NANOMETRICS INC
Form 10-K
March 15, 2007
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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 December 30, 2006

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) 435-9600

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

Common Stock, $0.001 par value per share

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

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

Large accelerated filer ¨ Accelerated filer x Non-accelerated filer ¨

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 July 1, 2006, 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, as quoted on the NASDAQ Global Market, was $56,767,546. 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 February 28, 2007 was 18,141,795.

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 2007 Annual Meeting of Stockholders to be filed pursuant to Regulation 14A.

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NANOMETRICS INCORPORATED

FORM 10-K

FOR THE FISCAL YEAR ENDED DECEMBER 30, 2006

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Forward-Looking Statements

This Annual Report on Form 10-K contains forward-looking statements that involve risks and uncertainties. These forward-looking statements include, but are not limited to, statements regarding trends in demand in our industry, the increased use of metrology in manufacturing, the drive toward integrated metrology and the broadening of our technology portfolio. Words such as believe , expect , anticipate or similar expressions, are indicative of forward-looking statements.

Our actual results may differ materially from the results discussed in the forward-looking statements. Factors that might cause such a difference include, but are not limited to, those outlined in Item 1A Risks Factors and Management s Discussion and Analysis of Financial Condition and Results of Operations, below. The forward-looking statements contained herein are made as of the date hereof, and we assume no obligation to update such forward-looking statements or to update reasons actual results could differ materially from those anticipated in such forward-looking statements.

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PART I

ITEM 1. BUSINESS

Overview

We are a leader in the design, manufacture, and marketing of high-performance process control metrology systems used in the manufacture of silicon and compound semiconductor substrates, devices and integrated circuits. Our metrology systems measure various optical and physical thin film properties, critical circuit dimensions and layer-to-layer circuit alignment (overlay). The accurate alignment, or overlay, of successive film layers, relative to each other, across the wafer is critical for device performance and favorable production yields. Customers use our process control and metrology systems during various steps of the manufacturing process, enabling semiconductor and integrated circuit manufacturers to improve yields, increase productivity and lower their manufacturing costs.

We were incorporated in California in 1975 and reincorporated in Delaware in 2006. We have been a pioneer and innovator in the field of optical metrology. We have been selling these systems since 1977 and have an extensive installed base with industry leading customers worldwide, including Applied Materials, Inc., Samsung Electronics Co. Ltd., Hynix Semiconductor, Inc., Ebara Technologies, Inc., Intel Corporation, Renesas Technology Corp., Micron Technology, Inc., ProMOS Technologies, Mimasu Semiconductor Industry Co., Ltd., International Business Machines Corporation and Toshiba America, Inc.

Additional information about Nanometrics is available on our website at http://www.nanometrics.com. Our investor relations website is located at http://www.nanometrics.com/investor.html We make available free of charge through our investor relations website 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 as soon as reasonably practicable after we electronically file or furnish such materials to the U.S. Securities and Exchange Commission (SEC). Further, a copy of this annual report on Form 10-K is located at the SEC s Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. Information on the operation of the Public Reference Room can be obtained by calling the SEC at 1-800-SEC-0330. The SEC maintains an Internet site that contains reports, proxy and information statements and other information regarding our filings at http://www.sec.gov.

Our Business

We offer a complete line of systems to address the metrology requirements of our customers. Our metrology systems can be categorized as follows:

- Standalone, fully automated systems for high-volume manufacturing process control;
- Integrated systems built into semiconductor processing equipment that provide real-time measurements and feedback to improve process control and increase throughput; and
- Standalone, manual and semi-automatic systems for manufacturing process characterization and for engineering and low-volume production environments.

We believe that process control metrology is growing faster than other segments of the semiconductor equipment market. As films become thinner, film materials more exotic, and circuit dimension control and overlay requirements more demanding, metrology and process control continue to grow in importance, especially as wafers become larger and more expensive to manufacture. We expect these factors will continue to drive the demand for our high-end, standalone and integrated metrology products.

Additional demands on process tool manufacturers for better film uniformity, tighter dimensional and overlay control, tool-to-tool matching and within-tool chamber uniformity is driving the need for integrated process control metrology. These new tool requirements will drive the need to place metrology inside the process tool for real-time, integrated, process control metrology, using both feed forward and feedback of the collected metrology data to control the process equipment.

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We have made several strategic changes in our business to enable us to further address these metrology trends. These changes include:

- The acquisition of Soluris, Inc., or Soluris, a supplier of advanced overlay metrology equipment in March 2006;
- The acquisition of Accent Optical Technologies, Inc., or Accent, a leading supplier of compound semiconductor and advanced 200 and 300mm overlay metrology equipment in July 2006;
- The continued outsourcing of certain system components, such as wafer handling robotics, enabling us to leverage our technical resources; and
- The development of new measurement technologies for advanced chemical mechanical planarization, or CMP, and photolithographic processes.

Demand for our products continues to be driven by the increasing use of multiple thin film technology by semiconductor manufacturers and, more recently, by the increased adoption of both integrated metrology and real-time process control. With feature sizes shrinking below 45 nanometers, or nm, well below the wavelength of light, the need for very tight process tolerances as well as productivity improvements in semiconductor fabrication, or fabs, are driving the need for metrology systems and process control. As a result, semiconductor device and wafer manufacturers are investing in process control and metrology systems that improve their manufacturing efficiency by detecting process variations sooner and facilitating rapid diagnosis and corrective action. Our process control and metrology systems measure and characterize the physical dimensions, material composition, optical and electrical characteristics and other critical parameters of semiconductor devices during their fabrication. For the photolithography process, overlay and critical dimension systems provide enhanced control of layer alignment and device dimensions. For lattice engineering applications, metrology systems monitor the physical, optical, electrical and material characteristics of compound semiconductor, strained silicon and silicon on insulator devices, including composition, crystal structure, layer thickness, dopant concentration, contamination and electron mobility.

Our innovative 9010T, deep ultra-violet (DUV) wavelength, Optical Critical Dimension, or OCD®, measurement system is being increasingly viewed not only as an enabling technology for process control, but also as a solution for critical dimension measurement for wafers as well as reticles and photomasks used for photolithography. The compact size and speed of this technology enables the measurement system to be fully integrated into the customer s process tool, thus providing a complete, feed forward and feedback process control solution for wafer-to-wafer closed loop control. By measuring the critical dimensions of developed photoresist and then adjusting the final etched dimensions of a silicon gate-etch process by feeding this information back into the process and trimming the resist, the device manufacturer is able to achieve the shortest gate-length and the maximum possible microprocessor speed. In addition, new semiconductor process technologies, such as copper interconnects, require that new measurement technologies be developed in order to keep pace with the latest metrology demands. This integrated metrology module also provides a solution to the problem of measuring the remaining oxide film thickness as well as the loss of material over arrays of copper lines during the CMP process with the added capability of detecting residual films remaining after the polishing process.

Our OCD technology has also proven to be applicable to the emerging requirements for advanced photolithography measurements such as the characterization of critical dimensions and film thicknesses on masks and reticles which are comprised of square glass substrates. The Nanometrics Atlas-M is the first fully automated, standalone metrology system to use OCD technology for these square glass substrates at several key customer locations. This system is crucial to the suppliers and users of masks and reticles by providing the means for accurately determining line widths and analyzing complex profiles for a variety of structures found in today s mask fabrication process.

The Caliper élan and Q240^{AT}, are advanced overlay metrology and analysis systems for monitoring microlithography stepper performance. These newly acquired products provide exceptional throughput and measurement performance required by today s demanding 65nm overlay control applications. Elan builds on the

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solid foundation established by the original Caliper overlay tool to provide the most cost effective solution for today s most advanced process technologies. Rounding out the overlay product line is the newly acquired IVS advanced overlay metrology system for critical dimension and overlay measurements for both semiconductor and MEMS manufacturing. The IVS delivers unsurpassed measurement performance and reliability with the lowest possible cost-of-ownership.

Our broad offering of lattice engineering metrology solutions address specific yield challenges that arise when device and wafer manufacturers use advanced materials such as compound semiconductors or modify the basic structure of silicon in order to achieve higher device performance characteristics. We recently introduced the VerteX photoluminescence mapping system for high-volume compound semiconductor metrology. VerteX has the unique capability to forecast diode performance before the wafer is fully processed, providing the critical data needed to actively adjust process controls for optimal epitaxial layer growth the yield-limiting step in LED diode production.

Many types of thin films are used in the manufacture of products such as semiconductor integrated circuits. These products require the precise electronic, optical and surface properties enabled by thin film metrology. The need for tighter process control and improved productivity has created increased demand for our advanced standalone and integrated metrology systems.

Industry Characteristics

Growth

The semiconductor industry continues to be driven by the need for increasingly higher performance chips as well as the need to produce these chips with increased production efficiencies at reduced costs. The semiconductor equipment industry has recently settled into less cyclical growth with a compounded annual growth rate of approximately 7-9% over the past 10 years. During 2006, the semiconductor industry experienced a growth in semiconductor equipment revenues of approximately 10.6% over 2005. We believe that the continued expansions and new construction of 300-millimeter wafer fabs, the increasing use of copper interconnects and more efficient 45 nm architecture will continue to drive the demand for new metrology solutions, such as those that we offer, and that the process control market segment will continue to outpace overall equipment growth.

Semiconductor devices are enabling a wide variety of advanced computing, communications and consumer electronics products such as high-performance computing clusters, engineering workstations, routers, switches, cell phones, digital cameras, portable MP3 players, game consoles, DVD players, high-definition televisions, global positioning systems and flat panel displays. In the past, demand for Internet access, personal computers, telecommunications, and new consumer electronic products and services has fueled growth of the semiconductor industry. New display technologies, consumer electronics, automotive electronics and personal electronics will likely continue as the primary drivers in the near-term for the semiconductor industry. We believe that consumer desire for high performance electronics drives technology advancement in semiconductor design and manufacturing and, in turn, promotes the purchasing of capital equipment featuring the latest advances in technology.

The two significant factors affecting demand for our measurement systems are new construction or refurbishment of semiconductor manufacturing facilities and the increasing complexity of the manufacturing process as a result of the demand for higher performance semiconductor devices and integrated circuits.

Semiconductor Manufacturing Process

Semiconductors are fabricated by a series of process steps on a wafer substrate made of silicon or other material. Our thin film, critical dimension, overlay metrology and defect inspection systems can be used at many points during the fabrication process to monitor and measure circuit dimensions, layer-to-layer registration and

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film uniformity as well as material properties in order to maximize the yield of acceptable semiconductors. Each wafer typically goes through a series of 100 to 500 process and metrology steps in generally repetitive cycles.

The four primary wafer film processing steps are:

- Deposition;
- Chemical Mechanical Planarization;
- Photolithography imaging and overlay; and
- Etching of circuit elements.

Deposition. Deposition refers to placing layers of insulating or conducting materials on a wafer surface in thin films that make up the circuit elements of semiconductor devices. Common methods of deposition include chemical vapor deposition, or CVD, plasma-enhanced chemical vapor deposition, or PECVD, and physical vapor deposition, or PVD. Diffusion and oxidation are also used to create or define thin films. The control of uniformity and thickness during the formation of these films is critical to the performance of the semiconductor circuit.

Chemical Mechanical Planarization. CMP flattens, or planarizes, the topography of the film surface to permit the multiple patterns of small features on the resulting smoothed surface by the photolithography process. The CMP process is a combination of chemical etching and mechanical polishing and commonly uses an abrasive liquid and polishing pad. Semiconductor manufacturers need metrology systems to control the CMP process by measuring the thin film layer to determine precisely when the appropriate thickness has been achieved.

Photolithography. Photolithography is the process step that projects the patterns of the circuits on the chip. A wafer is pre-coated with photoresist, a light sensitive film that must have an accurate thickness and uniformity for exposure. Photolithography involves the optical projection of integrated circuit patterns onto the photoresist after which, the photoresist is developed, leaving unexposed areas available for etching. In order to precisely control the photolithography process, it is necessary to verify reflectivity, film thickness, critical dimensions and overlay registration.

Etch. Etch is a dry or wet process for selectively removing unwanted areas that have been deposited on the surface of a wafer. A film of developed photoresist protects material that needs to be left untouched by the etch to make up the circuits. Thin film metrology systems are required to verify precision of material removal and critical dimension achievement.

Before and after deposition, CMP, photolithography and etch, the wafer surface is measured to determine the quality of the film or pattern and to find defects. Measurements taken to ensure process uniformity include thickness, width, height, roughness and other characteristics. Process control helps avoid scrapping wafers, reduce costly rework and results in higher yields for semiconductor manufacturers.

These processing steps are typically repeated multiple times during the fabrication process, with alternating layers of insulating and conducting films. Depending on the specific design of a given integrated circuit, a variety of film types and thicknesses and a number of layers can be used to achieve desired electronic performance characteristics. The semiconductors are then tested, separated into individual circuits, assembled and packaged into an integrated circuit.

Increased Use of Metrology in Manufacturing

We believe that continually rising wafer costs are forcing semiconductor manufacturers to re-evaluate their manufacturing strategies at all levels, from individual process steps to fab-wide process optimization. Many major semiconductor manufacturers are adopting feed-forward and feedback of film thickness and critical

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dimensions, or CDs, based on real-time data from metrology systems. Major benefits of these new metrology strategies are higher manufacturing efficiencies from reduced rework, reduced headcount to perform at the same quality level and increased device performance. Additional benefits include process tool matching and more precise control of the overall manufacturing process.

Drive Toward Integrated Metrology

For many years, semiconductor manufacturers have sought to improve fab efficiency by choosing systems that integrate more than one process step into a single tool. Integrated metrology solutions increase productivity with higher throughput, smaller overall product footprints, reduced wafer handling and faster process development. This trend began in the mid-1980s, as leading manufacturers introduced a cluster process tool architecture that combined multiple processes in separate chambers around a central wafer-handling platform.

Today, there is continued focus on increased productivity driving the adoption of integrated metrology, as well as an additional requirement for tighter process tolerances with advanced, sub-45nm technologies. This new requirement is driving integrated process control metrology as a necessity for many processes, such as mechanical planarization, deposition, lithography and etch. As a result, we continue to see the emergence of integrated metrology using both feed-forward and feedback process tool control in real time. Integrated metrology has already shown its ability to control key process parameters during the manufacturing process. Additional benefits include extended tool availability and improved utilization. Tighter control of the process means lower material and processing costs. Integrated metrology also provides rapid fault detection, improved excursion control and loss prevention, which can be elusive with only open-loop standalone metrology.

Before we introduced integrated metrology, semiconductor manufacturers were required to physically transport wafers from a process tool to a separate metrology system in order to make critical measurements such as film thickness and uniformity. Manufacturers of process equipment are increasingly seeking to offer their customers integrated metrology in their tools to lower costs and improve overall tool efficiency. Integrated metrology provides semiconductor manufacturers with several additional benefits, including a reduction in the number of test wafers, increased overall process throughput, faster detection of process excursions and faults, reduced wafer handling, faster process development and ultimately an improvement in overall equipment effectiveness.

Nanometrics Offerings

We offer a complete line of systems to address the broad range of metrology requirements of our customers.

Our metrology systems can be categorized as follows:

Standalone, fully automated systems used for high-volume manufacturing process control. We offer a broad line of fully automated thin film thickness, critical dimension, defect inspection and overlay measurement systems. These systems remove the dependence on human operators by incorporating reliable wafer handling robots and are designed to meet the speed, measurement, performance and reliability requirements that are essential for today s semiconductor manufacturing facilities. Each of these measurement systems uses non-destructive, optical techniques to analyze and measure films. Our fully automated metrology product line also includes systems that are used to measure the critical dimensions and overlay registration accuracy of successive layers of semiconductor patterns on wafers in the photolithography process.

Standalone, manual and semi-automated systems used for manufacturing process characterization. We also offer a broad line of manual and semi-automated thin film thickness, critical dimension, defect inspection and overlay measurement systems. Each of these measurement systems uses non-destructive, optical techniques to analyze and measure films. These products also include systems that are used to monitor the physical, optical, electrical and material characteristics of

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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. We have been a pioneer and leading supplier of tabletop thin film thickness measurement systems, which are used primarily in low-volume production environments such as failure analysis and engineering labs. 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.

Integrated systems used to measure in-process wafers automatically and quickly without having to leave the enclosed wafer processing system. Our integrated metrology systems are compact and monitor a multitude of small test points on the wafer using sophisticated pattern recognition. Our integrated systems can be attached to film deposition, planarization, lithography, etch and other process tools to provide rapid monitoring of films on each wafer immediately before or after processing. Integrated systems can offer customers significantly increased operating efficiency and equipment utilization, lower manufacturing costs and higher throughput. We anticipate continuing to ship integrated systems to many original equipment manufacturers for installation on their planarization, deposition, photolithography and etch tools.

Strategy

Our strategy is to offer and support, on a worldwide basis, technologically advanced metrology solutions that meet the changing manufacturing requirements of the semiconductor industry. Key elements of our strategy include:

Maintaining Organically Developed Technology Leadership. We are committed to developing advanced metrology systems that meet the requirements of advanced semiconductor manufacturing technology. We have an extensive array of proprietary technology and expertise in optics, software and systems integration. These technologies include polarized reflectometry, precision motion control, extreme dark field imaging, low distortion imaging and advanced algorithms.

Continuing to Offer Advanced Integrated Metrology Systems. We were one of the first suppliers to offer products that integrate process control metrology systems into wafer processing equipment. We supply integrated metrology systems for Applied Materials Mirra Mesa and 300mm Reflexion CMP systems and the Producer QA and SE CVD systems. Our OCD metrology system is incorporated in the Applied Materials Transform 300mm etch system for controlling critical dimensions. The introduction of the first combined film thickness and critical dimension measurement integrated metrology product has allowed us to penetrate additional original equipment manufacturers, or OEMs, of etch processing and CMP equipment, including Hitachi High Tech, or HHT, Dainippon Screen, or DNS, and Ebara. The introduction of the Nano 9010T enhanced integrated metrology product has led to additional design wins at TEL/Timbre. Our integrated metrology sales group continues to focus on sales of integrated metrology products to both OEMs and end-users.

Broadening Our Product Portfolio. We intend to continue to add a wide range of new measurement technologies to our expanding base of intellectual property. Our highly successful integrated platform offers a single integrated module that combines OCD and DUV technologies, and enables us to perform critical erosion and film thickness/array measurements for the oxide and copper/metal CMP processes. These metrologies are key requirements for the copper damascene process, which replaces the current subtractive aluminum process on newer semiconductor devices.

Our newly acquired SiPHER photoluminescence mapping system detects and quantifies near surface and bulk metallic contamination in silicon and epitaxial layers.

Our OCD technology has also been applied to advanced photolithography processes with the Nanometrics Atlas-M, a fully automated metrology system for mask and reticule measurement and

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characterization. This product has already successfully correlated the interrelationships between film thickness and critical dimension parameters.

Leveraging Existing Customer and Industry Relationships. Our strong industry relationships have allowed close customer collaboration which, in return, facilitates our ability to introduce new products and applications in response to customer needs. We believe that our large customer base will continue to be an important source of new product development ideas. Our large customer base also provides us with the opportunity for increased sales of additional metrology systems to our current customers. Our new acquisitions are expected to strengthen our customer relationships and foster working partnerships with semiconductor equipment manufacturers by providing technologically superior systems and high levels of customer support.

Providing Worldwide Sales and Customer Support. We believe that a direct sales and support capability is beneficial for developing and maintaining close customer relationships and for rapidly responding to changing customer requirements. Because a majority of our revenues come from sources outside of the United States, we have direct sales teams in Europe, Japan, South Korea, Taiwan and China, and will expand into additional territories as customer requirements dictate. We use selected sales representatives selectively in isolated regions. We intend to monitor our network by evaluating our existing and new offices, as well as developing additional relationships as needed. We believe that enhancing our sales and customer support network will improve our competitive position.

Addressing Multiple Markets. There are broad applications of our technology beyond the semiconductor industry. We currently offer a comprehensive family of metrology systems that accurately measure thin films, critical dimensions and overlay registration used in manufacturing process. Newer products inspect for particles and defects and monitor critical metal loss during the copper removal process. We believe that diversification of our technology through applications across multiple industries increases the total available market for our products and reduces, to an extent, our exposure to the cyclicality of any particular market.

Acquisitions. We expect to continue to evaluate the attractiveness of strategic transactions, including mergers and asset acquisitions, in order to address business challenges and opportunities. On March 15, 2006, we announced our acquisition of Soluris, a privately held corporation focused on overlay and CD measurement technology and headquartered in Concord, Massachusetts. On July 21, 2006, we announced the completion of the merger of our business with Accent Optical, a leading supplier of process control and metrology systems to the global semiconductor manufacturing industry headquartered in Bend, Oregon. The strategic business combination of Nanometrics and Accent creates one of the largest metrology and process control companies in the semiconductor capital equipment industry.

Technology

We believe that our engineering expertise, technology acquisitions, supplier alliances and short-cycle production strategies enable us to develop and offer advanced solutions that address industry trends. By offering common metrology platforms that can be configured with a variety of measurement technologies, our customers can (i) specify high performance systems not easily offered by other suppliers and (ii) narrowly configure a system for a specific application as a cost saving measure.

Spectroscopic Reflectometry. We pioneered the use of micro-spot spectroscopic reflectometry for semiconductor film metrology in the late 1970s. Spectroscopic reflectometry uses multiple wavelengths (colors) of light to obtain an array of data for analysis of film thickness and other film parameters. Today s semiconductor manufacturers still depend on spectroscopic reflectometry for most film metrology applications. Reflectometry is the measurement of reflected light. For film metrology, a wavelength spectrum in the visible region is commonly used. Light reflected from the surfaces of the film and the substrate is analyzed using computers and measurement algorithms. The analysis yields thickness information and other parameters without contacting or destroying the film.

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In the mid-1980s, we introduced a DUV reflectometer for material analysis. In 1991, we were awarded a patent for the determination of absolute reflectance in the ultraviolet region. This technology provides enhanced measurement performance for thinner films and for films stacked on top of one another.

Spectroscopic Ellipsometry. Like reflectometry, ellipsometry is a non-contact and non-destructive technique used to analyze and measure films. An ellipsometer analyzes the change in a polarized beam of light after reflection from a film s surface and interface. Our systems are spectroscopic, providing ellipsometric data at many different wavelengths. Spectroscopic ellipsometry provides a wealth of information about a film, yielding very accurate and reliable measurements. In general, ellipsometers are used for thin films and complex film stacks, whereas reflectometers are used for thicker films and stacks.

Optical Critical Dimension Technology. Our OCD technology is a 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. Our non-destructive, OCD measurement technology is compatible with the current 90nm manufacturing technology and can be extended below 90nm for future requirements in both photo-lithography and etch applications. OCD combines non-contact optical technology with extremely powerful data analysis software to provide highly accurate measurement results for line width, height and sidewall angles. This technology is available in both standalone and integrated platforms.

Overlay Registration. Overlay registration refers to the relative alignment of two layers in the thin film photolithographic process. Our microscope-based, imaging measurement technology utilizes a high magnification, low distortion optical system combined with proprietary software algorithms to numerically quantify the alignment. Customers use our overlay systems to measure vertical alignment of the layers on silicon wafers and MEMS structures.

Optical Profilometry. We developed the optical profiler for the measurement of copper metal loss during the chemical mechanical planarization process. This technology uses the combination of an optical interferometer and our reflectometer technology to accurately determine metal loss, even over multiple layers during the final steps of metallization. Our technology is a unique method for precisely and accurately controlling this semiconductor manufacturing process step.

Extreme Dark Field (EDF) Imaging Technology. Our new, extreme dark field inspection technology is used to detect and accurately locate particles and defects on the front and back sides of wafer surfaces, which could potentially lead to device failures and critical yield loss during the semiconductor manufacturing process. The technology combines a high efficiency, broadband light source with a high-resolution detection system and proprietary digital image processing for defect and contamination detection on a wide variety of films and surfaces. We believe that this technology can be readily extended to other manufacturing processes.

Photoluminescence Imaging Technology. Our room-temperature photoluminescence imaging and mapping technology is used to detect metallic contamination such as Cu, Fe and heavy metals which create point defects (e.g. interstitial atoms, substitutional atoms, precipitates), and line defects such as threading dislocations, misfit dislocations, pile ups, slip, stacking faults. Contamination at this level is common in Si wafer processing and may result from multiple causes including cross contamination of metals during wafer handling, contamination from deposition tools contamination after maintenance and incomplete cleaning of reclaimed wafers.

Fourier-Transform Infra-Red (FTIR) Spectroscopy Technology. Silicon producers around the world use our FTIR tools for the certification of silicon epitaxial, or epi, thickness in blanket epi layers, buried layer epi films and silicon-on-insulator (SOI) epi films. The tools are also used for the precise measurement of interstitial oxygen and substitutional carbon in silicon substrates. Semiconductor device manufacturers use these FTIR systems for thin film metrology. BPSG films can be analyzed for the concentrations of boron and phosphorus; atomic hydrogen content in silicon nitride and silicon oxynitride can be estimated; low-K films can be characterized (fluorine in FSG films; carbon in SiOC, and SiCN films. The FTIR tools

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provide a rapid, non-contact method for the thin film metrology. The automated FTIR tools also provide full support for the factory automation needs of the device manufacturing community

Lattice Metrology Technologies. We supply a wide array of lattice engineering metrology systems to semiconductor device and silicon wafer manufacturers. These products address specific yield challenges that arise when device and wafer manufacturers use advanced materials such as compound semiconductors or modify the lattice, or basic crystal structure of pure silicon, in order to achieve higher device performance characteristics.

Products

We operate in one reportable segment, which is the sale, design, manufacture, marketing and support of thin film, optical critical dimension and overlay dimension metrology systems. Our measurement systems use microscope-based, non-contact spectroscopic reflectometry, or SR. Some of our systems provide complementary spectroscopic ellipsometry, or SE, and FTIR to measure the thickness and optical characteristics of films on a variety of substrates. In addition, we offer both integrated and standalone optical critical metrology systems to measure critical dimensions of patterns on semiconductor wafers. We also manufacture a line of optical overlay registration systems that are used to determine the alignment accuracy of successive layers of semiconductor patterns on wafers in the photolithography process. Our products can be divided into two principle groups: standalone systems and integrated systems. See Note 19 of the Notes to Consolidated Financial Statements for an analysis of our net revenues by principal product group.

Platform	Market	Substrate Size	Applications	Technology
Standalone Systems				
9100	Semiconductor	75-200mm	CVD, CMP, Etch, Litho, Film Thickness	SR, SE
FLX	Semiconductor	200mm 300mm	CVD, CMP, Etch, Litho, Film Thickness, CD	SR, OCD/SR
Atlas/Atlas-M	Semiconductor	200mm 300mm 6-inch masks/reticles	CVD, CMP, Etch, Litho, Film Thickness, Film Stress, CD	SR, SE, OCD/SE
Caliper élan	Semiconductor	300mm	Overlay	Imaging
Q240^{AT}	Semiconductor	200mm	Overlay	Imaging
Orion	Semiconductor	200mm 300mm	Overlay	Imaging
IVS	Semiconductor, MEMS	200mm	Overlay	Imaging
SiPHER	Substrate Semiconductor	200mm 300mm	Substrate defects, metallic contamination	Photoluminescence
VerteX	Compound Semiconductor	75mm 125mm 150mm	Epitaxial layer properties	Photoluminescence
QS2200/3300	Substrate Semiconductor	200mm 300mm	Epitaxial layer thickness	FTIR
3000	Semiconductor	75mm 150mm	Film Thickness	SR
6100	Semiconductor	75mm 150mm 200mm	Film Thickness	SR
QS1200	Substrate Semiconductor	100mm 125mm 150mm 200mm 300mm	Epitaxial layer thickness	FTIR
RPM2000	Compound Semiconductor	75mm 125mm 150mm	Substrate defects, composition	Phololuminescence

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Platform	Market	Substrate Size	Applications	Technology
Integrated Systems				
9000	Semiconductor	200mm	CVD, CMP, Film Thickness	SR
9000i	Semiconductor	300mm	CVD, CMP, Etch, Film Thickness, CD	SR, OCD
9000b	Semiconductor	300mm	CVD, CMP, Etch, Film Thickness	SR
9010/9010b	Semiconductor	300mm	CMP, CVD, Etch, Litho, Film Thickness, CD	OCD/SR, CLP, UDI
9010T/9010T/b	Semiconductor	200mm 300mm	CMP, Etch, Litho CD	OCD/SR

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 automated systems incorporate automated material handling interface options for a variety of fab automation environments and implement multiple measurement technologies for a broad range of substrate sizes. The manual and semi-automated systems are used primarily in engineering labs for which automated handling and high throughput are not required. Our automated systems range in price from approximately $200,000 to over $1,000,000, depending on substrate sizes, measurement technologies, material handling interfaces and other options. The manual and semi-automated systems range in price from $50,000 up to $1,000,000 depending upon configurations and options.

Nanometrics Atlas and Atlas-M

The Nanometrics Atlas high-performance metrology system combines up to four metrology technologies on a single platform, providing increased measurement capabilities in a small footprint design for reduced cost of ownership. The Atlas-M further extends the versatility of this 300mm platform to provide fully automated mask and reticle measurements. The system is capable of housing up to four metrology technologies including polarized, normal incidence spectroscopic ellipsometry for linewidth profile and critical dimensions, spectroscopic reflectometry for films and film stacks, ultra-violet, or UV, and deep UV spectroscopic ellipsometry for ultra-thin films and film characterization, and film stress/wafer bow measurements. The Atlas offers high accuracy, high precision metrology for wafer characterization and can be configured for 200mm and 300mm wafer sizes or 6-inch masks and reticles. The system is also compatible with NanoNet, an optional software package that enables users to synchronize standalone and integrated metrology systems for remote process setup and monitoring.

Nanometrics FLX

The Nanometrics FLX flexible metrology system is based on the Atlas automation platform, and is designed to support up to four integrated metrology modules simultaneously the tool can mix-and-match any combination of modules to form a complete metrology solution for lithography, planarization, etch and deposition processes. This capability accelerates process development through parallel development of integrated metrology solutions. The Nanometrics FLX is a flexible, cost-efficient, high-throughput 300-mm standalone metrology system based on Nanometrics proven integrated metrology solutions. The system offers industry-leading throughput of 250-500 wafers per hour fueled by dual multi-axis wafer-handling robots.

NanoSpec 9100

The NanoSpec 9100 standalone, automated thin film measurement system is capable of handling wafers ranging in size from 75 to 200 millimeters in diameter. The 9100 can be configured with a deep

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ultraviolet, or DUV, to near infrared spectroscopic ellipsometer for ultra-thin, multiple film stack and DUV lithography measurement applications. Other 9100 options include a standard mechanical interface with mini-environment enclosures for use in ultra-clean manufacturing facilities. The 9100 uses technologies from the integrated film thickness systems to allow easy transfer of measurement recipes between the integrated and standalone film metrology systems.

Nanometrics Orion

The Nanometrics Orion, Advanced Overlay Control System provides enhanced measurement performance and higher wafer throughput and replaces the original Metra line of products. The system is based on the highly successful Atlas platform and offers high throughput in excess of 180 wafers per hour. Orion utilizes a proprietary optical system to provide low total measurement uncertainty (TMU), enabling 1 nanometer, 3-sigma precision and matching in overlay control applications. Orion s aerial image metrology with proprietary digital image folding tolerates wide process variations and reduces the possibility of erroneous data. Both attributes are crucial elements in attaining high yields in 200mm and 300mm volume production.

Caliper élan and Q240^{AT}

The Caliper élan and Q240^{AT} are our latest and most advanced overlay metrology solutions. Elan builds on the solid foundation established by the original Caliper overlay tool to provide the most cost effective solution for today s most advanced 300mm process technologies. Elan extends the production-proven Caliper platform with a refined optical metrology head coupled with advanced focusing and algorithms to provide a 50% improvement in both measurement (MAM) time and total measurement uncertainty (TMU). The Q240^{AT} incorporates the same measurement technology as the Caliper, and delivers the same advanced measurement capabilities for 200mm wafer sizes.

SiPHER

The SiPHER is a fully automated photoluminescence metrology system for the detection and mapping of 300mm substrate defects and metallic contamination. SiPHER detects and quantifies near surface and bulk metallic contamination in both bulk silicon and silicon epitaxial layers.

VerteX

The VerteX is a recently introduced rapid photoluminescence mapping system designed for high-volume compound semiconductor metrology applications such as volume LED manufacturing. The new VerteX with power density control provides improved matching to electrical test data, improved tool matching and improved reproducibility and repeatability. It also provides predictive metrics for the manufacturing process. In the case of high-brightness LED processing, VerteX enables accurate predictive processing metrics of green, blue and UV LED emission wavelengths at the wafer level, a capability that we believe is unmatched in the industry.

QS2200/3300

The QS2200 and QS3300 are Fourier-Transform Infra-Red spectrometers designed for non-destructive wafer analysis. These systems are used for the characterization and measurement of semiconductor substrates as well as in device manufacturing. The QS2200 model is available in two configurations; an automated 200mm system with two open cassettes and an automated system with one SMIF indexer and one open cassette for high-volume wafer manufacturing. The QS2200 series incorporates a universal stage, which adjusts automatically to different wafer sizes 100, 125, 150 and 200mm. The QS3300 is a production version which supports high-volume 300mm manufacturing for various applications: boron and phosphorus concentration in BPSG films, atomic hydrogen concentrations in silicon nitride passivation layers, fluorine in FSG films, epitaxial thickness, concentrations of interstitial oxygen and substitutional carbon in silicon.

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NanoSpec 3000 and 6100

The NanoSpec tabletop systems provide a broad range of thin film measurement solutions at a lower entry price point. The NanoSpec 3000 is a basic, manual system while the 6100 models feature semiautomatic wafer handling or staging.

QS1200 FTIR System

The QS1200 incorporates all of the measurement capability found in the semi-automated and fully-automated FTIR metrology systems in a table-top configuration. The QS1200 FTIR metrology tool is used primarily for dopant monitoring, epi thickness measurement, and other epitaxial substrate applications. The QS1200 is specifically designed for advanced semiconductor fabs performing material characterization in silicon growing and device manufacturing areas. It provides a new level of integration of the FTIR technique utilizing proven optical technology for SEMI standard wafers of 100, 125, 150, 200, and 300mm diameter as well as custom substrates up to 2mm in thickness.

Integrated Systems

Our integrated metrology systems are installed inside wafer processing equipment to provide near real-time measurements for improving process control and increasing throughput. Our integrated systems are available for wafer sizes up to 300 millimeters and offer DUV spectroscopic reflectometry and/or critical dimension measurement technologies. Our integrated metrology systems range in price from approximately $80,000 to $400,000 depending on features and technology.

NanoSpec 9000

The NanoSpec 9000 is an ultra-compact measurement system designed for integration into semiconductor wafer processing equipment. The system can be used in several wafer film process steps, including metal deposition, planarization, chemical vapor photolithography and etch. In its basic configuration, the NanoSpec 9000 is equipped with visible wavelength spectroscopic reflectometry.

NanoSpec 9000i

The NanoSpec 9000i is a 300mm version of the NanoSpec 9000. This metrology platform can be integrated into multiple wafer film process steps including metal deposition, planarization, chemical vapor deposition, photolithography and etch. The NanoSpec 9000i is also equipped with visible wavelength spectroscopic reflectometry and can be extended into deep ultraviolet wavelengths.

NanoOCD 9010M

The NanoOCD 9010M utilizes our production-proven OCD metrology, and enables non-destructive, real-time measurement and profiling of critical features on photomasks and reticles without the limitations and drawbacks associated with critical dimension scanning electron microscope, or CD-SEM, metrology. Current CD-SEM technology appears to be reaching its theoretical limits for making critical dimension measurements on these substrates. Photoresist-on-chrome-on-glass features found on reticles and masks suffer severe charging during CD-SEM metrology making critical dimension measurements impossible. OCD is a non-destructive technology that provides information not available from CD-SEM measurements.

Nano 9010b Series Integrated Metrology Platform

The 9010b is the first integrated metrology tool to combine two measurement technologies on a single platform. The 9010b incorporates both ultra violet optical critical dimension (OCD) spectroscopic ellipsometry and deep ultra violet (DUV) spectroscopic reflectometry. The 9010b provides thin film and film stack thickness measurements on pads as well as oxide, nitride and trench profile measurements on arrays in a single tool. The combined technologies provide a complete measurement solution over the entire

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range of measurement requirements for each process step. This complete metrology capability can be utilized across a number of lithography, deposition, copper planarization, dielectric planarization, poly-Si etch and dielectric etch applications.

The 9010b is also available as a SEMI BOLTS compatible, 300 millimeter based system that incorporates all the features of the integrated configuration of the 9010b. By conforming to the industry standard BOLTS mounting system, the Nano 9010b BOLTS configuration is interchangeable with industry conforming load ports for simplified mechanical integration .

Nano 9010T Integrated Metrology Platform

The 9010T is an advanced, integrated metrology platform for optical CD measurement and profiling. The 9010T system is designed to be incorporated into semiconductor equipment requiring leading-edge CD metrology for semiconductor applications. The 9010T offers an extended wavelength range down to 210nm, extending the CD measurement capabilities for line width structures down to 65nm. The system also incorporates the UV film thickness function, and its improved design offers a faster, more cost effective integrated CD measurement solution with increased throughput. The system is also offered as the 9010T-BOLTS, in the SEMI, BOLTS configuration for easy installation directly onto the OEM process equipment s standard 300mm loadport.

Customers

We sell our metrology systems worldwide to many of the major semiconductor manufacturers and equipment suppliers, as well as to producers of silicon wafers and photomasks. The majority of our systems are sold to customers located in Asia and the United States. Three customers, Applied Materials, Inc., Samsung Electronics Co. Ltd. and Hynix Semiconductor, Inc. represented 20.1%, 14.3% and 13.5% of our total net revenues in 2006, respectively. See Note 18 of the Notes to Consolidated Financial Statements for information regarding our major customers.

The following is a list of our top ten customers (categorized by type of customer), based on revenues, during 2006:

Original Equipment Manufacturers (OEMs)	Integrated Device Manufacturers (IDMs)
Applied Materials, Inc.	Samsung Electronics Co. Ltd.
Ebara Technologies, Incorporated (ETI)	Hynix Semiconductor, Inc.
	Intel Corporation
	Renesas Technology Corp.
	Micron Technology, Inc.
	ProMOS Technologies
	Mimasu Semiconductor Industry Co., Ltd.
	International Business Machines Corporation

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 from our corporate office in California for U.S. customers. We also have a direct sales presence in South Korea, Japan, Europe, Taiwan, China and Singapore. We use selected sales representatives in the United States and other countries. We intend to continue monitoring our network, our existing and new offices as well as developing additional distribution relationships when needed. We believe that growing our international distribution network can enhance our competitive position. We maintain a direct sales force of highly trained, technically sophisticated sales engineers who are knowledgeable in the use of metrology systems generally and with the features and advantages of our specific products. Our sales engineers are

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supported by applications scientists. Together, these highly trained individuals work closely with our customers to offer cost-effective solutions to complex measurement and process problems which our customers face.

Direct exports of our metrology systems to our foreign customers and shipments to our subsidiaries require general export licenses. See Note 19 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:

	2006	2005	2004
United States	46.1%	33.3%	28.2%
Japan	17.4%	26.2%	29.6%
South Korea	12.4%	25.3%	19.3%
Taiwan	5.5%	10.9%	11.6%
Europe	9.9%	1.5%	2.0%
All other countries	8.7%	2.8%	9.3%

In order to raise market awareness of our products, we advertise in trade publications, distribute promotional materials, publish technical articles, conduct marketing programs, issue press releases regarding new products, work with a public relations firm and participate in industry trade shows and conferences. We also maintain a website at www.nanometrics.com.

Customer Service and Support

We believe that customer service and technical support 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 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 and operating manuals and other technical support information. We use our demonstration equipment for training programs, as well as for our sales and marketing efforts. Our technical training department has metrology systems that are used for customer training. We coordinate warranty and post-warranty field service and spare parts support from our corporate headquarters in Milpitas, California. We also have North America 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 products sold domestically and in foreign markets. Service revenue, including sales of replacement parts, represented 16.3%, 13.5% and 11.1% of total net revenues in 2006, 2005 and 2004, respectively.

Backlog

As of December 30, 2006 and December 31, 2005, our backlog was $26.7 million and $6.3 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

The market for our metrology systems is intensely competitive. We compete on a global basis with both larger and smaller companies. Our products compete primarily with: standalone metrology products from

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KLA-Tencor Corporation, or KLA, Therma-Wave, Inc. and Rudolph Technologies, Inc.; integrated metrology products from Nova Measuring Instruments Ltd., Tokyo Electron and KLA; and overlay metrology products primarily from KLA. Many of our competitors have substantially greater financial, engineering, manufacturing and marketing resources than we do. Significant competitive factors in our industry include: performance of proprietary measurement technology; system performance, including automation and software capability; ease of use; reliability; established customer bases; cost of ownership; price; and global customer service. We believe that we compete favorably with respect to these factors. Nevertheless, we must continue to develop and design new and improved products and evaluate the attractiveness of strategic transactions, including mergers and asset acquisitions, in order to maintain our competitive position, especially in light of the competitive advantage our larger competitors, such as KLA may be able to exert in the marketplace

Manufacturing

We currently manufacture our products primarily in the United States, the United Kingdom, and to a lesser extent, in Japan and South Korea. 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 us to make any 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 from a sole supplier or limited group of suppliers. We do not maintain long-term supply agreements with any of our suppliers.

Research and Development

Our research and development is directed towards enhancing existing products and developing and introducing new products to maintain technological leadership and to meet current and evolving customer needs. Our process, engineering, marketing, operations and management personnel have developed close collaborative relationships with many of our customers and have used these relationships to identify market demands and target our research and development to meet those demands. We are working to develop potential applications of new and emerging technologies, including improved metrology methods. We conduct research and development at our facilities in California, South Korea and the United Kingdom.

In the United States and the United Kingdom, our research and development efforts were focused on semiconductor metrology. In South Korea, our research and development efforts were focused on the overlay metrology market.

Our research and development expenditures in 2006 in the United States, the United Kingdom and South Korea were as follows:

United States	$ 11.5 million
United Kingdom	$ 2.0 million
South Korea	$ 0.8 million
Total	$ 14.3 million

We have extensive proprietary technology and expertise in such areas as spectroscopic reflectometry using our patented absolute reflectivity, robust pattern recognition and complex measurement software algorithms. We continue to add to our intellectual property portfolio, most recently in the areas of critical dimension measurement and integrated metrology. We also have extensive experience in systems integration engineering required to design compact, highly automated systems for advanced clean room environments. Expenditures for research and development during 2006, 2005 and 2004 were $14.3 million, $12.5 million and $12.8 million, respectively, and represented 14.8%, 17.8% and 18.3% of total net revenues, respectively.

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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. As of December 30, 2006, we held 84 United States patents with 57 patent applications pending. Our United States patents, issued during the period 1988 to 2006, will expire between 2007 and 2025. 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 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.

We have registered the following trademarks with the U.S. Patent and Trademark Office: Nanometrics®, NanoSpec®, Integrated Metrology®, NanoOCD®, Metra®, NanoNet®, OCD® , Caliper®, SiPHER®, Stratus® and others. Additionally, we use a variety of other trademarks and trade names such as Atlas, NanoCLP, Accent and the Nanometrics logo. All other brand names, trade names and trademarks mentioned herein are the property of their respective holders. The effect of registering our trademarks is to further protect Nanometrics brand and corporate identity.

Employees

At December 30, 2006, we employed 522 persons worldwide: 77 in research and development, 140 in manufacturing and manufacturing support, 184 in customer service, 65 in sales and marketing and 56 in general administration and finance. None of our employees is represented by a union and we have never experienced a work stoppage as a result of union actions. Many of our employees have specialized skills that are of value to us. Our future success will depend in large part upon our ability to attract and retain highly skilled scientific, technical and managerial personnel, who are in great demand in our industry. We consider our employee relations to be good.

Executive Officers of the Registrant

The names of our executive officers and their ages, titles and biographies as of December 30, 2006 are set forth below:

Name	Age	Position
Vincent J. Coates	81	Chairman of the Board and Secretary
John D. Heaton	46	President, Chief Executive Officer and Director
Douglas J. McCutcheon	58	Executive Vice President, Finance and Administration and Chief Financial Officer
Quentin B. Wright	50	Chief Accounting Officer
Bruce A. Crawford.	54	Chief Operating Officer
Bruce C. Rhine.	49	Chief Strategy Officer and Director
Rajeev Mundhe.	52	Senior Vice President of Global Sales

Vincent J. Coates founded our company and has served as our Chairman of the Board since January 1975 and Secretary since February 1989. From January 1975 until April 1998, Mr. Coates served as our Chief Executive Officer and as President from January 1975 through May 1996, except for the period of January 1986 through February 1987 when he served exclusively as Chief Executive Officer. Mr. Coates holds a B.E. in Mechanical Engineering from Yale University.

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John D. Heaton has served as one of our directors since July 1995. Since May 1996, Mr. Heaton has served as our President and as our Chief Executive Officer since April 1998. From May 1996 to April 1998, he served as our Chief Operating Officer. Mr. Heaton holds a B.S. degree in Engineering from the University of San Francisco.

Douglas J. McCutcheon has served as our Executive Vice President, Finance and Administration and Chief Financial Officer since September 2005. From January 2003 until December 2004, Mr. McCutcheon served as Managing Director, Senior Vice President Finance and Chief Financial Officer of Metron Technology N.V., a manufacturer and distributor of semiconductor capital equipment and provider of fab facility services. In 2002, he served in a consulting role to Metron Technology. From January 1996 to September 2001, Mr. McCutcheon served as Senior Vice President Finance and Chief Financial Officer of Asyst Technologies, Inc., a semiconductor capital equipment automation company. Mr. McCutcheon holds a B.S. degree in physics from Stanford University and an M.B.A. in finance from the University of California, Berkeley.

Quentin B. Wright has served as our Chief Accounting Officer since April 2005. From November 2003 until April 2005, Mr. Wright provided financial consulting services for various technology clients in Silicon Valley. From May 1999 until November 2003, Mr. Wright served as Director of Accounting of Adaptec, Inc., a manufacturer of storage access solutions. Mr. Wright holds a B.S. degree in Business Administration from Oregon State University.

Bruce A. Crawford has served as our Chief Operating Officer since July 2006. From July 2005 to July 2006, Mr. Crawford served as President and Chief Operating Officer of Accent Optical Technologies, Inc., a supplier of process control and metrology systems to the global semiconductor manufacturing industry, which was acquired by us 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.

Bruce C. Rhine has served as our Chief Strategy Officer and as a director since July 2006. From August 2000 to July 2006, Mr. Rhine served as Chairman and Chief Executive Officer of Accent Optical. Mr. Rhine holds a B.S. degree in Chemical Engineering and an M.B.A. in Finance from Pennsylvania State University.

Rajeev Mundhe has served as our Senior Vice President of Global Sales since July 2006. From September 2000 to July 2006, Mr. Mundhe served as Vice President of Global Sales for Accent Optical. Mr. Mundhe holds a Master s in Materials Science and Engineering from the University of California, Berkeley, an M.B.A. in Marketing and Finance from the University of Santa Clara and a Bachelor s of Technology degree in Materials Science and Engineering from the Indian Institute of Technology at Bombay. In March 2007, Mr. Mundhe s employment terminated.

ITEM 1A. RISK FACTORS

Cyclicality in the semiconductor industry has led to substantial fluctuations in demand for our systems and may, from time to time, continue to do so.

Our operating results have varied significantly from period to period due to the cyclical nature of the semiconductor industry. The majority of our business depends upon the capital expenditures of semiconductor device and equipment manufacturers. These manufacturers capital expenditures, in turn, depend upon the current and anticipated market demand for semiconductors and products using semiconductors. The semiconductor industry is cyclical and has historically experienced periodic downturns. These downturns have often resulted in substantial decreases in the demand for semiconductor manufacturing equipment, including metrology systems. We have found that the resulting decrease in capital expenditures has typically been more pronounced than the downturn in semiconductor device industry revenues. We expect the cyclical nature of the semiconductor industry, and therefore, our business, to continue in the foreseeable future.

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We depend on Applied Materials and other OEM suppliers for sales of our integrated metrology systems, and the loss of Applied Materials or any of our other OEM suppliers as a customer 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 Applied Materials to sell semiconductor equipment products that include our metrology systems as components. If Applied Materials is unable to sell such products, or if Applied Materials chooses to focus its attention on products that do not integrate our systems, our business could suffer. If we were to lose Applied Materials as a customer for any reason, our ability to realize sales from integrated metrology systems would be significantly diminished, which would harm our business.

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 or if they delayed or cancelled a large order.

Historically, a significant portion of our revenues in each quarter and each year has been derived from sales to a relatively few number of customers, and we expect this trend to continue. There are only a limited number of large companies 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 any of our key customers were to purchase significantly fewer systems, or if a large order were delayed or cancelled, our revenues could significantly decline. In 2006, sales to Applied Materials accounted for 20.1% and sales to Samsung accounted for 14.3% of our total net revenues, respectively. In 2005, sales to Applied Materials accounted for 20.6% and sales to Samsung accounted for 15.9% of our total net revenues, respectively. In 2004, sales to Applied Materials accounted for 21.4% and sales to Samsung accounted for 14.7% of our total net revenues, respectively.

The success of our product development efforts depends on our ability to anticipate market trends and the price, performance and functionality requirements of semiconductor device manufacturers. In order to anticipate these trends and ensure that critical development projects proceed in a coordinated manner, we must continue to collaborate closely with our customers. Our relationships with our customers provide us with access to valuable information regarding industry trends, which enables us to better plan our product development activities. 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 long-term ability to produce commercially successful systems could be adversely affected.

We could have new material weaknesses in our internal controls in the future.

We have in the past identified material weaknesses in our internal controls and procedures. A material weakness is a control deficiency, or combination of them, that results in more than a remote likelihood that a material misstatement in our financial statements will not be prevented or detected. We believe that we have remedied the past material weaknesses in our internal controls and procedures as of December 30, 2006,we could have new material weaknesses in the future, as we integrate the acquired entities during 2007 and streamline and or automate our current internal controls.

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

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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.

If any of our systems fail to meet or exceed our internal quality specifications, we do not ship them until such time as they have met such specifications. If we experience significant delays or are unable to ship our products to our customers as a result of our internal processes, or for any other reason, 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. We must actively monitor our manufacturing processes to ensure that our products meet our internal quality specifications. 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.

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 as a result of 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.

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, we announced in March 2005 that we had received notice of a patent infringement lawsuit brought by Nova Measuring Instruments, Ltd., alleging infringement of United States Patent No. 6,752,689. In December 2006, we announced a favorable Markman ruling in the case. In August 2005, we were served with a complaint by 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. In March 2006, we were granted a stay in the KLA patent infringement cases. There can be no assurance that Nanometrics new or current products do not infringe any valid intellectual property rights. Even if our products do not infringe, we may be required to expend significant sums of money to defend against infringement claims, as in the Nova Measuring Instruments, Ltd. lawsuit described above, or to actively protect our intellectual property rights through litigation.

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

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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. Woollam Company for the purchase of the spectroscopic ellipsometer component incorporated in our advanced measurement 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 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.

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 six 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.

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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 $1,000,000 per system, our integrated metrology systems range in price from approximately $80,000 to $400,000 per system and our tabletop metrology systems range in price from approximately $50,000 to $200,000 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.

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 cause 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.

We have recently introduced several products to the market including the IVS 185, VerteX Rapid Photoluminescence Mapping System for Compound Semiconductors and Orion. 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. As a result, there can be no assurance that the introduction of these products will be commercially successful or that these products will result in significant additional revenues or improved operating margins in future periods.

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Our intellectual property may be infringed upon 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 may license 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. In March 2006, we filed a complaint against Nova Measuring Instruments Ltd. for infringing our Patent No. Re 34,783. In October 2006, we filed a new complaint against Nova for infringement of Patent Numbers 5,867,276 and 7,115,858.

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

Our success depends on our ability to continually enhance and broaden our product offerings in response to changing technologies, customer demands and competitive pressures. To achieve this, from time to time we have acquired complementary businesses, products, or technologies instead of developing them ourselves and may choose to do so in the future. For example, in July 2006, we consummated our merger with Accent Optical, a leading supplier of process control and metrology systems to the global semiconductor manufacturing industry. At the outset, we do not know if we will be able to complete any 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 an equity financing, that result in dilution to our stockholders. If we are unable to integrate any acquired entities, products or technologies effectively, our business will suffer.

We must attract and retain key personnel with relevant industry knowledge to help support our future growth.

Our success depends to a significant degree upon the continued contributions of our key management, engineering, sales and marketing, customer support, finance and manufacturing personnel. We generally do not enter into employment contracts with any of our key personnel. The loss of any of these key personnel, who would be difficult to replace, could harm our business and operating results. To support our future growth, we will need to attract and retain additional qualified employees. Competition for such personnel in our industry is ongoing, and we may not be successful in attracting and retaining qualified employees.

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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, and beginning with our acquisition of Accent in July 2006, in York, England. To a lesser extent, we also manufacture through our subsidiary in South Korea and, beginning with our acquisition of Soluris in March 2006, in Concord, Massachusetts, and our contract manufacturer in Japan. 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 a severe fire or earthquake, could seriously harm our ability to satisfy our customer order deadlines.

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 2006, 2005 and 2004, 53.9%, 66.7% and 71.8%, 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 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.

Continuing economic and political instability could affect our business and results of operations.

The ongoing threat of terrorism targeted at the United States or other regions where we conduct business increases the uncertainty in our markets and the economy in general. This uncertainty is likely to result in economic stagnation, which would harm our business. In addition, increased international political instability may hinder our ability to do business by increasing our costs of operations. For example, our transportation costs, insurance costs and sales efforts may become more expensive as a result of geopolitical tension. These tensions may also negatively affect our suppliers and customers. If this international economic and political instability continues or increases, our business and results of operations could be harmed.

We incur increased costs as a result of changes in laws and regulations affecting public companies.

Compliance with changes in 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 Securities and Exchange Commission 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.

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 Critical Accounting Policies in Part I, Item 7 of this Form 10-K. Such methods, estimates and judgments are, by their nature, subject to substantial risks, uncertainties and assumptions, and factors may arise over time that lead us to change our methods, estimates and judgments. Changes in those methods, estimates and judgments could significantly affect our results of operations. In particular, the calculation of share-based compensation expense under SFAS No. 123(R) requires us to use valuation methodologies (which were not developed for use in valuing employee stock options) and a number of assumptions, estimates and conclusions regarding matters such as expected forfeitures, expected volatility of our share price, the expected dividend rate with respect to our common stock and the exercise behavior of our employees. Furthermore, there are no means, under applicable accounting principles, to compare and adjust our

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expense if and when we learn of additional information that may affect the estimates that we previously made, with the exception of changes in expected forfeitures of share-based awards. Factors may arise over time that lead us to change our estimates and assumptions with respect to future share-based compensation arrangements, resulting in variability in our share-based compensation expense over time. Changes in forecasted share-based compensation expense could impact our gross margin percentage; research and development expenses; marketing, general and administrative expenses; and our tax rate.

Our quarterly 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 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;
- 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 timing of acquisitions of businesses, products or technologies;
- the levels of our fixed expenses, including research and development costs associated with product development, relative to our revenue levels; and
- fluctuations in foreign currency exchange rates, particularly the Japanese yen.

If our operating results in any period fall below the expectations of securities analysts and investors, the market price of our common stock would likely decline.

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

Sales to customers in foreign countries accounted for approximately 53.9%, 66.7% and 71.8% of our total net revenues in 2006, 2005 and 2004, respectively. We maintain facilities in Japan, Taiwan, South Korea 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. 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, Taiwan and with the acquisition of Soluris and Accent, the European Union and Singapore, a significant percentage of our cash flows are exposed to foreign currency risk. These exposures may change over time as business practices evolve and could have a material adverse impact on our financial results and cash flow.

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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. There can be no assurance that violations of environmental laws or regulations will not occur in the future as a result of the inability to obtain permits, 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.

In September 2006, we changed our state of incorporation from California to Delaware. The anti-takeover provisions of the Delaware General Corporation Law may discourage, delay or prevent a change in control by prohibiting us from engaging 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 the successors to the directors whose terms have expired will be elected to serve from the time of election and qualification until the third annual meeting following their election;
- 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.

Nanometrics has incurred significant costs in connection with the Accent merger, and may continue to do so.

We incurred direct transaction costs of $2.3 million in connection with the merger, all of which has been paid as of December 30, 2006. We believe that the combined company will continue to incur charges to operations to reflect the costs of integrating the two companies, but cannot reasonably estimate those costs at this time. There can be no assurance that the combined company will not incur additional material charges in subsequent quarters to reflect additional costs associated with the merger.

Significant amounts of goodwill and intangible assets after the completion of Accent Optical and Soluris transactions could make our reported results more volatile.

Goodwill is tested for impairment annually or when an event occurs indicating the potential for impairment. The evaluation is prepared based on our current and projected performance for the identified reporting units. The fair value of our reporting units is determined using a combination of the cash flow and market comparable approaches. If we conclude at any time that the carrying value of our goodwill for any of our reporting units exceeds its implied fair value, we will be required to recognize an impairment, which could materially reduce operating income and net income in the period in which such impairment is recognized.

Whenever events or changes in circumstances indicate that the carrying amounts of long-lived assets may not be recoverable, the Company will compare undiscounted net cash flows estimated to be generated by those

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assets to the carrying amount of those assets. When these undiscounted cash flows are less than the carrying amounts of the assets, the Company will record impairment losses to write the asset down to fair value, measured by the discounted estimated net future cash flows expected to be generated from the assets. To date there has been no impairment.

In the application of these methodologies, we were required to make estimates of future operating trends and judgments on discount rates and other variables. Actual future results and other assumed variables could differ from these estimates, including changes in the economy, the business environment in which we operate, and/or our own relative performance. Any differences in actual results compared to our estimates could result in further future impairments. Accordingly, our future earnings may be subject to significant volatility, particularly on a period-to-period basis.

Any future acquisitions we make, or attempt to make, could disrupt our business and harm our financial condition if we are not able to timely and successfully close the acquisition or successfully integrate acquired businesses and technologies.

We have made and may continue to make acquisitions of business and technologies to enhance our business. Acquisitions involve numerous risks, including problems combining the purchased operations and key employees, technologies or products, unanticipated costs, diversion of management s attention from our core business, adverse effects on existing business relationships with suppliers and customers, risks associated with entering markets in which we have no or limited prior experience and potential loss of key employees. The integration of businesses that we have acquired or that we may acquire in the future into our business has been and will continue to be a complex, time consuming and expensive process. Failure to operate as a combined organization utilizing common information and communication systems, operating procedures, financial controls and human resources practices could adversely impact the success of any business combination.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

At December 30, 2006, 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	Sales, service, engineering and manufacturing
Owned	Milpitas, California	4,600	Corporate housing
Leased	Tokyo, Japan	7,500	Sales, service, 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	49,000	Manufacturing, sales, service and engineering
Leased	York, England	5,400	Corporate housing
Leased	Whasung-City, South Korea	4,780	Engineering
Leased	Dong-Guang, Taiwan	9,400	Sales and service
Leased	Shanghai, China	3,000	Sales and service
Leased	Austin, Texas	1,130	Sales and service
Leased	Concord, Massachusetts	32,000	Sales and service
Leased	Bend, Oregon	5,200	Sales and service

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

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

ITEM 3. LEGAL PROCEEDINGS

On March 9, 2005, Nova Measuring Instruments Ltd. (Nova) filed suit against us in the United States District Court for the Northern District of California. The complaint alleges that certain of our products infringe a Nova patent and seeks a preliminary and permanent injunction against their sale and unspecified damages. On December 1, 2006, the District Court issued a Markman ruling which, we believe, was favorable to our case, finding, among other things, that the phrase wafer transfer means which is contained in all patent claims asserted by Nova restricts Nova s patent claims to apply only to products used with a water track or its equivalents. Our integrated metrology products do not incorporate any water track. Markman hearings, also known as claim construction hearings, are held to determine the scope and meaning of the patent claims prior to the commencement of trial.

In late March 2006, we filed suit against Nova in the United States District Court for the Northern District of California. The complaint alleges that certain of Nova s products sold in the U.S. infringe intellectual property rights of Nanometrics and seeks injunctive relief and damages. Nova s motion for a stay pending completion of the re-examination process of the patent in the lawsuit by the U.S. Patent & Trademark Office was granted by the Court. In October 2006, we filed a new complaint against Nova alleging infringement of other intellectual property rights of ours and seeking injunctive relief and damages.

In August 2005, KLA filed a complaint against us in the United States District Court for the Northern District of California. The complaint alleges that certain of our 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. We do not believe that any of our products infringe the intellectual property of any third party and we intend to vigorously and aggressively defend ourselves in the litigation. As part of such defense, we have filed a request for re-examination of two of the allegedly infringed KLA-Tencor patents with the U.S. Patent & Trademark Office (PTO). These requests for re-examination were recently accepted for review by the PTO. In March 2006, we filed a motion for and were granted a stay in the patent litigation case until such re-examination is completed.

ITEM 4. SUBMISSION OF MATTERS TO A VOTE OF SECURITY HOLDERS

No matters were submitted to a vote of security holders during the quarter ended December 30, 2006.

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PART II

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

Market Information for Common Stock

Our common stock is quoted on the NASDAQ Global Market under the symbol NANO. The following table sets forth, for the periods indicated, the high and low 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.

	High	Low
2006		
First Quarter	$ 15.71	$ 10.97
Second Quarter	$ 15.43	$ 8.93
Third Quarter	$ 10.83	$ 8.50
Fourth Quarter	$ 10.37	$ 7.89
2005		
First Quarter	$ 16.39	$ 11.07
Second Quarter	$ 13.35	$ 9.81
Third Quarter	$ 12.88	$ 10.85
Fourth Quarter	$ 12.01	$ 9.77

Stockholders

On February 28, 2007, the last reported sales price of our common stock on the NASDAQ Global Market was $7.64 per share, and there were approximately 417 holders of record of our common stock.

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 December 30, 2006.

Plan category	Number of securities to be issued upon exercise of outstanding options, warrants and rights (a)	Weighted-average exercise price of outstanding options, warrants and rights (b)	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a)) (c)
Equity compensation plans approved by security holders	3,070,965	$ 11.10	1,042,228
Equity compensation plans not approved by security holders(1)	755,841	$ 8.55	39,672
Total	3,826,806	$ 10.60	1,081,900

(1) The material features of each plan adopted without the approval of security holders is set forth in Note 13 to the consolidated financial statements.

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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 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 filing of Nanometrics under the Securities Act of 1933, as amended or the Exchange Act.

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Recent Sales of Unregistered Securities

None.

Issuer Purchases of Equity Securities

None.

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 related notes included elsewhere in this Form 10-K.

	Fiscal Year				
	2006(c)	2005	2004	2003(a)	2002
	(in thousands, except per share data)				
Consolidated Statement of Operations Data:					
Net revenues:					
Products	$ 80,636	$ 61,012	$ 62,147	$ 34,592	$ 28,669
Service	15,738	9,531	7,784	7,010	6,054
Total net revenues	96,374	70,543	69,931	41,602	34,723
Costs and expenses:					
Cost of products	47,726	29,173	27,812	17,691	13,237
Cost of service	16,610	10,695	8,404	6,620	5,765
Research and development	14,253	12,533	12,827	13,399	13,765
Selling	18,605	10,945	11,748	11,496	10,862
General and administrative	21,305	11,882	5,137	4,689	5,104
Merger termination fee		(8,300)			
Asset impairment		2,232			1,077
Total costs and expenses	118,499	69,160	65,928	53,895	49,810
Income (loss) from operations	(22,125)	1,383	4,003	(12,293)	(15,087)
Other income (expense), net	(325)	346	122	686	589
Provision (credit) for income taxes	(323)	218	426	5,860(b)	(6,230)
Net income (loss)	$ (22,127)	$ 1,511	$ 3,699	$ (17,467)	$ (8,268)
Basic net income (loss) per share	$ (1.47)	$ 0.12	$ 0.30	$ (1.45)	$ (0.70)
Diluted net income (loss) per share	$ (1.47)	$ 0.11	$ 0.28	$ (1.45)	$ (0.70)
Shares used in per share computation:					
Basic	15,075	12,760	12,320	12,043	11,878
Diluted	15,075	13,471	13,364	12,043	11,878

(a) The fiscal year ended January 3, 2004 included 53 weeks, whereas the other periods presented included 52 weeks.

(b) The income tax provision for the fiscal year ended January 3, 2004 primarily represents a charge of $6,020 to record a valuation allowance against deferred income tax assets.

(c) We adopted Statement of Financial Accounting Standards No 123(R) Share-Based Payment effective January 1, 2006.

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	Fiscal Year End				
	2006	2005	2004	2003	2002
			(in thousands)		
Consolidated Balance Sheet Data:					
Cash, cash equivalents and short-term investments	$ 7,957	$ 45,394	$ 33,868	$ 29,892	$ 36,866
Working capital	49,721	76,731	68,588	59,587	74,776
Total assets	212,376	136,300	133,769	121,740	134,688
Long-term liabilities including current portion	1,813	1,796	4,164	4,350	4,761
Total stockholders equity	174,631	120,343	116,829	108,441	124,106

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

The following Management s Discussion and Analysis of Financial Condition and Results of Operations should be read in conjunction with our consolidated financial statements and the notes thereto included elsewhere in this Annual Report on Form 10-K. Our discussion contains forward-looking statements based upon current expectations that involve risks and uncertainties, such as our plans, objectives and intentions. In some cases, forward-looking statements can be identified by words such as believe , expect , anticipate , plan , potential , continue or similar expressions. Our actual results could differ materially from those anticipated in these forward-looking statements as a result of certain risk factors, including those set forth in Item 1A Risk Factors and elsewhere in this Annual Report on Form 10-K. We believe it is important to communicate our expectations to our investors. However, there may be events in the future that we are not able to predict accurately or over which we have no control. You should be aware that the occurrence of the events described in these risk factors and elsewhere in this Form 10-K could materially and adversely affect our business, operating results and financial condition. We disclaim any obligation to update information contained in any forward-looking statement.

Overview

We are an innovator in the field of metrology systems for the semiconductor manufacturing 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, and their suppliers are critical to our success. The demand by these manufacturers and suppliers is driven by the expected market demand for new products and new applications. The increasing complexity of the 300mm manufacturing processes for semiconductors is an important factor in the demand for our innovative metrology systems. The incorporation of smaller features sizes, copper interconnect technology and optical critical dimension technology are expected to result in increased demand. 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, which includes sales of accessories, but are also derived from customer service for the installed base of our products. In 2006, we derived 83.7% of our total net revenues from product sales and 16.3% of our total net revenues from services.

Important Themes and Significant Trends

The semiconductor equipment industry is characterized by cyclical growth. Recently, the industry emerged from an exceptionally long, cyclical downturn. Changing trends in the semiconductor industry is increasing the need for metrology as a major component of manufacturing systems. These trends include:

Conversion to 300mm Wafer Size. Semiconductor manufacturers are converting to 300mm wafers to achieve better production efficiencies. Most facilities are incorporating this wafer size, and our newest

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products are well-positioned to serve these facilities. It is important that we are successful in product evaluations with these new 300mm facilities in order to continue to gain market share.

Incorporation of Optical Critical Dimension Metrology in the Patterning Process. Our customers use phototlithographic processes to create patterns on wafers. Critical dimensions must be carefully controlled during this process. Our proprietary optical critical dimension systems can provide the critical process control of these circuit dimensions that is necessary for successful manufacturing of these state of the art devices.

Copper Interconnect Technology. The need for ever increasing device circuit speed coupled with lower power consumption has pushed semiconductor device manufacturers to begin the replacement of the subtractive aluminum interconnect process with copper damascene technology. This new copper processing technology has driven the need for new metrology techniques such as non-destructive laser profiling and the use of optical critical dimension (OCD) technology for control of the copper process.

Drive toward 45nm and 32nm Feature Sizes. In an effort to reduce costs and increase device performance, semiconductor manufacturers are decreasing both the die size and feature size. Monitoring the increased tolerance requirements on smaller features sizes requires increased use of metrology systems. In addition, new processing methodologies such as dual patterning are driving tighter requirements for imaging overlay metrology. Our thin film, overlay and critical dimension metrology systems are well suited and are being adopted for these next generation processes

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.

Adoption of New Types of Thin Film Materials. Manufacturers are adopting new processes and technologies that increase the importance and utilization of thin film metrology systems. To achieve greater semiconductor device speed, manufacturers are utilizing copper and new, low dielectric constant (low k) insulating materials. Our advanced metrology solutions are required in the manufacturing process to characterize these materials.

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.

Critical Accounting Policies

The preparation of our financial statements conforms with 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.

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Revenue Recognition We recognize revenue when persuasive evidence of an arrangement exists, delivery has occurred or services have been rendered, the sales price is fixed or determinable, and collectibility is reasonably assured. Product revenue includes hardware and also software that is incidental to the products. For product sales to existing customers, revenue recognition generally occurs at the time of shipment, as our terms are FOB shipping point, if we have met defined customer acceptance experience levels with both the customer and the specific type of equipment. All other product revenue is recognized upon customer acceptance including deemed acceptances. In Japan, where risk of loss and title transfers to the customer upon customer technical acceptance, revenue is recognized upon customer technical acceptance.

All of our products are assembled prior to shipment to our customers. We often perform limited installation for our customers; however such installation is inconsequential and perfunctory as it is also performed by third parties. Revenue related to spare parts sales is recognized generally upon shipment and is included as part of service revenue. Service revenue also includes service contracts and non-warranty, billable repairs of systems. Whereas service revenue related to service contracts is recognized ratably over the period under contract, service revenue related to billable repairs of systems is recognized as services are performed. 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, we follow the guidance of Financial Accounting Standards Board Technical Bulletin 90-1, *Accounting for Separately Priced Extended Warranty and Product Maintenance Contracts,* associated revenue is deferred and recognized to income ratably over the term of the contract. Unearned maintenance and service contract revenue is included in deferred revenue. Furthermore, generally we do not provide our customers with any return rights. Service contracts may be purchased by the customer when the warranty period expires.

In limited situations we have multiple deliverables in our customer arrangements. Those situations arise with the sale of repair services and parts together. Revenues on such sales are recognized when both the services and parts have been delivered. We also provide technical support to our customers as part of our warranty program. Upon recognition of product revenue, a liability is recorded for anticipated warranty costs.

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 collectibility 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 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 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. 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

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less favorable than those that we project, additional reserves may be required. Inventories are stated at the lower of cost, using the first-in, first-out method, or market value.

Goodwill and Other Intangible Assets Goodwill represents the excess of the purchase price of net tangible and intangible assets acquired in business combinations over their estimated fair value. Goodwill and other intangible assets acquired in a purchase business combination and determined to have an indefinite useful life are not amortized, but instead tested for impairment at least annually in accordance with the provisions of Statement of Financial Accounting Standards (SFAS) No. 142, *Goodwill and Other Intangible Assets.* The Company determined that there were two reporting units, Products and Services. The Company s impairment review process, which is completed as of the last day of November of each year, compares the fair value of the Company s reporting unit to the carrying value, including the goodwill related to each of the reporting units.

To determine the fair value, the Company uses the income method and is based on a discounted future cash flow approach that uses estimates including the following for the Company s reporting unit: revenue, based on assumed market growth rates and the Company s assumed market share; estimated costs; and appropriate discount rates based on the particular reporting unit s weighted average cost of capital. Estimates of market growth, market 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 used to manage the underlying businesses. The Company s business consists of both established and emerging technologies and forecasts for emerging technologies are based upon internal estimates and external sources rather than historical information. If future forecasts are revised, they may indicate or require future impairment charges. The Company also considered its market capitalization on the dates of the impairment test in determining the fair value of the respective businesses.

The fair value estimates are based on the extensive use of management s estimates and assumptions, and the result of these procedures can have a significant impact on the Company s future operating results.

Long-Lived Assets The Company accounts for long-lived assets in accordance with the provisions of SFAS No. 144, *Accounting for the Impairment or Disposal of Long-Lived Assets*. The statement requires the Company to evaluate its long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may be not 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.

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, 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.

Income Tax Assets and Liabilities We account for income taxes based on Statement of Financial Accounting Standards (SFAS) No. 109 *Accounting 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

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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 On January 1, 2006, the Company adopted SFAS No. 123 (revised 2004), *Share-Based Payment*, (SFAS 123(R)), which requires companies to estimate the fair value of share-based payment awards 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. In March 2005, the SEC issued SAB 107 relating to SFAS 123(R). We have applied the provisions of SAB 107 in our adoption of SFAS 123(R). The Company adopted SFAS 123(R) using the modified prospective transition method, which requires the application of the accounting standard as of January 1, 2006, the first day of the Company s fiscal year 2006. In accordance with the modified prospective transition method, the Company s financial statements for prior periods have not been restated to reflect, and do not include, the impact of SFAS 123(R). As of December 30, 2006, total unrecognized compensation costs related to unvested stock options was $8.0 million which is expected to be recognized as compensation expense over a weighted average period of 2.1 years. Prior to the adoption of SFAS 123(R), the Company accounted for stock-based awards to employees and directors using the intrinsic value method in accordance with APB 25 as allowed under SFAS No. 123, *Accounting for Stock-Based Compensation* (SFAS No. 123). Under the intrinsic value method, no stock-based compensation expense had been recognized in the Company s consolidated statements of operations, because the exercise price of the Company s stock options granted to employees and directors equaled the fair market value of the underlying stock at the date of grant.

See Note 3 below for more information.

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Results of Operations

The following table presents our consolidated statements of operations data as a percentage of total net revenues for fiscal years 2006, 2005 and 2004 ended December 30, 2006, December 31, 2005 and January 1, 2005, respectively.

	Fiscal Year		
	2006	2005	2004
Net revenues:			
Products	83.7%	86.5%	88.9%
Service	16.3	13.5	11.1
Total net revenues	100.0	100.0	100.0
Cost and expenses:			
Cost of products	49.5	41.4	39.8
Cost of service	17.2	15.2	12.0
Research and development	14.8	17.8	18.3
Selling	19.3	15.5	16.8
General and administrative	22.1	16.8	7.4
Merger termination fee		(11.8)	
Asset impairment		3.2	
Total cost and expenses	123.0	98.0	94.3
Income (loss) from operations	(23.0)	2.0	5.7
Other income (expense):			
Interest income	0.9	1.4	0.4
Interest expense	(0.1)	(0.1)	(0.1)
Other, net	(1.2)	(0.8)	(0.1)
Total other income (expense), net	(0.3)	0.5	0.2
Income (loss) before provision (credit) for income taxes	(23.3)	2.5	5.9
Provision (credit) for income taxes	(0.3)	0.3	0.6
Net income (loss)	(23.0)%	2.1%	5.3%

Fiscal years 2006, 2005 and 2004 (ended December 30, 2006, December 31, 2005 and January 1, 2005, respectively)

Total net revenues. Our net revenues were comprised of the following categories:

	Fiscal Year			
	2006	2005	Change	
Automated systems	$ 56,114	$ 37,861	$ 18,253	48.2%
Integrated systems	24,522	23,151	1,371	5.9
Service	15,738	9,531	6,207	65.1

Total net revenues	$ 96,374	$ 70,543	$ 25,831	36.6%

	Fiscal Year			
	2005	2004	Change	
Automated systems	$ 37,861	$ 40,545	$ (2,684)	(6.6)%
Integrated systems	23,151	21,602	1,549	7.2
Service	9,531	7,784	1,747	22.4
Total net revenues	$ 70,543	$ 69,931	$ 612	0.9%

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In 2006, net revenues from automated systems increased as compared to 2005 as a result of additional revenues of $16.2 million and $4.5 million from Accent and Soluris, respectively, and higher demand for our automated products as semiconductor manufacturers continue their conversion to 300mm wafer to achieve better production efficiencies. The increase in revenues was partially offset by a $1.9 million decrease of sales from our flat panel display business unit, or FPD, in fiscal 2005 due to the sale of our FPD business unit effective in October 2005 (see Sale of Flat Panel Display Business Unit , below). Sales of our integrated systems increased slightly as our channel distributors continue to integrate our products with growing end customers demand. Service revenue increased as a result of our Accent and Soluris acquisitions and due to more customers signing up for post-warranty service contracts.

In 2005, net revenues from automated systems decreased due to decreased sales of our FPD products of approximately $7 million from 2004. Decreases in FPD revenues were offset by increases in other automated stand alone systems, particularly our Atlas automated metrology product as our customers continue to expand their capacity for 300mm production. Revenue from integrated systems increased from their 2004 level, primarily due to increased penetration in the Japanese market for our integrated metrology systems through our OEM relationship with Ebara. The increase in product revenues resulted from greater demand for semiconductor process control metrology equipment, particularly in the U.S. and Asia as customers added capacity in semiconductor production facilities as a result of continuing favorable economic conditions. The increase in service revenue was primarily attributable to higher sales of parts and services in the U.S. and Asia in 2005, which we believe was due to a growing installed base of systems that have passed their warranty periods.

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

	2006	2005	2004
Products	40.8%	52.2%	55.2%
Service	(5.5)	(12.2)	(8.0)

The product gross margin decreased in 2006 as compared to 2005 due to higher warranty costs of $2.2 million as well as acquisition-related charges of $3.5 million related to the intangible assets amortization for developed technology and backlog related to the Accent and Soluris acquisitions. The negative gross margin for Service improved in 2006 as compared to 2005 by the positive service margins received from the Accent and Soluris operations, however, we have not been able to fully recover the higher costs associated with meeting our customers increasing service demands.

The 2005 product gross margin decreased to 52.2% from 55.2% in 2004 due primarily to the decline in profitability of our FPD products (see Sale of Flat Panel Display Business Unit , below) and to a lesser extent, a higher provision for obsolete inventory as compared to the prior year.

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

	Fiscal Year			
	2006	2005	Change	
Research and development	$ 14,253	$ 12,533	$ 1,720	13.7%
Selling	18,605	10,945	7,660	70.0
General and administrative	21,305	11,882	9,423	79.3
Merger termination fee		(8,300)	8,300	100.0
Asset impairment		2,232	(2,232)	(100.0)
Total operating expenses	$ 54,163	$ 29,292	$ 24,871	84.9%

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	Fiscal Year			
	2005	2004	Change	
Research and development	$ 12,533	$ 12,827	$ (294)	(2.3)%
Selling	10,945	11,748	(803)	(6.8)
General and administrative	11,882	5,137	6,745	131.3
Merger termination fee	(8,300)		(8,300)	n/a
Asset impairment	2,232		2,232	n/a
Total operating expenses	$ 29,292	$ 29,712	$ (420)	(1.4)%

Research and development. The increase in research and development expenses in 2006 is due to the additional expenses of $3.0 million and $0.9 million associated with our acquisitions of Accent and Soluris, respectively, and to stock-based compensation charges of $1.3 million related to our adoption of SFAS 123(R). The increase was partially offset by cost cutting initiatives undertaken in the fourth quarter of 2005 including the sale of our flat panel display business unit in Japan and its related research and development function of $0.6 million and reductions in headcount related expenses in the United States.

Research and development expenses were essentially flat in 2005 as compared to 2004. The decrease was primarily due to a research grant received from the Korean Government of $0.3 million and reflective of our cost cutting initiatives undertaken in the fourth quarter of 2005 including the sale of our FPD business unit in Japan.

In the United States and United Kingdom, our research and development efforts are focused on semiconductor metrology. In South Korea, our research and development efforts are focused on the overlay metrology. We are committed to the development of new and enhanced products and believe that new product introductions are required for us to maintain a competitive position.

Selling. Selling increased in 2006 due to the addition of $3.9 million associated with our acquisitions of Accent on July 21, 2006 and $1.8 million associated with Soluris on March 15, 2006. In addition we have incurred stock-based compensation charges of $1.0 million related to our adoption of SFAS 123(R). Selling expenses decreased in 2005 as compared to 2004 primarily due to headcount reductions in sales and personnel-related expenses.

General and administrative. General and administrative expenses in 2006 increased as a result of increased headcount-related expenses of $3.0 million as we have expanded and enhanced our finance and administrative functions, higher legal expenses of $2.3 million associated with our patent infringement lawsuits with KLA and with Nova Measuring Instruments Ltd., additional general and administrative expense from our acquisitions of Accent and Soluris of $3.3 million, stock-based compensation charges of $2.1 million related to our adoption of SFAS 123(R) and $0.6 million of higher charges for professional services associated with compliance with regulatory requirements under the Sarbanes Oxley Act. General and administrative expenses increased in 2005 as a result of professional services associated with compliance with regulatory requirements under the Sarbanes Oxley Act, legal expenses related to our ongoing patent infringement lawsuits, increased headcount as we have expanded and enhanced our finance function and expenses associated with the restatement of our financial results for 2004 and the first two quarters of 2005.

Merger termination fee. On January 21, 2005, we entered into a definitive merger agreement with August Technology Corporation. On June 28, 2005, we and August Technology announced the termination of the merger agreement. On that date, in accordance with the terms of the merger agreement, August Technology paid us a merger termination fee of $8.3 million plus $2.6 million as reimbursement of our expenses associated with the merger agreement which we had capitalized in the first and second quarters of 2005.

Asset impairment. In 2005 we recorded an asset impairment charge of $2.2 million related to certain assets in our FPD business unit. Under SFAS No. 144, *Accounting for the Impairment or Disposal of Long-Lived Assets*, we should assess the recoverability of assets when events become known which would indicate potential

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impairment. We evaluated the estimated future cash flows of certain asset groups in our FPD business unit and determined the undiscounted estimated future cash flows would be insufficient to recover the carrying value of those assets. The impairment charge was measured based on the excess carrying value of the asset groups in excess of the associated discounted future cash flows. Accordingly, we recorded an asset impairment charge during the second quarter of 2005. There was no such impairment charge during 2006.

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

	Fiscal Year			
	2006	2005	Change	
Interest income	$ 851	$ 998	$ (147)	(14.7)%
Interest expense	(60)	(73)	13	(17.8)
Other income (loss)	(1,116)	(579)	(537)	92.7
Total other income (expense), net	$ (325)	$ 346	$ (671)	(193.9)%

	Fiscal Year			
	2005	2004	Change	
Interest income	$ 998	$ 276	$ 722	261.6%
Interest expense	(73)	(110)	37	(33.6)
Other income (loss)	(579)	(44)	(535)	1,215.9
Total other income (expense), net	$ 346	$ 122	$ 224	183.6%

The lower interest income is due to lower average cash and cash equivalent balances and lower yields obtained on our investments. Interest expenses relate to our debt obligations in Japan and the United Kingdom and are expected to decrease, before exchange rate adjustments, with the balance of the debt. With the acquisition of Accent, we incurred foreign exchange losses due to exchange rate fluctuations associated with extensive intercompany balances assumed with the transaction. Other income (expense) includes a gain on the sale of assets, commission income and rental income and miscellaneous expenses.

Total other income increased in 2005 as compared to 2004 due to higher yields on cash investments and, to a lesser extent, higher cash investment balances. The increase in interest income was offset by higher currency transaction losses, primarily due to the weakening Japanese yen.

Provision/credit for income taxes. The credit for income taxes for 2006 of $0.3 million was primarily due to benefiting the losses of certain foreign jurisdictions where sufficient deferred tax liabilities exist. Our effective tax rate was (1.4)%, 12.6% and 10.3% in 2006, 2005 and 2004, respectively. Our income tax expense in 2005 and 2004 was primarily a result of foreign income taxes as our U.S. federal income taxes were primarily offset by a reduction in deferred tax asset valuation allowances. 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.

Sale of Flat Panel Display Business Unit

During 2005, our FPD business unit experienced a significant decline in net revenues and related gross profit as other competitors entered the market for these products. For 2005, flat panel sales declined to approximately $2 million, and less than 10% gross margin, from approximately $9 million of sales and gross margins of approximately 45% for the corresponding prior year. Because of the expected continued decline in profitability, we decided to exit this market.

In September 2005, we entered into an agreement to sell our FPD business unit to Toho Technology Corporation, or Toho, effective October 2005. Toho received a non-exclusive perpetual license to use and sell

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our Film Thickness Measurements Systems in the flat panel market in exchange for $1.5 million. In addition, Toho will pay us a 7% royalty on future sales in excess of ¥800 million. Toho also purchased certain other existing assets from us including $0.9 million of inventory and $0.1 million of equipment related to the FPD business unit. We did not recognize a gain or loss on this transaction as we had previously evaluated the estimated future cash flows of the FPD asset group and determined the undiscounted estimated future cash flows would be insufficient to recover the carrying value of those assets and we recorded an impairment charge in the second quarter of 2005 (see Asset impairment above).

We have also agreed with Toho to continue to provide sales efforts for FPD products and maintenance service for installed units in certain Asian countries. We will receive a commission from Toho on their future sales of FPD products in certain designated countries. As a result of the sale of the FPD business unit, we do not expect this revenue will be replaced except to the extent that we receive future sales commissions from Toho. We expect the sale of the FPD business unit to have an accretive effect to future operating results and cash flows.

Liquidity and Capital Resources

At December 30, 2006, our cash and cash equivalents totaled $8.0 million as compared to $45.4 million at December 31, 2005. At December 30, 2006, we had working capital of $49.7 million compared to $76.7 million at December 31, 2005. The $32.5 million decrease in cash, cash equivalents and investments for the year ended December 30, 2006 resulted primarily from cash used in operating activities of $16.7 million, costs associated with our acquisitions of Soluris and Accent Optical of $7.5 million and repayment of debt of $15.6 million, partially offset by maturities of short term investments of $5.0 million and the sale of shares under our employee stock option and purchase plans of $2.0 million. As we have successfully closed both the Soluris and Accent Optical transactions, the ongoing need for cash associated with these transactions is expected to be substantially reduced.

We maintain arrangements under which eligible accounts receivable are sold without recourse to unrelated third-party financial institutions. The sale of these receivables accelerates our cash collection and reduces our credit exposure. See note 4 of the Consolidated Financial Statements for more information.

Uses of net cash for operating activities was $16.7 million for the year ended December 30, 2006 was comprised of a net loss of $22.1 million, increases in working capital of $7.0 million offset by non-cash expenses of $12.4 million. The non-cash expenses for depreciation and amortization of $7.8 million was driven by acquired intangible assets associated with our acquisitions of Accent and Soluris and by stock-based compensation of $5.0 million. For comparison, cash provided by operating activities during the year ended December 31, 2005 of $7.2 million was comprised of net income of $1.5 million, including the merger termination fee of $8.3 million, non-cash charges of $4.7 million including depreciation, amortization and an asset impairment charge of $2.2 million, and reductions of working capital of $1.0 million.

Investing activities used net cash of $3.8 million and provided net cash of $14.3 million and $3.2 million in 2006, 2005 and 2004, respectively. Cash used by investing activities for 2006 included cash outlays of $7.5 million related to our acquisitions of Soluris and Accent Optical Technologies. Our capital expenditures were $1.1 million $0.3 million and $0.9 million in 2006, 2005, and 2004, respectively. Offsetting the uses of cash was the net reduction in our short-term investments, primarily U.S. Treasury Bills of $5.0 million, $13.0 million and $4.0 million in 2006, 2005 and 2004, respectively. The timing of purchases and the initial maturities of U.S. Treasury Bills result in their classification as cash and cash equivalents or short-term investments.

Financing activities used net cash of $13.2 million and provided net cash of $3.1 million and $2.3 million in 2006, 2005 and 2004, respectively. Cash used by financing activities for 2006 was due to repayments of short-term and long-term debt in Japan of $1.6 million and repayment of $14.0 million of debt assumed in the Accent merger. These amounts were partially offset by proceeds from the sale of stock from the exercise of employee stock options of $2.0 million. Cash provided by financing activities in 2005 and 2004 resulted primarily from the

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sale of shares under our stock options plans, offset to some extent by the net repayment of debt obligations by our Japanese subsidiary.

We have evaluated and will continue to evaluate the acquisition of products, technologies or businesses that are complementary to our business. These activities may result in product and business investments, which may affect our cash position and working capital balances. Some of these activities might require significant cash outlays. However, we believe working capital including cash and cash equivalents and funds available to us for our line of credit, will be sufficient to meet our needs through at least the next twelve months. However, we may require additional cash to fund acquisitions or investment opportunities or other events may arise in the future. In these instances, we may seek to raise such additional funds through public or private equity or debt financings or from other sources. We may not be able to obtain adequate or favorable financing at that time. Any equity financing we obtain may dilute your ownership interests and any debt financing could contain covenants that impose limitations on the conduct of our business.

In February 2007 we entered into a two-year agreement for a revolving line of credit facility in a maximum principal amount of $15 million. The instrument governing the facility includes certain financial covenants regarding 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 rate or at the Libor rate plus 2.25%. The revolving line of credit agreement includes a provision for the issuance of commercial or standby letters of credit by the bank on our behalf. The value of all letters of credit outstanding reduces the total line of credit available. The revolving line of credit is collateralized by a blanket lien on all of our domestic assets excluding intellectual property. Although we have no current plans to request any advances under this credit facility, we may use the proceeds of any future borrowing for general corporate purposes or for future acquisitions or expansion of our business.

Contractual obligations

The following table summarizes our contractual cash obligations as of December 30, 2006, 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(1)	$ 1,807	$ 486	$ 983	$ 338	$
Operating lease obligations	2,301	1,478	758	65	

(1) Our debt obligations relate to the expansion of our Japanese facilities and to an equipment financing arrangement in the United Kingdom. All amounts include interest, which we are obligated to pay.

We maintain certain open inventory purchase commitments 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 December 30, 2006 was approximately $11 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.

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.

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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: 53.9%, 66.7% and 71.8% of sales in 2006, 2005 and 2004, 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 of $1.2 million, $0.6 million and $0.1 million in 2006, 2005 and 2004, respectively. In addition, our exposure to foreign exchange rate fluctuations arises in part from current intercompany accounts in which costs (primarily product costs) from the United States and the United Kingdom are charged to our foreign sales subsidiaries. These intercompany accounts are typically denominated in U.S. dollars and the net payable to the United States parent amounted to $2.7 million as of December 30, 2006. A hypothetical 10% change in the foreign currency exchange rate at December 30, 2006 would result in less than $0.3 million increase or decrease in transaction gains or losses which would be included in our net income.

In foreign locations we have $2.2 million of net liabilities, including long-term loans payable to the United States and, as a result, a hypothetical 10% change in the foreign currency exchange rate at December 30, 2006 would result in $0.2 million increase or decrease in the net assets and a corresponding increase or decrease in other comprehensive income.

Interest Rate Risk

Our investments in marketable securities are subject to interest rate risk. However, due to the short-term nature of these investments, interest rate changes would not have a material impact on their value at December 30, 2006 and December 31, 2005. We also have fixed-rate debt obligations in Japan and the United Kingdom that are denominated in yens and British pounds sterling and have no interest rate risk. At December 30, 2006 and December 31, 2005, our total debt obligation was $1.8 million and $1.8 million, respectively, with a long-term portion of $1.3 million and $1.4 million, respectively. A hypothetical 10% change in interest rates at December 30, 2006 would not have a material impact on our results of operations.

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ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

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

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Report of Independent Registered Public Accounting Firm

Board of Directors and Stockholders

Nanometrics Incorporated

Milpitas, CA

We have audited the accompanying consolidated balance sheets of Nanometrics Incorporated as of December 30, 2006 and December 31, 2005, and the related consolidated statements of operations, stockholders equity and comprehensive income (loss), and cash flows for each of the three fiscal years in the period ended December 30, 2006. We have also audited the consolidated financial statement schedule listed in Item 15 for the years ended December 30, 2006, December 31, 2005, and January 1, 2005. These financial statements and schedule are the responsibility of the Company s management. Our responsibility is to express an opinion on these financial statements 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. An audit 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 December 30, 2006 and December 31, 2005, and the results of its operations and its cash flows for each of the three fiscal years in the period ended December 30, 2006, in conformity with accounting principles generally accepted in the United States of America.

As discussed in Note 3 to the consolidated financial statements, effective January 1, 2006, the Company adopted the provisions of Statement of Financial Accounting Standards No. 123 (revised 2004), *Share-Based Payment*.

Also, in our opinion, the schedule presents fairly, in all material respects, the information set forth therein.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the effectiveness of Nanometrics Incorporated internal control over financial reporting as of December 30, 2006, based on criteria established in *Internal Control Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) and our report dated March 14, 2007 expressed an unqualified opinion thereon.

/s/ BDO Seidman, LLP

San Francisco, CA

March 14, 2007

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NANOMETRICS INCORPORATED

CONSOLIDATED BALANCE SHEETS

(In thousands, except share amounts)

	December 30, 2006	December 31, 2005
ASSETS		
Current assets:		
Cash and cash equivalents	$ 7,957	$ 40,445
Short-term investments		4,949
Accounts receivable, net of allowances of $841 and $592, as of December 30, 2006 and December 31, 2005, respectively	24,888	18,983
Inventories	47,813	25,656
Prepaid expenses and other	3,639	1,259
Total current assets	84,297	91,292
Property, plant and equipment, net	43,294	42,928
Goodwill and indefinite lived intangible assets	55,217	
Intangible assets, net	27,583	639
Other assets	1,985	1,441
Total assets	$ 212,376	$ 136,300
LIABILITIES AND STOCKHOLDERS EQUITY		
Current liabilities:		
Revolving line of credit	$	$ 1,186
Accounts payable	9,155	3,060
Accounts payable to related party	181	288
Accrued payroll and related expenses	5,227	1,540
Deferred revenue	10,451	3,448
Other current liabilities	8,381	3,869
Income taxes payable	695	770
Current portion of debt obligations	486	400
Total current liabilities	34,576	14,561
Deferred income taxes	1,848	
Debt obligations	1,321	1,396
Total liabilities	37,745	15,957
Commitments and contingencies (See Note 12)		
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; 18,141,589 and 12,990,894, respectively, outstanding	18	107,294
Additional paid-in capital	182,096	
Retained earnings (accumulated deficit)	(9,909)	12,218
Accumulated other comprehensive income	2,426	831

Total stockholders equity	174,631	120,343
Total liabilities and stockholders equity	$ 212,376	$ 136,300

See notes to consolidated financial statements.

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NANOMETRICS INCORPORATED

CONSOLIDATED STATEMENTS OF OPERATIONS

(In thousands, except per share amounts)

	Years Ended December 31,		January 1,
	2006	**2005**	**2005**
Net revenues:			
Products	$ 80,636	$ 61,012	$ 62,147
Service	15,738	9,531	7,784
Total net revenues	96,374	70,543	69,931
Costs and expenses:			
Cost of products	47,726	29,173	27,812
Cost of service	16,610	10,695	8,404
Research and development	14,253	12,533	12,827
Selling	18,605	10,945	11,748
General and administrative	21,305	11,882	5,137
Merger termination fee		(8,300)	
Asset impairment and disposition		2,232	
Total costs and expenses	118,499	69,160	65,928
Income (loss) from operations	(22,125)	1,383	4,003
Other income (expense):			
Interest income	851	998	276
Interest expense	(60)	(73)	(110)
Other, net	(1,116)	(579)	(44)
Total other income, net	(325)	346	122
Income (loss) before income taxes	(22,450)	1,729	4,125
Provision (credit) for income taxes	(323)	218	426
Net income (loss)	$ (22,127)	$ 1,511	$ 3,699
Basic net income (loss) per share	$ (1.47)	$ 0.12	$ 0.30
Diluted net income (loss) per share	$ (1.47)	$ 0.11	$ 0.28
Shares used in per share computation:			
Basic	15,075	12,760	12,320
Diluted	15,075	13,471	13,364

See notes to consolidated financial statements.

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NANOMETRICS INCORPORATED

CONSOLIDATED STATEMENTS OF STOCKHOLDERS EQUITY AND COMPREHENSIVE INCOME (LOSS)

(In thousands, except share amounts)

	Common Stock		Additional	Retained Earnings	Accumulated Other	Total	
	Shares	Amount	Paid-In Capital	(Accumulated Deficit)	Comprehensive Income	Shareholders Equity	Comprehensive Income (Loss)
Balances, January 3, 2004	12,166,016	$ 101,099	$	$ 7,008	$ 334	$ 108,441	
Comprehensive income:							
Net income				3,699		3,699	$ 3,699
Other comprehensive income, net of tax:							
Foreign currency translation adjustments					1,597	1,597	1,597
Comprehensive income							$ 5,296
Issuance of common stock under stock-based compensation plans	400,620	3,052				2,432	
Tax benefit of employee stock transactions		40				40	
Balances, January 1, 2005	12,566,636	104,191		10,707	1,931	116,829	
Comprehensive income:							
Net income				1,511		1,511	$ 1,511
Other comprehensive income, net of tax:							
Foreign currency translation adjustments					(1,100)	(1,100)	(1,100)
Comprehensive income							$ 411
Issuance of common stock under stock-based compensation plans	424,258	2,947				2,947	
Tax benefit of employee stock transactions		156				156	
Balances, December 31, 2005	12,990,894	107,294		12,218	831	120,343	
Reincorporation in Delaware		(107,281)	107,281				
Comprehensive income:							
Net loss				(22,127)		(22,127)	$ (22,127)
Other comprehensive income, net of tax:							
Foreign currency translation adjustments					1,595	1,595	1,595
Comprehensive loss							$ (20,532)
Issuance of common stock under stock-based compensation plans	285,481		1,970			1,970	
Stock-based compensation expense			5,025			5,025	
Issuance of common stock in the Accent acquisition	4,865,214	5	67,820			67,825	
Balances, December 30, 2006	18,141,589	$ 18	$ 182,096	$ (9,909)	$ 2,426	$ 174,631	

See notes to consolidated financial statements.

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NANOMETRICS INCORPORATED

CONSOLIDATED STATEMENTS OF CASH FLOWS

(In thousands)

	Years Ended December 30, 2006	December 31, 2005	January 1, 2005
Cash flows from operating activities:			
Net income (loss)	$ (22,127)	$ 1,511	$ 3,699
Reconciliation of net income (loss) to net cash provided by (used in) operating activities:			
Depreciation and amortization	7,765	2,437	2,667
Stock-based compensation	5,025		
Asset impairment		2,232	
Loss (gain) on disposal of asset	21	(6)	
Deferred tax liability	(437)		
Changes in assets and liabilities:			
Accounts receivable	4,218	1,717	(7,124)
Inventories	(10,413)	(731)	(598)
Prepaid income taxes			
Prepaid expenses and other current assets	(799)	(555)	(48)
Accounts payable, accrued and other current liabilities	(6,129)	1,138	2,399
Deferred revenue	6,223	63	1,089
Income taxes payable	(86)	(558)	6
Net cash provided by (used in) operating activities	(16,739)	7,248	2,090
Cash flows from investing activities:			
Purchase of certain net assets in connection with acquisitions, net of cash acquired	(7,538)		
Purchases of short-term investments		(50,030)	(35,976)
Sales/maturities of short-term investments	4,949	63,000	40,000
Purchases of property, plant and equipment	(1,183)	(322)	(871)
Proceeds from sale of assets		1,603	
Net cash provided by (used in) investing activities	(3,772)	14,251	3,153
Cash flows from financing activities:			
Proceeds from issuance of debt obligations	424	1,789	2,473
Repayments of debt obligations	(15,578)	(1,625)	(3,177)
Proceeds from issuance of common stock under employee stock purchase and stock option plans	1,970	2,947	3,052
Net cash provided by (used in) financing activities	(13,184)	3,111	2,348
Effect of exchange rate changes on cash and cash equivalents	1,207	(114)	409
Net increase (decrease) in cash and cash equivalents	(32,488)	24,496	8,000
Cash and cash equivalents, beginning of year	40,445	15,949	7,949
Cash and cash equivalents, end of year	$ 7,957	$ 40,445	$ 15,949

Supplemental disclosure of cash flow information:			
Cash paid for interest	$ 46	$ 70	$ 102
Cash paid (received) for income taxes, net	$ (22)	$ 1,061	$ 327
Fair value of Nanometrics shares issued to Accent stockholders	$ 67,481	$	$
Fair value of Nanometrics shares issuable to former Accent optionees	$ 344	$	$

See notes to consolidated financial statements.

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NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Years Ended December 30, 2006, December 31, 2005 and January 1, 2005

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 for customers in the semiconductor and, until October 2005, flat panel display industries (See Note 15 Asset Impairment and Disposition). 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.

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 reporting period. Actual results could differ from those estimates. Estimates are used for, but not limited to, the provision for doubtful accounts, the provision for excess, obsolete, or slow moving inventories, depreciation and amortization, valuation of intangible assets and goodwill, 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 in the consolidated statements of operations in the period incurred and consist of a loss of $1.2 million in 2006, a loss of $0.6 million in 2005 and a loss of $0.1 million in 2004.

Revenue Recognition The Company recognizes revenue when persuasive evidence of an arrangement exists, delivery has occurred or services have been rendered, the seller s price is fixed or determinable, and collectibility is reasonably assured. Product revenue includes hardware and software that is incidental to the products. For product sales to existing customers, revenue recognition generally occurs at the time of shipment, as the Company s terms are FOB shipping point, if defined customer acceptance experience levels have previously been met with both the customer and the specific type of equipment. All other product revenues are recognized upon customer acceptance including deemed acceptance. In Japan, where risk of loss and title transfers to the customer upon customer technical acceptance, revenue is recognized upon customer technical acceptance.

All products are assembled prior to shipment to customers. The Company often performs limited installation for its customers, however, such installation is inconsequential and perfunctory as it may also be performed by third parties. Revenue related to spare parts sales is recognized generally upon shipment and is included as part

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NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years Ended December 30, 2006, December 31, 2005 and January 1, 2005

of service revenue. Service revenue also includes service contracts and non-warranty, billable repairs of systems. Whereas service revenue related to service contracts is recognized ratably over the period under contract, service revenue related to billable repairs of systems not under contract is recognized as services are performed. On occasion, customers request a warranty period longer than the Company s standard 12 month warranty. In those instances where extended warranty services are separately quoted to the customer, the Company follows the guidance of Financial Accounting Standards Board (FASB) Technical Bulletin 90-1, *Accounting for Separately Priced Extended Warranty and Product Maintenance Contracts,* associated revenue is deferred and recognized to income ratably over the term of the contract. Unearned maintenance and service contract revenue is included in deferred revenue. Furthermore, generally the Company does not provide its customers with any return rights. Service contracts may be purchased by the customer when the warranty period expires.

In limited situations, multiple deliverables may be included in customer arrangements. Those situations arise with the sale of repair services and parts together. Revenues on such sales are recognized when both the services and parts have been delivered. The Company also provides technical support to its customers as part of its warranty program. Upon recognition of product revenue, a liability is recorded for anticipated warranty costs.

Fiscal Year The Company uses a 52/53 week fiscal year ending on the Saturday nearest to December 31. Accordingly, 2006 consisted of 52 weeks and ended on December 30, 2006, 2005 consisted of 52 weeks and ended on December 31, 2005 and 2004 consisted of 52 weeks and ended on January 1, 2005.

Cash and Cash Equivalents Cash and cash equivalents include cash and highly liquid debt instruments with original maturities of three months or less when purchased.

Short-Term Investments Short-term investments consist of United States Treasury Bills which are stated at fair value based on quoted market prices. Short-term investments are classified as available-for-sale based on Nanometrics intended use. The cost of securities sold is based on the specific identification method. The unrealized gains and losses from short-term investments are included in other comprehensive income (loss). Realized gains and losses and declines in value judged to be other than temporary are included in other income or expense. Such amounts have not been material during any of the periods presented. All of the short-term investments have a contractual maturity of one year or less.

Fair Value of Financial Instruments Financial instruments include cash and cash equivalents, short-term investments, accounts receivable, accounts payable and debt obligations. Cash equivalents and short-term investments are stated at fair market value based on quoted market prices. The carrying values of accounts receivable, accounts payable and short-term debt obligations approximate their fair values because of the short-term maturity of these financial instruments. For long-term debt obligations, because the interest rates on such debt are fixed and the interest rates for long-term rates have not fluctuated significantly, the carrying values of long-term debt obligations approximate their fair values.

Allowance for Doubtful Accounts The Company maintains an allowance for estimated losses resulting from the inability of its customers to make required payments. Customer credit limits are established through a process of reviewing their financial history and stability. 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 collectibility 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 the allowance for doubtful accounts reflects the risk associated with smaller rather than larger customers and that reported

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NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years Ended December 30, 2006, December 31, 2005 and January 1, 2005

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 cost, using the first-in, first-out method, or market. The Company is exposed to a number of economic and industry factors that could result in portions of its 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, Nanometrics ability to meet changing customer requirements, competitive pressures in products and prices, and the availability of key components from its suppliers. The Company has established inventory reserves when conditions exist that suggest that its inventory may be in excess of anticipated demand or is obsolete based upon assumptions about future demand for its products and market conditions. The Company regularly evaluates its ability to realize the value of its 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 age of the inventory and potential cost to refurbish the inventory prior to sale is also considered. When recorded, reserves are intended to reduce the carrying value of the inventory to its net realizable value. If actual demand for specified products deteriorates, or market conditions are less favorable than those projected, additional reserves may be required.

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

Building and improvements	6 40 years
Machinery and equipment	3 17 years
Furniture and fixtures	5 20 years

Fixed assets are depreciated using the straight line method except for machinery and equipment and furniture and fixtures located in Japan, which are depreciated using an accelerated method.

Goodwill and Other Intangible Assets Goodwill represents the excess of the purchase price of net tangible and intangible assets acquired in business combinations over their estimated fair value. Goodwill and other intangible assets acquired in a purchase business combination and determined to have an indefinite useful life are not amortized, but instead tested for impairment at least annually in accordance with the provisions of Statement of Financial Accounting Standards (SFAS) No. 142, *Goodwill and Other Intangible Assets.* The Company determined that there were two reporting units, Products and Services. The Company s impairment review process, which is completed as of the last day of November of each year, compares the fair value of the Company s reporting unit to the carrying value, including the goodwill related to each of the reporting units.

To determine the fair value, the Company uses the income method and is based on a discounted future cash flow approach that uses estimates including the following for the Company s reporting unit: revenue, based on assumed market growth rates and the Company s assumed market share; estimated costs; and appropriate discount rates based on the particular reporting unit s weighted average cost of capital. Estimates of market growth, market 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 used to manage the underlying businesses. The Company s business consists of both established and emerging technologies and forecasts for emerging technologies are based upon internal estimates and external sources rather than historical

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years Ended December 30, 2006, December 31, 2005 and January 1, 2005

information. If future forecasts are revised, they may indicate or require future impairment charges. The Company also considered its market capitalization on the dates of the impairment test in determining the fair value of the respective businesses.

The fair value estimates are based on the extensive use of management s estimates and assumptions, and the result of these procedures can have a significant impact on the Company s future operating results.

Long-Lived Assets The Company accounts for long-lived assets in accordance with the provisions of SFAS No. 144, *Accounting for the Impairment or Disposal of Long-Lived Assets*. The statement requires the Company to evaluate its long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may be not 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.

Income Tax Assets and Liabilities The Company accounts for income taxes based on SFAS No. 109 *Accounting 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 if 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 Accumulated other comprehensive income consists of accumulated translation adjustments, net of income taxes, of $2.4 million as of December 30, 2006 and $0.8 million as of December 31, 2005.

Product Warranties The Company sells the majority of its products with a 12 month repair or replacement warranty from the date of acceptance. 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 recorded 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, 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 it in estimating its 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 reported warranty reserve and adjusts the amounts in accordance with changes in these factors.

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NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years Ended December 30, 2006, December 31, 2005 and January 1, 2005

A reconciliation of the changes to the Company s warranty accrual for 2006, 2005 and 2004 was as follows (in thousands):

	Years Ended		
	December 30, 2006	December 31, 2005	January 1, 2005
Balance as of beginning of period	$ 1,440	$ 1,055	$ 513
Balance assumed through acquisitions	1,330		
Actual warranty costs	(2,626)	(1,170)	(869)
Provision for warranty	4,205	1,555	1,411
Balance as of end of period	$ 4,349	$ 1,440	$ 1,055

Guarantees In addition to product warranties, from time to time, in the normal course of business, the Company indemnifies certain customers with whom it enters into a contractual relationship. The Company has agreed to hold the other party harmless against third party claims that its products, when used for their intended purpose(s), infringe the intellectual property rights of such third party or other claims made against certain parties. It is not possible to determine the maximum potential amount of liability under these indemnification obligations due to the limited history of prior indemnification claims and the unique facts and circumstances that are likely to be involved in each particular claim. Historically, the Company has not made payments under these obligations and believes the estimated fair value of these agreements is minimal. Accordingly, no liabilities have been recorded for these obligations on the balance sheets as of December 30, 2006 and December 31, 2005.

Shipping and Handling Costs Shipping and handling costs are included as a component of cost of sales.

Advertising Costs The Company expenses advertising costs as incurred.

Stock-Based Compensation Upon adoption of SFAS 123(R) on January 1, 2006, the Company began estimating the value of employee stock options on the date of grant using the Black-Scholes model. Prior to the adoption of SFAS 123(R), the value of each employee stock option was estimated on the date of grant using the Black-Scholes model for the purpose of the pro forma financial disclosure in accordance with SFAS No. 123. 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 Staff Accounting Bulletin No. 107. The expected volatility is based on the historical volatility of the Company s stock price.

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NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years Ended December 30, 2006, December 31, 2005 and January 1, 2005

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 2006, diluted net loss per share excludes common equivalent shares outstanding, as their effect is antidilutive. For 2005 and 2004, stock options with exercise prices in excess of the fair market value of common stock were excluded from the 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		
	December 30, 2006	December 31, 2005	January 1, 2005
Weighted average shares outstanding shares used in basic net income per share computation	15,075	12,760	12,320
Dilutive effect of stock options, using the treasury stock method		711	1,044
Shares used in diluted net income per share computation	15,075	13,471	13,364

For 2006, 2005 and 2004, diluted net income (loss) per share excluded common equivalent shares outstanding of 2.2 million, 1.2 million and 1.6 million, respectively, as their effect was antidilutive.

Certain Significant Risks and Uncertainties Financial instruments which potentially subject the Company to concentration of credit risk consist of cash and cash equivalents, short-term investments and accounts receivable (see Note 4). All cash equivalents at December 30, 2006 and December 31, 2005 were deposited with two financial institutions which the Company believes are of high credit quality. Cash equivalent deposits with financial institutions may, at times, exceed federally insured limits, however, the Company has not experienced any losses on such accounts.

For short-term investments, credit risk is limited by placing all investments with high credit quality issuers and limits the amount of investment with any one issuer. The Company only invests in United States Treasury Bills with maturities of one year or less. As of December 31, 2005, the fair value of those investments approximated cost. There were no short-term investments as of December 30, 2006.

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 ten largest customers in 2006 and 2005 consisted of 65.0% and 74.2%, respectively, of its total net revenues.

The Company participates in a dynamic high technology industry and believes that changes in any of the following areas could have a material adverse effect on its future financial position, results of operations or cash flows: Advances and trends in new technologies and industry standards; competitive pressures in the form of new products or price reductions on current products; changes in product mix; changes in the overall demand for products offered; changes in third-party manufacturers; changes in key suppliers; changes in certain strategic relationships or customer relationships; litigation or claims against the Company based on intellectual property, patent, product, regulatory or other factors; fluctuations in foreign currency exchange rates; risk associated with

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NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years Ended December 30, 2006, December 31, 2005 and January 1, 2005

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 2006, the Securities and Exchange Commission (the SEC) issued Staff Accounting Bulletin No. 108 (SAB 108), which provides guidance regarding the process of quantifying financial statement misstatements. SAB 108 clarifies the treatment of financial statement misstatements that affects the financials in both the current reporting year and prior periods and provides guidance on how to determine which treatment methods are acceptable under generally accepted accounting principles. SAB 108 is effective for fiscal years ending after November 15, 2006. The Company s adoption of the provisions of SAB 108 did not impact its financial condition or results of operations.

In September 2006, the FASB issued SFAS No. 158, *Employers Accounting for Defined Benefit Pension and Other Post Retirement Plans an amendment of FASB Statements No. 87, 88, 106, and 132(R)* . SFAS No. 158 requires entities to recognize the funded status of their defined benefit pension plans in the balance sheet, measured as the difference between the fair value of the plan assets less the projected benefit obligation. Any resulting asset or liability will be fully recognized in the balance sheet. SFAS No. 158 also requires the actuarial measurement date to be at the end of the entity s fiscal year and expanded disclosure in the footnotes to the financial statements. SFAS No. 158 is effective for fiscal years ending after December 15, 2006 for entities with publicly traded equity securities, and requires prospective application, with the initial recognition of the funded status being recognized as a component of other comprehensive income. The provisions of SFAS No. 158 did not impact its financial condition or results of operations.

In September 2006, the FASB finalized SFAS No. 157, *Fair Value Measurements* which will become effective in 2008. This Statement defines fair value, establishes a framework for measuring fair value, and expands disclosures about fair value measurements; however, it does not require any new fair value measurements. The provisions of SFAS No. 157 will be applied prospectively to fair value measurements and disclosures in the Company s financial statements beginning in the first quarter of 2008.

In July 2006, the FASB issued Interpretation No. 48, *Accounting for Uncertainty in Income Taxes an interpretation of FASB Statement No. 109* (FIN 48), which provides clarification related to the process associated with accounting for uncertain tax positions recognized in the Company s Consolidated Financial Statements. FIN 48 prescribes a more likely than not threshold for financial statement recognition and measurement of a tax position taken, or expected to be taken, in a tax return. FIN 48 also provides guidance related to, among other things, classification, accounting for interest and penalties associated with tax positions, and disclosure requirements. The Company is required to adopt FIN 48 on January 1, 2007, which is when the Company plans to adopt FIN 48. The Company is in the process of finalizing its analysis of the impact of adopting FIN 48 on its consolidated financial statements and, therefore, the effect of adoption cannot be

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quantified at this time. However, the Company, in the normal course of business, makes reserves for tax contingencies, in accordance with SFAS No. 5, *Accounting for Contingencies*. Upon adoption of FIN 48 by the Company on January 1, 2007, an adjustment to tax liabilities and retained earnings, if any, is not expected to materially impact its financial condition.

In February 2006, the FASB issued SFAS No. 155, *Accounting for Certain Hybrid Instruments An Amendment of FASB Statements No. 133 and No. 144* (SFAS No. 155). SFAS No. 155 permits fair value remeasurement for any hybrid financial instrument that contains an embedded derivative that otherwise would require bifurcation. It also clarifies which interest-only strips and principal-only strips are not subject to the requirements of SFAS No. 133, and establishes a requirement to evaluate interests in securitized financial assets to identify interests that are freestanding derivatives or that are hybrid financial instruments that contain an embedded derivative requiring bifurcation. Furthermore, SFAS No. 155 clarifies that concentrations of credit risk in the form of subordination are not embedded derivatives and it amends SFAS No. 140 to eliminate the prohibition on a qualifying special purpose entity from holding a derivative financial instrument that pertains to a beneficial interest other than another derivative financial instrument. SFAS No. 155 is effective for all financial instruments acquired or issued after the beginning of the first fiscal year beginning after September 15, 2006. The Company s adoption of the provisions of SFAS No. 155 is not expected to impact its financial condition or results of operations.

Note 2. Acquisitions

Soluris Inc.

On March 15, 2006, Nanometrics announced that it had acquired Soluris Inc., (Soluris) a Concord, Massachusetts-based privately held corporation focused on overlay and CD measurement technology. The acquisition of Soluris, which was renamed Nanometrics IVS Division, is expected to enhance Nanometrics line of overlay products and provide access to new customers. Under the terms of the merger agreement, which was an all-cash transaction, the total consideration to purchase all the outstanding stock of Soluris was $7.0 million including $0.4 million in transaction fees, including legal, valuation and accounting fees. The merger has been accounted for under the purchase method of accounting in accordance with SFAS No. 141, *Business Combinations*. Under the purchase method of accounting, the total estimated purchase price is allocated to the net tangible and identifiable intangible assets of Soluris acquired in connection with the merger, based on their respective estimated fair values. The results of operations of Soluris were included in the Company s consolidated statements of operations from the date of the acquisition.

The allocation of the Soluris purchase price to the tangible and identifiable intangible assets acquired and liabilities assumed was based on management s estimates of fair value at the date of acquisition. When estimating fair values of assets acquired and liabilities assumed, management considered a number of factors, including valuations, appraisals and assumptions which are subject to change.

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The allocation of the Soluris purchase price is summarized below (in thousands):

Assets acquired:	
Cash	$ 67
Accounts receivable	517
Inventories	1,559
Other assets	113
Total tangible assets acquired	2,256
Liabilities assumed:	
Accounts payable	(562)
Accrued compensation	(450)
Deferred revenue	(846)
Other accrued liabilities	(504)
Total liabilities assumed	(2,362)
Net liabilities assumed	(106)
Deferred income tax liabilities	(160)
Goodwill and other intangible assets:	
Goodwill	3,582
Customer relationships	2,500
Patented technology	700
Non-compete agreements	50
Trademark	400
Total goodwill and other intangible assets	7,232
Net purchase price	$ 6,966

The patented technology is being amortized over an estimated useful life of ten years and customer relationships are being amortized on an accelerated basis over an estimated useful life of nine years designed to match the amortization to the benefits where applicable. The amount allocated to the trademark has been determined to have an indefinite life. In accordance with SFAS No. 142, *Goodwill and other Intangible Assets,* the Company will not amortize the goodwill and trademark, but will evaluate them annually for impairment or whenever events or circumstances occur which indicate that they might be impaired.

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

	Year Ended	
	December 30, 2006	December 31,

		2005
Net revenues	$ 97,489	$ 79,216
Net loss	(22,785)	(173)
Net loss per share:		
Basic	$ (1.51)	$ (0.01)
Diluted	$ (1.51)	$ (0.01)

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Accent Optical Technologies Inc.

On July 21, 2006, Nanometrics completed its acquisition of Accent Optical Technologies, Inc. (Accent), a Bend Oregon-based privately held corporation focused on overlay and thin film metrology and process control systems. The acquisition of Accent is expected to enhance Nanometrics line of overlay and thin film products and to provide access to new customers, especially in Europe. Under the terms of the merger agreement relating to the acquisition, the total estimated purchase price of $72.6 million includes the exchange of Nanometrics common stock valued at $67.5 million, assumed stock options with a fair value of $0.3 million, a loan made to Accent prior to completion of the acquisition of $2.5 million and direct transaction costs of $2.3 million. The merger has been accounted for under the purchase method of accounting in accordance with SFAS No. 141, *Business Combinations*. Under the purchase method of accounting, the total estimated purchase price is allocated to the net tangible and identifiable intangible assets of Accent acquired in connection with the merger, based on their respective estimated fair values. The Accent and Soluris acquisitions were made to allow the combined organization to be more competitive and to achieve greater financial strength, operational efficiencies, access to capital and growth potential than either company could separately achieve. These factors contributed to the purchase price in excess of the fair value of net tangible and intangible assets acquired in the Accent and Soluris acquisitions. The results of operations of Accent were included in the Company s consolidated statements of operations from the date of the acquisition.

The purchase price includes the issuance of 4.865 million shares of Nanometrics common stock at an average market price per share of Nanometrics common stock of $13.87 reflecting the average of the closing market price of Nanometrics common stock for the period beginning two trading days before and ending two trading days after the merger was announced.

Under the terms of the merger agreement, each outstanding in-the-money option to purchase Accent stock and each option granted on or after January 23, 2006 (whether in-the-money or not) to purchase Accent stock was assumed and converted into an option to purchase Nanometrics common stock. Nanometrics assumed stock options to purchase Accent common stock, which are exercisable for 0.2 million shares of Nanometrics common stock. The fair value of the vested options assumed was determined using a Black-Scholes valuation model with the following weighted-average assumptions: volatility of 66.3%; risk-free interest rate of 4.3%, expected life of 4.5 years and dividend yield of zero.

The preliminary allocation of the Accent purchase price to the tangible and identifiable intangible assets acquired and liabilities assumed was based on management s estimates of fair value at the date of acquisition. When estimating fair values of assets acquired and liabilities assumed, management considered a number of factors, including valuations, appraisals and assumptions which are subject to change. The primary areas of the preliminary purchase price allocation that are not yet finalized relate to the completion of Accent s income tax returns. Finalization of the purchase price allocation is expected to be completed during the first half of fiscal 2007.

The total purchase price of the merger is as follows (in thousands):

Fair value of Nanometrics shares issued to Accent stockholders	$ 67,481
Fair value of Nanometrics shares issuable to former Accent optionees	344
Loan to Accent	2,500
Direct transaction fees and expenses	2,305
Total purchase price	$ 72,630

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The preliminary allocation of the Accent purchase price is summarized below (in thousands):

Assets acquired:	
Cash	$ 3,845
Accounts receivable	9,767
Inventories	10,669
Fixed assets	1,256
Other assets	1,765
Total tangible assets acquired	27,301
Liabilities assumed:	
Accounts payable	(4,319)
Accrued compensation	(3,132)
Short term loans	(14,020)
Accrued interest	(1,717)
Accent transaction expenses	(5,011)
Deferred income tax liability	(2,125)
Deferred revenue	(354)
Other accrued liabilities	(4,259)
Total liabilities assumed	(34,937)
Net liabilities assumed	(7,636)
Goodwill and other intangible assets:	
Goodwill	51,235
Customer relationships	13,200
Developed technology	9,100
Brand names	3,600
Backlog	3,131
Total goodwill and other intangible assets	80,266
Net estimated purchase price	$ 72,630

The patented technology and brand names are being amortized over an estimated average useful life of eight years and customer relationships are being amortized on an accelerated basis over an estimated useful life of nine years designed to match the amortization to the benefits where applicable. In accordance with SFAS No. 142, the Company will not amortize the goodwill, but will evaluate it annually for impairment or whenever events or circumstances occur which indicate that it might be impaired.

During the third quarter of 2006, the Company finalized its plans to transition the York England manufacturing operations to outside contractors in Asia. The integration plan included the involuntary termination or relocation of approximately 35 employees in the United States and the transition of all manufacturing operations from the York, England facility to outside contract manufactures. The consolidation of the manufacturing operations as well as involuntary employee terminations will be completed in the third quarter of 2007. The acquisition-related restructuring liabilities were accounted for under Emerging Issues Task Force No. 95-3, *Recognition of Liabilities in Connection with a*

Purchase Business Combination and SFAS No. 112 *Employer s Accounting for Postemployment Benefits* and therefore were included in the purchase price allocation of the cost to acquire Accent. The Company recorded a liability of $1.0 million for these activities as of July 21, 2006. As of December 30, 2006, the Company paid $0.8 million of these charges. The Company anticipates that the remaining restructuring reserve balance of $0.2 million will be paid out by the third quarter of fiscal 2007.

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Pursuant to the merger agreement, 486,505 shares of Nanometrics common stock delivered as consideration in the merger were withheld and deposited in an escrow fund in order to secure Accent and its former stockholders performance of indemnification obligations under the merger agreement. Upon closing, Nanometrics has an immediate claim on the escrow for a number of shares equal to the Accent transaction costs that exceed $4.2 million, which is currently anticipated to be approximately $1.0 million, divided by the ten-day average closing price of Nanometrics common stock prior to submission of the claim. Nanometrics expects to file its claim in the first half of fiscal 2007.

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

	Year Ended December 30, 2006	December 31, 2005
Net revenues	$ 121,512	$ 112,417
Net loss	(25,321)	(3,738)
Net loss per share:		
Basic	$ (1.45)	$ (0.22)
Diluted	$ (1.45)	$ (0.22)

Note 3. Stock-Based Compensation

On January 1, 2006, the Company adopted SFAS No. 123 (revised 2004), *Share-Based Payment*, (SFAS 123(R)), which requires the measurement and recognition 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. SFAS 123(R) supersedes Accounting Principles Board Opinion No. 25, *Accounting for Stock Issued to Employees* (APB 25) for periods beginning in fiscal 2006. In March 2005, the SEC issued SAB 107 relating to SFAS 123(R). The Company has applied the provisions of SAB 107 in its adoption of SFAS 123(R).

The Company adopted SFAS 123(R) using the modified prospective transition method, which requires the application of the accounting standard as of January 1, 2006, the first day of the Company s fiscal year 2006. In accordance with the modified prospective transition method, the Company s financial statements for prior periods have not been restated to reflect, and do not include, the impact of SFAS 123(R).

SFAS 123(R) requires companies to estimate the fair value of share-based payment awards 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. Prior to the adoption of SFAS 123(R), the Company accounted for stock-based awards to employees and directors using the intrinsic value method in accordance with APB 25 as allowed under SFAS No. 123, *Accounting for Stock-Based Compensation*. Under the intrinsic value method, no stock-based compensation expense had been recognized in the Company s consolidated statements of operations, because the exercise price of the Company s stock options granted to employees and directors equaled the fair market value of the underlying stock at the date of grant.

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. Stock-based compensation

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expense recognized in the Company s consolidated statement of operations for the year ended December 30, 2006 included compensation expense for share-based payment awards granted prior to, but not yet vested as of December 31, 2005 based on the grant date fair value estimated in accordance with the pro forma provisions of SFAS No. 123 and compensation expense for the share-based payment awards granted subsequent to December 31, 2005 based on the grant date fair value estimated in accordance with the provisions of SFAS 123(R). As stock-based compensation expense recognized in the consolidated statement of operations for the year ended December 30, 2006 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 2006 of 14.4%, was based on historical forfeiture experience. In the Company s pro forma information, required under SFAS No. 123 for the periods prior to 2006, the Company estimated forfeitures at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differed from those estimates.

SFAS 123(R) requires the cash flows resulting from the tax benefits resulting from tax deductions in excess of the compensation cost recognized for those options to be classified as financing cash flows. There were no such tax benefits during fiscal 2006. Prior to the adoption of Statement SFAS 123(R) those benefits would have been reported as operating cash flows had the Company received any tax benefits related to stock option exercises.

In November 2005, the FASB issued Staff Position No. FAS 123(R)-3, *Transition Election Related to Accounting for the Tax Effects of Share-Based Payment Awards* (FSP 123R-3). The Company has elected to adopt the alternative transition method provided in FSP 123R-3 for calculating the tax effects of stock-based compensation under SFAS 123R. The alternative transition method includes simplified methods to establish the beginning balance of the additional paid-in-capital pool (APIC pool) related to the tax effects of stock-based compensation, and for determining the subsequent impact on the APIC pool and consolidated statements of cash flows of the tax effects of stock-based compensation awards that are outstanding upon adoption of SFAS 123R.

Valuation and Expense Information under SFAS 123(R)

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 SAB 107. The risk-free rate is based on the U.S Treasury rates in effect during the corresponding period of grant. The expected volatility is based on the historical volatility of Nanometrics stock price. These factors could change in the future, which would affect the stock-based compensation expense in future periods.

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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 using the straight-line method over the vesting period of the options. The weighted-average fair value calculations are based on the following average assumptions:

	2006
Stock Options:	
Expected life	4.5 years
Volatility	71.2%
Risk free interest rate	4.80%
Dividends	
Employee Stock Purchase Plan:	
Expected life	0.5 years
Volatility	42.0%
Risk free interest rate	3.49%
Dividends	

The weighted average fair value per share of the stock options awarded in 2006 of $11.71 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 under SFAS 123(R) in 2006 which was allocated as follows (in thousands):

	Fiscal Year
	2006
Cost of products	$ 354
Cost of service	305
Research and development	1,313
Selling	988
General and administrative	2,065
Stock-based compensation expense included in costs and expenses	5,025
Total stock-based compensation expense related to employee stock options and employee stock purchases	$ 5,025

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The table below reflects pro-forma net income (loss) and basic and diluted net income (loss) per share for 2005 and 2004 as follows (in thousands except per-share amounts):

	Fiscal Year	
	2005	**2004**
Net income (loss):		
As reported(1)	$ 1,511	$ 3,699
Deduct: Total stock-based employee compensation expense determined under fair value based method for all awards, net of related tax effects(2)	(4,865)	(5,304)
Pro forma net loss(3)	$ (3,354)	$ (1,605)
Basic net income (loss) per share:		
As reported	$ 0.12	$ 0.30
Pro forma	$ (0.26)	$ (0.13)
Diluted net income (loss) per share:		
As reported	$ 0.11	$ 0.28
Pro forma	$ (0.26)	$ (0.13)
Basic Shares:		
As reported	12,760	12,320
Pro forma	12,760	12,320
Diluted Shares:		
As reported	13,471	