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2011 Annual Report | 2012 Proxy Statement

Nanometrics Incorporated

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Letter to Our Stockholders

Nanometrics Incorporated

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Letter to the Stockholders

2011 was another strong year for Nanometrics. Our revenues of $230 million were up 22% from 2010, and represented our second sequential year of record performance.

2011 however was also a year that clearly demonstrated the high level of volatility and rapid change associated with the markets we serve. While we started the year by delivering the two strongest revenue quarters in our history, in the second half we experienced a precipitous drop in industry spending that resulted in significantly lower sales and profitability.

While these rapid swings in our business environment certainly challenge our business in the short-term and our management skills day to day, they also remind us of the importance of continuing to structure our investment strategy, growth objectives and performance goals with a longer-term perspective of value creation for our stakeholders.

Today, Nanometrics is a dramatically different and far better company than it was just four years ago. We have strong relationships with leading IC customers, hold leading positions in important and growing markets, and have continued to execute on our strategy to expand the markets we serve through selective acquisitions.

Late last year, we acquired Nanda Technologies, an emerging inspection company. Their product, the Spark™, is a highly-differentiated technology platform serving markets closely adjacent to ours, thereby efficiently leveraging our global infrastructure while expanding our served market by 30%. Today we are busy integrating the Spark technology into our product offerings and channels, while pursuing strategic customer placements that we believe will complement our growing position in process control and contribute to profitable growth in the years to come.

In prior stockholder letters, we have stated that one of our key objectives is to outgrow the industry in general. In 2011, we grew at twice the rate of overall semiconductor wafer fab equipment spending. We attribute this outperformance primarily to a number of secular growth drivers that favor our process control solutions, as well as continued success in gaining market share.

For example, the optical critical dimension, or OCD, segment of process control spending has been gaining in importance throughout the industry, and grew roughly 30% in 2011 – nearly three times the increase in overall equipment spending. At the same time, sales of our flagship OCD product grew more than 40%, significantly outpacing the growth of this market segment while beating growth in industry spending by approximately 4 to 1.

In addition to delivering revenue growth, we have also previously committed to additional objectives regarding profitability, predictability and cash flow. Here's how we think we have done.

In order to support our growth, increased scale, customer position and installed base, and planned capacity expansions by our customers, we have been investing in our business and our future. These investments include strengthening our global infrastructure, developing new products that address the future needs of our customers and investing in applications engineering to enable our customers to ramp yields at the industry's most advanced technology nodes on a worldwide basis. This level of investment is crucial to our future – to sustain the key customer positions we fought so hard to achieve, as well as to position and prepare us for further growth.

In addition, last quarter we were taken by surprise by the accelerated and rapid customer adoption of our newest OCD product platform, the Atlas® II. Long term this is good news, as it speaks to the strength of our customer relationships, product roadmaps and the competitiveness and performance of our products. Short term however, it has taken a toll on our gross margins, an area that is certain to improve as manufacturing and our supply chain ramps.

That being said, the sharp drop in sales in the second half of 2011, combined with the decline in gross margins and our continued investments in R&D and applications engineering, along with our high corporate tax rates, led to a disappointing decline in profitability in 2011 versus the previous year.

So, with respect to profitability and predictability, we need to do better and do so consistently. We know what to do to turn this around, and we are on it.

For our cash flow objectives, we think we did a pretty good job. Solid operating income helped drive positive cash flows throughout the year. Our non-GAAP operating margin was 23%, cash flow from operations was also 23% of revenues, and, with just modest capital investments, free cash flow for the year exceeded $50 million or 22% of revenues. In all, cash on the balance sheet was up 47% on a 22% increase in revenue, and this is after we used cash to acquire Nanda in November.

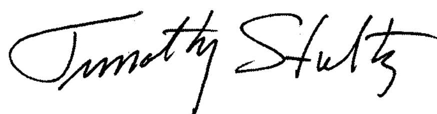
There are also other improvements we have made to strengthen Nanometrics that are worthy of mention.

We added strong talent to the management team and our board of directors. We worked hard on board governance and management development to ensure we have a strong foundation on which to continue building the company. We successfully settled a long-running lawsuit with a competitor, eliminating a diversion of management attention. And we have continued to invest in our employees by refining our mix of incentives, benefits and profit sharing to ensure that we attract, retain and reward a high-performing team.

Going forward, we are very optimistic about the future of your company. We feel good about understanding and delivering what our customers need to succeed, and about our ability to execute in a competitive environment. While we don't know and can never predict exact demand for our products, we are confident that we are in very desirable, fast-growing market segments with very competitive products.

We believe if we maintain our focus, and keep improving our execution, we will continue to deliver value to all our stakeholders.

Sincerely,



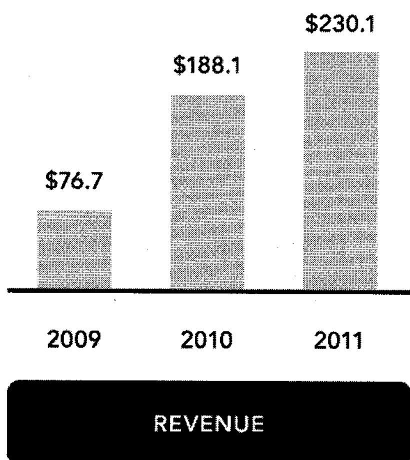
Dr. Timothy J. Stultz
President and Chief Executive Officer

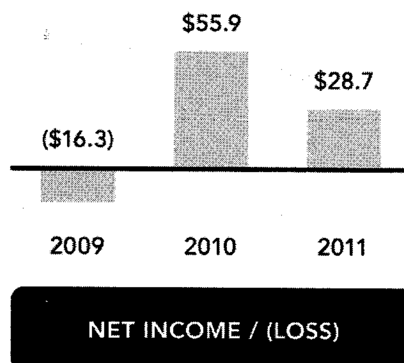
Bruce C. Rhine
Chairman of the Board

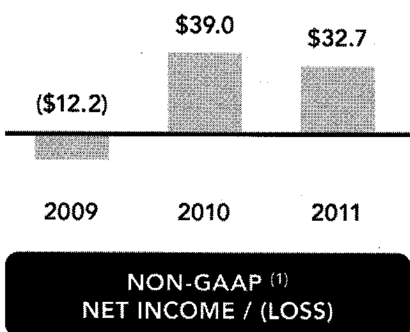
Financial Notes

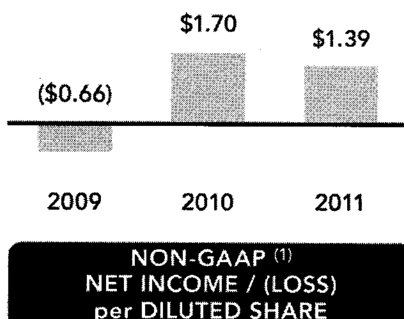
The Company ended fiscal 2011 with cash and cash equivalents of $97.7 million, working capital of $160.6 million and tangible book value (stockholders' equity excluding goodwill and other intangible assets) of $183.6 million.

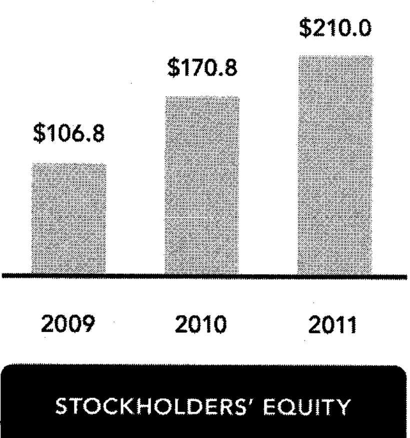
(Dollars in millions, except per share amounts)

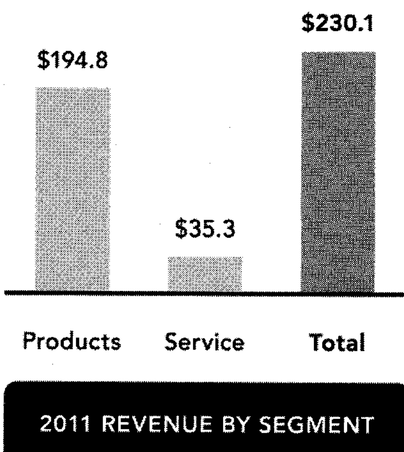












(1) A reconciliation between GAAP operating results and non-GAAP operating results is attached at the back of this document. Non-GAAP results exclude the impact of acquisitions, legal settlement, asset impairments, restructuring-related items, and certain discrete tax items.

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NOTICE OF 2012 ANNUAL STOCKHOLDERS MEETING AND PROXY STATEMENT

NANOMETRICS INCORPORATED

PROXY

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NANOMETRICS INCORPORATED
NOTICE OF ANNUAL MEETING OF STOCKHOLDERS

TO THE STOCKHOLDERS OF NANOMETRICS INCORPORATED:

NOTICE IS HEREBY GIVEN that the annual meeting of stockholders of Nanometrics Incorporated, a Delaware corporation, will be held on Thursday, May 24, 2012, at 9:00 a.m., local time, at our Corporate Headquarters located at 1550 Buckeye Drive, Milpitas, California 95035. At the annual meeting you will be asked to consider and vote upon the following:

1. A proposal to elect eight directors of Nanometrics, each to serve for a term of one year or until his respective successor has been duly elected and qualified.

2. A proposal to approve, as an advisory (non-binding) vote, the compensation paid to our executive officers.

3. A proposal to approve the Nanometrics Executive Performance Bonus Plan.

4. A proposal to ratify the appointment of PricewaterhouseCoopers LLP as Nanometrics' independent registered public accounting firm for the fiscal year ending December 29, 2012.

5. Such other business as may properly come before the annual meeting or any postponements or adjournments thereof.

These items are more fully described in the proxy statement accompanying this notice of annual meeting of stockholders.

Only stockholders of record at the close of business on April 5, 2012 are entitled to notice of and to vote at the annual meeting and any postponements or adjournments thereof. The proxy statement and enclosed form of proxy are first being mailed to the stockholders of record on or about April 17, 2012.

All stockholders are cordially invited to attend the annual meeting in person. However, to ensure representation at the annual meeting, you are urged to mark, sign, date and return the enclosed proxy card as promptly as possible in the postage-prepaid envelope enclosed for that purpose. Any stockholder of record attending the annual meeting may vote in person even if that stockholder previously returned a proxy card for the annual meeting.

PROXY

BY ORDER OF THE BOARD OF DIRECTORS,

Bruce C. Rhine
Chairman of the Board of Directors

Milpitas, California
April 17, 2012

Important Notice Regarding the Availability of Proxy Materials for the Annual Meeting of Stockholders to Be Held on May 24, 2012. This Proxy Statement and the 2011 Annual Report are available at:

www.nanometrics.com/investor/proxy2012.pdf

NANOMETRICS INCORPORATED
PROXY STATEMENT
INFORMATION CONCERNING SOLICITATION AND VOTING

General

This proxy statement is being provided to the stockholders of Nanometrics Incorporated as part of a solicitation of proxies by our Board of Directors for use at our 2012 annual meeting of stockholders. This proxy statement provides stockholders with information they need to know to be able to vote or instruct their vote to be cast at the annual meeting. This proxy statement and the enclosed form of proxy are first being mailed to stockholders of record on or about April 17, 2012.

Important Notice Regarding the Availability of Proxy Materials for the Shareholder Meeting to Be Held on May 24, 2012: The proxy statement is available at www.nanometrics.com/investor/proxy2012.pdf.

Date, Time and Place

The annual meeting will be held on Thursday, May 24, 2012 at 9:00 a.m., local time, at our Corporate Headquarters located at 1550 Buckeye Drive, Milpitas, California 95035.

Purpose; Other Matters

The annual meeting is being held to consider and vote upon the following:

1. A proposal to elect eight directors of Nanometrics, each to serve for a term of one year or until his respective successor has been duly elected and qualified.
2. A proposal to approve, as an advisory (non-binding) vote, the compensation paid to our executive officers.
3. A proposal to approve the Nanometrics Executive Performance Bonus Plan.
4. A proposal to ratify the appointment of PricewaterhouseCoopers LLP as Nanometrics' independent registered public accounting firm for the fiscal year ending December 29, 2012.

Stockholders will also be asked to consider and vote upon any other business that may properly come before the annual meeting or any adjournments or postponements of the annual meeting. We do not expect that any additional matters will be brought before the annual meeting.

Recommendation of the Board of Directors

The Board of Directors unanimously recommends that you vote:

- "FOR" the election of the nominees named in this Proxy Statement, each to serve as a director on our Board of Directors.
- "FOR" the approval of the compensation paid to Nanometrics' executive officers as disclosed in this Proxy Statement.
- "FOR" the approval of the Nanometrics Executive Performance Bonus Plan.
- "FOR" the proposal to ratify the appointment of PricewaterhouseCoopers LLP as Nanometrics' independent registered public accounting firm for the fiscal year ending December 29, 2012.

Record Date; Outstanding Shares; Voting Rights

Only holders of record of common stock at the close of business on the record date for the annual meeting, April 5, 2012, are entitled to notice of and to vote at the annual meeting. As of the record date, there were 23,452,165 shares of common stock outstanding and entitled to vote at the annual meeting, held by approximately 245 holders of record. Each record holder of common stock on the record date is entitled to one vote for each share of common stock held as of the record date with respect to all proposals.

A list of stockholders will be available for review at the annual meeting and our executive offices during regular business hours for a period of ten days before the annual meeting.

Admission to the Annual Meeting

Only stockholders, their designated proxies and guests of Nanometrics may attend the annual meeting. If you plan to attend the annual meeting and wish to vote in person, you will be given a ballot at the annual meeting. Please note, however, that if your shares are held in "street name," which means your shares are held of record by a broker, bank or other nominee, and you wish to vote at the annual meeting, you must bring to the annual meeting a "legal proxy" from the record holder of your shares authorizing you to attend and vote at the annual meeting.

Quorum and Vote Required

The presence, either in person or by proxy, of the holders of a majority of outstanding shares of the Company's common stock is necessary to constitute a quorum necessary to hold a valid annual meeting of stockholders. Shares that are voted "FOR," "AGAINST," "ABSTAIN" or "WITHHOLD AUTHORITY" on a matter are treated as being present at the annual meeting for purposes of establishing a quorum.

If your broker holds your shares in its name, the broker is permitted to vote your shares on "discretionary" matters, even if it does not receive voting instructions from you. Proposal 4 is the only "discretionary" matter being considered by our stockholders. Therefore, we urge you to give voting instructions to your broker on all voting items. Shares that are not permitted to be voted by your broker on a proposal are called "broker non-votes" with respect to that proposal. Broker non-votes are not considered votes for or against such a proposal and therefore will have no direct impact on whether that proposal receives stockholders approval.

In addition, the vote required to approve each proposal is as follows:

Proposal 1

In the election of our directors, the nominees receiving the highest number of "FOR" votes will be elected. Abstentions and proxies marked "WITHHOLD AUTHORITY" will have no effect on the election of directors. However, our Board of Directors has adopted a Majority Vote Policy which sets forth our procedures if a director-nominee is elected, but fails to receive more "FOR" votes than "WITHHELD" votes. Under our Majority Vote Policy, in order to be nominated for election to the Board, each director must submit a contingent, irrevocable resignation that the Board may accept if a director-nominee is elected, but fails to receive more "FOR" votes than "WITHHELD" votes. Details of this Policy are set out below under "Corporate Governance – Voting for Directors – Majority Vote Policy."

Proposal 2

The affirmative vote ("FOR") of holders of a majority of the shares present in person or by proxy at the annual meeting and entitled to vote at the annual meeting is required for the approval of the advisory resolution on Nanometrics' executive compensation. If you "ABSTAIN," it has the same effect as a vote "AGAINST." The results of this vote will not be binding on our Board of Directors.

Proposal 3

The affirmative vote ("FOR") of holders of a majority of the shares present in person or by proxy at the annual meeting and entitled to vote at the annual meeting is required for the approval of the Nanometrics Executive Performance Bonus Plan. If you "ABSTAIN," it has the same effect as a vote "AGAINST."

Proposal 4

The affirmative vote ("FOR") of holders of a majority of the shares present in person or by proxy at the meeting and entitled to vote at the annual meeting is required for the approval of the ratification of the appointment of PricewaterhouseCoopers LLP as Nanometrics' independent registered public accounting firm for the fiscal year ending December 29, 2012. If you "ABSTAIN," the abstention has the same effect as a vote "AGAINST."

Voting

General

Stockholders of record as of the record date may vote their shares by attending the annual meeting and voting their shares in person or by completing, signing and dating their respective proxy cards for the annual meeting and mailing them in the postage pre-paid envelope enclosed for that purpose or by telephone or Internet by following the instructions in the proxy card. Even if you plan to attend the annual meeting, we recommend that you vote by proxy prior to the annual meeting. You can always change your vote as described below.

Voting by Proxy

All properly executed proxies that are received prior to the annual meeting and not revoked will be voted at the annual meeting according to the instructions indicated on the proxies. If your proxy does not specify how you wish us to vote your shares, your shares will be voted:

- "FOR" the election of the nominees named in this Proxy Statement, each to serve as a director on our Board of Directors;
- "FOR" the approval of the compensation paid to Nanometrics' executive officers as disclosed in this Proxy Statement;
- "FOR" the approval of the Nanometrics Executive Performance Bonus Plan; and
- "FOR" the proposal to ratify the appointment of PricewaterhouseCoopers LLP as Nanometrics' independent registered public accounting firm for the fiscal year ending December 29, 2012.

You may receive more than one proxy card depending on how you hold your shares of common stock. Generally, you need to sign and return all of your proxy cards to vote all of your shares. For example, if you hold shares through someone else, such as a broker, you may get proxy material from that person.

Changing Your Vote

If you are the record holder of your shares of common stock, you can change your vote at any time before your proxy is voted at the annual meeting by:

- delivering to our corporate secretary a signed notice of revocation;
- granting the proxy holders a new, later dated proxy, which if provided by mail must be signed and delivered to our corporate secretary in advance of the vote at the annual meeting, or if provided by telephone or Internet must be submitted by following the instructions in the proxy card before the deadline indicated in the proxy card; or
- attending the annual meeting and voting in person.

Your attendance at the annual meeting alone, however, will not revoke your previously granted proxy. If you have provided voting instructions to your broker, bank or other nominee for the annual meeting, you must follow the instructions provided by your broker, bank or other nominee in order to change your voting instructions for the annual meeting.

Proxy Solicitation

Nanometrics is making this solicitation and will pay the entire cost of preparing, assembling, printing, mailing and distributing these proxy materials and soliciting votes. In addition to mailing these proxy materials, proxies or votes may be solicited in person, by telephone or by electronic communication by our directors, officers and employees, who will not receive any additional compensation for such solicitation activities. Upon request, we will reimburse reasonable out of pocket expenses to brokerage houses and other custodians, nominees and fiduciaries for forwarding proxy and solicitation materials to stockholders.

Assistance

If you need assistance in completing your proxy card or have questions regarding the annual meeting, please contact Investor Relations at (408) 545-6000 or write to Nanometrics Incorporated, at our executive offices located at 1550 Buckeye Drive, Milpitas, California 95035, Attn: Investor Relations.

"Householding" of Proxy Materials

The Securities and Exchange Commission has adopted rules that permit companies and intermediaries such as brokers to satisfy delivery requirements for proxy statements with respect to two or more stockholders sharing the same address by delivering a single proxy statement addressed to those stockholders. This process, which is commonly referred to as "householding," potentially provides extra convenience for stockholders and cost savings for companies. Nanometrics and some brokers household proxy materials, delivering a single proxy statement to multiple stockholders sharing an address unless contrary instructions have been received from the affected stockholders. Upon written or oral request to our Investor Relations department, by mail at 1550 Buckeye Drive, Milpitas, California, 95035 or by telephone at (408) 545-6000, we will promptly deliver a copy of the proxy statement to a stockholder if that stockholder shares an address with another stockholder to which a single copy of the proxy statement was delivered. A stockholder may notify us as described above if the stockholder wishes to receive a separate copy of the proxy statement in the future or, alternatively, if the stockholder wishes to receive a single copy of the materials instead of multiple copies.

Stockholder Proposals

Stockholders are entitled to present proposals for action at the 2013 annual meeting of stockholders. For any proposal to be considered for inclusion in our proxy statement and form of proxy for submission to the stockholders at the 2013 annual meeting of stockholders, the proposal must comply with the requirements of Rule 14a-8 under the Exchange Act and be submitted in writing by notice delivered or mailed by first-class United States mail, postage prepaid, to Nanometrics Incorporated, 1550 Buckeye Drive, Milpitas, California 95035, Attention: Office of the Secretary, which must be received by us no later than December 17, 2012. If the date of our 2013 annual meeting is changed by more than 30 days from the date of the 2012 annual meeting, the proposal must be received a reasonable time before we begin to print and mail our proxy materials. The submission of a stockholder proposal does not guarantee that it will be included in our proxy statement.

In addition, the Company's Bylaws include advance notice provisions that require stockholders desiring to bring other business before the 2013 annual stockholders meeting, but not for inclusion in our proxy statement for that meeting, to do so in accordance with the terms of the Bylaws' advance notice provisions. Nanometrics' advance notice provisions require, among other things, that stockholders provide timely notice to the secretary of the Company regarding such business, and provide certain additional information to the Company as set forth in the Bylaws. To be timely, a stockholders' notice must be delivered to or mailed and received at Nanometrics Incorporated, 1550 Buckeye Drive, Milpitas, California 95035, Attention: Office of the Secretary, and must be received by us no later than December 17, 2012. If we set the date of our 2013 annual meeting to a date more than 30 days from the date of our 2012 annual meeting, then the deadline for receipt of stockholder proposals will be no later than the close of business on the later of 120 days in advance of the 2013 annual meeting or ten days following the date on which we first publicly announce the date of the 2013 annual meeting. If a stockholder does not provide us with notice of a stockholder proposal in accordance with the deadlines described above, the stockholder will not be permitted to present the proposal to the stockholders for a vote at the meeting.

PROPOSAL 1

ELECTION OF DIRECTORS

At the 2012 annual meeting of stockholders, unless otherwise instructed, the proxy holders will vote the proxies received by them for the nominees named below, each of whom has been nominated by our Board of Directors and is presently a director of Nanometrics. The nominees were recommended by the Nominating and Corporate Governance Committee of the Board of Directors. If the nominees are unable or decline to serve as a director at the time of the annual meeting, the proxies will be voted for any nominee who shall be designated by the present Board of Directors to fill the vacancy. We do not have any reason to believe that any of the nominees will be unable or will decline to serve as a director.

Our Board of Directors currently is comprised of eight (8) members. Until April 6, 2012, our Board was divided into three (3) classes, with staggered three-year terms. On April 6, 2012 our Board amended our Bylaws to remove these classes so that all of our directors would serve one-year terms. Following such Bylaw amendment, each director whose term of office was not scheduled to expire at the 2012 Annual Meeting agreed to forgo their remaining term and stand for election. As a result, each such director relinquished his right to continue to serve the remainder of his three-year term such that all directors will be up for election at the 2012 Annual Meeting.

Directors are elected by a plurality of the votes of the holders of shares present in person or by proxy and entitled to vote on the election of directors. The eight nominees receiving the highest number of affirmative votes will be elected. If a nominee for director receives a greater number of "Withhold" votes than "For" votes that director shall promptly tender to the Nominating and Governance Committee his offer of resignation. Within 90 days, the Committee shall recommend to the Board the action to be taken with respect to such offer of resignation; and the Board shall determine whether or not to accept the director's resignation. Unless marked otherwise, we will vote proxies returned to us for the nominees named below.

Director Nominees

Set forth below is information regarding each of our directors, including their ages as of April 5, 2012, the periods during which they have served as a director, and certain information as to principal occupations and directorships held by them in corporations whose shares are publicly registered.

Howard A. Bain III, 66, has served on our Board since April 2008. He is also a director of Learning Tree International, Inc., Cyberdefender, Inc. and Facilisys, Inc., a private venture capital financed company. Since 2004, he has been an independent consultant in all aspects of corporate finance. He held Chief Financial Officer positions at several public companies including: Portal Software from 2001 to 2004, Vicinity Corporation in 2000, Informix from 1999 to 2000, and Symantec Corporation from 1991 to 1999. He was a consultant with Arthur Andersen LLP where he was a certified public accountant. Mr. Bain holds a B.S. in Business from California Polytechnic University. Mr. Bain's significant financial expertise, including his experience as Chief Financial Officer at several public companies, as well as his experience in various technology companies in the areas of semiconductor devices and manufacturing equipment, laser-based large screen projection systems, and computer disk drives is directly relevant to Nanometrics' business and his responsibilities to the Board.

J. Thomas Bentley, 62, has served as a director since April 2004. Mr. Bentley served as a Managing Director at SVB Alliant (formerly Alliant Partners), a mergers and acquisitions firm, since he co-founded the firm in 1990 until October 2005. Mr. Bentley currently serves on the board of directors of Rambus, Inc., a chip interface technology company, and Cortina Systems, Inc., a supplier of intelligent communication solutions. Mr. Bentley holds a B.A. degree in Economics from Vanderbilt University and a Masters of Science in Management from the Massachusetts Institute of Technology. Mr. Bentley's extensive knowledge of the capital markets, strategic planning and mergers and acquisitions from SVB Alliant provides expertise to our Board in matters regarding the Company's capital requirements and strategic direction.

Norman V. Coates, 62, has served as a director since August 2009. He previously served on the Nanometrics Board of Directors from 1985 to 2006. Mr. Coates is a successful entrepreneur and businessman and has managed Gem of the River Produce and Coates Vineyards for the past 35 years. In addition to his institutional knowledge from his prior long tenure as a director of the Company, Mr. Coates brings extensive management and entrepreneurial experience to the Board.

Stephen G. Newberry, 58, was appointed as a director in May 2011. Mr. Newberry served as the Chief Executive Officer of Lam Research Corporation, a supplier of wafer fabrication equipment and services, from June 2005 until January 1, 2012 and currently serves as a director and Vice Chairman of Lam Research's board of directors. From July 1998 to June 2005, Mr. Newberry served as Lam Research's Executive Vice President and Chief Operating Officer. Prior to that Mr. Newberry

held the title of Executive Vice President of Lam Research. Mr. Newberry serves as a director of Semiconductor Equipment and Materials International, the semiconductor industry's trade association. In addition, he serves as a member of the Haas Advisory Board, Haas School of Business, University of California at Berkeley and as a member of the Dean's Advisory Council, University of California at Davis Graduate School of Business. Prior to joining Lam Research, Mr. Newberry was Group Vice President of Global Operations and Planning at Applied Materials, Inc. He is a graduate of the U.S. Naval Academy and the Harvard Graduate School of Business, Program for Management Development.

William G. Oldham, Ph.D., 73, has served as a director since June 2000 and as lead independent director from May 2007 through August 2008. Dr. Oldham, now Professor Emeritus, was a faculty member at the University of California at Berkeley from 1964 to 2003. He serves on the board of directors of Cymer, Inc., a supplier of light sources for deep ultraviolet photolithography systems. Dr. Oldham holds B.S., M.S. and Ph.D. degrees from the Carnegie Institute of Technology. Dr. Oldham's qualifications to serve as director include his experience on public and private boards, including his consultation to numerous companies in the semiconductor industry, his scientific background and his industrial and academic experience, including expertise in semiconductor processing and metrology.

Bruce C. Rhine, 54, has served as our Chairman of the Board of Directors since July 2007 and as a director since July 2006. From July 2006 to February 2008, Mr. Rhine served as our Chief Strategy Officer. From March 2007 to August 2007, Mr. Rhine served as our Chief Executive Officer. From 2000 to 2006, Mr. Rhine served as Chairman and Chief Executive Officer of Accent Optical Technologies, Inc. Mr. Rhine holds a B.S. degree in Chemical Engineering and an M.B.A. in Finance from The Pennsylvania State University. In addition to his experience from his prior senior management service to the Company, Mr. Rhine brings extensive industry knowledge and executive management experience to the Board. Mr. Rhine currently serves on the boards of NEXX Systems, Inc., Phoseon Technology Inc., Nor-Cal Products, Inc. and JAMA Software, Inc.

Stephen J Smith, Ph.D., 66, has served as a director since April 2004. Dr. Smith has been a professor in the Department of Molecular and Cellular Physiology at the Stanford University School of Medicine since 1989. He served on the faculty of Yale University from 1980 until 1989. Dr. Smith holds a B.A. degree from Reed College and a Ph.D. from the University of Washington. Dr. Smith's qualifications to serve as director include his scientific and academic backgrounds in the fields of optics, automated microscopy and digital image analysis. He has extensive industrial consulting experience in areas pertaining to the design and marketing of optical imaging and metrology tools for biotechnology. He teaches numerous courses in microscopy and digital imaging at Stanford and other international expert teaching venues.

PROXY

Timothy J. Stultz, Ph.D., 64, has served as President, Chief Executive Officer and a director since August 2007. From June 2003 to August 2007, Dr. Stultz served as the President and Chief Executive Officer, and served on the Board of Directors of Imago Scientific Instruments Corporation, a supplier of proprietary 3-D atom probe microscopes to the research materials and microelectronics industries. Prior to Imago, Dr. Stultz served as President and Chief Executive Officer for ThauMDx, a developer of diagnostic systems and technologies for the analysis of biomolecules, drugs and chemicals. Dr. Stultz received his B.S., M.S. and Ph.D. in Materials Science and Engineering from Stanford University. In addition to his institutional knowledge as the executive leader of our Company, Dr. Stultz's scientific background and significant senior executive management experience in high-tech industries is important to the Board.

THE BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS THAT THE STOCKHOLDERS VOTE "FOR" THE NOMINEES SET FORTH ABOVE.

CORPORATE GOVERNANCE

Board of Directors Meetings and Committees

The full Board of Directors met a total of eight times during the fiscal year ended December 31, 2011. During the fiscal year ended December 31, 2011, all directors attended at least 75% of the aggregate number of meetings of the Board of Directors and meetings of committees upon which they served. The standing committees of the Board of Directors include an Audit Committee, a Compensation Committee and a Nominating and Governance Committee.

The Board of Directors has determined that for the fiscal year ended December 31, 2011, all of its directors meet the independence requirements of the NASDAQ Stock Market, with the exception of Timothy J. Stultz, Ph.D.

Directors are encouraged to attend the annual meeting of stockholders.

Audit Committee

The Audit Committee of the Board of Directors oversees our financial reporting, our internal audit and control functions, the results and scope of the annual audit and quarterly reviews conducted by our independent registered public accounting firm, and our compliance with legal matters that may have a significant impact on our financial reports. In addition, the Audit Committee has the responsibility to consider and recommend the engagement of, and to review fee arrangements with, our independent registered public accounting firm. The Audit Committee also monitors transactions between Nanometrics and our officers and directors for any potential conflicts of interest and assists the Board of Directors in its risk oversight role.

During the 2011 fiscal year, the Audit Committee consisted of Howard A. Bain III (chairman), J. Thomas Bentley and Bruce C. Rhine, who replaced William G. Oldham as a member of the Audit Committee effective as of February 23, 2011. Our Board of Directors has determined that each member of our Audit Committee is "independent" within the meaning of the rules of the Securities and Exchange Commission and the Listing Rules of NASDAQ and has the qualifications or previous experience to be able to read and understand financial statements. Further, the Board of Directors has determined that each of Mr. Bain, Chairman of the Audit Committee, and Mr. Bentley qualify as "audit committee financial expert(s)," as such term is used in the Securities and Exchange Commission rules. The Audit Committee met nine times during the 2011 fiscal year.

The report of the Audit Committee is included on page 28 of this proxy statement. The Board of Directors has adopted a written Audit Committee Charter, which is available on our website at www.nanometrics.com/investor/governance.html.

Compensation Committee

The Compensation Committee has overall responsibility for evaluating and approving our executive officer compensation, including incentive compensation, benefit, severance, equity-based and other compensation plans, policies and programs. During the 2011 fiscal year, the Compensation Committee reviewed and approved our compensation policies and programs for the chief executive officer as well as established and had oversight with regard to the compensation of other executive officers of Nanometrics. The Committee also has the responsibility to recommend to the Board of Directors a compensation program for non-employee members of the Board of Directors.

The Compensation Committee is responsible for approving the grant of stock options and stock awards to our employees under our equity compensation plans. The Compensation Committee has delegated to Nanometrics' officers the authority, within certain parameters, to approve the grant of stock options with respect to employees and consultants who are not executive officers for purposes of Section 16 of the Exchange Act. The Compensation Committee also assists the Board of Directors in assessing the risks, if any, associated with the Company's overall compensation policies.

During the 2011 fiscal year, the Compensation Committee consisted of J. Thomas Bentley (chairman), William G. Oldham and Bruce C. Rhine, who replaced Stephen J Smith, Ph.D. as a member of the Compensation Committee effective February 23, 2011. Stephen Newberry joined the Compensation Committee in August 2011. Mr. Rhine resigned from the Compensation Committee on March 5, 2012. Each current member of our Compensation Committee is an "outside" director as defined in Section 162(m) of the Internal Revenue Code of 1986, as amended, and a "non-employee" director within the meaning of Rule 16b-3 of the Exchange Act. Our Board of Directors has determined that each of the directors serving on our Compensation Committee is "independent" within the meaning of the Listing Rules of NASDAQ. The Compensation Committee met eight times during the 2011 fiscal year.

The report of the Compensation Committee is included on page 23 of this proxy statement. The Board of Directors has adopted a written Compensation Committee Charter, which is available on our website at www.nanometrics.com/investor/governance.html.

Nominating and Governance Committee

The Nominating and Governance Committee assists the Board of Directors in identifying and qualifying candidates to join the Board of Directors and addresses various governance issues. The Nominating and Governance Committee utilizes a variety of methods for identifying and evaluating nominees. Its general policy is to assess the appropriate size of the Board of Directors and whether any vacancies are expected due to retirement or otherwise. In the event those vacancies are anticipated, or otherwise arise, the Nominating and Governance Committee will consider recommending various potential candidates to fill such vacancies. Candidates may come to the attention of the Nominating and Governance Committee through its current members, stockholders or other persons. Pursuant to the Nominating and Governance Committee charter, the Committee will consider properly submitted stockholder nominations for candidacy. Nominees may be submitted by stockholders in accordance with Nanometrics' Bylaws as discussed under "Shareholder Proposals" above. Director candidates submitted by stockholders will be considered under the same criteria as candidates recommended by directors or others.

The Nominating and Governance Committee has no specific, minimum qualifications for director candidates. In general, however, persons considered for Board of Directors positions must have demonstrated leadership capabilities, be of sound mind and high moral character, have no personal or financial interest that would conflict or appear to conflict with the interests of Nanometrics and be willing and able to commit the necessary time for Board of Directors and committee service.

The Nominating and Governance Committee also recommends to our Board of Directors certain guidelines regarding corporate governance and standards regarding the independence of outside directors applicable to Nanometrics and reviews such guidelines and standards and the provisions of the Nominating and Governance Committee charter on a regular basis to confirm that such guidelines, standards and charter remain consistent with sound corporate governance practices and with any legal or regulatory requirements of NASDAQ and the Securities and Exchange Commission. The Nominating and Governance Committee also monitors our Board of Directors, and the Company's compliance with any commitments made to our regulators and changes in corporate governance practices.

The Nominating and Governance Committee does not have a stated policy with regard to diversity of the Board, however, the Committee believes that Board members should represent a balance of diverse backgrounds and skills, including marketing, finance, manufacturing, engineering, science, and international experience.

During the 2011 fiscal year, the Nominating and Governance Committee consisted of William G. Oldham (chairman), Stephen J Smith, Ph.D, and Norman V. Coates. Effective as of February 23, 2011, William G. Oldham was appointed as the chairman in place of Stephen J Smith, Ph.D. Our Board of Directors has determined that each of the directors serving on our Nominating and Governance Committee is "independent" within the meaning of the Listing Rules of NASDAQ.

The Nominating and Governance Committee met six times in the 2011 fiscal year.

The Board of Directors has adopted a written Nominating and Governance Committee Charter, which is available on our website at www.nanometrics.com/investor/governance.html.

Board Structure

Bruce C. Rhine serves as the Chairman of the Board and Timothy J. Stultz, Ph.D. serves as both the Chief Executive Officer and a director of the Company. We believe that having a separate Chairman and Chief Executive Officer is appropriate and corporate governance best practice. From July 2006 to February 2008, Mr. Rhine served as our Chief Strategy Officer, and from March 2007 to August 2007 Mr. Rhine served as our Chief Executive Officer. Because of his previous high level executive roles with the Company, Mr. Rhine is intimately familiar with the Company's business and industry, and very capable of effectively identifying strategic priorities, leading discussions of the Board of Directors and defining the Company's strategic objectives. Mr. Rhine became an independent member of the Board effective February, 2011 due to the passage of time subsequent to his previous management role with the Company. Dr. Stultz, as the Chief Executive Officer, is the individual selected by the Board of Directors to manage the Company on a day-to-day basis, and his prior experience and direct involvement in the Company's operations allows him to provide valuable insights with respect to strategic planning and the operational requirements to meet the Company's short- and long-term objectives. The Company's independent directors bring experience, oversight and expertise from outside the Company and industry.

The Board's Role in Risk Oversight

One of the Board's primary responsibilities is reviewing the Company's strategic plans and objectives, including the principal risk exposures of the Company. The Audit Committee assists the Board in oversight and monitoring of the legal and financial risks facing the Company, and management's approach to addressing these risks and strategies for risk mitigation. The Audit Committee is also responsible for discussing guidelines and policies governing the process by which management and other persons responsible for risk management, assess and manage the Company's exposure to risk, as well as the Company's major financial risk exposures and the steps management has taken to monitor and control such exposures, based on consultation with the Company's management and independent auditors. The Board addresses, at least annually, the principal current and future risk exposures of the Company. The Board receives regular reports from members of senior management on areas of material risk to the Company, including operational, financial, legal and regulatory, and strategic and reputation risks.

Voting For Directors – Majority Vote Policy

If a nominee for director in an uncontested election receives a greater number of "withhold" votes for election than "for" votes ("Majority of Withhold"), that director shall promptly tender to the Board his or her offer of resignation. If a director receives a Majority Withheld Vote, our Nominating and Corporate Governance Committee (or such other committee as our Board may appoint) shall make a recommendation to our Board, which will decide whether to accept or reject the resignation previously tendered by such director.

Our Board shall act on the tendered resignation, taking into account the recommendation of such committee, within 90 days from the date of the certification of the election results. The director whose resignation is under consideration is not permitted to participate in the recommendation of the committee or deliberations of the Board with respect to his or her resignation. However, if the only directors who did not receive a Majority Withheld Vote in the same election constitute less than a majority of directors, all directors may participate in the action regarding whether to accept the resignation offers. If a director's resignation is not accepted by our Board, the director shall continue to serve until the next annual meeting of shareholders or until his or her successor is duly elected and qualified, or his or her earlier resignation or removal. If a director's resignation is accepted by our Board, then the Board, in its sole discretion, shall fill any resulting vacancy or decrease the size of the Board.

Code of Ethics

We have adopted a Code of Business Conduct and Ethics that applies to all directors, executive officers and employees. We post our Code of Business Conduct and Ethics on our website at: www.nanometrics.com/investor/governance.html.

Stockholder Communication Policy

We have established a formal process for stockholders to send communications to the Board of Directors or to individual directors. The names of all directors are available to stockholders in this proxy statement. Stockholder communications may be submitted in writing to Nanometrics Incorporated, 1550 Buckeye Drive, Milpitas, California 95035, Attention: Office of the Secretary. If we receive any stockholder communication intended for the full Board of Directors or any individual director, we will forward the communication to the full Board of Directors or the individual director, unless the communication is clearly of a marketing nature or is unduly hostile, threatening, illegal or similarly inappropriate.

Related Person Transaction Policy

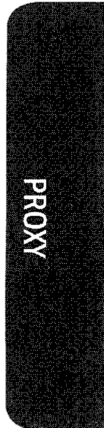
Nanometrics has a written policy regarding related party transactions that requires that the Audit Committee review any transaction or series of transactions in excess of $50,000 in any year between Nanometrics, on the one hand, and an officer, director or 5% or greater stockholder, on the other. Nanometrics' Chief Financial Officer has the responsibility for bringing the facts concerning a proposed related party transaction to the Audit Committee. The policy permits approval only in the event of a finding that the transaction is on terms no less favorable than would have been obtained in an ordinary arms-length transaction with an independent third party.

SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

The following table sets forth beneficial ownership of Nanometrics common stock as of April 5, 2012, by each director, by each of the named executive officers, by all directors and executive officers as a group, and by all persons known to Nanometrics to be the beneficial owners of more than 5% of Nanometrics stock. Unless otherwise indicated, the address of each executive officer or director of Nanometrics is 1550 Buckeye Drive, Milpitas, CA 95035. As of the close of business on April 5, 2012, there were 23,452,165 shares of common stock outstanding.

	Amount and Nature of Beneficial Ownership [1] Shares			
Name Of Beneficial Owner – Principal Stockholders	**Shares**	**Stock Options Exercisable Within 60 Days Of 4/5/2012**	**Total Shares Beneficially Owned**	**Percent Of Class**
Wellington Management Company, LLP [2]	2,269,024	—	2,269,024	9.5%
BlackRock, Inc. [3]	1,529,438	—	1,529,438	6.4%
Cortina Asset Management, LLC [4]	1,292,792		1,292,792	5.4%

Name Of Beneficial Owner – Directors And Officers	Shares	Stock Options Exercisable Within 60 Days Of 4/05/2012	Total Shares Beneficially Owned	Percent Of Class
Bruce C. Rhine [5]	855,447	147,531	1,002,978	4.2%
Norman Coates [6]	934,445	3,333	937,778	3.9%
Howard A. Bain III [7]	15,203	21,705	36,908	*
J. Thomas Bentley	22,737	12,911	35,648	*
William G. Oldham, Ph.D.	9,815	22,911	32,726	*
Stephen J Smith, Ph.D.	12,537	20,409	32,946	*
Stephen G. Newberry	2,382	1,316	3,698	*
Timothy J. Stultz, Ph.D.	81,320	179,791	261,111	1.1%
Bruce A. Crawford	42,701	38,691	81,392	*
Ronald Kisling	15,000	9,531	24,531	*
Nancy E. Egan	5,000	0	5,000	*
All officers and directors as a group (11 persons)	1,996,587	458,129	2,454,716	10.27%



* Less than 1%

(1) As determined in accordance with Rule 13d-3 under the Securities and Exchange Act of 1934.

(2) According to a Schedule 13G filed with the SEC on February 14, 2012, Wellington Management Company, LLP ("Wellington Management"), may be deemed to be the beneficial owner of 2,269,024 shares of common stock. The address of Wellington Management is 280 Congress Street, Boston, MA 02210.

(3) According to a Schedule 13G filed with the SEC on February 9, 2012, BlackRock, Inc., may be deemed to be the beneficial owner of 1,529,438 shares of common stock. The address of BlackRock, Inc. is 40 East 52nd Street, New York, NY 10022.

(4) According to a Schedule 13G filed with the SEC on January 26, 2012, Cortina Asset Management, LLC, may be deemed to be the beneficial owner of 1,292,792 shares of common stock. The address of Cortina Asset Management, LLC is 825 N. Jefferson Street, Suite 400, Milwaukee, WI 53202.

(5) Shares held of record by Mr. Rhine and his spouse.

(6) Includes (i) 1,985 shares held of record by Mr. Norman Coates and (ii) 932,460 shares held of record by the Vincent J. Coates Separate Property Trust, U/D/T dated August 7, 1981, for which Mr. Coates acts as a trustee.

(7) Shares held of record by Mr. Bain and his spouse.

Section 16(a) Beneficial Ownership Reporting Compliance

Section 16(a) of the Exchange Act requires our executive officers and directors, and persons who own more than 10% of a registered class of our equity securities to file reports of ownership and changes in ownership with the Securities and Exchange Commission. Executive officers, directors and greater than 10% stockholders are required by Securities and Exchange Commission regulations to furnish Nanometrics with copies of all Section 16(a) forms that they file. Based solely on our review of the copies of such forms received by us or written representations from certain reporting persons, we believe that our executive officers, directors and greater than 10% stockholders have complied with all applicable filing requirements except for (i) one report for Ms. Nancy E. Egan, reporting two transactions; and ii) 25 Form 4/A's relating to the correction of administrative errors on Form 4's filed on behalf of our directors beginning September of 2008 through September 2009. There were five corrections each for Messrs. Bain, Bentley, Oldham, Rhine and Smith.

EXECUTIVE COMPENSATION

2011 Compensation Discussion and Analysis

Philosophy and Objectives

Nanometrics' named executive officer compensation program is intended to enable us to attract, retain and motivate key executives and to align their interests to those of the stockholders by tying executive compensation to our short-term and long-term performance. The Compensation Committee acts on behalf of the Board of Directors and, by extension, on behalf of our stockholders, to establish, implement and continually monitor adherence with our compensation philosophy. The Compensation Committee's philosophy is to design a compensation package that balances the need for executive alignment in terms of producing short-term and long-term enhanced stockholder value while maintaining retention and motivation through appropriate incentives using both internal equity and external market information relative to our industry and size. The Compensation Committee ensures that the total compensation paid to our named executive officers is competitive and consistent with our compensation philosophy.

The Compensation Committee's principal objectives are to: (a) develop, recommend and approve compensation packages that are aligned with our philosophy; (b) link executive compensation to the achievement of financial, management or other performance goals and; (c) support our culture and core values by promoting equity among the executive team and maintaining the competitiveness of our overall compensation when compared with external opportunities.

Philosophy and Objectives Applied

The Compensation Committee relied on an independent outside compensation consulting firm, Compensia, Inc. ("Compensia"), and our human resources department to provide information and recommendations to establish specific compensation packages for our named executive officers for the 2011 fiscal year ended December 31, 2011.

Our executive compensation packages for the 2011 fiscal year included three primary components; base salaries, cash bonus award opportunities and long-term incentive awards. Other elements included limited perquisites, other benefits (including retirement, health, and welfare benefits), and severance arrangements. The three primary components were considered individually and in the aggregate to assess their competitiveness and to determine how they will retain our executives and motivate them to create short-term and long-term enhanced stockholder value.

In our review of our named executive compensation for the 2011 fiscal year, we considered publicly available market data for companies which tend to include similarly-sized semiconductor and semiconductor capital equipment firms for each executive in a like or similar role. Our peer group companies considered for the 2011 fiscal year are listed below.

2011 Fiscal Year Peer Group Companies	
Axcelis Technologies	Keithley Instruments
Cascade Microtech	LTX-Credence
Cohu	Mattson Technology
Electro Scientific Industries	Rudolph Technology
FormFactor	Semitool
FSI Int'l	Ultratech
Intevac	Zygo

The Companies above were selected because they operate in our industry or similar industries, are comparable to Nanometrics in terms of blended revenue based on both survey data and proxy data (revenues $50 million to $200 million, average of approximately $114.2 million) and/or market capital ($51.6 million to $434.5 million). We gathered data with respect to base salary, target bonus awards and all equity awards, including stock options and restricted stock units. We generally do not gather data regarding deferred compensation or employee benefits such as 401(k) or health care coverage generally available to broad groups of employees. Compensia, our independent compensation consulting firm, is charged with gathering the market data and assisting in informing the Compensation Committee using their marketplace expertise and the market data gathered.

While the market data may identify a certain percentile of the market in which we operate with regard to base, bonus or long-term incentives, the Compensation Committee did not target any specific percentile but instead looked at each element as compared to the total targeted cash package and the various components with the desired results, internal equity and the

information provided and then decided if a change to compensation was warranted or not. The Compensation Committee then consulted with our Chief Executive Officer with respect to the appropriate compensation for the executives who report to him: Mr. Crawford, our Chief Operating Officer; Mr. Kisling, our new Chief Financial Officer; and Ms. Egan, our new General Counsel. The Chief Executive Officer reviewed the experience and qualifications of our new executives and Mr. Crawford's performance, using the elements and framework described under "2011 Executive Compensation Components" below, and made recommendations to the Compensation Committee about the structure of the overall compensation program and individual compensation arrangements. This framework provided a guide for the Compensation Committee's deliberations and recommendations regarding proposals for salary increases, bonus awards and long-term equity incentive awards for each executive position. The Compensation Committee considered those factors that are controllable by management such as expenses and cash, revenue attainment to some extent, as well as account penetration and long-term stockholder value delivery. The Compensation Committee did not apply formulas or assign specific mathematical weights to the peer group data or any of the factors discussed above, but rather exercised its business judgment and discretion to make a subjective determination after considering all of these measures collectively. The Compensation Committee then came to a conclusion based on the framework outlined above to approve an appropriate compensation package for each executive.

2011 Executive Compensation Components

For the 2011 fiscal year ended December 31, 2011, the principal components of compensation for named executive officers, Messrs. Stultz, Crawford, Kisling and Ms. Egan were:

- Base salary;
- Bonus;
- Stock option grants;
- Restricted stock unit (RSU) grants; and
- Retirement and other benefits.

PROXY

Nanometrics has chosen these components because we believe that each supports achievement of one or more of our compensation objectives, and that together they have proven to be effective in this regard. The use of each compensation component is based on a determination by the Compensation Committee of the importance of each compensation objective in supporting our business and talent strategies. These components are commonly used for executives at companies within our peer group and therefore, we find these to be appropriate in our talent retention strategy. This determination varies for each executive officer depending on a number of factors, including but not limited to, scope of his or her responsibilities, leadership skills and values, individual performance and length of service with Nanometrics. The Compensation Committee did not apply formulas or assign specific mathematical weights to any of these factors, but rather exercised its business judgment and discretion to make a subjective determination after considering all of these measures collectively.

Base Salary

Base salaries serve as the foundation of Nanometrics' compensation program. Other executive compensation elements, including annual short-term incentives and long-term incentives, are derived by weighing them against base salary. Nanometrics provides named executive officers with base salaries to compensate them for services rendered during the fiscal year and sets base salaries at levels which the Compensation Committee believes will effectively attract and retain top talent. Base salaries for named executive officers are determined for each executive based on their experience, position and responsibility as well as the contribution that they bring to the Company through performance. During its annual review of base salaries for executives, the Compensation Committee primarily considers:

- the salaries of executive officers in similar positions at our peer group companies as discussed in the above section entitled "Philosophy and Objectives Applied;"
- our financial performance over the past year based upon the ability to achieve Board-approved financial metrics including revenue targets, operating income targets and other operating results metrics; and
- the individual performance of each named executive officer, their duties and areas of responsibility on a subjective basis, which may include, among other things: span of control, ability to influence, manage and produce results that increase profitability of the Company; and ability to streamline and create efficiencies in the organization.

Salary levels are typically considered annually as part of our performance review process as well as upon a promotion or other change in job responsibility. Salaries are reviewed and determined by the Compensation Committee after reviewing salary data supplied by Compensia, which uses peer comparison groups, as well as consideration of the compensation for our executives on a Company-wide basis, based on their relative duties and responsibilities. Stock price performance has not been a direct factor in determining annual base salary compensation because the price of our common stock is subject to a variety of factors outside of our control. The Compensation Committee did not apply formulas or assign specific mathematical weights to any of these factors, but rather exercised its business judgment and discretion to make a subjective determination regarding each executive's base salary after considering all of these measures collectively.

Bonus

The Compensation Committee views cash bonuses as part of its performance-based compensation program designed to align the recipient's interests with our annual goals and objectives and our stockholders' interests.

For the 2011 fiscal year, the Compensation Committee established an Executive Performance Bonus Plan whereby both Dr. Stultz had a target bonus opportunity equal to 75% of his base salary, Mr. Crawford had a bonus opportunity equal to 70% of his base salary, Mr. Moniz, our former Chief Financial Officer, had a target bonus opportunity equal to 50% of his base salary, Mr. Kisling had a target bonus opportunity equal to 50% of his base salary (pro-rated to reflect his starting date of March 14, 2011), Ms. Egan had a target bonus opportunity equal to 40% of her base salary (pro-rated to reflect her starting date of October 31, 2011), which bonus would be triggered upon the Company's achievement of 100% of certain metrics established in the Annual Operating Plan, which was approved by the Board of Directors. Target bonus opportunities for each executive officer are reviewed and determined by the Compensation Committee after considering bonus award data supplied by Compensia, which uses peer comparison groups, as described under our section "Philosophy and Objectives Applied" above, as well as consideration of the compensation for our executives based on their relative duties and responsibilities. The Compensation Committee did not apply formulas or assign specific mathematical weights to any of these factors, but rather exercised its business judgment and discretion to make a subjective determination regarding each executive's target bonus opportunity after considering all of these measures collectively.

The target bonus opportunity is divided into the following three discrete components: (i) 40% of the bonus opportunity is based on the achievement of an Annual Operating Plan revenue target, (ii) 40% of the bonus opportunity is based on the achievement of an Annual Operating Plan non-GAAP operating income target, and (iii) 0% - 20% of the bonus opportunity is discretionary and determined by the Board. The maximum award that an executive is entitled to receive under the 2011 Executive Performance Bonus Plan is: (a) an amount equal to three times the target bonus with respect to the revenue and operating income components, and (b) with respect to the discretionary component, a fixed amount equal to 20% of the bonus opportunity. In addition, the 2011 Executive Performance Bonus Plan provided that no portion of the revenue component would be awarded if the Company's actual annual revenue fell below 80% of the Annual Operating Plan revenue target, and that no portion of the operating income component would be awarded if the Company's actual operating income fell below 60% of the Annual Operating Plan non-GAAP operating income target. The Annual Operating Plan revenue target for the 2011 fiscal year was $229.83 million and the non-GAAP operating income target was $67.10 million.

For the 2011 fiscal year, the Company achieved revenue of $230.06 million and non-GAAP operating income of $60.71 million, and the Board awarded the discretionary portion of the bonus at 15% based on their subjective determination of the executive's contributions during the year, including the successful completion of the Company's strategic initiatives, As a result, Dr. Stultz and Messrs. Crawford and Kisling and Ms. Egan were entitled to, and received, under the 2011 Executive Performance Bonus Plan, cash bonuses in the amounts of $296,997, $215,236, $111,811 and $14,326, respectively.

Long-Term Incentive Compensation

The Compensation Committee believes that equity compensation plans are an essential tool to link the long-term interests of stockholders of the Company and the Company's employees, particularly its executive officers, and serve to motivate executives to make decisions that will, in the long run, optimize returns to stockholders. Equity compensation plans also enable us to provide an opportunity for increased equity ownership by executives and maintain competitive levels of total compensation.

Stock Option Grants. Mr. Kisling and Ms. Egan received stock option awards during the 2011 fiscal year in connection with their hiring. The Compensation Committee determined the size of these stock option awards based on an analysis of peer group data related to the size of equity awards, as described under our section "Philosophy and Objectives Applied" above, and other relevant factors, including peer group competitive data and the long-term incentives with respect to each named executive officer. The Compensation Committee did not exclusively consider a specific target percentile, but instead considered proposed equity awards in the context of each executive's cash and total compensation package. In addition, the Compensation Committee considered other factors when determining each executive's equity compensation, including resulting alignment with the interests of the Company's stockholders; such executive's position within the organization and the appropriate level of equity compensation for such position relative to others in the organization's hierarchy; such executive's anticipated contributions to the Company's financial, operational and general performance; the Company's stock price and the Black-Scholes value of such awards. The Compensation Committee did not apply formulas or assign specific mathematical weights to any of these factors, but rather exercised its business judgment and discretion to make a subjective determination regarding each executive's stock option grants after considering all of these measures collectively. The Compensation Committee did not consider awarding stock options to Dr. Stultz and Mr. Crawford during the 2011 fiscal year because they determined their compensation, including stock option awards, for the 2011 fiscal year, late in our 2010 fiscal year. As a result, those stock option awards were reported in our proxy statement for the 2011 annual meeting of stockholders.

Restricted Stock Unit Grants. Mr. Kisling and Ms. Egan received restricted stock unit awards during the 2011 fiscal year in connection with their hiring. Similar to stock options, the Compensation Committee believes that restricted stock units ("RSUs"), which increase in value as the market price of our common stock increases, both align our executives to work toward the longer term goal of creating stockholder value and provide retention value. RSUs align the interests of our executives to the interests of our stockholders because an executive that holds RSUs is exposed to the same market risks to which our stockholders are exposed. RSU award levels for 2011 were determined based on an analysis of peer group data related to the size of equity awards as described under our section "Philosophy and Objectives Applied" above, and other relevant factors, including peer group competitive data. The Compensation Committee did not exclusively consider a specific target percentile, but instead considered proposed RSU awards in the context of each executive's cash and total compensation package. In addition, the Compensation Committee considered other factors when determining each executive's RSU award, including resulting alignment with the interests of the Company's stockholders; such executive's position within the organization and the appropriate level of equity compensation for such position relative to others in the organization's hierarchy; such executive's anticipated contributions to the Company's financial, operational and general performance; the Company's stock price and the Black-Scholes value of such awards. The Compensation Committee did not apply formulas or assign specific mathematical weights to any of these factors, but rather exercised its business judgment and discretion to make a subjective determination regarding whether to restricted stock units to each executive. The Compensation Committee did not consider awarding restricted stock units to Dr. Stultz and Mr. Crawford during the 2011 fiscal year because they had already determined their compensation for the 2011 fiscal year late in our 2010 fiscal year. As a result, these compensation decisions have been discussed in our proxy statement for the 2011 annual meeting of stockholders.

Retirement and Other Benefits

All employees in the United States, including the named executive officers, are eligible to participate in our 401(k) plan, medical, dental and vision insurance, employee stock purchase plan, as well as our life and disability insurance policy. Nanometrics' 401(k) Plan and other generally available benefits programs allow us to remain competitive for employee talent, and we believe that the availability of these benefits programs generally enhances employee productivity and loyalty to Nanometrics. The main objectives of Nanometrics' benefits programs are to give employees access to quality healthcare, financial protection from unforeseen events, assistance in achieving retirement financial goals, and enhanced health and productivity, all in full compliance with applicable legal requirements. These generally available benefits typically do not specifically factor into decisions regarding an individual named executive officer's total compensation or equity award package.

Perquisites

Nanometrics provides certain executive officers with a limited number of perquisites that the Compensation Committee believes are reasonable and consistent with our overall compensation program. Although the Compensation Committee seeks the advice of the human resources department on general market competitiveness for these benefits, it does not use a formal benchmarking process.

Severance Benefits

The Compensation Committee considers maintaining a stable and effective management team to be essential to protecting and enhancing the best interests of Nanometrics and its stockholders. Accordingly, the Compensation Committee has taken steps to encourage the continued attention, dedication and continuity of members of our management to their assigned duties without the distraction that may arise from the potential termination of employment. Specifically, the Company has entered into agreements with its four named executive officers providing for severance payments and benefits upon a termination of employment without cause or resignation for good reason, and in connection with a "change in control" of Nanometrics, as described in greater detail below in the section headed "Employment Contracts and Termination of Employment and Change-in-Control Arrangements." In addition, the Company has entered into agreements with its CEO, Dr. Stultz, and its COO Mr. Crawford providing for severance payments and benefits upon a termination of employment without cause or resignation for good reason outside of a change of control situation, also described in greater detail in the section headed "Employment Contracts and Termination of Employment and Change-in-Control Arrangements".

In order to aid the Compensation Committee in determining such severance payments and benefits, the Compensation Committee analyzes data and suggestions from Compensia as well as the Company's human resources department, which information includes comparing such amounts against the Company's peer group, but did not benchmark to any specific percentile, but rather exercised its business judgment and discretion to make a subjective determination after considering this information. The peer group used in this analysis is the same peer group that we consider in connection with our analysis and determination of the total compensation packages for our executives (outlined above under "Philosophy and Objectives Applied").

After considering industry practices and reviewing the policies and practices of the companies in our peer group, the Compensation Committee determined that the Company's severance and benefits agreements are necessary and appropriate in substance and scope to provide competitive compensation to the types of individuals that the Company desires to attract, hire and retain. The Compensation Committee also believes that these agreements are consistent with our overall compensation philosophy. The Compensation Committee continues to periodically monitor industry practice in this area to ensure that these agreements remain consistent with industry practice and our overall compensation philosophy of targeting the competitive median while preserving our ability to attract and retain key executives.

Tax and Accounting Implications

As part of its role, the Compensation Committee reviews and considers both tax and accounting related implications as they apply and as they evolve.

As part of its role, the Compensation Committee reviews and considers the deductibility of executive compensation under Section 162(m) of the Internal Revenue Code, which provides that we may not deduct compensation of more than $1,000,000 that is paid to certain executive officers, unless certain exemption requirements are met. Exemptions to this deductibility limit may be made for various forms of "performance-based" compensation. We believe that compensation paid under the management long term incentive plans is generally fully deductible for federal income tax purposes. However, in certain situations, the Compensation Committee may approve compensation that will not meet these requirements in order to ensure competitive levels of total compensation for the Company's executive officers.

Section 4999 and Section 280G of the Internal Revenue Code provide that executives could be subject to additional taxes if they receive payments or benefits that exceed certain limits in connection with a change in control of Nanometrics and that Nanometrics could lose an income tax deduction for such payments. We have not provided any executive with a tax "gross up" or other reimbursement for tax amounts the executive might be required to pay under Section 4999 or Section 280G of the Internal Revenue Code.

Section 409A of the Internal Revenue Code imposes additional taxes and interest on underpayments in the event that an executive defers compensation under a compensation plan that does not meet the requirements of Section 409A. We believe that we are operating in good faith compliance with Section 409A and have structured our compensation and benefits programs and individual arrangements in a manner intended to comply with the requirements thereof.

Results of 2011 Shareholder Advisory Vote to Approve Executive Compensation

At our 2011 annual meeting of stockholders, the Company requested our stockholders to approve, on an advisory (non-binding) basis, the compensation paid to our executive officers as reported in the proxy statement for the 2011 annual meeting. Our stockholders expressed substantial support for our executive compensation, with approximately 99.5% of the

shares present and entitled to vote voting for approval of the "say on pay" advisory vote on executive compensation. Because of the high level of support expressed by our stockholders for the 2010 fiscal year executive compensation, the Compensation Committee has continued to apply a similar approach for executive compensation decisions and policies.

2011 Summary Compensation Table

The following table sets forth the compensation for the past three fiscal years for (i) our Chief Executive Officer, (ii) our Chief Financial Officer, and (iii) each of our three most highly compensated executive officers (or such lesser number of executive officers as we may have) not serving as Chief Executive Officer or Chief Financial Officer; and (iv) up to an additional two individuals that would have been included under item (iii) but for the fact that the individuals were not serving as executive officers as of December 31, 2011, all of whom are collectively referred to as the "named executive officers."

SUMMARY COMPENSATION TABLE
Fiscal Year 2011

Name and Principal Position	Fiscal Year	Salary ($)	Bonus ($)	Stock Award ($) (1)	Option Awards ($) (1)	Non-Equity Incentive Plan Compensation ($)	All Other Compensation ($)	Total ($)
Dr. Timothy J. Stultz President, Chief Executive Officer and Director	2011	$425,000	—	—	—	$296,997	$26,641 (2)	$748,638
	2010	$395,473	—	—	$811,860	$600,000	$28,504	$1,835,837
	2009	$330,600	$25,000	$411,600	$369,655	—	$19,280	$1,156,135
Bruce A. Crawford Chief Operating Officer	2011	$330,000	—	—	—	$215,236	$22,155 (3)	$567,391
	2010	$324,986	—	—	$439,758	$515,000	$5,665	$1,285,409
	2009	$289,385	—	$243,300	$230,087	—	$4,528	$767,300
Ronald W. Kisling (4) Chief Financial Officer	2011	$242,308	—	$161,600	$293,892	$111,811	$14,337 (5)	$823,948
Nancy E. Egan (6) General Counsel	2011	$37,154	—	$86,150	$208,268	$14,326	—	$345,898
James P. Moniz (7) Chief Financial Officer	2011	$81,809	$37,500	—	—	—	$8,638 (8)	$127,947
	2010	$291,923	—	—	—	$360,000	$4,595	$656,518
	2009	$231,923	—	$153,480	$170,627	—	$4,400	$560,430

(1) Amounts shown do not reflect compensation actually received by the named executive officer. Instead, the amounts shown are the aggregate grant date fair value of stock options and restricted stock units calculated for financial statement reporting purposes, as determined pursuant to ASC Topic 718, but excluding any effect of any estimated forfeitures. The assumptions used to calculate the value of awards are set forth under Note 5 of the Notes to Consolidated Financial Statements included in Nanometrics' Annual Report on Form 10-K for the fiscal year ended December 31, 2011 filed with the SEC on March 13, 2012.

(2) Consists of payments made to Dr. Stultz of $14,400 for auto allowance, $7,841 for health care reimbursement extended to officers and directors and $4,400 in 401(k) employer matching benefit.

(3) Consists of payments made to Mr. Crawford of $17,755 for health care reimbursement extended to officers and directors and $4,400 in 401(k) employer matching benefit.

(4) Mr. Kisling joined the Company as our Chief Financial Officer on March 14, 2011.

(5) Consists of payments made to Mr. Kisling of $10,183 for health care reimbursement extended to officers and directors and $4,154 in 401(k) employer matching benefit.

(6) Ms. Egan joined the Company as our General Counsel on October 31, 2011.

(7) Mr. Moniz served as the Company's Chief Financial officer until March 14, 2011, and continued to be employed by the Company to assist in the transition until April 1, 2011, the date of Mr. Moniz's retirement. Mr. Moniz received a cash bonus award in the amount of $37,500 for the successful transition to Mr. Kisling.

(8) Consists of payments made to Mr. Moniz of $4,238 for health care reimbursement and $4,400 in 401(k) employer matching benefit.

PROXY

2011 Grants of Plan-Based Awards Table

The following table sets forth information with respect to grants of plan-based awards during the 2011 fiscal year that ended December 31, 2011 to each of the named executive officers.

GRANTS OF PLAN BASED AWARDS TABLE
For Fiscal Year 2011

Name	Grant Date	Estimated Possible Payouts Under Non-Equity Incentive Plan Awards [4] Threshold ($)	Target ($)	Maximum ($)	All Other Stock Awards: Number Of Shares Of Stock Or Units (#)[1]	All Other Option Awards: Number Of Securities Underlying Options (#)[2]	Exercise or Base Price Of Option Awards ($/sh)	Grant Date Fair Value Of Stock And Options Awards ($)[3]
Timothy J. Stultz	—	$0	$318,750	$828,750	—	—	—	—
Bruce A. Crawford	—	$0	$231,000	$600,600	—	—	—	—
Ronald W. Kisling	3/14/2011	—	—	—	10,000	—	—	$161,600
	3/14/2011	—	—	—	—	30,000	$16.16	$293,892
	—	$0	$120,000	$312,000	—	—	—	—
Nancy E. Egan	11/14/2011	—	—	—	5,000	—	—	$86,150
	11/14/2011	—	—	—	—	20,000	$17.23	$208,268
	—	$0	$15,375	$39,976	—	—	—	—
James P. Moniz	—	$0	$150,000	$390,000	—	—	—	—

(1) Restricted stock units vest at a rate of 1/3rd per year on each of the first, second and third anniversaries of the grant date.

(2) Stock options vest 1/4th on the first anniversary of the grant date and the remainder vests monthly over the following three years.

(3) Amounts shown do not reflect compensation actually received by the named executive officer. Instead, the amounts shown are the grant date fair value calculated for financial statement reporting purposes, as determined pursuant to ASC Topic 718, but excluding the effect of any estimated forfeitures. The assumptions used to calculate the value are set forth under Note 5 of the Notes to the Consolidated Financial Statements included in Nanometrics' Annual Report on Form 10-K for the fiscal year ended December 31, 2011 filed with the SEC on March 13, 2012.

(4) Cash bonus award targets and maximums are calculated on a pro-rata basis from the date of hire.

Narrative Disclosure to Summary Compensation Table and Grants of Plan-Based Awards Table

The Company's 401(k) savings plan allows employees to contribute up to 100% of their annual compensation to the plan on a pre-tax or after tax basis, limited to a maximum annual amount as set periodically by the Internal Revenue Service. The plan provides a 20% match by the Company of all employee contributions.

In the 2011 fiscal year, all corporate officers and non-employee directors were eligible to participate in a Nanometrics self-funded Executive Reimbursement Plan (which plan was previously administered by Phillips Administrative Services, and is currently administered by Benefit and Risk Management Services), which plan is intended to supplement our basic health plan by reimbursing expenses that are not covered by our health plan. Dr. Stultz is also entitled to a car allowance. Attributed costs of the perquisites described above for the named executive officers for the fiscal year ended December 31, 2011, are included in the "Summary Compensation Table" on page 17. All such perquisites are taxable to the executive and included as a portion of such executive's wages.

Outstanding Equity Awards at Fiscal Year 2011 Table

The following table sets forth the number of shares covered by both exercisable and un-exercisable stock options held by each of the named executive officers at the end of the 2011 fiscal year that ended December 31, 2011.

OUTSTANDING EQUITY AWARDS AT FISCAL YEAR END 2011 TABLE

		Option Awards				Stock Awards	
		Number of Securities Underlying Unexercised Options (#)					
Name	Grant Date	Exercisable	Un-exercisable	Option Exercise Price ($)	Option Expiration Date	Number of Shares or Units or Stock That Have Not Vested (#)	Market Value of Shares or Units of Stock That Have Not Vested ($)(1)
Timothy J. Stultz	11/17/2009 (2)	—	—	—	—	6,666	$122,788
	11/16/2010 (3)	32,500	87,500	$11.37	11/16/2017	—	—
	11/17/2009 (4)	34,722	15,278	$13.08	11/17/2016	—	—
	11/19/2008 (4)	40,000	—	$0.98	11/19/2015	—	—
	8/29/2007 (5)	80,000	—	$7.35	8/29/2017	—	—
Bruce A. Crawford	11/17/2009 (2)	—	—	—	—	3,333	$61,393
	11/16/2010 (3)	17,604	47,396	$11.37	11/16/2017	—	—
	11/17/2009 (4)	17,361	7,639	$13.08	11/17/2016	—	—
	9/3/2009 (6)	1,377	2,066	$7.50	9/3/2016	—	—
	2/25/2009 (4)	555	1,112	$1.17	2/25/2016	—	—
Ronald W. Kisling	3/14/2011(2)	—	—	—	—	10,000	$184,200
	3/14/2011(7)	—	30,000	$16.16	3/14/2018	—	—
Nancy E. Egan	11/14/2011 (2)	—	—	—	—	5,000	$92,100
	11/14/2011(7)	—	20,000	$17.23	11/14/2018	—	—
James P. Moniz	—	—	—	—	—	—	—

(1) The closing market price of Nanometrics Common Stock on December 30, 2011, the last trading day of our 2011 fiscal year, was $18.42.

(2) Restricted Stock Units vest at a rate of 1/3rd per year on each of the first, second and third anniversary of the grant date.

(3) Options vest in equal monthly installments over a total of four years, and have a term of seven years.

(4) Options vest in equal monthly installments over a total of three years, and have a term of seven years.

(5) Dr. Stultz received a stock option award of 200,000 options in connection with his hiring that vest and become exercisable 1/3rd in the first year, the remainder monthly thereafter for a total of three years. The e grant has a term of ten years.

(6) Mr. Crawford had 16,425 options cancelled and re-granted in connection with our stock option exchange. The new option vests and becomes exercisable 1/3rd immediately with the remainder vesting monthly on a pro-rata basis beginning on the 13th month following the grant date.

(7) Mr. Kisling and Ms. Egan each received an award of stock options in connection with their respective hiring that vest and become exercisable 1/4th on the first anniversary of the grant date and the remainder in equal monthly installments over the following three years.

PROXY

Option Exercises and Stock Vested Table

The following table shows all stock options exercised and value realized upon exercise, and all stock awards vested and value realized upon vesting, by the named executive officers during the 2011 fiscal year that ended December 31, 2011.

OPTION EXERCISES AND STOCK VESTED TABLE
For Fiscal Year 2011

	Option Awards		Stock Awards	
Name	**Number Of Shares Acquired On Exercise (#)**	**Value Realized On Exercise ($)**	**Number Of Shares Acquired on Vesting (#)**	**Value Realized On Vesting ($)**
Timothy J. Stultz	165,000	$1,842,550	6,667	$115,606
Bruce A. Crawford	140,985	$1,541,520	3,333	$57,794
Ronald W. Kisling	—	—	—	—
Nancy E. Egan	—	—	—	—
James P. Moniz	17,811	$204,172	—	—

Employment Contracts and Termination of Employment and Change-in-Control Arrangements

In February 2010, Nanometrics entered into amended executive severance agreements with each of Dr. Stultz and Mr. Crawford. In March 2011 and October 2011, Nanometrics entered into executive severance agreements with Mr. Kisling and Ms. Egan, respectively. The agreements each provide that, in the event of such officer's termination without cause or resignation for good reason within twelve (12) months of a change of control, such officer shall receive (i) a payment equal to such officer's then-current annual base salary, (ii) a payment equal to the most recent bonus actually received by such officer, (iii) subject to such officer's satisfaction of certain eligibility requirements, reimbursement of COBRA premiums for a period of (1) year, and (iv) acceleration of all of such officer's outstanding unvested shares; provided that the maximum amount that such officer is entitled to receive under (i) above (base salary severance) and (ii) above (bonus severance) shall not exceed two times such officer's then-current base salary, calculated on a pre-tax basis.

In addition, the agreement with Dr. Stultz provides that, in the event of his termination without cause, Dr. Stultz shall receive (i) his then-current base salary and any accrued or earned bonus, paid on normal paydays for a period of six (6) months, and (ii) subject to his satisfaction of certain eligibility requirements, reimbursement of COBRA premiums for a period of (6) months. The agreement with Mr. Crawford further provides that, in the event of his termination without cause or resignation for good reason, (i) his then-current annual base salary on normal paydays for a period of six (6) months, (ii) subject to such officer's satisfaction of certain eligibility requirements, reimbursement of COBRA premiums for a period of one (1) year, and (iv) acceleration of the portion of his unvested equity compensation awards that would have vested if his termination had occurred on the first anniversary of such termination date.

In addition, under the terms of our 2005 Equity Incentive Plan, in the event of a merger or change in control in which outstanding stock options or restricted stock units held by the named executive officers are not assumed or substituted with stock options or restricted stock units of the surviving company, such awards will vest and become fully exercisable or payable.

The table below estimates amounts payable upon a separation as if the individuals were separated on December 30, 2011, which was the last business day of our 2011 fiscal year that ended December 31, 2011.

		Not In Connection With A Change Of Control	In Connection With A Change Of Control
Name	**Benefit**	**Termination Without Cause / Good Reason($)**	**Termination Without Cause, For Good Reason Or Due To Disability or Death ($)**
Timothy J. Stultz	Severance pay	$212,500	$425,000
	Equity vesting acceleration (1)	0	$821,247
	Bonus	$152,111	$600,000
	Health care benefits continuation	$8,018	$16,037
	Total value:	**$,372,629**	**$1,687,284**(2)

Name	Benefit	Not In Connection With A Change Of Control	In Connection With A Change Of Control
		Termination Without Cause / Good Reason($)	Termination Without Cause, For Good Reason Or Due To Disability or Death ($)
Bruce A. Crawford	Severance pay	$165,000	$330,000
	Equity vesting acceleration (1)	$260,152	$478,071
	Bonus	0	$515,000
	Health care benefits continuation	$23,433	$23,433
	Total value:	**$448,585**	**$1,161,504**(2)
Ronald W. Kisling	Severance pay	0	$300,000
	Equity vesting acceleration (1)	0	$252,000
	Bonus	0	0
	Health care benefits continuation	0	$14,640
	Total value:	**0**	**$566,640**
Nancy E. Egan	Severance pay	0	$230,000
	Equity vesting acceleration (1)	0	$115,900
	Bonus	0	0
	Health care benefits continuation	0	$8,835
	Total value:	**0**	**$354,735**
James P. Moniz (3)	Severance pay	0	0
	Equity vesting acceleration (1)	0	0
	Bonus	0	0
	Health care benefits continuation	0	0
	Total value:	**0**	**0**

(1) Represents the estimated potential incremental value of additional stock options and restricted stock units that would have vested for our named executive officers as of December 30, 2011 (the last business day of the 2011 fiscal year) under the acceleration scenarios described above. For stock options, the value is based on the difference between the aggregate exercise price of all accelerated options and the aggregate market value of the underlying shares as of December 30, 2011 calculated based on the closing market price of our stock on December 30, 2011 ($18.42). Accelerated restricted stock unit award value is calculated by multiplying the number of accelerated shares by the closing market price of our stock on December 30, 2011 ($18.42).

(2) The change of control agreements provide that payments to the executive representing base pay and bonus upon change of control may not exceed 2 times the executive's annual base salary.

(3) Mr. Moniz acted as the Company's Chief Financial Officer until March 14, 2011, and then continued to be employed by the Company and assist in the transition until April 1, 2011, the date of his retirement. Mr. Moniz received a cash bonus in the amount of $37,500, for a smooth transition of his responsibilities to Mr. Kisling.

Compensation of Directors

During the 2011 fiscal year, non-employee directors received an annual retainer fee of $30,000. In addition, the Chairman of the Board, Audit Committee Chairman, Compensation Committee Chairman and Nominating and Governance Committee Chairman received an incremental $15,000, $20,000, $15,000 and $10,000 annual retainer, respectively, for serving in such capacities. Committee members, other than the chairpersons, received an incremental $7,500 annual retainer for each Committee that they serve. In addition, the non-employee director serving as the Chairman of the Scientific Advisory Board received an incremental retainer of $10,000. All retainer fees are paid annually, as of the date of our annual stockholders meeting and in advance of the provision of services to which the retainer relates.

Non-employee directors are also eligible to participate in our 2005 Equity Incentive Plan whereby each such director received equity incentives, issued in equal portions of stock options and restricted stock units, valued at $62,500. We calculated the value of such equity incentives using the Black Scholes valuation methodology for stock options and the closing market price of our stock on the NASDAQ Stock Market as of the date of our annual stockholders meeting. These awards vest on the first anniversary date of the grant.

Any new non-employee director will be eligible to receive equity incentives valued at $75,000 with equal portions of stock options and restricted stock units. The value of the stock options will be determined using the same methodology the Company uses to record the accounting expense. Vesting of said awards will be in three equal annual installments.

If a director ceases to serve as a member of the Company's Board, a portion of the fees shall be refunded and equity awards shall be forfeited on a pro-rated basis.

Non-employee directors are eligible to participate in Nanometrics self-funded Executive reimbursement Plan, which is intended to supplement our basic health plan by reimbursing expenses that are not covered by our health plan, all such reimbursements are considered taxable income to our non-employee directors.

2011 Director Compensation Table

The following table sets forth information regarding the compensation for each of our non-employee directors for the 2011 fiscal year that ended December 31, 2011. The Company's non-employee director compensation program for the 2011 fiscal year is comprised of: (a) cash compensation, consisting of annual retainer fees, additional fees for chairing Board committees, additional fees for serving as a committee member and (b) equity compensation, consisting of stock option grants and restricted stock units. Each of these components is detailed below.

DIRECTOR COMPENSATION
For Fiscal Year 2011

Name	Fees Earned or Paid in Cash ($)	Stock Awards ($)[1]	Option Awards ($)[1]	All Other Compensation ($)[2]	Total ($)
Bruce C. Rhine [3]	$60,000	$31,244	$31,254	$7,025	$129,523
Howard A. Bain [4]	$50,000	$31,244	$31,254	$17,676	$130,174
J. Thomas Bentley [5]	$52,500	$31,244	$31,254	$7,849	$122,847
Norman Coates [6]	$37,500	$31,244	$31,254	$866	$100,864
Stephen G. Newberry [7]	$35,625	$37,499	$37,500	$0	$110,617
William G. Oldham, Ph.D. [8]	$47,500	$31,244	$31,254	$0	$109,998
Stephen J Smith Ph.D. [9]	$47,500	$31,244	$31,254	$7,049	$117,047

(1) Amounts shown do not reflect compensation actually received by the named director. Instead, the amounts shown are the aggregate grant date fair value calculated for financial statement reporting purposes, as determined pursuant to ASC Topic 718, but excluding any effect of any estimated forfeitures. The assumptions used to calculate the value of awards are set forth under Note 5 of the Notes to Consolidated Financial Statements included in Nanometrics' Annual Report on Form 10-K for fiscal 2011 filed with the SEC on March 13, 2012.

(2) Consists of health care reimbursement extended to directors.

(3) At December 31, 2011, Mr. Rhine had 150,033 outstanding options to purchase shares of common stock and 2,651 unvested restricted stock units.

(4) At December 31, 2011, Mr. Bain had 27,207 outstanding options to purchase shares of common stock and 2,651 unvested restricted stock units.

(5) At December 31, 2011, Mr. Bentley had 42,911 outstanding options to purchase shares of common stock and 2,561 unvested restricted stock units.

(6) At December 31, 2011, Mr. Coates had 10,000 outstanding options to purchase shares of common stock and 1,985 unvested restricted stock units.

(7) At December 31, 2011, Mr. Newberry had 3,949 outstanding options to purchase shares of common stock and 2,382 unvested restricted stock units.

(8) At December 31, 2011, Dr. Oldham had 25,413outstanding options to purchase shares of common stock and 2,651 unvested restricted stock units.

(9) At December 31, 2011, Dr. Smith had 42,911 outstanding options to purchase shares of common stock and 2,651 unvested restricted stock units

COMPENSATION COMMITTEE INTERLOCKS AND INSIDER PARTICIPATION

During the 2011 fiscal year, the Compensation Committee consisted of J. Thomas Bentley (chairman), William G. Oldham, Bruce C. Rhine, who replaced Stephen J. Smith, Ph.D. as a member of the Compensation Committee effective February 23, 2011, and Stephen Newberry, who joined the Compensation Committee in August 2011. Mr. Rhine previously served as our Chief Strategy Officer from July 2006 to February 2008 and as our Chief Executive Officer from March 2007 to August 2007. Mr. Rhine resigned from the Compensation Committee on March 5, 2012. None of Nanometrics' executive officers serves as a member of the board of directors or compensation committee of any entity that has one or more executive officers serving as a member of Nanometrics' Board or Compensation Committee.

COMPENSATION COMMITTEE REPORT

The Compensation Committee, which is composed solely of independent members of the Board of Directors, assists the Board in fulfilling its oversight responsibility relating to, among other things, establishing and reviewing compensation of the Company's executive officers. The Compensation Committee reviewed and discussed with management the "Compensation Discussion and Analysis" section of this Proxy Statement and, based on such review and discussion, recommended to the Board of Directors that the "Compensation Discussion and Analysis" section be included in this Proxy Statement.

The Compensation Committee

J. Thomas Bentley, Chairman
William G. Oldham, Ph.D.
Stephen G. Newberry

PROXY

PROPOSAL 2

APPROVE, AS AN ADVISORY (NON-BINDING) VOTE, OUR EXECUTIVE COMPENSATION

We are requesting our stockholders to approve an advisory resolution on the Company's executive compensation as reported in this proxy statement, and as required by recently adopted Section 14A(a)(1) of the Exchange Act. This vote is not intended to address any specific item of compensation, but the overall compensation of our named executive officers and the philosophy, policies and practices described in this proxy statement.

The Compensation Committee has overall responsibility for evaluating and approving our executive officer compensation, including incentive compensation, benefit, severance, equity-based or other compensation plans, policies and programs. During the 2011 fiscal year, the Compensation Committee reviewed and approved our compensation policies and programs for the chief executive officer as well as established and had oversight with regard to the compensation of other executive officers of Nanometrics. The compensation of our executives is reported in the Summary Compensation Table on page 17 above. Additional information regarding the Compensation Committee and its role is described above in the "Compensation Discussion and Analysis" section of this proxy statement and the related tables and narrative disclosure. Consistent with the Company's compensation philosophy, our executive compensation program has been designed to provide competitive compensation packages that enable Nanometrics to attract and retain talented executives, motivate executive officers to achieve our short- and long-term business strategies and objectives, and align our executive compensation with stockholder value.

The Compensation Committee and our Board of Directors believe that the policies and procedures articulated in the "Compensation Discussion and Analysis" are effective in achieving our goals and that the compensation of our named executive officers reported in this proxy statement has contributed to the Company's recent and long-term success. In accordance with Section 14A of the Exchange Act, as a matter of good corporate governance, and in accordance with the policy adopted by our Board of Directors to provide an annual "say-on-pay" advisory vote, we are asking stockholders to approve the following advisory resolution at the annual meeting:

> RESOLVED, that the stockholders of Nanometrics Incorporate (the "Company") approve, on an advisory basis, the compensation of the Company's named executive officers disclosed in the Compensation Discussion and Analysis, the Summary Compensation Table and the related compensation tables, notes and narrative in the Proxy Statement for the Company's 2012 Annual Meeting of Stockholders.

This advisory, "say-on-pay" resolution is non-binding on the Company, the Compensation Committee or our Board of Directors. Although this resolution is non-binding, the Compensation Committee and our Board of Directors value the opinions that stockholders express in their votes and in any additional dialogue, and will review and consider the outcome of the vote and those opinions when making future compensation decisions.

THE BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS THAT STOCKHOLDERS VOTE "FOR" THE ADVISORY RESOLUTION APPROVING THE COMPANY'S EXECUTIVE COMPENSATION.

PROPOSAL 3

APPROVE THE NANOMETRICS EXECUTIVE PERFORMANCE BONUS PLAN

The Board of Directors is requesting that the stockholders approve the material terms of our Executive Performance Bonus Plan, which was established by our Compensation Committee to increase stockholder value by motivating our senior executives to achieve corporate objectives by providing a competitive bonus for achieving performance goals established by the Compensation Committee. Our Executive Performance Bonus Plan, if approved by our stockholders, will apply to incentives awarded to our covered executives for fiscal 2013 and future years.

Stockholder approval is not generally required for the Company to enact and maintain a bonus plan for our executives. However, under Section 162(m) of the Internal Revenue Code, the annual compensation paid to our Chief Executive Officer and to each of our other three most highly compensated executive officers, other than our chief financial officer, will not be deductible to the extent it exceeds $1,000,000 unless the conditions of Section 162(m) are met. These conditions include stockholder approval of the material terms of this Plan, including the performance criteria that the Compensation Committee may use to establish performance goals applicable to bonus awards made to our Chief Executive Officer and to each of our other three most highly compensated executive officers under this Plan.

A summary of the material terms of our Executive Performance Bonus Plan is attached to this proxy statement as **Appendix A** and is incorporated herein by reference. The following description of this Plan is a summary of certain important provisions and does not purport to be a complete description of this Plan. Please see **Appendix A** for more detailed information.

THE BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS THAT THE STOCKHOLDERS VOTE "FOR" THE APPROVAL OF OUR EXECUTIVE PERFORMANCE BONUS PLAN.

PROXY

Description of the Executive Performance Bonus Plan

Administration. Our Executive Performance Bonus Plan will be administered by the Compensation Committee or the outside directors of our Board of Directors (as defined in section 162(m) of the Internal Revenue Code). Among other things, the plan administrator will have the authority to select participants in this Plan from among our executive officers and to determine the performance goals, award amounts and other terms and conditions of awards under this Plan. The Compensation Committee also will have the authority to establish and amend rules and regulations relating to the administration of this Plan. All decisions made by the Compensation Committee in connection with this Plan will be made in the Compensation Committee's sole discretion and will be final and conclusive.

Eligibility. Our executive officers are eligible to participate in this Plan. The plan administrator has the sole authority to designate participants in this Plan.

Terms of Awards. Awards under this Plan will be payable upon the achievement during each performance period designated by the plan administrator of performance goals established by the plan administrator. At the beginning of each performance period, the plan administrator will establish the performance goals for each award and the target amount of the award that will be earned based on performance compared to the goals. After the end of the performance period, the plan administrator will certify the extent to which the performance goals are achieved and determine the amount of the award that is payable; provided that the plan administrator will have the discretion to determine that the actual amount paid with respect to an award will be less than (but not greater than) the payout calculated for awards made under this Plan.

Performance Criteria. Pursuant to the terms of this Plan, the plan administrator will establish in writing one or more objective performance goals based on the attainment of specified levels of one of or any combination of the following "performance criteria" for the Company as a whole or any business unit of the Company, as reported or calculated by the Company: cash flows (including, but not limited to, operating cash flow, free cash flow or cash flow return on capital); working capital; earnings per share; net earnings; book value per share; operating income (including or excluding taxes, depreciation, amortization, extraordinary items, restructuring charges or other expenses); pre-tax profit; earnings before interest, taxes and depreciation; earnings before interest, taxes, depreciation and amortization; revenue; margins including gross margin or specific product margins; return on stockholder equity or average stockholder's equity; return on assets; return on net assets; debt; debt reduction; debt levels; expenditures; debt plus equity; market or economic value added; stock price appreciation; expenses; cost control; strategic initiatives; market share; return on invested capital; improvements in capital

structure; or customer satisfaction, employee satisfaction, customer satisfaction; and services performance, cash management or asset management metrics.

Such performance goals also may be based on the achievement of specified levels of Company performance (or performance of an applicable affiliate or business unit of the Company) under one or more of the performance criteria described above or relative to the performance of other companies, the industry or a sector of the industry. Performance may be measured by adjusting the evaluation of performance either in accordance with U.S. generally accepted accounting principles ("GAAP") or on a non-GAAP basis as specified in the performance goal.

The plan administrator may provide in any award that any evaluation of performance may include or exclude any of the following events that occurs during a performance period: (i) asset write-downs, (ii) litigation or claim judgments or settlements, (iii) the effect of changes in tax laws, accounting principles, or other laws or provisions affecting reported results, (iv) any reorganization and restructuring programs, (v) extraordinary nonrecurring items as described in Accounting Standards Codification 225-20 and/or in Management's Discussion and Analysis of Financial Condition and Results of Operations appearing in the Company's annual report to stockholders for the applicable year, (vi) mergers, acquisitions or divestitures, (vii) foreign exchange gains and losses and (viii) gains and losses on asset sales. These inclusions or exclusions will be prescribed in a form that satisfies the requirements for "performance-based compensation" within the meaning of Section 162(m)(4)(C) of the Internal Revenue Code.

The performance goals may be based on (i) absolute target values, (ii) growth, maintenance or limiting losses (iii) values relative to peers or indices, or (iv) one or more goal categories compared to a prior period, and may include goals for interim periods within the performance period designated by the plan administrator. Goals may differ for each participant.

Awards Amounts. The Compensation Committee will determine within the timeframe specified in this Plan the amount of the awards that will be paid to each plan participant if the specified performance goals are met and the method by which such amounts will be calculated.

PROPOSAL 4

RATIFICATION OF APPOINTMENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Audit Committee of the Board of Directors has appointed PricewaterhouseCoopers LLP as our independent registered public accounting firm to audit the consolidated financial statements of Nanometrics for the fiscal year ending December 29, 2012.

Approval by the stockholders of the selection of the independent registered public accounting firm is not required, but the Audit Committee believes it is desirable as a matter of good corporate governance to submit this matter to the stockholders. If holders of a majority of the shares present in person or by proxy at the meeting and entitled to vote at the annual meeting do not ratify the appointment of PricewaterhouseCoopers LLP as Nanometrics' independent registered public accounting firm for the fiscal year ending December 29, 2012, the Audit Committee will consider whether it should select another independent registered public accounting firm. Representatives of PricewaterhouseCoopers LLP are expected to attend the annual meeting and will have an opportunity to make a statement and respond to appropriate questions from stockholders.

Audit Fees

The following table summarizes the aggregate fees that we paid or expect to pay our independent registered public accounting firm, PricewaterhouseCoopers LLP for the 2011 fiscal year.

	Fiscal 2011	Fiscal 2010
Audit Fees (1)	$939,948	$767,651
Audit Related Fees (2)	—	$37,890
All other Fees (3)	$1,800	$1,800
Total	$941,748	$807,341

(1) Fees to PricewaterhouseCoopers LLP in 2011 and 2010 for audit services consist of:

- Audit of our annual financial statements including management's assessment of internal controls over financial reporting;
- Reviews of our quarterly financial statements; and
- Statutory and regulatory audits, consents and other services.

(2) Fees includes $12,890 to PricewaterhouseCoopers LLP in 2010 for audit-related services for consultation concerning financial accounting and reporting standards.

(3) Paid to PricewaterhouseCoopers LLP for accounting research and database tool.

In considering the nature of the services provided by the independent registered public accounting firm, the Audit Committee determined that such services are compatible with the provision of independent audit services. The Audit Committee discussed these services with the independent registered public accountants and our management to determine that they are permitted under the rules and regulations concerning auditors' independence promulgated by the Securities and Exchange Commission to implement the Sarbanes-Oxley Act of 2002, as well as the American Institute of Certified Public Accountants.

Changes in Registrant's Certifying Accountant

On March 30, 2010, the Audit Committee dismissed BDO Seidman LLP ("BDO") as the Company's independent registered public accounting firm, effective on that date. BDO's reports on the financial statements of the Company for the fiscal years ended January 2, 2010 and December 27, 2008, contained no adverse opinion or disclaimer of opinion, and were not qualified or modified as to uncertainty, audit scope or accounting principles. During the two most recent fiscal years and through the effective date of BDO's dismissal, there were no disagreements between the Company and BDO on any matter of accounting principles or practices, financial statement disclosure or auditing scope or procedure, which disagreements, if not resolved to the satisfaction of BDO, would have caused BDO to make reference thereto in its reports on the Company's financial statements for such fiscal years.

On March 30, 2010, the Audit Committee selected PricewaterhouseCoopers LLP ("PwC") as the Company's independent registered public accounting firm to audit the Company's consolidated financial statements for the fiscal years ending January 1, 2011 and December 31, 2011.

Audit Committee Pre-Approval Policy

Pursuant to our Audit Committee charter, our Audit Committee must pre-approve all audit and permissible non-audit services, and the related fees, provided to us by our independent registered public accounting firm, or subsequently approve permissible non-audit services in those circumstances where a subsequent approval is necessary and permissible under the Exchange Act or the rules of the Securities and Exchange Commission. Accordingly, the Audit Committee pre-approved all services and fees provided by PwC, during the year ended December 31, 2011 and has concluded that the provision of these services is compatible with the accountants' independence.

Report of the Audit Committee of the Board of Directors

The Audit Committee reviews Nanometrics' financial reporting process on behalf of the Board of Directors. Management has the primary responsibility for establishing and maintaining adequate internal control over financial reporting, for preparing the financial statements and for the reporting process. The Audit Committee members do not serve as professional accountants or auditors, and their functions are not intended to duplicate or to certify the activities of management and the independent registered public accounting firm. Nanometrics' independent auditors are engaged to audit and report on the conformity of our financial statements to accounting principles generally accepted in the United States and the effectiveness of our internal control over financial reporting.

In this context, the Audit Committee reviewed and discussed with management and the independent auditors the audited financial statements for the year ended December 31, 2011, management's assessment of the effectiveness of Nanometrics' internal control over financial reporting and the independent auditors' evaluation of Nanometrics' system of internal control over financial reporting. The Audit Committee has discussed with the independent auditors the matters required to be discussed by Statement on Auditing Standards No. 114, *The Auditor's Communication With Those Charged With Governance*, and PCAOB AU Section 380, *Communications with Audit Committee*. In addition, the Audit Committee has received the written disclosures and the letter from the independent auditors required by applicable requirements of the PCAOB regarding the independent auditors' communications with the Audit Committee concerning independence, and has discussed with the independent auditors the independent auditors' independence.

Based on the foregoing review and discussions with management and the independent auditors, the Audit Committee recommended to the Board of Directors that our audited financial statements as of and for the year ended December 31, 2011 be included in our Annual Report on Form 10-K for the fiscal year ended December 31, 2011 for filing with the United States Securities and Exchange Commission.

The Audit Committee

Howard A. Bain III, Chairman
J. Thomas Bentley
Bruce C. Rhine

THE BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS THAT STOCKHOLDERS VOTE "FOR" THE RATIFICATION OF THE APPOINTMENT OF PRICEWATERHOUSECOOPERS LLP, AS NANOMETRICS' INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM FOR THE FISCAL YEAR ENDING DECEMBER 29, 2012.

OTHER MATTERS

We know of no other matters to be submitted to the stockholders at the annual meeting. If any other matters properly come before the annual meeting, it is the intention of the persons named in the enclosed proxy card to vote the shares they represent as the Board of Directors may recommend.

BY ORDER OF THE BOARD OF DIRECTORS

/s/ Bruce C. Rhine
Bruce C. Rhine
Chairman of the Board of Directors

Milpitas, California
April 17, 2012

Appendix A

NANOMETRICS INCORPORATED

EXECUTIVE PERFORMANCE BONUS PLAN

General

The Executive Performance Bonus Plan (the "Plan") is intended to motivate senior executives to achieve short-term and long-term corporate objectives relating to the performance of Nanometrics or one of our business units as established by the Compensation Committee, and to reward them when those objectives are achieved, thereby tying performance to stockholder value. If the set corporate objectives are met and awards are payable, such awards will qualify as deductible "performance-based compensation" within the meaning of Section 162(m) of the Internal Revenue Code.

Administration

The Executive Performance Bonus Plan is administered by the Compensation Committee of the Board of Directors or the Outside Directors (as defined in Section 162(m) of the Internal Revenue Code) of our Board of Directors ("Plan Administrator"). Among other things, the Plan Administrator will have the authority to select participants in this Plan, to determine the performance goals, award amounts and other terms and conditions of awards under this Plan. The Plan Administrator also will have the authority to establish and amend rules and regulations relating to the administration of this Plan. All decisions made by the Plan Administrator in connection with this Plan will be made in the Plan Administrator's sole discretion and will be final and conclusive. The Plan Administrator will administer the Plan in a manner intended to comply with the requirements for "performance-based compensation" under Section 162(m) of the Internal Revenue Code and applicable Treasury Regulations thereunder.

Eligibility

The Plan Administrator has the sole authority to designate participants in this Plan. No person is automatically entitled to participate in the Executive Performance Bonus Plan. Only executives designated by the Plan Administrator are eligible to participate in this Plan.

Terms of Awards

Awards under this Plan will be payable following the end of the applicable performance period, based upon the achievement of performance goals established by the Plan Administrator for such performance period. The Plan Administrator will establish performance goals based on some or all of the performance criteria set forth in this Plan. Prior to the earlier of (i) 90 days following the commencement of the applicable performance period (or of any interim period related to interim goals established by the Plan Administrator) or (ii) the passage of 25% of the duration of such performance period (or such interim period) and while the outcome is substantially uncertain, the Plan Administrator will establish in writing the performance goals for each award and the threshold, target and maximum amount of the award, as applicable, that will be earned if the performance goals are achieved at the corresponding level.

The total incentive opportunity is expressed as a percentage of the participant's base salary as approved by the Compensation Committee of the Board of Directors. Base salary does not include relocation allowances and reimbursements, tuition reimbursements, car/transportation allowances, expatriate allowances, commissions, long-term disability payments, or bonuses paid during the fiscal year.

After the end of the performance period, the Plan Administrator will certify in writing the extent to which the performance goals were achieved during the performance period and determine the amount of the award that is payable. The Plan Administrator will have the discretion to determine that the actual amount paid with respect to an award will be equal to or less than (but not greater than) the maximum payout calculated for awards made under this Plan. The maximum payout for awards made under this Plan to any participant in any one calendar year is $6 million. The amounts that will be paid out, if any, under the Plan are not currently determinable.

Bonus awards will be pro-rated in the case of an executive joining after the start of the performance period. A participant must be a regular employee of the Company on the last day of the performance period to earn any bonus under the Plan; provided, however that if the regular employment of a participant ends before the end of the performance period because of death, disability or termination of employment without cause, the participant will be paid a pro-rata portion of the bonus, if any, that otherwise would have been payable under this Plan based upon the actual achievement of the performance goals applicable during the performance period in which such termination of employment occurs, unless the Plan Administrator determines in its sole discretion that payment is not appropriate. Any such pro rated bonus payment will be paid at the same time as other bonus payments with respect to the applicable performance period.

Performance Criteria

Pursuant to the terms of this Plan, the Plan Administrator will establish in writing one or more objective performance goals based on the attainment of specified levels of one of or any combination of the following "performance criteria" for the Company as a whole or any business unit of the Company, as reported or calculated by the Company: cash flows (including, but not limited to, operating cash flow, free cash flow or cash flow return on capital); working capital; earnings per share; net earnings; book value per share; operating income (including or excluding taxes, depreciation, amortization, extraordinary items, restructuring charges or other expenses); pre-tax profit; earnings before interest, taxes and depreciation; earnings before interest, taxes, depreciation and amortization; revenue; margins including gross margin or specific product margins; return on stockholder equity or average stockholder's equity; return on assets; return on net assets; debt; debt reduction; debt levels; expenditures; debt plus equity; market or economic value added; stock price appreciation; expenses; cost control; strategic initiatives; market share; return on invested capital; improvements in capital structure; or customer satisfaction, employee satisfaction, customer satisfaction; and services performance, cash management or asset management metrics.

Such performance goals also may be based on the achievement of specified levels of Company performance (or performance of an applicable affiliate or business unit of the Company) under one or more of the performance criteria described above or relative to the performance of other companies, the industry or a sector of the industry. Performance may be measured by adjusting the evaluation of performance either in accordance with U.S. generally accepted accounting principles ("GAAP") or on a non-GAAP basis as specified in the performance goal.

The Plan Administrator may provide in any award that any evaluation of performance may include or exclude any of the following events that occurs during a performance period: (i) asset write-downs, (ii) litigation or claim judgments or settlements, (iii) the effect of changes in tax laws, accounting principles, or other laws or provisions affecting reported results, (iv) any reorganization and restructuring programs, (v) extraordinary nonrecurring items as described in Accounting Standards Codification 225-20 and/or in Management's Discussion and Analysis of Financial Condition and Results of Operations appearing in the Company's annual report to stockholders for the applicable year, (vi) mergers, acquisitions or divestitures, (vii) foreign exchange gains and losses and (viii) gains and losses on asset sales. These inclusions or exclusions will be prescribed in a form that satisfies the requirements for "performance-based compensation" within the meaning of Section 162(m)(4)(C) of the Internal Revenue Code.

The performance goals may be based on (i) absolute target values, (ii) growth, maintenance or limiting losses (iii) values relative to peers or indices, or (iv) one or more goal categories compared to a prior period, and may include goals for interim periods within the performance period designated by the Plan Administrator. Goals may differ for each participant.

Program Payments

Bonus payments, if any, under the Plan will be paid as soon as administratively feasible after the Plan Administrator certifies the extent to which the performance goals were achieved during the applicable performance period and determines the amount of the awards payable, but in no event later than March 15 immediately following the last day of the performance period to which such payments relate. Bonus payments are expected to be made within 75 days following the end of the applicable performance period. The Plan Administrator will determine within the timeframe specified in this Plan the amount of the awards that will be paid to each plan participant if the specified performance goals are met and the method by which such amounts will be calculated. No amount is due and owing to any participant until the Plan Administrator has approved the bonus payment, and no bonus payment will be made unless and until the Plan Administrator has certified in writing regarding the achievement of the performance goals as required by Section 162(m) of the Internal Revenue Code.

Term of the Plan

The Executive Performance Bonus Plan shall first apply in 2013 should our stockholders approve the Plan and will continue until the earlier of (i) the date as of which the Plan Administrator terminates the Plan or (ii) the last day of the fiscal year ending in 2016 unless it is again approved by our stockholders prior to such day.

Amendment and Termination

The Compensation Committee may amend, modify suspend or terminate the Executive Performance Bonus Plan, in whole or in part, at any time and in any respect, including the adoption of amendments deemed necessary. However, in no event may any such amendment, modification, suspension or termination result in an increase in the amount of compensation payable as identified for the performance period or cause compensation that is, or may become, payable under the Executive Performance Bonus Plan to fail to qualify as deductible "performance-based compensation" within the meaning of Section 162(m) of the Internal Revenue Code.

Section 409A of the Internal Revenue Code

It is intended that this Plan and any awards granted under this Plan either be exempt from the requirements of, or else comply with the requirements of, Section 409A of the Internal Revenue Code and any related regulations or other guidance promulgated with respect to such section by the U.S. Department of the Treasury or the Internal Revenue Service. Any provision that would cause any award granted under this Plan to incur additional taxes under Section 409A of the Internal Revenue Code shall have no force or effect until amended by the Plan Administrator to comply with Section 409A of the Internal Revenue Code, and such amendment may be retroactive to the extent permitted by Section 409A of the Internal Revenue Code.

Unfunded Obligation

The Company's obligations under this Plan will, in every case, be an unfunded and unsecured promise. Participants' rights as to the benefit under this Plan shall be no greater than those of general, unsecured creditors of the Company. The Company will not be obligated to fund its financial obligations under this Plan.

FORM 10-K

FOR THE FISCAL YEAR 2011 ENDED DECEMBER 31, 2011

NANOMETRICS INCORPORATED

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

FORM 10-K

(Mark One)

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

For the fiscal year ended December 31, 2011

OR

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

For the transition period from ________ to ________

Commission file number: 0-13470

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

Delaware	**94-2276314**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification Number)**
1550 Buckeye Drive, Milpitas, California	**95035**
(Address of principal executive offices)	**(Zip Code)**

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

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

Title of each class	Name of each exchange on which registered
Common Stock, $0.001 par value per share	**The NASDAQ Stock Market LLC (NASDAQ Global Market)**

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

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

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

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

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes ☒ No ☐.

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

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

Large accelerated filer	☐	Accelerated filer	☒
Non-accelerated filer	☐	Smaller reporting company	☐

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

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

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

DOCUMENTS INCORPORATED BY REFERENCE

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

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NANOMETRICS INCORPORATED

FORM 10-K

FOR THE FISCAL YEAR ENDED DECEMBER 31, 2011

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Forward-Looking Statements

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

PART I

ITEM 1. BUSINESS

Overview

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

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

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

Industry Background

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

Demand for our products continues to be driven by our customers' desire for higher overall chip performance, and improvements in power efficiency, logic processing capability, data storage volume and manufacturing yield. To achieve these goals, our customers have increased their use of more complex materials and processing methods in their manufacturing flow. The majority of our chip customers manufacture devices with features as small as 45nm (nanometer) to 22nm and below, and in some cases our customers are implementing new materials and methods in high volume manufacturing, including high dielectric constant (or high-k) materials and double or quadruple patterning lithography. The use of these new materials and methods requires additional process control and we believe has increased demand for our products. Next-generation devices with features smaller than 22nm are in early production, which in turn likely will require new advancements in metrology and inspection capabilities. DRAM memory makers are shifting to 3x node production with development for 2x node devices currently underway. Non-volatile memory makers of NAND and NOR devices are ramping 2x node devices into high volume manufacturing with work extending into early 1x node production and 1y node development. Foundry and logic manufacturers are ramping production of both 3x and 2x node devices and beginning investment into 1x node devices. Thin film head

components for hard disk drives are also being driven to smaller sizes to support next generation hard disk drives with ever increasing storage capacity requiring continued improvements in read and write head component scaling. We also enable clean energy device manufacturers, such as for LEDs and solar PVs, to achieve higher yields and lower manufacturing costs.

Our Business

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

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

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

Nanometrics Products

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

Automated Standalone Systems

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

We continue to offer automated products for 200mm factories running at 90nm nodes and above, as well as systems supporting micro-electrical mechanical systems ("MEMS"). Our *Q240AT* is a 200mm overlay metrology system that incorporates the same measurement technology as the *Mosaic*™, which thereby extends the technology capability of our customers' existing factories. The *IVS®-185* system supports critical dimension and overlay measurements for semiconductor, MEMS, and HB-LED manufacturing. The *NanoSpec® 9100* thin film measurement system is capable of handling wafers ranging in size from 75 to 200 mm in diameter, and is used in all segments of semiconductor manufacturing, including data storage head manufacturing.

System Platform

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

Integrated Systems

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

Materials Characterization

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

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

Our process control systems can be categorized as follows:

System	Market	Applications
System Platform		
Lynx™	Semiconductor	Platform
OCD Analysis		
NanoDiffract®	Semiconductor	OCD
NanoGen®	Semiconductor	OCD
Automated Standalone Systems		
Atlas II®/Atlas XP®/ Atlas XP+®/Atlas-M®	Semiconductor	Film Thickness, Film Stress, CD
Mosaic II™	Semiconductor	Overlay
SPARK	Semiconductor	Defect Inspection and Advanced Packaging Applications
Unifire ™	Semiconductor	Film Thickness, Overlay, CD, Advanced Packaging Applications
IVS®-185	Semiconductor, MEMS	Overlay, CD
NanoSpec® 9100	Semiconductor	Film Thickness
Integrated Systems		
IMPULSE®	Semiconductor	Film Thickness, CD
9010 Series	Semiconductor	Film Thickness, CD
9000 Series	Semiconductor	Film Thickness
Trajectory	Semiconductor, Solar	Film Thickness, Composition

System	Market	Applications
Materials Characterization Instruments		
ECVPro	Compound Semiconductor, Solar, HB-LED	Electrical Properties
HL5500	Compound Semiconductor, Solar, HB-LED	Electrical Properties
QS1200	Substrate Semiconductor, Solar	Substrate Properties, Film Composition and Thickness
QS2200/3300	Substrate Semiconductor	Substrate Properties, Film Composition
NanoSpec® 3000	Semiconductor	Film Thickness (Tabletop)
NanoSpec® 6100	Semiconductor	Film Thickness (Tabletop)
RPMBlue™	HB-LED	Epitaxial Layer Properties
Stratus	Semiconductor	Substrate Properties, Film Composition and Thicknesss (Tabletop)
VerteX™	Compound Semiconductor, Solar, HB-LED	Epitaxial Layer Properties

Customers

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

Sales and Marketing

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

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

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

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

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

Customer Service and Support

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

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

Backlog

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

Competition

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

We believe that our competitive position in each of our markets is based on the ability of our products and services to address customer requirements related to numerous competitive factors. Competitive selections are based on many factors involving technological innovation, productivity, total cost of ownership of the system, including impact on end of line yield, price, product performance and throughput capability, quality, reliability and customer support.

In the automated segment, our principal competitors are KLA-Tencor Corporation ("KLA-Tencor") and Nova Measuring Instruments Ltd. for thin film, overlay, and critical dimension metrology. Our primary competitor in the integrated metrology segment is Nova Measuring Instruments Ltd., while the HB-LED and solar PV markets are served by numerous competitors and no single competitor or group of competitors has established a majority position. In the macro defect inspection market, the primary competitors are Rudolph Technologies and KLA-Tencor.

Manufacturing

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

We produce key parts and components and make reasonable efforts to ensure that any externally purchased parts or raw materials are available from multiple suppliers, but this is not always possible. Certain components, sub-assemblies and services necessary for the manufacture of our systems are obtained either from a sole supplier or limited group of suppliers.

Although we seek to reduce our dependence on sole and limited source suppliers, partial or complete loss of certain of these sources could disrupt production, delay scheduled deliveries to customers and have a material adverse effect on our results of operations.

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

Research and Development

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

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

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

Patents and Intellectual Property

Our success depends in large part on the technical innovation of our products and protecting such innovations through a variety of methods. We actively pursue a program of filing patent applications to seek protection of technologically sensitive features of our metrology and inspection systems. We believe that our success will depend to a greater degree upon innovation, technological expertise and our ability to adapt our products to new technology. While we attempt to establish our intellectual property rights through patents and trademarks and protect intellectual property rights through non-disclosure agreements, we may not be able to fully protect our technology, and competitors may be able to develop similar technology independently. Others may obtain patents and assert them against us. In addition, the laws of certain foreign countries may not protect our intellectual property to the same extent as do the laws of the United States. From time to time we receive communications from third parties asserting that our metrology systems may contain design features that the third parties claim, may infringe upon their proprietary rights. For more information, see Item 3, "Legal Proceedings."

Employees

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

Executive Officers of the Registrant

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

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

Timothy Stultz has served as our President, Chief Executive Officer and as a director since August 2007. Prior to joining us, Dr. Stultz served in a number of executive management positions within the high tech community including President and CEO of Imago Scientific Instruments Corporation, President and Chief Executive Officer of ThauMDx, VP and General Manager of Veeco Metrology Systems and President and Chief Executive Officer of Peak Systems. Dr. Stultz received his B.S., M.S. and Ph.D. in Materials Science and Engineering from Stanford University.

Bruce A. Crawford has served as our Chief Operating Officer since July 2006. From July 2005 to July 2006, Mr. Crawford served as President and Chief Operating Officer of Accent Optical Technologies, Inc., a supplier of process control and metrology systems to the global semiconductor manufacturing industry, which we acquired in July 2006. From February 2003 to July 2005, Mr. Crawford served as Accent Optical's Chief Operating Officer and Executive Vice President and from October 2000 to February 2003, he served as Vice President of Worldwide Operations. Mr. Crawford holds an A.S. degree from De Anza College.

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

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

ITEM 1A. RISK FACTORS

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

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

The current global economic conditions and the cyclical nature of the semiconductor industry have caused us losses in the past and reductions in available cash, and may, in the future, negatively impact our financial performance.

Current global economic conditions, the gradual recovery of the global economy and the cyclical nature of the semiconductor industry have impacted and could impact future customer demand for our products and our financial performance. The degree of this impact will depend on a number of factors, including the timing and extent of recovery of the U.S. and global economy from the recession. Demand for semiconductor equipment depends, in large parts, on consumer

spending. Economic uncertainty, higher levels of unemployment, higher interest rates, higher tax rates and other economic factors may lead to a decrease in consumer spending and may cause certain customers to cancel or delay placing orders. If we are unable to timely and appropriately adapt to changes resulting from difficult economic conditions, our business, financial condition and results of operations may be adversely affected.

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

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

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

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

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

We rely on outside vendors to manufacture many components and subassemblies. Certain components, subassemblies and services necessary for the manufacture of our systems are obtained from a sole supplier or a limited group of suppliers. We do not maintain long-term supply agreements with most of our suppliers. We have entered into arrangements with J.A. Woollam Co., Inc. for the purchase of the spectroscopic ellipsometer component incorporated into our advanced measurement systems. We also have supply agreements with MPA and Spectral Systems, and subcontract manufacturing agreements with Fox Semiconductor, IFAT and Toho Technologies. In June 2009, we signed a supply agreement with Zygo Corporation to supply OEM interferometer sensors for incorporation into the Unifire line of products as well as our family of automated metrology systems. Our reliance on a sole or a limited group of suppliers involves several risks, including the following:

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

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

Some of our current and potential competitors have significantly greater resources than we do, and increased competition could impair sales of our products.

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

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

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

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

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

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

We generally sell our products on the basis of purchase orders rather than long-term purchase commitments from our customers. Our customers can typically cancel purchase orders or defer product shipments for some period without incurring liabilities to us. We typically plan production and inventory levels based on internal forecasts of customer demand, which can be highly unpredictable and can fluctuate substantially, which could lead to excess inventory write-downs and resulting negative impacts on gross margin and net income. We have limited visibility into our customers' inventories, future customer demand and the product mix that our customers will require, which could adversely affect our production forecasts and operating margins. In addition, innovation in our industry could render significant portions of our inventory obsolete. If we overestimate our customers' requirements, we may have excess inventory, which could lead to obsolete inventory and unexpected costs. Conversely, if we underestimate our customers' requirements, we may have inadequate inventory, which could lead to foregone revenue opportunities, loss of potential market share and damage to customer relationships as product deliveries may not be made on a timely basis, disrupting our customers' production schedules. In response to anticipated long lead times to obtain inventory and materials from outside suppliers and foundries, we periodically order materials in advance of customer demand. This advance ordering has in the past and may in the future result in excess inventory levels or unanticipated inventory write-downs if expected orders fail to materialize, or other factors make our products less saleable. In addition, any significant future cancellation or deferral of product orders could adversely affect our revenue and margins, increase inventory write-downs due to obsolete inventory, and adversely affect our operating results and stock price.

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

Our success depends on our ability to continually enhance and broaden our product offerings in response to changing technologies, customer demands and competitive pressures. To achieve this, from time to time we have acquired complementary businesses, products, or technologies instead of developing them ourselves and may choose to do so in the

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

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

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

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

We believe our continued ability to recruit, hire, retain and motivate highly-skilled engineering, operations, sales, administrative and managerial personnel is key to our future success. Competition for these employees is intense, particularly with respect to attracting and retaining qualified senior management personnel. We have experienced turnover in our senior management team in the past. Our business may be harmed if we are unable to effectively integrate our senior management into our business operations.

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

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

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

If we experience significant delays in shipping our products to our customers, our business and reputation may suffer.

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

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

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

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

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

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

Our future success and competitive position depend in part upon our ability to obtain and maintain proprietary technology for our principal product families, and we rely, in part, on patent, trade secret and trademark law to protect that technology. If we fail to adequately protect our intellectual property, it will be easier for our competitors to sell competing products. We own or may license patents relating to our systems, and have filed applications for additional patents. Any of our pending patent applications may be rejected, and we may not in the future be able to develop additional proprietary technology that is patentable. In addition, the patents we own, have been issued or licensed, may not provide us with competitive advantages and may be challenged by third parties. Third parties may also design around these patents.

In addition to patent protection, we rely upon trade secret protection for our confidential and proprietary information and technology. We routinely enter into confidentiality agreements with our employees. However, in the event that these agreements may be breached, we may not have adequate remedies. Our confidential and proprietary information and technology might also be independently developed by or become otherwise known to third parties. We may be required to initiate litigation in order to enforce any patents issued to or licensed by us, or to determine the scope or validity of a third party's patent or other proprietary rights. Any such litigation, regardless of outcome, could be expensive and time consuming, and could subject us to significant liabilities or require us to re-engineer our product or obtain expensive licenses from third parties, any of which would adversely affect our business and operating results.

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

Our efforts to protect our intellectual property may be less effective in some foreign countries where intellectual property rights are not as well protected as in the United States.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

The business cycle in the semiconductor equipment industry has historically been characterized by frequent periods of rapid change in demand that challenge our management to adjust spending and resources allocated to operating activities. During periods of growth or decline in demand for our products and services, we face significant challenges in maintaining

adequate financial and business controls, management processes, information systems and procedures and in training, managing, and appropriately sizing our supply chain, our work force, and other components of our business on a timely basis. Our success will depend, to a significant extent, on the ability of our executive officers and other members of our senior management to identify and respond to these challenges, our gross margins and earnings may be impaired during periods of demand decline, and we may lack the infrastructure and resources to scale up our business to meet customer expectations and compete successfully during periods of demand growth.

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

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

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

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

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

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

- general economic growth or decline in the U.S. or foreign markets;
- changes in customer demand for our systems;
- the gain or loss of a key customer or significant changes in the financial condition or one or more key customers;
- economic conditions in the semiconductor industries;
- the timing, cancellation or delay of customer orders and shipments;
- market acceptance of our products and our customers' products;
- our ability to recover the higher costs associated with meeting our customers' increasing service demands;
- competitive pressures on product prices and changes in pricing by our customers or suppliers;
- the timing of new product announcements and product releases by us or our competitors and our ability to design, introduce and manufacture new products on a timely and cost-effective basis;
- the occurrence of potential impairments of long-lived assets;
- the timing of acquisitions of businesses, products or technologies;
- the effects of war, natural disasters, acts of terrorism or political unrest;
- the loss of key personnel;
- the levels of our fixed expenses, relative to our revenue levels; and
- fluctuations in foreign currency exchange rates, particularly the Japanese yen and the British pound sterling.

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

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

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

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

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

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

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

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

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

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

Some of our operations use substances regulated under various federal, state, local, and international laws governing the environment, including those relating to the storage, use, discharge, disposal, labeling, and human exposure to hazardous and toxic materials. We could incur costs, fines and civil or criminal sanctions, third-party property damage or personal injury

claims, or could be required to incur substantial investigation or remediation costs, if we were to violate or become liable under environmental laws. Liability under environmental laws can be joint and several and without regard to comparative fault. Compliance with current or future environmental laws and regulations could restrict our ability to expand our facilities or require us to acquire additional expensive equipment, modify our manufacturing processes, or incur other significant expenses. We may unintentionally violate environmental laws or regulations in the future as a result of human error, equipment failure or other causes.

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

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

- authorize the issuance of "blank check" preferred stock that could be issued by our board of directors to thwart a takeover attempt;
- establish a classified board of directors, as a result of which it will be more difficult for our stockholders to change the composition of our board of directors in a relatively short period of time;
- limit who may call special meetings of stockholders; and
- prohibit stockholder action by written consent, requiring all actions to be taken at a meeting of the stockholders.

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

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

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

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

Type	Location	Square Footage	Use
Owned	Milpitas, California	133,000	Corporate headquarters and manufacturing
Owned	Milpitas, California	3,038	Corporate housing
Owned	Pyoungtack City, South Korea	1,139	Applications and service
Leased	United Kingdom	20,338	Sales, service and engineering
Leased	South Korea	20,241	Sales, service and corporate housing
Leased	Japan	12,286	Sales, service, application, logistics, corporate housing and administrations
Leased	United States	15,102	Engineering, sales and service
Leased	Taiwan	11,355	Sales and service
Leased	China	9,475	Sales and service
Leased	Israel	8,589	Engineering and service
Leased	Germany	6,772	Manufacturing, sales and service
Leased	Singapore	4,529	Sales and service
Leased	France	570	Sales and service
Leased	Switzerland	387	Sales and service

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

ITEM 3. LEGAL PROCEEDINGS

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

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

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

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

ITEM 4. MINE SAFETY DISCLOSURES

Not Applicable.

PART II

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

Market Information for Common Stock

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

2011	High	Low
First quarter	$ 20.00	$ 11.89
Second quarter	$ 20.01	$ 14.83
Third quarter	$ 21.56	$ 13.56
Fourth quarter	$ 18.98	$ 13.49

2010	High	Low
First quarter	$ 13.42	$ 7.98
Second quarter	$ 12.25	$ 6.60
Third quarter	$ 15.74	$ 8.00
Fourth quarter	$ 15.80	$ 10.92

Stockholders

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

Dividend Policy

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

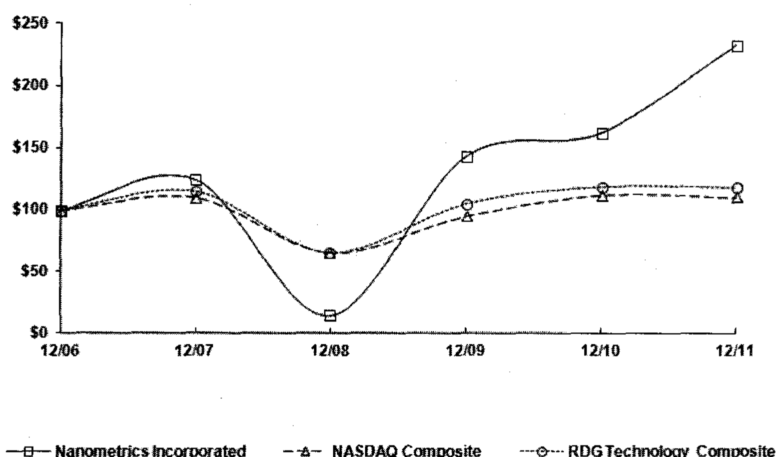
Stock Performance Graph

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

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

COMPARISON OF 5 YEAR CUMULATIVE TOTAL RETURN*

Among Nanometrics Incorporated, the NASDAQ Composite Index, and the RDG Technology Composite Index



*$100 invested on 12/31/06 in stock or index, including reinvestment of dividends.
Fiscal year ending December 31.

Recent Sales of Unregistered Securities

None.

Issuer Purchases of Equity Securities

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

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

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

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

ITEM 6. SELECTED FINANCIAL DATA

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

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

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

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

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

Overview

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

We are an innovator in the field of metrology and inspection systems for semiconductor manufacturing and other industries. Our systems are designed to precisely monitor film thickness and critical dimensions that are necessary to control the manufacturing process and to identify defects that can affect production yields and performance.

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

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

Important Themes and Significant Trends

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

- **Proliferation of Optical Critical Dimension Metrology across Fabrication Processes.** Our customers use photolithographic processes to create patterns on wafers. Critical dimensions must be carefully controlled during this process. In advanced node device definition, additional monitoring of thickness and profile dimensions on these patterned structures at CMP, Etch, and Thin Film processing is driving broader OCD adoption. Our proprietary OCD systems can provide the critical process control of these circuit dimensions that is necessary for successful manufacturing of these state of the art devices. Nanometrics OCD technology is broadly adopted across NAND, DRAM, HDD, and logic semiconductor manufacturing processes.
- **Adoption of Advanced Packaging Processes:** Our customers use photolithographic, etching, metallization and wafer thinning to enable next generation advanced packaging solutions for semiconductor devices. The new packaging leads to increased functionality in smaller, less expensive form factors. Advanced packages can be broken down into high density flip chip or bump packages that increase pin density allowing for more complex I/O on advanced CPU parts. Or, similar or different devices can be stacked at the wafer level using a Through Silicon Via process. The TSV process enables high density small form factor parts, being primarily driven by mobile

consumer products (i.e. cellular telephones with integrated CMOS camera sensors). Increasingly advanced packaging technologies are being adopted by our end customers.

- **Adoption of New Types of Thin Film Materials.** The need for ever increasing device circuit speed coupled with lower power consumption has pushed semiconductor device manufacturers to begin the replacement of the traditional aluminum etch back interconnect flows as well as conventional gate dielectric materials, all which drive a broader adoption of thin film and OCD metrology systems. To achieve greater semiconductor device speed, manufacturers have adopted copper in Logic/IDM and it is now proliferating in next generation DRAM and Flash nodes. Additionally, to achieve improved transistor performance in logic devices and higher cell densities in memory devices, new materials including high dielectric constant (or high-k) gate materials are increasingly being substituted for traditional silicon-oxide gate dielectric materials. High-k materials are comprised of complex thin films including layers of hafnium oxide and a bi-layer of thin film metals. Our advanced metrology and inspection solutions are required for control of process steps, which are critical to enable the device performance improvements that these new materials allow.
- **Development of 3D Transistor Architectures.** Our end customers continue to improve device density and performance by scaling front end of line transistor architectures. Many of these designs have buried features and high aspect ratio stacked features that enable improved performance and density. The advanced designs require additional process control to manage the complex shapes and materials properties, driving additional applications for both OCD and our Unifire systems.
- **Need for Improved Process Control to Drive Process Efficiencies.** Competitive forces influencing semiconductor device manufacturers, such as price-cutting and shorter product life cycles, place pressure on manufacturers to rapidly achieve production efficiency. Device manufacturers are using our integrated and automated systems throughout the fabrication to ensure that manufacturing processes scale rapidly, are accurate and can be repeated on a consistent basis.
- **Reduced Number of Customers.** Our market is characterized by an ongoing oligopolistic trend which drives customer concentration. The largest customer accounted for 17.6% of our total revenue in the fiscal year 2001, and the largest customer accounted for 30.0% and 23.0% of our total revenue in the fiscal year 2011 and 2010, respectively.

Critical Accounting Policies

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

qualitative factors, a company determines that it is not more likely than not that the fair value of a reporting unit is less than its carrying value, then performing the two-step impairment test is unnecessary. However, if a company concludes otherwise, then it is required to perform the first step of the two-step goodwill impairment test. The first step requires a comparison of the fair value of our reporting unit to its net book value. If the fair value is greater, then no impairment is deemed to have occurred. If the fair value is less, then the second step must be performed to determine the amount, if any, of actual impairment.

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

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

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

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

Recent Accounting Pronouncements

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

Results of Operations

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

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

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

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

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

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

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

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

Gross margins. Our gross margin breakdown was as follows:

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

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

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

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

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

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

Research and development.

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

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

Selling.

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

Selling expenses increased by $6.2 million or 41.4% in fiscal year 2010, when compared to 2009. Higher costs are a result of increased labor costs of $4.8 million including increases in salaries, bonus, commission, severance and stock-based compensation and a $1.1 million increase in travel expenses.

General and administrative.

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

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

Amortization of intangible assets.

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

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

Legal settlement.

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

Restructuring charge.

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

Asset impairment.

There were no asset impairment charges in 2011.

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

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

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

* NM = not meaningful

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

* NM = not meaningful

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

During fiscal year 2010 our interest expense was relatively flat compared to fiscal year 2009, the slight decrease is attributed to the pay down of $2.5 million on the mortgage related to our headquarter facility. Other income increased $2.7 million, due to a $2.0 million reduction in loss on foreign exchange from $1.7 million loss in fiscal year 2009 to $0.3 million gain in fiscal year 2010, and due to $0.5 million change to the fair value of deferred payments to Zygo Corporation related to our acquisition of certain assets and our entry into a supply agreement with Zygo Corporation and $0.2 million gain on sale of assets compared to 2009.

Provision/Benefit for income taxes.

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

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

Net income (loss).

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

Liquidity and Capital Resources

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

Operations –

During year ended December 31, 2011, cash provided by operations was $54.0 million which reflected net income of $28.7 million, non-cash transactions of $13.3 million and a $12.1 million reduction in non-cash working capital. Non-cash transactions primarily consisted of i) depreciation and amortization expense of $6.5 million ii) stock based compensation of $4.5 million, iii) excess tax benefit from equity awards of $3.9 million, iv) inventory write down of $1.9 million, and v) $3.8 million increase in deferred income taxes. Changes in working capital were mostly due to a $16.1 million decrease in receivables resulted from timing of sales and collections, an increase in inventory of $12.2 million, and a $12.4 million increase in accruals related to $4.9 million in customer deposits, $2.5 million in accrued legal settlement, and $5.0 million in accrued income taxes.

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

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

On June 17, 2009, we announced a strategic business partnership with Zygo Corporation whereby we have purchased inventory and certain other assets from Zygo Corporation, and the two companies have entered into a supply agreement. We will make payments to Zygo Corporation (with an estimated present value of $2.6 million as of January 1, 2011) over a period of time as acquired inventory is sold and other aspects of the supply agreement are executed. A payment of $2.0 million of inventory and fixed assets was made to Zygo Corporation on January 7, 2010, in accordance with the terms of the acquisition agreement. We have evaluated and will continue to evaluate the acquisitions of products, technologies or business that are complementary to our business. These activities may result in product and business investments, which may affect our cash position and working capital balances. Some of these activities might require significant cash outlays.

Investing –

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

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

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

Financing –

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

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

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

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

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

The instrument governing the facility includes certain financial covenants regarding net tangible net worth. The revolving line of credit agreement includes a provision for the issuance of commercial or standby letters of credit by the bank on our behalf. The value of all letters of credit outstanding reduces the total line of credit available. The revolving line of credit is collateralized by a blanket lien on all of our domestic assets excluding intellectual property and real estate. The minimum borrowing interest rate is 5.75% per annum. The maximum borrowing allowed on the line of credit is $20.0 million. Borrowing is limited to the lesser of (a) $7.5 million plus the borrowing base or (b) $20.0 million. The borrowing base available as of December 31, 2011 was $18.1 million. As of December 31, 2011, we were not in breach of any restrictive covenants in connection with our line of credit and debt obligations. There were no borrowing against (or payments to) the line of credit

during the fiscal year 2011 and 2010 and there are no amounts outstanding on this facility as of December 31, 2011 or January 1, 2011. We borrowed $7.0 million during fiscal year 2009 and repaid the amounts in full during fiscal year 2009. Although we have no current plans to request advances under this credit facility, we may use the proceeds of any future borrowing for general corporate purposes, future acquisitions or expansion of our business.

Mortgage Loan -In July 2008, we entered into a loan agreement with General Electric Commercial Finance ("GE") pursuant to which we borrowed $13.5 million secured, in part, by a lien on and security interest in the building and land comprising our principal offices in Milpitas, California. The loan initially bears interest at the rate of 7.18% per annum, which rate will be reset in August 2013 to 3.03% over the weekly average yield of five-year U.S Dollar Interest Rate Swaps as published by the Federal Reserve. Monthly principal and interest payments are based on a twenty year amortization for the first sixty months and fifteen year amortization thereafter. The remaining principal balance of the loan and any accrued but unpaid interest will be due on August 1, 2018. According to the terms of the loan agreement, we can make annual pre-payments of up to 20% of the outstanding principal balance without incurring any penalty. GE subsequently sold the mortgage on March 31, 2011 to Sterling Saving Bank; however, no changes were made to the terms of the original loan agreement with GE as a result of the sale. In July 2011, we prepaid $1.95 million of the loan, representing 20% of the outstanding balance.

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

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

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

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

Off-Balance Sheet Arrangements

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

Contractual Obligations

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

		Payments due by period			
	Total	**Less than 1 year**	**1-3 years**	**3-5 years**	**More than 5 years**
Debt obligations[1]	$ 9,515	$ 1,176	$ 1,937	$ 1,623	$ 4,779
Fair value of deferred payments to Zygo Corporation related to acquisition	2,633	679	1,511	292	151
Other long-term liabilities	875	—	—	875	—
Operating lease obligations	4,094	1,642	1,397	695	360
Total	$ 17,117	$ 3,497	$ 4,845	$ 3,485	$ 5,290

(1) Includes interest.

We maintain certain open inventory purchase agreements with our suppliers to ensure a smooth and continuous supply availability for key components. Our liability under these purchase commitments is generally restricted to a forecasted time-horizon as mutually agreed upon between the parties. This forecast time-horizon can vary among different suppliers. We estimate our open inventory purchase commitment as of December 31, 2011 was approximately $23.3 million. Actual expenditures will vary based upon the volume of the transactions and length of contractual service provided. In addition, the amounts paid under these arrangements may be less in the event that the arrangements are renegotiated or cancelled. Certain agreements provide for potential cancellation penalties.

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

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

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

Foreign Currency Risk

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

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

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

Interest Rate Risk

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

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

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

To the Board of Directors and Stockholders of
Nanometrics Incorporated

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

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

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

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

Report of Independent Registered Public Accounting Firm

Board of Directors and Stockholders
Nanometrics Incorporated
Milpitas, California

We have audited the accompanying consolidated statements of operations, stockholders' equity and comprehensive income (loss), and cash flows of Nanometrics Incorporated for the year ended January 2, 2010. In connection with our audit of the financial statements, we have also audited the information included in the consolidated financial statement schedule listed in Item 15 for the year ended January 2, 2010. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. Our audit included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

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

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

/s/ BDO USA, LLP

(formerly known as BDO Seidman, LLP)

San Francisco, CA
March 26, 2010

NANOMETRICS INCORPORATED

CONSOLIDATED BALANCE SHEETS
(In thousands, except share amounts)

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

See notes to consolidated financial statements.

NANOMETRICS INCORPORATED

CONSOLIDATED STATEMENTS OF OPERATIONS

(In thousands, except per share amounts)

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

See notes to consolidated financial statements.

NANOMETRICS INCORPORATED

CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY AND COMPREHENSIVE INCOME (LOSS)
(In thousands, except share amounts)

	Common Stock		Additional Paid-In Capital	Accumulated Deficit	Accumulated Other Comprehensive Income (Loss)	Total Stockholders' Equity	Comprehensive Income (Loss)
	Shares	Amount					
Balances, December 27, 2008	18,413,054	$ 18	$ 189,927	$ (96,643)	$ (535)	$ 92,767	
Comprehensive loss:							
Net income (loss)	—	—	—	(16,305)	—	(16,305)	$ (16,305)
Other comprehensive income							
Employee benefit plan adjustment					110	110	110
Foreign currency translation adjustments	—	—	—	—	1,798	1,798	1,798
Comprehensive loss	—	—	—	—	—	—	$ (14,397)
Issuance of common stock under stock-based compensation plans, net of tax	786,585	1	3,037	—	—	3,038	
Common stock offering, net of $426 offering costs	2,307,152	2	23,290	—	—	23,292	
Stock-based compensation expense	—	—	2,054	—	—	2,054	
Balances, January 2, 2010	21,506,791	21	218,308	(112,948)	1,373	106,754	
Comprehensive loss:							
Net income	—	—	—	55,948	—	55,948	$ 55,948
Other comprehensive income							
Employee benefit plan adjustment	—	—	—	—	(51)	(51)	(51)
Foreign currency translation adjustments	—	—	—	—	750	750	750
Comprehensive income	—	—	—	—	—		$ 56,647
Issuance of common stock under stock-based compensation plans, net of tax	969,484	1	6,622	—	—	6,623	
Common stock offering costs	—	—	(28)	—	—	(28)	
Stock-based compensation expense	—	—	2,950	—	—	2,950	
Repurchases and retirement of common stock	(161,492)	—	(2,097)			(2,097)	
Balances, January 1, 2011	22,315	22	225,755	(57,000)	2,072	170,849	
Comprehensive loss:							
Net income	—	—	—	28,685	—	28,685	$ 28,685
Other comprehensive income						—	
Employee benefit plan adjustment	—	—	—	—	(39)	(39)	(39)
Foreign currency translation adjustments	—	—	—	—	(484)	(484)	(484)
Comprehensive income	—	—	—	—	—		$ 28,162
Issuance of common stock under stock-based compensation plans, net of tax	1,133,028	1	10,764	—	—	10,765	
Stock-based compensation expense	—	—	4,473	—	—	4,473	
Repurchases and retirement of common stock	(265,040)	—	$ (4,257)			(4,257)	
Balances, December 31, 2011	23,182,771	$ 23	$ 236,735	$ (28,315)	$ 1,549	$ 209,992	

See notes to consolidated financial statements.

FORM 10-K

NANOMETRICS INCORPORATED

CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands, excepts)

	Years Ended		
	December 31, 2011	January 1, 2011	January 2, 2010
Cash flows from operating activities:			
Net income (loss)	$ 28,685	$ 55,948	$ (16,305)
Reconciliation of net income (loss) to net cash provided by (used in) operating activities:			
Depreciation and amortization	6,488	5,858	6,092
Asset impairment	—	463	1,899
Stock-based compensation	4,473	2,950	2,054
Excess tax benefit from equity awards	(3,915)	(801)	—
(Gain) Loss on disposal of asset	113	(140)	82
Inventory write down	1,916	1,457	376
Deferred taxes	3,770	(17,233)	(426)
Unrealized foreign exchange loss (gain)	—	(523)	939
Change in the fair value of contingent payments to Zygo	413	467	596
Changes in assets and liabilities, net of effects of assets acquired and liabilities assumed in acquisitions:			
Accounts receivable	16,172	(20,996)	(5,971)
Inventories	(12,169)	(14,495)	1,572
Inventories – delivered systems	446	244	(975)
Prepaid expenses and other	(4,747)	(398)	(113)
Accounts payable, accrued and other liabilities	4,241	11,533	775
Deferred revenue	3,088	1,414	3,941
Income taxes payable	5,054	1,879	(291)
Net cash provided by (used in) operating activities	54,028	27,627	(5,755)
Cash flows from investing activities:			
Cash received from Tevet on escrow settlement	—	—	215
Payments to Zygo, related to acquisition	(432)	(3,503)	—
Purchase of Nanda's net assets, net of cash received	(23,912)	—	—
Purchases of property, plant and equipment	(2,755)	(3,096)	(822)
Proceeds from sale of property, plant and equipment	—	492	9
Net cash used in investing activities	(27,099)	(6,107)	(598)
Cash flows from financing activities:			
Borrowings from line of credit	—	—	7,000
Repayment of line of credit	—	—	(7,000)
Repayments of debt obligations	(2,571)	(2,999)	(319)
Proceeds from sale of stock under employee stock purchase and stock option plans	7,186	5,784	3,038
Proceeds (payments) related to issuance of common stock offering, net of $426 offering cost in 2009	—	(28)	23,292
Excess tax benefit from equity awards	3,915	801	—
Taxes on net issuance of stock awards	(126)	(299)	—
Repurchases of common stock	(4,257)	(2,097)	—
Net cash provided by financing activities	4,147	1,162	26,011
Effect of exchange rate changes on cash and cash equivalents	163	252	(112)
Net increase in cash and cash equivalents	31,239	22,934	19,546
Cash and cash equivalents, beginning of year	66,460	43,526	23,980
Cash and cash equivalents, end of year	$ 97,699	$ 66,460	$ 43,526
Supplemental disclosure of cash flow information:			
Cash paid for interest	$ 757	$ 965	$ 1,038
Cash paid for income taxes	$ 11,149	$ 1,572	$ 153

See notes to consolidated financial statements.

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

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

Note 1. Significant Accounting Policies

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

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

Fiscal Year – The Company uses a 52/53 week fiscal year ending on the Saturday nearest to December 31. Accordingly, 2011 consisted of 52 weeks ending December 31, 2011 (fiscal year 2011), 2010 consisted of 52 weeks ending January 1, 2011 (fiscal year 2010), and 2009 consisted of 53 weeks ending January 2, 2010 (fiscal year 2009).

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

Use of Estimates – The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reported period. Actual results could differ materially from those estimates. Estimates are used for, but not limited to, revenue recognition, the provision for doubtful accounts, the provision for excess, obsolete, or slow moving inventories, depreciation and amortization, valuation of intangible assets and long-lived assets, warranty reserves, income taxes, valuation of stock-based compensation, and contingencies.

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

Revenue Recognition – The Company derives revenue from the sale of process control metrology systems ("product revenue") as well as spare part sales, billable service, service contracts, and upgrades (together "service revenue"). Upgrades are a group of parts and/or software that change the existing configuration of a product and are included in service revenue. They are distinguished from product revenue, which consists of complete, automated process control metrology systems (the "system(s)"). Nanometrics' systems consist of hardware and software components that function together to deliver the essential functionality of the system. Arrangements for sales of systems often include defined customer-specified acceptance criteria.

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

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

acceptance period. In Japan, where contractual terms with the customer specify risk of loss and title transfers upon customer acceptance, revenue is recognized upon receipt of written customer acceptance, provided that all other recognition criteria have been met.

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

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

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

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

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

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

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

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

the acquisition date, we record adjustments to the assets acquired and liabilities assumed, with the corresponding offset to goodwill. Upon the conclusion of the measurement period or final determination of the values of assets acquired or liabilities assumed, whichever comes first, any subsequent adjustments are recorded to our consolidated statements of operations.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Defined Employee Benefit Plans – The Company maintains a defined benefit pension plan in Taiwan for which current service costs are charged to operations as they accrue based on services rendered by employees during the year. Pension benefit obligations are determined by using management's actuarial assumptions, including discount rates, assumed asset rates of return, compensation increases and employee turnover rates.

Net Income Per Share - Basic net income (loss) per share excludes dilution and is computed by dividing net income (loss) by the number of weighted average common shares outstanding for the period. Diluted net income (loss) per share reflects the potential dilution from outstanding dilutive stock options (using the treasury stock method) and shares issuable under the employee stock purchase plan. The Company had net income in fiscal year 2011 and 2010, therefore, the potential dilutive effect of stock options was considered to calculate the diluted income per share. In applying the treasury stock method,

0.5 million of stock option shares and 0.7 million of stock option shares for fiscal years 2011 and 2010 respectively were excluded because their effect was anti-dilutive. While these stock option shares are currently anti-dilutive, they could be dilutive in the future. During fiscal year 2009, the Company incurred a net loss, therefore, diluted net loss per share excludes 2.4 million of anti-dilutive common equivalent shares. The reconciliation of the share denominator used in the basic and diluted net income per share computations is as follows (in thousands):

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

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

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

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

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

Recently Issued Accounting Pronouncements

In September 2011, the FASB issued Accounting Standards Update ("ASU") 2011-08, *Intangibles-Goodwill and Other (Topic 350): Testing Goodwill for Impairment* which is intended to simplify how an entity tests goodwill for impairment. The amendment will be effective for the Company beginning in the first quarter of fiscal 2012. Under this accounting standard update, an entity is allowed to first assess qualitative factors to determine whether it is necessary to perform the two-step quantitative goodwill impairment test. An entity no longer will be required to calculate the fair value of a reporting unit unless the entity determines, based on a qualitative assessment, that it is more likely than not that its fair value is less than its carrying amount. This guidance is effective for goodwill impairment tests performed for fiscal years beginning after December 15, 2011, with early adoption permitted. The Company early adopted this standard during the fourth quarter of 2011. Refer to Note 6 "Goodwill and Long-Lived Asset Impairment" for a summary of the accounting impact.

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

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

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

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

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

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

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

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

Note 2. Fair Value Measurements and Disclosures

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

Fair Value Hierarchy

The Company determines the fair values of its financial instruments based on the fair value hierarchy established in ASC 820, which requires an entity to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value. The classification of a financial asset or liability within the hierarchy is based upon the lowest level input that is significant to the fair value measurement. The fair value hierarchy prioritizes the inputs into three levels that may be used to measure fair value:

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

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

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

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

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

As of January 1, 2011	**Quoted Prices in Active Markets for Identical Assets (Level 1)**	**Significant Other Observable Inputs (Level 2)**	**Significant Unobservable Inputs (Level 3)**	**Total**
Fair value of deferred payments to Zygo Corporation related to acquisition	$ —	$ —	$ 2,652	$ 2,652
Total financial liabilities	$ —	$ —	$ 2,652	$ 2,652

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

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

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

As of January 2, 2010, the Company had assets held for sale of $0.2 million related to the Company's South Korean manufacturing facility. The assets primarily included semiconductor equipment and buildings. The fair value of these assets was determined based on level 3 inputs, including a third party appraisal. Losses recognized in fiscal year 2009 due to fair value measurements using level 3 inputs was $1.9 million. These assets were subsequently sold in the second quarter of year 2010 for a gain of $0.2 million. The Company had no assets held for sale as of December 31, 2011 and January 1, 2011.

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

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

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

Note 3. Acquisitions

Acquisition of Nanda Technologies GmbH in 2011

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

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

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

With the acquisition, the Company recorded intangible assets of $9.2 million of developed technology, $1.0 million of customer relationships, and $0.3 million of in-process research and development. The developed technology represents Nanda's full wafer, high volume inspection technology and was valued by discounting the estimated future net cash flows of this technology to their net present value utilizing the income approach. The value of the developed technology will be amortized

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

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

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

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

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

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

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

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

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

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

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

Asset Purchase from Zygo Corporation in 2009

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

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

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

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

The Company was required to make payments to Zygo after each sale of the Company's product which incorporates inventory acquired from Zygo. If the Company did not sell sufficient products that incorporate the acquired inventory from Zygo, within one year from the acquisition date, the Company was required to remit the remaining unpaid portion relating to inventory and fixed assets at that time. The purchase agreement also stipulated that if the Company received greater than $5.0 million in a financing transaction, 20% of the financing proceeds, not to exceed $2.0 million, must be paid to Zygo for any unpaid portion of the amounts related to inventory and fixed assets. In December 2009, the Company completed a common stock offering with net proceeds of $23.3 million, therefore, $2.0 million became immediately due and payable to Zygo. The $2.0 million payment was made to Zygo on January 7, 2010. In March 2010, the Company sold products that incorporate the

acquired inventory from Zygo, at levels sufficient to trigger the Company's payment obligations under the purchase agreement, and therefore, the remaining unpaid portion relating to inventory and fixed assets of $1.4 million became due and was paid by the Company to Zygo on April 15, 2010.

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

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

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

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

Note 4. Asset Held for Sale

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

Note 5. Stock-Based Compensation

The Company measured and recognized compensation expense for all share-based payment awards made to employees and directors including employee stock options, restricted stock units and employee stock purchases related to the Employee Stock Purchase Plan (collectively "Employee Stock Purchases") based on estimated fair values. The fair value of share-based payment awards is estimated on the date of grant using an option-pricing model. The value of the portion of the award that is ultimately expected to vest is recognized as expense over the requisite service periods in the Company's consolidated statement of operations.

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

Valuation and Expense Information

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

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

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

Stock Options and Restricted Stock Units ("RSUs")

Prior to December 2008, the majority of options granted by the Compensation Committee vested at a rate of 33 $^{1}/3$ percent over the first three years of the seven-year option term on each of the first, second and third anniversary of such grants. Starting in December 2008, the majority of the options granted to employees employed for less than one year vest one-third ($^{1}/3^{rd}$) of the shares subject to the option on the first anniversary of the grant date, and vest one thirty sixth ($^{1}/36^{th}$) each month for the following two years, for a total three year vesting period with a seven-year option term. Starting in November 2008, the majority of the options granted for employees employed for more than one year vest one thirty-sixth ($^{1}/36^{th}$) of the shares subject to the options in equal monthly installments starting on the monthly anniversary of the date of grant with a seven-year option term. On February 22, 2010, the Compensation Committee reviewed best practice with regard to stock option vesting and made the following changes; existing employees generally receive vesting terms of monthly ratable vesting for a total period of four years. New employees, in general, receive vesting terms that are equivalent to 25% vesting on the one year anniversary of the grant with monthly vesting thereafter for a total of four years. All other terms remain the same. Grant of each Restricted Stock Unit ("RSU") counts against our available for grant pool at a ratio of 2:1 against the 2005 Equity Incentive Plan as depicted below under "RSUs granted". The number of RSUs granted during the fiscal year 2011 was 315,472 which counted as 630,944 against the stock option plan. Each RSU represents an amount equal to the fair value of one share of the Company's common stock.

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

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

Options

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

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

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

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

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

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

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

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

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

Restricted Stock Units ("RSUs")

Each RSU counts against our "2005 Equity Incentive Plan" at a ratio of two shares for each unit granted but represents an amount equal to the fair value of one share of the Company's common stock. The Company granted 315,472 and 73,232 RSUs during the years ended December 31, 2011 and January 1, 2011, respectively, to key employees with vesting periods spanning from one to three years. The Company granted 286,180 RSUs on November 21, 2011 as part of employment agreements with personnel hired by the Company subsequent to the acquisition of Nanda. The RSU's granted to these newly hired employees generally vest as follows: 10% on date of grant; the remaining vest one-third per year over each of the three years from date of grant, to the extent the participant continues to be employed at Nanometrics.

A summary of activity for RSUs is as follows:

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

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

Stock-based Compensation Expense

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

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

Note 6. Goodwill and Long-Lived Asset Impairment

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

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

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

The process of evaluating the potential impairment of long-lived assets is highly subjective and requires significant judgment. In estimating the fair value of these assets, the Company made estimates and judgments about future revenues and cash flows. The Company's forecasts were based on assumptions that are consistent with the plans and estimates the Company is using to manage the business. Changes in these estimates could change the Company's conclusion regarding impairment of the long-lived assets and potentially result in future impairment charges for all or a portion of their balance at December 31, 2011. The Company did not record any impairment charges in the fiscal year 2011.

During the fiscal year 2010, the Company recorded $0.5 million of impairment related to certain software implementation projects that were abandoned, and in the fiscal year 2009, the Company recorded $1.9 million impairment related to its manufacturing facility in South Korea.

Note 7. Sale of Accounts Receivable

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

Note 8. Inventories

Inventories consist of the following (in thousands):

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

Note 9. Property, Plant and Equipment

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

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

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

Note 10. Intangible Assets

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

On December 9, 2010, Nanometrics purchased three patents from RTM. The company paid RTM $0.4 million cash for these patents. Nanometrics also incurred approximately $62,000 of legal expenses, which were capitalized and included with the cost of the patents acquired. The primary patent expires on March 31, 2018. Nanometrics will amortize the patents on a straight line basis over a period of 7 years and 3 months (from January 2011 through March 2018).

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

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

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

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

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

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

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

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

Note 11. Other Current Liabilities

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

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

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

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

Note 12. Line of Credit and Debt Obligations

Debt obligations consist of the following (in thousands):

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

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

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

In July 2008, the Company entered into a mortgage agreement with General Electric Commercial Finance pursuant to which it borrowed $13.5 million. The mortgage initially bears interest at the rate of 7.18% per annum, which rate will be reset in August 2013 to 3.03% over the then weekly average yield of five-year U.S. Dollar Interest Rate Swaps as published by the Federal Reserve. Monthly principal and interest payments are based on a twenty year amortization for the first sixty months and fifteen year amortization thereafter. The remaining principal balance of the mortgage and any accrued but unpaid interest will be due on August 1, 2018. The mortgage is secured, in part, by a lien on and security interest in the building and land comprised of the Company's principal offices in Milpitas, California.

GE subsequently sold the mortgage on March 31, 2011 to Sterling Savings Bank; however, no changes were made to the terms of the original loan agreement with GE as as result of the sale.

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

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

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

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

Note 13. Legal Settlement

In August 2005, KLA-Tencor Corporation ("KLA") filed a complaint against the Company in the United States District Court for the Northern District of California (the "California District Court"). The complaint alleged that certain of Nanometrics' products infringe two of KLA's patents. In January 2006, KLA added a third patent to its complaint. In August 2011, the Company filed a complaint against KLA in the United States District Court for the District of Delaware. The complaint alleged that several of KLA's overlay metrology products infringe two of the Company's patents. On January 13, 2012, the Company entered into a settlement and limited patent cross license agreement with KLA to resolve all existing patent litigation between the parties. Pursuant to the settlement agreement, the Company agreed to make a one-time payment of $2.5 million to KLA. The settlement additionally included other features including limited cross-licenses of the patents that were subject to the litigation. The Company determined the principal benefit of the settlement was the economic benefit of avoiding litigation expenses and that the value attributable to the other settlement features was de minimus. As a result, the Company recorded a $2.5 million charge to legal settlement in operating expense in the fourth quarter of fiscal 2011.

Note 14. Commitments and Contingencies

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

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

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

Note 15. Stockholders' Equity

Preferred and Common Stock

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

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

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

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

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

Stock Option Plans

The Nanometrics option plans are as follows:

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

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

Employee Stock Purchase Plan

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

Note 16. Restructuring Charge

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

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

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

Note 17. Defined Benefit Pension Plan

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

Note 18. Income Taxes

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

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

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

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

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

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

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

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

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

As of December 31, 2011, the Company had available for carryforward state research and experimental tax credits and other credits of $2.6 million. State research and experimental tax credits carryforward indefinitely. A total of $0.3 million of the state research and experimental tax credits are related to excess tax benefits as a result of stock option exercises and therefore will be recorded to additional paid-in-capital in the period that they become realized.

During the years ended December 31, 2011 and January 1, 2011 the valuation allowance increased by $1.1 million and decreased by $32.1 million, respectively. The valuation allowance increase in 2011 is primarily related to foreign losses without benefit.

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

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

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

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

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

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

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

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

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

The Company is subject to taxation in the U.S. and various states including California, and foreign jurisdictions including Korea, Japan and United Kingdom. Due to tax attribute carry-forwards, the Company is subject to examination for tax years 2003 forward for U.S. tax purposes. The Company was also subject to examination in various states for tax years 2002 forward. The Company is subject to examination for tax years 2006 forward for various foreign jurisdictions.

Note 19. Major Customers

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

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

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

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

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

Note 20. Product, Segment and Geographic Information

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

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

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

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

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

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

SUPPLEMENTAL FINANCIAL INFORMATION

Selected Quarterly Financial Results (Unaudited)

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

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

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

* * * * *

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

None.

ITEM 9A. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures that are designed to ensure that information required to be disclosed in our reports under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to management, including our Chief Executive Officer ("CEO") and Chief Financial Officer ("CFO"), as appropriate, to allow timely decisions regarding required disclosure. Our management, with participation of our CEO and CFO, has evaluated the effectiveness of our disclosure controls and procedures as of the end of the fiscal year covered by this Annual Report on Form 10-K.

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

Report of Management on Internal Control over Financial Reporting

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

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

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

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

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

Changes in Internal Control over Financial Reporting

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

ITEM 9B. OTHER INFORMATION

None.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

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

ITEM 11. EXECUTIVE COMPENSATION

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

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

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

Equity Compensation Plan Information

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

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

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

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS AND DIRECTOR INDEPENDENCE

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

ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES

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

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULE

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

(1) Consolidated Financial Statements.

See Index to Consolidated Financial Statements in Item 8 on page 34 of this Annual Report on Form 10-K.

(2) Consolidated Financial Statement Schedule.

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

Schedule	Page
II (a) – Valuation and Qualifying Accounts as of and for the years ended December 31, 2011 and January 1, 2011	74
II (b) – Valuation and Qualifying Accounts as of January 2, 2010 and for the year then ended	74

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

(3) Exhibits.

See Exhibit Index beginning on page 72 of this Annual Report on Form 10-K.

SIGNATURES

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

Dated: March 13, 2012

NANOMETRICS INCORPORATED

By: /S/ TIMOTHY J. STULTZ

Timothy J. Stultz
President and Chief Executive Officer
(Duly Authorized Officer and Principal Executive Officer)

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

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

FORM 10-K

EXHIBIT INDEX

Exhibit No.	Description
2	**Plan of Acquisition, Reorganization, Arrangement, Liquidation or Succession**
2.1 (1) #	**Equity Purchase Agreement among Nanometrics (Switzerland) GmbH, Nanda Technologies GmbH, the stockholders of Nanda Technologies GmbH and Shareholder Representative Services LLC, dated November 21, 2011**
3.(i)	**Certificate of Incorporation**
3.1 (2)	Certificate of Incorporation of the Registrant
3.(ii)	**Bylaws**
3.2 (3)	Bylaws of the Registrant
4	**Instruments Defining the Rights of Security Holders, Including Indentures**
4.1 (4)	Form of Common Stock Certificate
10	**Material Contracts**
	Management Contracts, Compensatory Plans, Contracts or Arrangements
10.1 (5)	Form of Indemnification Agreement between the Registrant and each of its directors and executive officers
10.2 (6)	Registrant's 2000 Employee Stock Option Plan and form of Stock Option Agreement
10.3 (7)	Registrant's 2000 Director Stock Option Plan and form of Stock Option Agreement
10.4 (8)	Registrant's 2002 Non-statutory Stock Option Plan and form of Stock Option Agreement
10.5 (9)	Registrant's Amended and Restated 2003 Employee Stock Purchase Plan
10.6 (10)	Form of Subscription Agreement Under the Registrant's Amended and Restated 2003 Employee Stock Purchase Plan
10.7 (9)	Registrant's Amended and Restated 2005 Equity Incentive Plan
10.8 (7)	Registrant's Amended and Restated 2005 Equity Incentive Plan forms of Stock Option and Restricted Stock Unit Agreements
10.9 (11)	2011 Executive Performance Bonus Plan
10.10 (12)	Form of Offer Letter to Timothy J. Stultz
10.11 (13)	Amended and Restated Executive Severance Agreement between the Registrant and Timothy J. Stultz, dated February 23, 2010
10.12 (13)	Amended and Restated Executive Severance Agreement between the Registrant and Bruce A. Crawford, dated February 23, 2010
10.13 (14)	Employment Agreement between Registrant and Ronald W. Kisling, dated February 28, 2011
10.14*	Employment Agreement between Registrant and Nancy E. Egan, dated October 31, 2011
	All Other Material Contracts
10.15 (8)	Loan and Security Agreement effective as of February 14, 2007 by and between Comerica Bank, the Registrant, Accent Optical Technologies, Nanometrics, Inc. and Nanometrics IVS Division, Inc.
10.16 (15)	First Amendment to the Loan and Security Agreement dated September 14, 2007
10.17 (15)	Second Amendment to the Loan and Security Agreement dated May 11, 2009, with an effective date of April 29, 2009
10.18 (16)	Third Amendment to the Loan and Security Agreement dated June 15, 2009
10.19 (17)	Fourth Amendment to the Loan and Security Agreement dated April 13, 2010
10.20 (18)	Security Agreement, Balloon Promissory Note, and Deed of Trust by and between GE Commercial Finance Business Property Corporation and the Registrant, each dated July 25, 2008
10.21 (16)	Asset Transfer Agreement by and between Zygo Corporation and the Registrant, dated June 17, 2009
10.22 (16)	Supply Agreement by and between Zygo Corporation and the Registrant dated June 17, 2009
14	**Code of Ethics**
14.1 (19)	Registrant's Code of Business Conduct and Ethics

Exhibit No.	Description
21	**Subsidiaries**
21.1*	Subsidiaries of the Registrant
23	**Consents of Experts and Counsel**
23.1*	Consent of PricewaterhouseCoopers LLP Independent Registered Public Accounting Firm
23.2*	Consent of BDO USA, LLP (formerly known as BDO Siedman, LLP), Independent Registered Public Accounting Firm
31	**Rule 13a-14(a)/15d-14(a) Certifications**
31.1*	Certification of Timothy J. Stultz, principal executive officer of the Registrant, pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2*	Certification of Ronald W. Kisling, principal financial officer and principal accounting officer of the Registrant, pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32	**Section 1350 Certifications**
32.1*	Certification of Timothy J. Stultz, principal executive officer of the Registrant, and Ronald W. Kisling, principal financial officer and principal accounting officer of the Registrant pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
101**	XBRL - Related Documents
	The following financial statements, formatted in XBRL: (i) Condensed Consolidated Balance Sheets as of December 31, 2011 and January 1, 2011, (ii) Condensed Consolidated Statements of Operations for the years ended December 31, 2011, January 1, 2011 and January 2, 2010 (iii) Condensed Consolidated Statements of Cash Flows for the years ended December 31, 2011, January 1, 2011 and January 2, 2010 and (v) Notes to Unaudited Condensed Consolidated Financial Statements, tagged as blocks of text. The information is Exhibit 101 is "furnished" and not "filed", as provided in Rule 402 of Regulation S-T.

(1) Incorporated by reference to Exhibit 2.1 filed with the Registrant's Current Report on Form 8-K filed November 23, 2011.
(2) Incorporated by reference to exhibits filed with the Registrant's Current Report on Form 8-K filed October 5, 2006.
(3) Incorporated by reference to exhibits filed with the Registrant's Current Report on Form 8-K filed May 9, 2008.
(4) Incorporated by reference to Exhibit 4.1 filed with the Registrant's Quarterly Report on Form 10-Q filed November 9, 2006.
(5) Incorporated by reference to Exhibit 10.1 filed with the Registrant's Annual Report on Form 10-K filed March 15, 2007.
(6) Incorporated by reference to Exhibit 4.2 filed with the Registrant's Registration Statement on Form S-8 (File No. 333-40866) filed on July 6, 2000.
(7) Incorporated by reference to exhibits filed with the Registrant's Annual Report on Form 10-K filed March 13, 2008.
(8) Incorporated by reference to exhibits filed with the Registrant's Quarterly Report on Form 10-Q filed May 10, 2007.
(9) Incorporated by reference to the appendices filed with the Registrant's definitive proxy statement on Schedule 14A filed April 21, 2009.
(10) Incorporated by reference to Exhibit 4.1 filed with the Registrant's Registration Statement on Form S-8 (File No.333-108474) filed on September 3, 2003.
(11) Incorporated by reference to exhibits filed with the Registrant's Quarterly Report on Form 10-Q filed on May 22, 2011.
(12) Incorporated by reference to Exhibit 10.1 filed with the Registrant's Current Report on Form 8-K filed August 8, 2007.
(13) Incorporated by reference to exhibits filed with the Registrant's Annual Report on Form 10-K filed on March 26, 2010.
(14) Incorporated by reference to exhibits filed with the Registrant's Annual Report on Form 10-K filed March 14, 2011.
(15) Incorporated by reference to exhibits filed with the Registrant's Quarterly Report on Form 10-Q filed May 12, 2009.
(16) Incorporated by reference to exhibits filed with the Registrant's Quarterly Report on Form 10-Q filed August 11, 2009.
(17) Incorporated by reference to Exhibit 99.1 filed with the Registrant's Current Report on Form 8-K filed April 19, 2010.
(18) Incorporated by reference to Exhibit 10.2 filed with the Registrant's Quarterly Report on Form 10-Q filed November 6, 2008.
(19) Incorporated by reference to Exhibit 14 filed with the Registrant's Annual Report on Form 10-K filed April 1, 2004.

* Filed herewith.

** Furnished herewith.

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

SCHEDULE II

NANOMETRICS INCORPORATED

(a) VALUATION AND QUALIFYING ACCOUNTS

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

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

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

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

(b) VALUATION AND QUALIFYING ACCOUNTS

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

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

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

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

NON-GAAP RECONCILIATION

(Dollars in millions, except per share amounts)

	2009	2010	2011
GAAP net income (loss)	$ (16.3)	$ 55.9	$ 28.7
Non-GAAP adjustments:			
Acquisition-related charges	–	–	2.0 (a)
Amortization of intangible assets	1.5	1.6	1.7 (b)
Legal settlement	–	–	2.5 (c)
Asset impairment	1.9	0.5	–
Restructuring charge	1.1	–	–
Income tax effect of non-GAAP adjustments	(0.5)	(0.7)	(2.2)
Discrete tax items	–	(18.2) (d)	–
Non-GAAP net income (loss)	$ (12.2)	$ 39.0	$ 32.7
GAAP net income (loss) per diluted share	$ (0.87)	$ 2.43	$ 1.22
Non-GAAP net income (loss) per diluted share	$ (0.66)	$ 1.70	$ 1.39
Shares used in diluted income (loss) per share calculation	18.6	23.0	23.5

(a) Includes legal, finance and investment banking fees paid in connection with the acquisition of Nanda Technologies, as well as $0.5 million in stock grants made to Nanda employees upon sign-on post close.

(b) Includes $0.25 million of amortization of acquired intangible assets from Nanda Technologies.

(c) Charges associated with the settlement of KLA-Tencor litigation, which was a subsequent event completed in January 2012.

(d) Consists of the favorable impact of the release of $18.2 million in income tax valuation allowances.

nanometrics