in 2007, due to the significant reduction in forecasted future cash flows resulting

59

Table of Contents

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years Ended January 2, 2010, December 27, 2008 and December 29, 2007

from the operational limitations of the facility. Due to these reduced forecasts, the Company determined that the net book value exceeded the undiscounted future cash flows. As a result of this analysis, an impairment charge of $1.5 million was recorded in 2008 to reduce those assets to fair value.

In 2008, in estimating the fair value of the Company, the Company made estimates and judgments about future revenues and cash flows for each reporting unit. The Company s estimates of market segment growth, 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 it uses to manage the underlying businesses. The Company also considered its market capitalization on the dates of its impairment tests in determining the fair value of the respective businesses. Company concluded that events had occurred and circumstances had changed during the third quarter of 2008 which might indicate the existence of impairment indicators including a significant decline in the Company s stock price and continued deterioration in the semiconductor equipment market and the related impact on revenue forecasts of each reporting unit. Consistent with the Company s approach in its annual impairment testing, in assessing the fair value of the reporting unit, At September 27, 2008, the Company determined that the fair value of its reporting units was less than the net book value of the net assets of each reporting unit. The Company determined the implied fair value of the goodwill and compared it to the carrying value of the goodwill. With the assistance of a third party valuation firm, the Company allocated the fair value of the reporting units 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 units 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. The Company s analysis resulted in no implied fair value of goodwill, and therefore, the Company recognized an impairment charge of $54.0 million in the third quarter of 2008, representing a write-off of the entire amount of the Company s previously recorded goodwill including goodwill from the Tevet acquisition which was a part of the impaired reporting units.

Changes in the carrying amount of goodwill are as follows (in thousands):

	At	
	January 2, 2010	**December 27, 2008**
Goodwill	$ 53,980	$ 52,132
Accumulated impairment losses	(53,980)	
Net goodwill at beginning of period		52,132
Goodwill acquired in the acquisition of Tevet		1,848
Impairment charge		(53,980)
Net goodwill at end of period	$	$

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 1.475% to 1.770% based on the anticipated length of time between the date the sale is consummated and the expected collection date of the receivables sold. In 2009, 2008 and 2007 there were no material gains or losses on the sale of such receivables. In 2009 and 2008, the Company sold $6.5 million and $21.7 million, respectively, of receivables under the terms of the agreement. There were no amounts due from the acquiring party financial institution at January 2, 2010 and

December 27, 2008.

Table of Contents

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years Ended January 2, 2010, December 27, 2008 and December 29, 2007

Note 8. Inventories

Inventories consist of the following (in thousands):

	At	
	January 2, 2010	December 27, 2008
Raw materials and sub-assemblies	$ 19,006	$ 19,113
Work in process	4,286	3,662
Finished goods	8,180	8,808
Total inventories	$ 31,472	$ 31,583

Note 9. Property, Plant and Equipment

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

	At	
	January 2, 2010	December 27, 2008
Land	$ 15,583	$ 15,577
Building and improvements	18,575	20,973
Machinery and equipment	14,424	15,427
Furniture and fixtures	2,295	2,142
Capital in progress	1,850	2,940
	52,727	57,059
Accumulated depreciation and amortization	(16,362)	(16,923)
Total property, plant and equipment, net	$ 36,365	$ 40,136

The decrease in building and improvement was due primarily to the closure of the South Korea facility, where an asset impairment of $1.9 million was recorded during 2009 and the remaining fair value of the property was reclassified Asset Held for Sale (see Note 4).

Depreciation expense was $4.6 million, $4.9 million and $5.1 million for 2009, 2008 and 2007, respectively. The amounts associated with capital in progress for 2009 and 2008 of $1.9 million and $2.9 million, respectively, were related to machinery and equipment projects.

Note 10. Intangible Assets

On June 17, 2009, Nanometrics announced that it had purchased inventory and certain other assets of Zygo Corporation and that the two companies have entered into a supply agreement, as a result, the Company recorded $1.4 million of developed technology and $0.3 million of customer relationships, during second quarter period of 2009. The Company will amortize the developed technology on a straight line basis over

a period of ten years and the customer relationships on an accelerated basis over a period of two years from the date of acquisition.

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.

Table of Contents

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years Ended January 2, 2010, December 27, 2008 and December 29, 2007

Finite-lived intangible assets are recorded at cost, less accumulated amortization. Finite-lived intangible assets as of January 2, 2010 and December 27, 2008 consist of the following (in thousands):

	Adjusted basis as of December 27, 2008	Additions during 2009 at cost	Adjusted basis as of January 2, 2010	Accumulated amortization as of January 2, 2010	Net carrying amount as of January 2, 2010
Developed technology	$ 7,319	$ 1,362	$ 8,681	$ (3,934)	$ 4,747
Customer relationships	8,183	338	8,521	(6,924)	1,597
Brand names	1,927		1,927	(1,232)	695
Patented technology	1,790		1,790	(1,790)	
Trademark	80		80	(52)	28
Backlog	3,361		3,361	(3,361)	
Non-compete agreement	50		50	(50)	
Other	250		250	(250)	
Total	$ 22,960	$ 1,700	$ 24,660	$ (17,593)	$ 7,067

	Original amount	Impairment and tax adjustment during 2008	Additions during 2008 at cost	Adjusted basis as of December 27, 2008	Accumulated amortization as of December 27, 2008	Net carrying amount as of December 27, 2008
Developed technology	$ 9,800	$ (3,750)	$ 1,269	$ 7,319	$ (3,147)	$ 4,172
Customer relationships	15,700	(7,517)		8,183	(6,330)	1,853
Brand names	3,600	(1,673)		1,927	(1,087)	840
Patented technology	1,790			1,790	(1,790)	
Trademark	400	(320)		80	(44)	36
Backlog	3,131		230	3,361	(3,361)	
Non-compete agreement	50			50	(50)	
Other	250			250	(250)	
Total	$ 34,721	$ (13,260)	$ 1,499	$ 22,960	$ (16,059)	$ 6,901

The amortization of finite-lived intangibles is computed using the straight-line method except for customer relationships which is computed using an accelerated method. Estimated lives of finite-lived intangibles range from five to ten years, except for the non-compete agreement and backlog which are amortized over one year. As of January 2, 2010, the weighted average amortization period of intangibles is 7 years. Total amortization expense was $1.5 million, $3.5 million and $5.8 million for fiscal 2009, 2008 and 2007, respectively.

The estimated future amortization expense as of January 2, 2010 is as follows (in thousands):

Fiscal Years	Amounts

2010	$ 1,557
2011	1,319
2012	1,112
2013	951
2014	809
Thereafter	1,319
Total amortization	$ 7,067

Table of Contents

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years Ended January 2, 2010, December 27, 2008 and December 29, 2007

Note 11. Other Current Liabilities

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

	At	
	January 2, 2010	December 27, 2008
Accrued warranty	$ 1,200	$ 2,075
Accrued professional services	1,021	883
Customer deposits	1,601	185
Fair value of deferred payments to Zygo Corporation related to acquisition	3,655	
Other	1,475	2,657
Total other current liabilities	$ 8,952	$ 5,800

Note 12. Line of Credit and Debt Obligations

Debt obligations consist of the following (in thousands):

	January 2, 2010	December 27 2008
Line of Credit		
Balance on line of credit	$	$
Debt Obligations		
Milpitas building mortgage	13,082	13,400
Equipment financing		96
Total debt obligations	13,082	13,496
Current portion of debt obligations	(343)	(413)
Long-term debt obligations	$ 12,739	$ 13,083

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 for an additional two years, to April 30, 2011. The instrument governing the facility includes certain financial covenants regarding net tangible 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. On June 15, 2009, we amended the financial covenants governing the credit facility to reduce the net tangible worth requirements, effective as of June 27, 2009

Borrowing is limited to the lesser of (a) $7.5 million plus the Borrowing Base or (b) $15.0 million. The Borrowing Base is calculated based on eligible receivables (determined by a formula considering specific customers, concentration of receivables, letters of credit, and the other factors) and was $13.9 million as of January 2, 2010. The entire $15.0 million was available for borrowing as of January 2, 2010. As of the end

of the fiscal year of 2009, the Company had no borrowing on the line of credit. The minimum borrowing interest rate is 5.75% per annum. The maximum borrowing allowed on the line of credit is $15.0 million. The Company is not in breach of any restrictive covenants in connection with its line of credit and all debt obligations. No withdrawals have been made as of January 2, 2010. 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 or for future acquisitions or expansion of the Company s business.

In July 2008, the Company 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 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 of the Company s principal offices in Milpitas, California.

Table of Contents

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years Ended January 2, 2010, December 27, 2008 and December 29, 2007

At January 2, 2010, future annual maturities of all debt obligations were as follows (in thousands):

	Amounts
2010	$ 343
2011	368
2012	396
2013	426
2014	458
Thereafter	11,091
Total	$ 13,082

Note 13. Commitments and Contingencies

The Company leases facilities and certain equipment under non-cancellable operating leases. Rent expense, which is recorded on a straight-line basis over the term of the respective lease, for 2009, 2008 and 2007, was approximately $1.4 million, $1.4 million and $2.2 million, respectively. Future minimum lease payments under its operating leases are as follows (in thousands):

	Operating Leases
2010	$ 1,317
2011	630
2012	502
2013	352
2014	339
Thereafter	1,013
Total	$ 4,153

On February 22, 2010, the Compensation Committee (The Committee) of the Board of Directors (the Board) of Nanometrics approved, among other things, (i) an amendment to the Executive Severance Agreement between the Company and Bruce Crawford, the Company s Chief Operating Officer, (the Crawford Severance Agreement), and (ii) an amendment to the Employment Agreement between the Company and James P. Moniz, the Company s Chief Financial Officer, (the Moniz Employment Agreement). On February 23, 2010, the Board approved, among other things, an amendment to the Executive Severance Agreement between the Company and Timothy J. Stultz, Ph.D.; the Company s Chief Executive Office (the Stultz Severance Agreement).

As amended, the Stultz Severance Agreement, Crawford Severance Agreement and Moniz Employment Agreement each provide that, in the event of such officer s termination without cause or resignation for good reason within 12 months of a change of control, such officer shall receive (i) a payment equal to such officer s then-current annual base salary, (ii) a payment equal to the most recent bonus actually received by such officer, (iii) subject to such officer s satisfaction of certain eligibility requirements, reimbursement of COBRA premiums for a period of one year, and (iv) acceleration of all of such officer s outstanding unvested shares; provided, that the maximum amount that such officer is entitled to receive under (i) above (base salary severance) and (ii) above (bonus severance) shall not exceed two times such officer s then-current base

salary, calculated on a pre-tax basis.

In August 2005, KLA-Tencor Corporation, or KLA, filed a complaint against us in the United States District Court for the Northern District of California. The complaint alleges that certain of the Company s products infringe two of KLA s patents. On January 30, 2006, KLA added a third patent to their claim. The complaint seeks a preliminary and permanent injunction against the sale of these products as well as the recovery of monetary damages and attorneys fees. The Company does not believe that any of its products infringe the intellectual property of any third party and intends to vigorously and aggressively defend itself in the litigation. As part of such defense, the Company filed a request for

Table of Contents

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years Ended January 2, 2010, December 27, 2008 and December 29, 2007

re-examination of the three allegedly infringed KLA patents with the U.S. Patent & Trademark Office, or PTO. In March 2006, the Company filed a motion for and was granted a stay in the patent litigation case until such re-examination is completed. On July 28, 2008, the PTO issued a Notice of Intent to issue a Reexamination Certificate for one of the KLA patents. The reexamination of the final KLA patent-in-suit remains pending and on September 21, 2009 the Company filed an additional request for re-examination relating to this patent. The case has been stayed, and the Company is waiting to receive a response from the Patent and Trademark Office before it takes any additional action. In all three of the reexamination proceedings, the PTO has issued Office Actions rejecting numerous claims and KLA has amended the claims in response.

Note 14. Stockholders Equity

Preferred and Common Stock

Nanometrics was incorporated in California in 1975. On September 29, 2006, the Company was reincorporated in the State of Delaware. As part of the reincorporation, each outstanding share of the California corporation, no par value common stock, was converted automatically to one share of the new Delaware corporation, $0.001 par value 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.

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. The Company plans to use approximately $2.0 million of the net proceeds from the offering to repay certain obligations related to the Company s acquisition of certain assets of Zygo Corporation in June 2009, with the remainder to be used for general corporate purposes, including working capital.

Stock Option Plans

The Nanometrics option plans are as follows:

Plan Name	Participants	Shares Authorized
2005 Equity Incentive Plan	Employees, consultants and directors	2,692,594
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
1991 Stock Option Plan	Employees and consultants	3,000,000
Accent Optical Technologies, Inc. Stock Incentive Plan	Employees and consultants	205,003

See Note 5 above for information on option activity in 2009.

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 January 2, 2010 Nanometrics had 1.0 million shares remaining for issuance under the ESPP. Shares issued under the ESPP were 352,356 shares, 267,649 shares, and 111,680 shares in 2009, 2008 and 2007 at a weighted average price of $1.71, $2.26 and $5.30, respectively.

Note 15. 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.

Table of Contents

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years Ended January 2, 2010, December 27, 2008 and December 29, 2007

	Severance and Other Benefits	Total
Reserve balance at December 27, 2008	$ 80	$ 80
Restructuring charges during 2009	1,134	1,134
Cash paid	(1,214)	(1,214)
Reserve balance at January 2, 2010	$	$

During the first and third quarters of 2008, the Company reduced its global work force by approximately 30 and 34 employees, respectively. This reduction affected employees in each of the Company s locations worldwide and was aimed at reducing its operating expenses.

	Severance and Other Benefits	Other Charges	Total
Reserve balance at December 29, 2007	$	$	$
Restructuring charges during 2008	1,441	84	1,525
Cash paid	(1,361)	(84)	(1,445)
Reserve balance at December 27, 2008	$ 80	$	$ 80

During the third quarter of 2007, the Company announced it would close its Milpitas, California machine shop and plating facility as part of its strategy to reverse its manufacturing vertical integration and lower its breakeven point. In conjunction with this closure, Nanometrics recorded a restructuring charge in an amount of $2.1 million consisting of $1.9 million write-down of property, plant and equipment, $0.1 million for professional fees and $0.1 million for severance payments. The remaining reserve balance was cleared during the quarter ended December 29, 2007.

	Professional Fees	Severance and Other Benefits	Other Charges	Total
Reserve balance at December 30, 2006	$	$	$	$
Restructuring charges during 2007	126	92	$ 1,910	$ 2,128
Non-cash charges			(1,910)	(1,910)
Cash paid	(126)	(92)		(218)
Reserve balance at December 29, 2007	$	$	$	$

Note 16. Gain on the Sale of Assets

In August 2007, the Company sold land and a building in Japan and realized a gain on the sale of $1.1 million. In July 2007, the Company sold a condominium in California and realized a gain of $0.2 million in the third quarter of 2007. The Company also sold other non-strategic assets during 2007 realizing a gain of $0.8 million. Gain on sale of assets was insignificant during 2009 and 2008.

66

Table of Contents

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years Ended January 2, 2010, December 27, 2008 and December 29, 2007

Note 17. Defined Benefit Pension Plan

Nanometrics sponsors a statutory defined benefit pension plan (the Benefit Plan) in Taiwan for its local employees. The funded status of the Benefit Plan was as follows for the fiscal years ended January 2, 2010, December 27, 2008 and December 29, 2007 (in thousands):

Change in fair value of plan assets

	2009	2008	2007
Fair value of plan assets at beginning of year	$ 78	$ 55	$ 23
Actual return on plan assets	4	2	1
Employer contributions	13	21	31
Fair value of plan assets at end of year	$ 95	$ 78	$ 55

Change in projected benefit obligations

	2009	2008	2007
Projected benefit obligation at the beginning of the year	$ 560	$ 808	$ 784
Interest cost	14	18	24
Actuarial gain/loss	(88)	(15)	
Effects due to curtailment	(189)	(251)	
Benefit obligation	$ 297	$ 560	$ 808
Funding deficiency	$ 201	$ 482	$ 753

The funding deficiency is reflected in other long-term liabilities on the balance sheet at January 2, 2010 and December 27, 2008, respectively. The accumulated benefit obligation as of January 2, 2010, December 27, 2008 and December 29, 2007 was $0.2 million, $0.4 million and $0.5 million, respectively.

The Company s Pension Benefit Plan reflects a net gain of $0.1 million and, $0.2 million in 2009 and 2008, respectively, and a net loss of $0.3 million in accumulated other comprehensive income for the year ended January 2, 2010, December 27, 2008 and December 29, 2007, respectively.

Pension Benefit Expense

Nanometrics net pension benefit cost (gain) were as follows for the years ended January 2, 2010, December 27, 2008 and December 29, 2007 (in thousands):

	2009	2008	2007
Interest cost	$ 14	$ 18	$ 24

Amortization of transition obligation	17	18	36
Amortization of net loss	(2)	(2)	
Expected return on plan assets	(2)	(2)	
Curtailment or settlement (gain) loss	(153)	(146)	
Actual return on plan assets			(1)
Net pension benefit cost (gain) for the year	$ (126)	$ (114)	$ 59

The weighted average assumptions used to calculate net benefit cost and obligations were as follows for the fiscal years ended January 2, 2010, December 27, 2008 and December 29, 2007 were:

	2009	2008	2007
Average increase in compensation levels	1.5%	2.0%	3.0%
Discount rate	2.3%	2.5%	3.0%
Expected long-term returns on the assets	2.0%	2.5%	2.5%

As required by the law, the Company s plan assets are deposited in Trust of Bank of Taiwan in the form of cash, where Trust of Bank of Taiwan is the assigned trustee for statutory retirement benefits. The expected long-term rate of return of assets for the plan reflects the expected returns for the bank accounts held with the government of Taiwan in which the plan invests.

Table of Contents

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years Ended January 2, 2010, December 27, 2008 and December 29, 2007

Note 18. Income Taxes

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

	Years Ended		
	January 2, 2010	December 27, 2008	December 29, 2007
Domestic	$ (14,111)	$ (69,860)	$ (10,918)
Foreign	(2,780)	(12,430)	6,879
Loss before income taxes	$ (16,891)	$ (82,290)	$ (4,039)

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

	Years Ended		
	January 2, 2010	December 27, 2008	December 29, 2007
Current:			
Federal	$ (75)	$ (127)	$
State	6	72	146
Foreign	(111)	1,238	719
	(180)	1,183	865
Deferred:			
Federal		(238)	
State			
Foreign	(406)	(509)	(896)
	(406)	(747)	(896)
Provision (benefit) for income taxes	$ (586)	$ 436	$ (31)

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

	At	
	January 2, 2010	December 27, 2008
Deferred tax assets current:		
Reserves and accruals not currently deductible	$ 4,830	$ 5,202
Capitalized inventory costs	2,930	1,284

Total gross deferred tax assets	current	7,760	6,486
Valuation allowance		(7,515)	(6,136)
Total net deferred tax assets	current	$ 245	$ 350
Deferred tax assets noncurrent:			
Tax credit carry-forwards		$ 8,165	$ 6,773
Depreciation		(109)	(460)
Reserves and accruals		2,295	2,749
Intangible assets		1,844	3,025
Net operating loss carry-forwards		19,645	16,694
Business Combination		402	
Total net deferred tax assets	noncurrent	32,242	28,781
Valuation allowance		(31,630)	(28,766)
Total net deferred tax assets	noncurrent	$ 612	$ 15

Table of Contents

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years Ended January 2, 2010, December 27, 2008 and December 29, 2007

The net deferred tax assets - noncurrent as of December 27, 2008 was included in other assets in the consolidated Balance Sheet.

As of January 2, 2010, the Company had net operating loss carry-forwards for federal income tax purposes of $35.5 million, which expire after 2023. Of the federal net operating loss carry-forwards, $1.2 million relate to stock options and will be credited to additional paid-in-capital when realized. As of January 2, 2010, the Company had net operating loss carry-forwards of $27.3 million in California, $1.1 million for other states and $21.8 million in foreign countries, respectively.

As of January 2, 2010, the Company had available for carry-forward research and experimental tax credits, minimum tax credits and foreign tax credits for federal income tax purposes of $2.6 million, $0.3 million, and $2.9 million, respectively. Federal credit carry-forwards began to expire in 2023. As of January 2, 2010, the Company had available for carry-forward state research and experimental tax credits of $3.4 million. State research and experimental tax credits carry-forward indefinitely.

During the years ended January 2, 2010 and December 27, 2008 the valuation allowance increased by $4.2 million and decreased by $5.4 million, respectively. The valuation allowance increased in 2009 due to the increase of the valuation allowance against US deferred taxes.

Changes in tax laws and tax rates could affect our recorded deferred tax assets and liabilities in the future. and the calculation of our tax liabilities involves dealing with uncertainties in the application of complex tax laws and regulations in a multitude of jurisdictions across our global operations, management is not aware of any such changes or factors that would have a material effect on the Company s results of operations, cash flows or financial position.

In July 2006, tax benefit from an uncertain tax position may be recognized when it is more likely than not that the position will be sustained upon examination, including resolutions of any related appeals or litigation processes, based on the technical merits. Income tax positions must meet a more-likely-than-not recognition threshold at the effective date as of January 1, 2007 to be recognized and in subsequent periods. This interpretation also provides guidance on measurement, derecognition, classification, interest and penalties, accounting in interim periods, disclosure and transition.

We recognize tax liabilities and we 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. Our unrecognized tax benefits include exposures from transfer pricing allocation of income between jurisdictions. The Company does not expect a material change in its unrecognized tax benefits within the next 12 months.

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):

	Years Ended		
	January 2, 2010	December 27, 2008	December 29, 2007
Income taxes computed at U.S. statutory rate	$ (5,912)	$ (28,804)	$ (1,373)
State income taxes	6	72	144
Foreign tax provision higher than U.S. rates	1,389	4,647	(33)
Change in valuation allowance	4,237	4,683	798
Tax credits	(691)	(83)	
Goodwill impairment		18,294	
Other, net	385	1,627	433

Provision (benefit) for income taxes	$ (586)	$ 436	$ (31)

Table of Contents

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years Ended January 2, 2010, December 27, 2008 and December 29, 2007

The Company does not provide for federal income taxes on the undistributed earnings of its foreign subsidiaries as such earnings are to be reinvested indefinitely.

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 in 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):

	January 2, 2010	As of December 27, 2008	December 29, 2007
Unrecognized tax benefits beginning of the period	$ 1,374	$ 343	$ 463
Gross increases tax positions in prior period	15	835	
Gross decreases tax positions in prior period	(345)		
Gross increases current-period tax positions	81	296	
Settlements			(120)
Lapse of statute of limitations	(93)	(100)	
Unrecognized tax benefits end of the period	$ 1,032	$ 1,374	$ 343

The unrecognized tax benefits at January 2, 2010, December 27, 2008 and December 29, 2007 was 1.0 million, $1.4 million and $0.3 million, of which $0.6 million, $0.8 million and $0.3 million, respectively, will impact the effective tax rate if the company elected to recognize these tax benefits. The Company accrues interest and penalties related to unrecognized tax benefits in its provision for income taxes. The total amount of penalties and interest is not material as of January 2, 2010, December 27, 2008 and December 29, 2007. The Company does not expect a material change in its unrecognized tax benefits within the next 12 months.

The Company is subject to taxation in the US and various states and foreign jurisdictions. Due to tax attribute carry-forward, the Company is subject to examination for tax years 2004 forward for U.S. tax purposes. The Company was also subject to examination in various state jurisdiction for tax years 1996 forward, none of which were individually material. The Company is subject to examination for tax years 2004 forward for various foreign jurisdictions.

Note 19. Bonus Plans

The Company incurred $1.1 million, $1.1 million and $1.4 million in bonuses for 2009, 2008 and 2007, respectively, which were comprised of executive management bonuses and employee bonuses based on the Company s financial performance.

Note 20. Major Customers

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

	Years Ended		
	January 2, 2010	December 27, 2008	December 29, 2007
Samsung Electronics Co. Ltd.	33.4%	16.1%	15.7%
Intel Corporation	10.4%	***	***
Toshiba Semiconductor	***	11.0%	***
Hynix Semiconductor, Inc.	***	***	10.6%

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

Table of Contents

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years Ended January 2, 2010, December 27, 2008 and December 29, 2007

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

	At	
	January 2, 2010	December 27, 2008
Samsung Electronics Co. Ltd.	30.5%	***
Intel Corporation	16.1%	***
Hynix Semiconductor, Inc.	12.7%	27.0%

*** The customer accounted for less than 10% of accounts receivable during the period.

Note 21. 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 January 2, 2010, December 27, 2008 and December 29, 2007, 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		
	January 2, 2010	December 27, 2008	December 29, 2007
Total net revenues:			
South Korea	$ 29,992	$ 20,944	$ 20,116
United States	22,755	30,102	46,712
Japan	11,293	28,572	40,610
Europe	3,868	5,315	14,563
Taiwan	3,615	5,871	11,447
China	3,157	7,470	10,675
All other	2,027	3,827	2,167
Total net revenues*	$ 76,707	$ 102,101	$ 146,290

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

	At	
	January 2, 2010	December 27, 2008

Long-lived tangible assets:		
United States	$ 34,252	$ 35,322
Japan	819	1,138
South Korea	1,148	3,853
Taiwan	66	102
China	12	17
Europe	1,450	1,152
All Other	177	270
Total long-lived assets	$ 37,924	$ 41,854

Table of Contents

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years Ended January 2, 2010, December 27, 2008 and December 29, 2007

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		
	January 2, 2010	December 27, 2008	December 29, 2007
Automated Systems	$ 46,386	$ 59,632	$ 97,125
Integrated Systems	2,767	15,964	28,924
Total product revenues	$ 49,153	$ 75,596	$ 126,049

Note 22. Selected Quarterly Financial Results (Unaudited)

The following table sets forth selected consolidated quarterly results of operations for the year ended January 2, 2010, December 27, 2008 and December 29, 2007 (in thousands, except per share amounts):

	Quarters Ended			
	Jan. 2, 2010	Sept. 26, 2009	June 27, 2009	March 28, 2009
Total net revenues	$ 26,319	$ 25,814	$ 14,517	$ 10,057
Gross profit	13,335	13,933	6,007	2,846
Income (loss) from operations	665	1,489	(6,475)	(9,038)
Net income (loss)	(282)	1,571	(6,965)	(10,628)
Net income (loss) per share:				
Basic	$ (0.01)	$ 0.08	$ (0.38)	$ (0.58)
Diluted	$ (0.01)	$ 0.08	$ (0.38)	$ (0.58)
Shares used in per share computations:				
Basic	19,017	18,598	18,526	18,415
Diluted	19,017	19,398	18,526	18,415

	Quarters Ended			
	Dec. 27, 2008	Sept. 27, 2008	June 28, 2008	March 29, 2008
Total net revenues	$ 20,475	$ 23,137	$ 23,761	$ 34,728
Gross profit	8,630	10,209	10,067	15,828
Loss from operations	(3,452)	(60,023)	(19,044)	(945)
Net loss	(2,641)	(60,447)	(18,914)	(724)
Net loss per share:				
Basic	$ (0.14)	$ (3.25)	$ (1.02)	$ (0.04)

Diluted	$ (0.14)	$ (3.25)	$ (1.02)	$ (0.04)
Shares used in per share computations:				
Basic	18,385	18,574	18,632	18,590
Diluted	18,385	18,574	18,632	18,590

Table of Contents

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years Ended January 2, 2010, December 27, 2008 and December 29, 2007

	Quarters Ended			
	Dec. 29, 2007	**Sept 29, 2007**	**June 30, 2007**	**March 31, 2007**
Total net revenues	$ 33,193	$ 38,647	$ 37,335	$ 37,115
Gross profit	14,625	17,083	16,124	13,156
Income (loss) from operations	(1,342)	1,723	292	(4,690)
Net income (loss)	(1,275)	2,008	(130)	(4,611)
Net income (loss) per share:				
Basic	$ (0.07)	$ 0.11	$ (0.01)	$ (0.26)
Diluted	$ (0.07)	$ 0.11	$ (0.01)	$ (0.26)
Shares used in per share computations:				
Basic	18,604	18,278	17,857	17,658
Diluted	18,604	18,676	17,857	17,658

* * * * *

Table of Contents

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

None.

ITEM 9A. CONTROLS AND PROCEDURES

Attached as exhibits to this Annual Report are certifications of the CEO and the CFO, which are required in accordance with Rule 13a-14 of the Securities Exchange Act of 1934, as amended (Exchange Act). This Controls and Procedures section includes the information concerning the controls evaluation referred to in the certifications and it should be read in conjunction with the certifications for a more complete understanding of the topics presented.

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 Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure. Our management, with participation of our Chief Executive Officer and Chief Financial Officer, has evaluated the effectiveness of the Company s 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 Chief Executive Officer and Chief Financial Officer 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 Securities and Exchange Commission 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.

Table of Contents

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 Chief Executive Officer and Chief Financial Officer, we assessed the effectiveness of our internal control over financial reporting as of January 2, 2010. 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 January 2, 2010.

Our assessment of the effectiveness of our internal control over financial reporting as of January 2, 2010, has not been audited by BDO Seidman LLP, our independent registered public accounting firm, as the Company is a non-accelerated filer as of January 2, 2010, as determined by the Company s public float at the end of second quarter 2009, and hence our independent registered accounting firm is not required to opine on our internal controls over financial reporting as of the end of our fiscal year 2009.

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 January 2, 2010, that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

ITEM 9B. OTHER INFORMATION

None.

Table of Contents

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information required by this Item concerning our directors, compliance with Section 16 of the Securities and Exchange Act of 1934, our code of ethics that applies to our principal executive officer, principal financial officer and principal accounting officer and our Audit Committee is incorporated by reference to the information set forth in the sections entitled Proposal One Election of Directors, Section 16(a) Beneficial Ownership Reporting Compliance and Corporate Governance in our Proxy Statement for our 2010 Annual Meeting of Stockholders to be filed with the Securities and Exchange Commission not later than 120 days after the end of our fiscal year (the Proxy Statement). Information regarding the Registrant s 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.

ITEM 11. EXECUTIVE COMPENSATION

Information required by this Item is incorporated by reference to the information set forth under the caption Executive Compensation 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 set forth under the sections entitled Security Ownership of Beneficial Owners and Management and Equity Compensation Plan Information in the Proxy Statement.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS AND DIRECTOR INDEPENDENCE

Information required by this Item is incorporated by reference to the information set forth under the caption Certain Relationships and Related Transactions and Corporate Governance in the Proxy Statement.

ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES

The information required by this Item is incorporated by reference to the section entitled Ratification of Appointment of Independent Registered Public Accounting Firm Accounting Fees in the Proxy Statement.

Table of Contents

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULE

Consolidated Financial Statements.

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

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
I Valuation and Qualifying Accounts	82

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.

Exhibits.

See Exhibit Index beginning on page 80 of this Annual Report on Form 10-K:

Table of Contents

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 26, 2010

NANOMETRICS INCORPORATED

By: /s/ TIMOTHY J. STULTZ
Timothy J. Stultz

President and Chief Executive Officer

(Duly Authorized Officer and Principal Executive Officer)

Table of Contents

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 in the capacities and on the dates indicated.

Signature	Title	Date
/s/ Timothy J. Stultz	President, Chief Executive Officer and	March 26, 2010
Timothy J. Stultz	Director	
	(Principal Executive Officer)	
/s/ James P. Moniz	Chief Financial Officer	March 26, 2010
James P. Moniz	(Principal Financial Officer and Principal Accounting Officer)	
/s/ Bruce C. Rhine	Chairman of the Board of Directors	March 26, 2010
Bruce C. Rhine		
/s/ Howard A. Bain III	Director	March 26, 2010
Howard A. Bain III		
/s/ J. Thomas Bentley	Director	March 26, 2010
J. Thomas Bentley		
/s/ Norman Coates	Director	March 26, 2010
Norman Coates		
/s/ William G. Oldham	Director	March 26, 2010
William G. Oldham		
/s/ Stephen J. Smith	Director	March 26, 2010
Stephen J. Smith		

Table of Contents

EXHIBIT INDEX

Exhibit No.	Description
3.(i)	**Certificate of Incorporation**
3.1(1)	Certificate of Incorporation of the Registrant
3.(ii)	**Bylaws**
3.2(1)	Bylaws of the Registrant
4	**Instruments Defining the Rights of Security Holders, Including Indentures**
4.1(2)	Form of Common Stock Certificate
10	**Material Contracts**
	Management Contracts, Compensatory Plans, Contracts or Arrangements
10.1(3)	Form of Indemnification Agreement between the Registrant and each of its directors and executive officers
10.2(4)	Registrant s 1991 Stock Option Plan, as amended effective May 15, 1997, and form of Stock Option Agreement
10.3(5)	Registrant s 2000 Employee Stock Option Plan and form of Stock Option Agreement
10.4(6)	Registrant s 2000 Director Stock Option Plan and form of Stock Option Agreement
10.5(7)	Registrant s 2002 Non-statutory Stock Option Plan and form of Stock Option Agreement
10.6(8)	Registrant s Amended and Restated 2003 Employee Stock Purchase Plan
10.7(9)	Registrant s Amended and Restated 2003 Employee Stock Purchase Plan form of Subscription Agreement
10.8(8)	Registrant s Amended and Restated 2005 Equity Incentive Plan
10.9(6)	Registrant s Amended and Restated 2005 Equity Incentive Plan forms of Stock Option and Restricted Stock Unit Agreements
10.10(10)	Form of Offer Letter to Timothy J. Stultz
10.11(10)	Form of Executive Severance Agreement between the Registrant and Timothy J. Stultz
10.12(10)	Form of Relocation Agreement between the Registrant and Timothy J. Stultz
10.13(11)	Form of Executive Severance Agreement between the Registrant and Bruce A. Crawford
10.14(12)	Form of Offer Letter to James P. Moniz
10.15(12)	Form of Executive Severance Agreement between the Registrant and James P. Moniz

Table of Contents

Exhibit No.	Description
	All Other Material Contracts
10.16(7)	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.
10.17(12)	Notice of Extension of the Maturity Date of the Loan and Security Agreement, dated as of February 14, 2009
10.18(13)	First Amendment to the Loan and Security Agreement dated September 14, 2007
10.19(13)	Second Amendment to the Loan and Security Agreement dated May 11, 2009, with an effective date of April 29, 2009
10.20(14)	Third Amendment to the Loan and Security Agreement dated June 15, 2009
10.21(15)	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
10.22(14)	Asset Transfer Agreement by and between Zygo Corporation and the Registrant, dated June 17, 2009
10.23(14)	Supply Agreement by and between Zygo Corporation and the Registrant dated June 17, 2009
10.24	2010 Executive Performance Bonus Plan
10.25	Amended and Restated Executive Severance Agreement between the Registrant and Timothy J. Stultz, Ph.D., dated February 23, 2010
10.26	Amended and Restated Executive Severance Agreement between the Registrant and Bruce Crawford, dated February 23, 2010
10.27	Amended and Restated Employment Agreement between the Registrant and James P. Moniz, dated February 23, 2010
14	**Code of Ethics**
14.1(16)	Registrant s Code of Business Conduct and Ethics
21.1	**Subsidiaries**
21.1	Subsidiaries of the Registrant
23	**Consents of Experts and Counsel**
23.1	Consent of BDO Seidman, LLP, Independent Registered Public Accounting Firm
31	**Rule 13a-14(a)/15d-14(a) Certifications**
31.1(17)	Certification of Timothy J. Stultz, principal executive officer of the Registrant, pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2(17)	Certification of James P. Moniz, 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(18)	Certification of Timothy J. Stultz, principal executive officer of the Registrant, and James P. Moniz, principal financial officer and principal accounting officer of the Registrant pursuant to Section 906 of the Sarbanes-Oxley Act of 2002

(1) Incorporated by reference to exhibits filed with the Registrant s Current Report on Form 8-K filed October 5, 2006.
(2) Incorporated by reference to Exhibit 4.1 filed with the Registrant s Quarterly Report on Form 10-Q filed November 9, 2006.
(3) Incorporated by reference to Exhibit 10.1 filed with the Registrant s Annual Report on Form 10-K filed March 15, 2007.
(4) Incorporated by reference to Exhibit 4.1 filed with the Registrant s Registration Statement on Form S-8 (File No. 333-33583) filed on August 14, 1997.
(5) 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.
(6) Incorporated by reference to exhibits filed with the Registrant s Annual Report on Form 10-K filed March 13, 2008.
(7) Incorporated by reference to exhibits filed with the Registrant s Quarterly Report on Form 10-Q filed May 10, 2007.
(8) Incorporated by reference to the appendices filed with the Registrant s definitive proxy statement on Schedule 14A filed April 21, 2009.
(9) 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.

(10) Incorporated by reference to exhibits filed with the Registrant s Current Report on Form 8-K filed August 8, 2007.
(11) Incorporated by reference to Exhibit 10.1 filed with the Registrant s Quarterly Report on Form 10-Q filed November 8, 2007.
(12) Incorporated by reference to exhibits filed with the Registrant s Annual Report on Form 10-K filed on March 27, 2009.
(13) Incorporated by reference to exhibits filed with the Registrant s Quarterly Report on Form 10-Q filed May 12, 2009.
(14) Incorporated by reference to exhibits filed with the Registrant s Quarterly Report on Form 10-Q filed August 11, 2009.
(15) Incorporated by reference to Exhibit 10.2 filed with the Registrant s Quarterly Report on Form 10-Q filed November 6, 2008.
(16) Incorporated by reference to Exhibit 14 filed with the Registrant s Annual Report on Form 10-K filed April 1, 2004.
(17) Filed herewith.
(18) Furnished herewith.

Table of Contents

SCHEDULE I

NANOMETRICS INCORPORATED

VALUATION AND QUALIFYING ACCOUNTS

Allowance for Doubtful Accounts Receivable

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
December 27, 2008	$ 323		$ 14	$ 309
December 29, 2007	$ 841		$ 518	$ 323