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**2008 ANNUAL REPORT
AND 2009 PROXY STATEMENT**

Nanometrics Incorporated

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Washington, DC 20549

LETTER TO OUR STOCKHOLDERS

Letter to Our Stockholders

2008 was a challenging year for the semiconductor industry, yet it was a year of tremendous progress at Nanometrics. Looking back, we are very proud of our accomplishments in respect to new product development, strategic expansion into growing markets, substantial improvements in our business model, significant gains in our operational efficiencies and targeted reductions of our cost structure on a global basis.

As we enter the new year, it seems clear that the global economic downturn and business uncertainties we faced in 2008 will persist through 2009. Yet we believe that Nanometrics is a stronger company today – in terms of our competitiveness, product portfolio, strategic position and operational leverage – than at any time in recent history.

Our company has a long and venerable history. We are a pioneer in the field of optical measurement technology and today have over 6,000 metrology systems in more than 150 semiconductor fabs worldwide. In 2008 we introduced a new product in each of our core served markets – positioning us to benefit from an improvement in the business environment when it occurs. While our legacy has been built in the semiconductor industry, last year we increased our presence in new growth markets, where our core competencies and metrology solutions can play a critical role in enabling continuous technological advancements in fields such as solar photovoltaics, high-brightness LEDs, silicon wafers and highly complex material substrates needed for a variety of next-generation electronic components.

New Product Introductions

A key achievement in 2008 was the introduction of five new products that have rapidly achieved market acceptance and which provide the foundation for our future growth in revenues and market share.

In January 2008, we introduced our **NanoCD Suite**, which incorporates our proprietary modeling and analysis software and enhances the capabilities of our optical critical dimension (OCD) metrology technology, an increasingly critical application in the semiconductor manufacturing process.

Launched in April 2008, the **Atlas XP** is the newest product in the Atlas line of high-performance, fully automated metrology systems. The Atlas XP combines both thin film and OCD technologies in a high-throughput, small footprint design that addresses our customers' need for performance, flexibility and reduced cost of ownership.

In June, we introduced our next-generation integrated metrology system, the **IMPULSE**. We have long been an innovator and leader in the field of integrated metrology, and the IMPULSE extends that leadership by offering real-time, in-situ monitoring of vital patterning and process applications that meet the needs of the smallest most advanced semiconductor technologies.

Among the most innovative product introductions in the metrology industry is our new **Lynx** metrology system, which we launched at SEMICON West in July 2008. The Lynx is the industry's first compact 300mm cluster metrology platform to enable thin film, OCD and overlay measurements in a single system. The Lynx's versatility provides for a range of custom configurations, which can be upgraded and extended to enhance functionality, performance and throughput – offering the lowest cost of ownership for complex metrology solutions in the industry.

In December 2008, we announced the launch of our latest-generation **Caliper** overlay metrology system, which builds upon the success of the Caliper family of image-based overlay solutions for advanced high-volume IC manufacturing. Overlay metrology is a key enabler for the most critical patterning steps of semiconductor fabrication – and our latest Caliper system takes the next step forward in platform and optical design to improve system precision and productivity in order to meet the needs of our customers' technology roadmaps.

To date, every one of our new product introductions have gained acceptance at multiple customer sites, and are well positioned to benefit from increased spending on capital equipment needed to produce next generation semiconductor devices.

Expanding our Markets

When we acquired Accent Optical Technologies in 2006, we expanded our product line beyond traditional semiconductor thin film metrology by supplementing our offering with materials characterization systems serving the compound semiconductor, silicon wafer and high-brightness LED markets. By the first quarter of 2008, this market proved to be an important part of our business, comprising 20 percent of our sales for the quarter and providing us with an important revenue base less vulnerable to the cyclicity of the silicon IC market.

In May 2008, we announced the acquisition of Tevet Process Control Technologies, an innovative developer of fiber-optic based integrated metrology systems. Tevet's Trajectory family of products have increased our position in high-volume process line monitoring as well as expanded our offerings in solar PVs, an industry whose growth is currently outpacing that of the semiconductor industry.

Between our materials characterization products and the broadening of our served markets with the acquisition of Tevet, these non-traditional metrology businesses comprised over one-quarter of our revenues for the full year.

Improving our Business Model

Another area of achievement and progress in 2008 resulted from the swift and decisive steps taken to restructure our operations and cost structure. Starting in late 2007, we initiated a program to streamline our worldwide footprint, increase the efficiency of our operations and decrease our fixed-to-variable cost ratio. In the past year we consolidated facilities worldwide and created focused centers of excellence in manufacturing, engineering, sales and service, while at the same time increasing our outsourcing at the systems level, from 0 percent in 2007 to nearly 20 percent in 2008.

We also underwent two significant restructurings in our business in the first and third quarters, and demonstrated a 24 percent reduction in our operating expenses in the fourth quarter of 2008 compared to the year-ago period. The cost reductions we made to our manufacturing operations enabled us to keep our product gross margins flat at 49%, in spite of a 40 percent decrease in product sales year-over-year.

In late 2007 we embarked on a strategy to leverage our worldwide installed base of 6,000 systems by offering product upgrade solutions that give our customers improved ROIs and which vastly expanded our service business in 2008, enabling it to grow more than 30 percent over 2007. This strategy helped us improve the profitability of our service business, in which we achieved a gross margin of 30% in 2008, up from a negative 2% in 2007. The overall improvements we made to our service model will continue to benefit and leverage our customer relationships, profitability and worldwide infrastructure for years to come.

Looking Ahead

As we look ahead to 2009 and beyond, there is little doubt that the current global economic crisis will continue to challenge our business in the months to come. The strength of our served markets depends primarily on the global demand for semiconductors, which is driven increasingly by consumer spending and worldwide GDP. As a direct result of continued weakening in consumer demand, spending on semiconductor capital equipment is expected to further decline – by as much as 30 to 50 percent in 2009 – which would be the steepest yearly decline in our industry's history.

That being said, we believe there are many bright spots in our future. First of all, our ability to weather the storm is bolstered by having diverse product lines in numerous markets, which lessens our dependence on capacity additions for semiconductor manufacturing. The improvements to our service business combined with our aggressive product upgrade strategy provide us with a solid base of service revenues with attractive gross margins.

Our R&D investments have yielded a completely refreshed line of advanced metrology systems, which have already gained traction with the world's leading semiconductor manufacturers and will enable our business to bounce back quickly when the industry recovers. At that time, the improvements we have made to our business model will enable us to generate significant operational leverage and improved profitability.

Our focus in 2008 was primarily on introducing new products and improving operational efficiencies. In 2009, our focus is to improve capital efficiency and cash flow management while continuing to strengthen customer relationships, enhance our competitiveness and pursue strategic opportunities to expand our served markets.

We would like to convey our appreciation for our employees and management team who have worked tirelessly to improve our business model and the competitiveness of our products, to our customers for their close collaboration and unwavering support, and to our loyal shareholders for maintaining confidence in our company and our team during a challenging time in our industry.

Sincerely,



Dr. Timothy J. Stultz
President and Chief Executive Officer



Bruce C. Rhine
Chairman of the Board

Financial Notes*(Dollars in millions)*

For the year ended December 27, 2008, Nanometrics' revenue was \$102.1 million compared to \$146.3 million in 2007. The net loss for the year was \$82.7 million, which included \$68.5 million in non-cash asset impairment charges, compared to a loss of \$4.0 million in 2007. The Company ended 2008 with \$24.0 million in cash and cash equivalents and working capital of \$57.7 million.

Revenue

2004	\$ 69.9
2005	\$ 70.5
2006	\$ 96.4
2007	\$146.3
2008	\$102.1

Revenue by Segment in 2008

Automated Metrology	\$ 40.6
Materials Characterization	\$ 19.0
Integrated Metrology	\$ 16.0
Service	\$ 26.5
Total	<u>\$102.1</u>

Net Income / (Loss)

2004	\$ 3.7
2005	\$ 1.5
2006	(\$22.1)
2007	(\$ 4.0)
2008	(\$82.7)

Revenue by Geography in 2008

United States	30%
Japan	28%
South Korea	20%
Taiwan	6%
China	7%
Europe	5%
ROW	4%

Stockholders' Equity

2004	\$116.8
2005	\$120.3
2006	\$174.6
2007	\$175.8
2008	\$ 92.8

**NOTICE OF 2009 ANNUAL STOCKHOLDERS MEETING
AND PROXY STATEMENT**

PROXY

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 Wednesday, May 27, 2009, at 10:00 a.m., local time, at Nanometrics' principal offices 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 two Class II directors of Nanometrics, each to serve for a term of three years or until his respective successor has been duly elected and qualified.
2. A proposal to approve an amendment and restatement of our 2003 Employee Stock Purchase Plan ("2003 Stock Plan") to increase the number of shares reserved for issuance under the 2003 Stock Plan by 1,200,000 shares.
3. A proposal to approve an amendment and restatement of our 2005 Equity Incentive Plan to allow in 2009 for a one-time stock option exchange program for eligible employees and executive officers and to clarify the plan term.
4. A proposal to ratify the appointment of BDO Seidman, LLP as Nanometrics' independent registered public accounting firm for the fiscal year ending December 26, 2009.
5. Such other business as may properly come before the annual meeting or any postponements or adjournments thereof.

The foregoing items of business 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 Monday, April 13, 2009 are entitled to notice of and to vote at the annual meeting and any postponements or adjournments thereof.

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.

BY ORDER OF THE BOARD OF DIRECTORS,



Bruce C. Rhine
Chairman of the Board of Directors

Milpitas, California
April 21, 2009

PROXY

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 2009 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 mailed to stockholders of record on or about April 27, 2009.

Important Notice Regarding the Availability of Proxy Materials for the Shareholder Meeting to Be Held on May 27, 2009

The proxy statement and annual report are available at <http://www.nanometrics.com/investor/proxy2009.pdf>.

Date, Time and Place

The annual meeting will be held on Wednesday, May 27, 2009 at 10:00 a.m., local time, at Nanometrics' principal offices 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 two Class II directors of Nanometrics, each to serve for a term of three years or until his respective successor has been duly elected and qualified.
2. A proposal to approve an amendment and restatement of our 2003 Employee Stock Purchase Plan ("2003 Stock Plan") to increase the number of shares reserved for issuance under the 2003 Stock Plan by 1,200,000 shares.
3. A proposal to approve an amendment and restatement of our 2005 Equity Incentive Plan to allow in 2009 for a one-time stock option exchange program for eligible employees and executive officers and to clarify the plan term.
4. A proposal to ratify the appointment of BDO Seidman, LLP as Nanometrics' independent registered public accounting firm for the fiscal year ending December 26, 2009.

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 matter other than the proposals presented in this proxy statement will be brought before the annual meeting. However, if other matters incident to the conduct of the annual meeting are properly presented at the annual meeting or any adjournment or postponement of the annual meeting, the persons named as proxies will vote in accordance with their best judgment with respect to those matters.

If you vote "AGAINST" any of the proposals, the proxy holders will not be authorized to vote for any adjournments or postponements of the annual meeting, including for the purpose of soliciting additional proxies, unless you so indicate by marking the appropriate box on the proxy card for 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 Class II director on our board of directors, with the directors who are nominees abstaining.
- “FOR” the proposal to approve an amendment and restatement of our 2003 Stock Plan to increase the number of shares reserved for issuance under the 2003 Stock Plan by 1,200,000 shares.
- “FOR” the proposal to approve an amendment and restatement of our 2005 Equity Incentive Plan to allow in 2009 for a one-time stock option exchange program for eligible employees and executive officers and to clarify the plan term.
- “FOR” the proposal to ratify the appointment of BDO Seidman, LLP as Nanometrics’ independent registered public accounting firm for the fiscal year ending December 26, 2009.

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 13, 2009, are entitled to notice of and to vote at the annual meeting. As of the record date, there were 18,503,765 shares of common stock outstanding and entitled to vote at the annual meeting, held by approximately 283 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

A quorum of stockholders is necessary to hold a valid annual meeting of stockholders. In order to have a quorum for the transaction of business at the annual meeting, a majority of shares of common stock issued and outstanding and entitled to vote on the record date must be present in person or by proxy at the annual meeting. Shares that are voted “FOR,” “AGAINST,” “ABSTAIN” or “WITHHOLD AUTHORITY” 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 the election of directors and the ratification of the independent registered public accounting firm, even if it does not receive voting instructions from you. Proposals 2 and 3 regarding amendments to equity plans are “non-discretionary,” meaning that brokers who hold shares for the accounts of their clients and who have not received instructions from their clients do not have discretion to vote on those items. When a broker votes a client’s shares on some but not all of the proposals at the annual meeting, the missing votes are referred to as “broker non-votes.” Those shares will be included in determining the presence of a quorum at the annual meeting but are not considered “present” for purposes of voting on the non-discretionary items.

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

Proposal 1

In the election of our Class II 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.

Proposal 2

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 amendment and restatement of our 2003 Stock Plan. We believe that the 2003 Stock Plan provides a valuable opportunity for employees to acquire an ownership interest in the Company and provides stockholder value by aligning employee and stockholder interests. The proposed increase to the number of shares reserved for issuance under the 2003 Stock Plan will enable the Company to continue to utilize equity incentives to attract and retain the best available individuals for positions of significant authority and responsibility, provide additional incentive to our employees, and promote the overall success of our business.

If we do not obtain stockholder approval, then the proposed 1,200,000 share increase to the share reserve under the 2003 Stock Plan will not be implemented. The 2003 Stock Plan was still in effect during fiscal 2009 but, as of the date of the annual meeting, the Company will have no remaining shares available for issuance and award under the 2003 Stock Plan. If we do not obtain stockholder approval to increase the share reserve under the 2003 Stock Plan, the Company will have to discontinue the 2003 Stock Plan until such future date as we obtain stockholder approval to increase the share reserve. Abstentions will be treated as “present” so will have the same effect as a vote against the proposal.

Proposal 3

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 an amendment and restatement of our 2005 Equity Incentive Plan to allow in 2009 for a one-time option exchange program for eligible employees and executive officers and to clarify the plan term. We are proposing this program because we believe that it will provide a more cost-effective retention and incentive tool to our key contributors than issuing incremental equity or paying additional cash compensation. We estimate a reduction in our overhang of outstanding stock options of approximately 902,794 shares, assuming full participation in the Option Exchange Program and assuming that the Option Exchange Program is effected on or around July 15, 2009.

If we do not obtain stockholder approval, then the proposed Option Exchange Program will not be implemented. Abstentions will be treated as “present” so will have the same effect as a vote against the proposal.

Proposal 4

Approval by the stockholders of the selection of Nanometrics’ independent registered public accounting firm is not required, but we believe 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 BDO Seidman, LLP as our independent registered public accounting firm for the fiscal year ending December 26, 2009, the Audit Committee of the board of directors will consider whether it should select another independent registered public accounting firm.

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. Stockholders holding shares of common stock in "street name," which means that their shares are held of record by a broker, bank, or other nominee, may vote by mail by completing, signing and dating the voting instruction forms for the annual meeting provided by their respective brokers, banks, or other nominees and returning their respective voting instruction forms to the record holders of their shares of common stock. 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 Class II director on our board of directors;
- "FOR" the proposal to approve an amendment and restatement of our 2003 Stock Plan to increase the number of shares reserved for issuance under the 2003 Stock Plan by 1,200,000 shares;
- "FOR" the proposal to approve an amendment and restatement of our 2005 Equity Incentive Plan to allow in 2009 for a one-time stock option exchange program for eligible employees and executive officers and to clarify the plan term; and
- "FOR" the proposal to ratify the appointment of BDO Seidman, LLP as Nanometrics' independent registered public accounting firm for the fiscal year ending December 26, 2009.

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 must be signed and delivered to our corporate secretary in advance of the vote at the annual meeting; or
- attending the annual meeting and voting in person.

Your attendance alone, however, will not revoke your previously granted proxy. If you hold your shares in street name and 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 vote or revoke your proxy for the annual meeting.

Proxy Solicitation

Nanometrics is soliciting proxies for the annual meeting from our stockholders. We will bear the entire cost of soliciting proxies from the stockholders. In addition to the solicitation of proxies by mail, we will request that

brokers, banks and other nominees send proxies and proxy materials to the beneficial owners of common stock held by them and secure their voting instructions, if necessary. We also may use several of our regular employees, who will not be specially compensated, to solicit proxies from stockholders, personally or by telephone, internet, telegram, facsimile or special delivery letter.

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, 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 2010 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 2010 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. Typically, proposals must be received by us no later than 120 calendar days before the date the proxy statement was released to stockholders in connection with the previous year’s annual meeting. If we change the date of our annual meeting to a date more than 30 days from the date of our previous year’s annual meeting, then the deadline for receipt of stockholder proposals will be changed to a reasonable time before we begin to print and mail our proxy. The submission of a stockholder proposal does not guarantee that it will be included in our proxy statement. Additionally, stockholder proposals to be considered at the annual meeting outside the processes of Rule 14a-8 (which are not intended to be included in the proxy materials for such annual meeting) must be delivered to or mailed and received at our executive offices at least 45 days before the date that the proxy statement was released to stockholders in connection with the previous year’s annual meeting.

Material Proceedings

To the best of management’s knowledge, there are no material proceedings to which any director, officer or 5% stockholder is a party and (i) is adverse to Nanometrics or any of its subsidiaries or (ii) has a material interest adverse to Nanometrics or any of its subsidiaries.

PROPOSAL 1
ELECTION OF DIRECTORS

At the 2009 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 either 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, and is divided into three (3) classes, with staggered three-year terms. Howard A. Bain III, William G. Oldham, Ph.D., and Stephen J Smith, Ph.D. are our current Class I directors, and their terms expire at our 2011 annual meeting of stockholders. Edmond R. Ward, Ph.D. and J. Thomas Bentley are our current Class II directors, and their terms expire at this 2009 annual meeting of stockholders. Vincent J. Coates, Bruce C. Rhine and Timothy J. Stultz, Ph.D. are our current Class III directors, and their terms expire at our 2010 annual meeting of the stockholders. Dr. Ward has informed us that he will not stand for re-election as a Class II director, and as a result, immediately following the 2009 annual meeting of stockholders, the number of authorized members of the board of directors shall be reduced from eight (8) to seven (7) members.

Class II Nominees

J. Thomas Bentley and Timothy J. Stultz, Ph.D. are the nominees for our Class II directors, with a term that expires at the 2012 annual meeting of stockholders. Dr. Stultz, who currently is serving as a Class III director, has tendered his resignation as a Class III director, which resignation is contingent upon and subject to his election as a Class II director. If our stockholders do not elect Dr. Stultz to serve as a Class II director, Dr. Stultz' resignation as a Class III director will not take effect and Dr. Stultz will continue to serve on our board as a Class III director. J. Thomas Bentley, 59, 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. 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.

Timothy J. Stultz, Ph.D., 61, 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 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.

Assuming the election of the Class II director nominees, following the 2009 stockholder meeting, the board of directors will be comprised of the following seven (7) members: Howard A. Bain III, William G. Oldham, Ph.D. and Stephen J Smith, Ph.D. will be the Class I directors, J. Thomas Bentley and Timothy J. Stultz, Ph.D. will be the Class II directors, and Vincent J. Coates and Bruce C. Rhine will be the Class III directors.

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

Information Regarding Other Directors Continuing In Office

Set forth below is information regarding each of our continuing directors, including their ages as of April 13, 2009, 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.

Incumbent Class III Directors whose terms expire in 2010

Dr. Stultz, who currently is serving as a Class III director, has tendered his resignation as a Class III director and has been nominated by the Nominating and Corporate Governance Committee and the board of director, for election as a Class II director. Dr. Stultz' resignation as a Class III director is subject to his election as a Class II director, and if our stockholders do not elect Dr. Stultz as a Class II director, Dr. Stultz' resignation shall be rendered ineffective, and Dr. Stultz will continue to serve on our board as a Class III director.

Vincent J. Coates, 84, founded Nanometrics and has served as Vice-Chairman of the Board and Chairman of our Scientific Advisory Board since July 2007, Chairman of the Board from January 1975 through July 2007 and as Secretary from February 1989 until July 2007. From January 1975 until April 1998, Mr. Coates served as the Chief Executive Officer and as President from January 1975 through May 1996, except for the period of January 1986 through February 1987 when he served exclusively as Chief Executive Officer. Mr. Coates holds a B.E. in Mechanical Engineering from Yale University.

Bruce C. Rhine, 51, 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 August 2000 to July 2006, Mr. Rhine served as Chairman and Chief Executive Officer of Accent Optical Technologies, Inc. and as Accent Optical Technologies, Inc.'s President from January 2003 to April 2005 and from August 2000 to September 2001. Mr. Rhine holds a B.S. degree in Chemical Engineering and an M.B.A. in Finance from The Pennsylvania State University.

Class I Directors whose terms expire in 2011

Howard A. Bain III, 63, has served on our Board since April 2008. He is also a director of Learning Tree International, Inc. and several private venture capital financed companies. 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 has additional experience in various technology companies in the areas of semiconductor devices and manufacturing equipment; laser-based large screen projection systems; and computer disk drives. 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.

William G. Oldham, Ph.D., 71, 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.

Stephen J Smith, Ph.D., 62, 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. Dr. Smith holds a B.A. degree from Reed College and a Ph.D. from the University of Washington.

Compensation of Directors

During fiscal year 2008, directors who were not also employees of Nanometrics received an annual retainer fee of \$20,000, plus \$1,500 for each board meeting attended. The Chairman of the Board, Audit Committee Chairman, Compensation Committee Chairman and Nominating and Corporate Governance Committee Chairman received an incremental \$15,000, \$10,000, \$5,000 and \$5,000 annual retainer, respectively, for serving in such capacities and each committee member received an additional \$2,000 annual retainer. The Lead Independent Director, a position which was eliminated in August 2008, also received an incremental \$5,000 annual retainer (which was pro-rated in 2008 to reflect actual time served in such capacity). All non-employee directors received \$1,500 for board meetings attended on site and \$500 for telephonic board meetings lasting more than 30 minutes. Committee members received \$1,500 for committee meetings (for which they served as a member) that were attended on site and \$500 for telephonic committee meetings lasting more than 30 minutes. Joseph F. Dox waived the right to receive such board of director annual retainer and meeting attendance fees during his term as a director in fiscal 2008.

Non-employee directors were also eligible to participate in our 2000 Director Stock Option Plan whereby each director received a stock option award of 20,000 options upon appointment to the board of directors and 2,500 stock options on the second business day of each quarter thereafter, provided the director has served on the board of directors for at least six months on each grant date. One-third (1/3) of the shares subject to the option shall vest on the one year anniversary of the vesting commencement date, and an additional one-third (1/3) of the shares subject to the option will vest each year thereafter on the annual anniversary of the vesting commencement date, subject to the director continuing to provide services to Nanometrics through each such date. It is anticipated that future option grants to non-employee directors will generally be made from our 2005 Equity Incentive Plan.

Each non-employee director shall also receive an award of 2,000 restricted stock units under our 2005 Equity Incentive Plan on the first business day of each year, provided the director has served on the board of directors as a non-employee director for at least six months on each grant date. One-third (1/3) of the restricted stock units subject to the award shall vest on the later of the one year anniversary of the vesting commencement date and the opening of any applicable Company trading window, and an additional one-third (1/3) of the restricted stock units subject to the award will vest each year thereafter on the later of the annual anniversary of the vesting commencement date and the opening of any applicable Company trading window, subject to the director continuing to provide services to Nanometrics through each such date. The following table shows compensation information for Nanometrics' non-employee directors for fiscal year 2008.

DIRECTOR COMPENSATION
For Fiscal Year 2008

<u>Name</u>	<u>Fees Earned or Paid in Cash (\$)</u>	<u>Stock Awards \$(1)</u>	<u>Option Awards \$(2)</u>	<u>All Other Compensation \$(3)</u>	<u>Total (\$)</u>
Bruce C. Rhine(4)	\$97,519	—	\$ 1,197	\$1,344	\$100,060
Vincent J. Coates(5)	\$29,500	—	\$ 7,200	\$ 120	\$ 36,820
Howard A. Bain(6)	\$41,000	—	\$13,605	\$ 695	\$ 55,300
J. Thomas Bentley(7)	\$51,250	\$6,523	\$37,720	—	\$ 95,493
William G. Oldham(7)	\$47,429	\$6,523	\$37,720	—	\$ 91,672
Stephen J Smith(7)	\$50,250	\$6,523	\$37,720	\$2,201	\$ 96,694
Edmond R. Ward(7)	\$56,750	\$6,523	\$37,720	\$3,098	\$104,091
Joseph F. Dox(8)	—	\$6,523	\$22,097	—	\$ 28,620

- (1) Amounts shown do not reflect compensation actually received by the director. Instead, the amounts shown are the compensation costs we recognized in fiscal 2008 for stock awards (of Restricted Stock Units, or RSUs), as determined pursuant to SFAS 123(R).
- (2) Amounts shown do not reflect compensation actually received by the director. Instead, the amounts shown are the compensation costs we recognized in fiscal 2008 for option awards, as determined pursuant to SFAS 123(R). The assumptions used to calculate the value of option awards are set forth under Note 3 of the Notes to Consolidated Financial Statements included in Nanometrics' Annual Report on Form 10-K for fiscal 2008 filed with the SEC on March 27, 2009, except that the forfeiture rate is 0% for these options.
- (3) Representing health care reimbursement benefit extended to directors and officers.
- (4) Included in Mr. Rhine's compensation as a director is a one-time payment of \$55,000 for services in support of Dr. Stultz' transition as incoming Chief Executive Officer during the first quarter of 2008. Mr. Rhine's compensation as the Company's Chief Strategy Officer, a role from which he resigned on February 1, 2008, is provided on the "Summary Compensation Table" on page 25. At December 27, 2008, Mr. Rhine had outstanding 127,122 options to purchase shares of common stock, of which 4,166 were granted for Mr. Rhine's services as a non-employee director during 2008. The fair value of stock options granted to Mr. Rhine in 2008 as of the grant date was (a) \$3,781 for a stock option grant to purchase 1,666 shares of common stock made on February 26, 2008 at an exercise price of \$6.00 per share and (b) \$1,839 for a stock option grant to purchase 2,500 shares of common stock made on October 2, 2008 at an exercise price of \$1.88 per share.
- (5) At December 27, 2008, Mr. Coates had outstanding 11,196 options to purchase shares of common stock. The fair value of stock options granted to Mr. Coates in 2008 as of the grant date was (a) \$6,824 for a stock option grant to purchase 2,500 shares of common stock made on April 1, 2008 at an exercise price of \$7.28 per share, (c) \$5,363 for a stock option grant to purchase 2,500 shares of common stock made on July 2, 2008 at an exercise price of \$5.69 per share and (d) \$1,839 for a stock option grant to purchase 2,500 shares of common stock made on October 2, 2008 at an exercise price of \$1.88 per share.
- (6) At December 27, 2008, Mr. Bain had outstanding 22,500 options to purchase shares of common stock. The fair value of stock options granted to Mr. Bain in 2008 as of the grant date was (a) \$54,590 for a stock option grant to purchase 20,000 shares of common stock made on April 1, 2008 at an exercise price of \$7.28 per share and (b) \$1,839 for a stock option grant to purchase 2,500 shares of common stock made on October 2, 2008 at an exercise price of \$1.88 per share.
- (7) At December 27, 2008, these directors had outstanding 2,000 RSUs and 50,000 options to purchase shares of common stock. The fair value of RSUs granted to these directors as of the January 2, 2008 grant date was \$19,860 for 2,000 shares of common stock at \$9.93 per share. The fair value of stock options granted to these directors in 2008 as of the grant date was (a) \$9,360 for a stock option grant to purchase 2,500 shares of common stock made on January 2, 2008 at an exercise price of \$9.93 per share, (b) \$6,824 for a stock option grant to purchase 2,500 shares of common stock made on April 1, 2008 at an exercise price of \$7.28 per share, (c) \$5,363 for a stock option grant to purchase 2,500 shares of common stock made on July 2, 2008 at an exercise price of \$5.69 per share and (d) \$1,839 for a stock option grant to purchase 2,500 shares of common stock made on October 2, 2008 at an exercise price of \$1.88 per share.

- (8) In our sole discretion, we made a charitable donation to an eligible IRS recognized nonprofit organization in the amount of \$24,500, representing the fees Mr. Dox would have received in his capacity as a director for the fiscal year 2008. At December 27, 2008, Mr. Dox had no outstanding RSUs or options to purchase shares of common stock. The fair value of RSUs granted to Mr. Dox as of the January 2, 2008 grant date was \$19,860 for 2,000 shares of common stock at \$9.93 per share. The fair value of stock options granted to Mr. Dox in 2008 as of the grant date was (a) \$9,360 for a stock option grant to purchase 2,500 shares of common stock made on January 2, 2008 at an exercise price of \$9.93 per share and (b) \$6,824 for a stock option grant to purchase 2,500 shares of common stock made on April 1, 2008 at an exercise price of \$7.28 per share.

Board of Directors Meetings and Committees

The board of directors met a total of 11 times during the fiscal year ended December 27, 2008. During the fiscal year ended December 27, 2008, 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 Corporate Governance Committee.

The board of directors has determined that all of its directors meet the independence requirements of the NASDAQ Global Market, with the exceptions of Bruce C. Rhine and Timothy J. Stultz, Ph.D.

We do not have a policy regarding our directors' attendance at our annual meetings. With the exception of Vincent J. Coates, none of the directors who served on the board of directors for the entire fiscal year attended the 2008 annual meeting of stockholders.

Audit Committee

The Audit Committee of the board of directors, which was established in accordance with Section 3(a)(58)(A) of the Exchange Act, reviews and monitors our financial reporting as well as our internal and external audits, including among other things, our internal audit and control functions, the results and scope of the annual audit and other services provided 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, directors and employees for any potential conflicts of interest.

The members of the Audit Committee at the beginning of the fiscal year ended December 27, 2008 were J. Thomas Bentley, Edmond R. Ward and Joseph F. Dox. In April 2008, Howard A. Bain III joined the board of directors, which appointed Mr. Bain to the Audit Committee as the Audit Committee financial expert and chairman, replacing Mr. Dox in that role. Mr. Dox did not stand for re-election to our board of directors in 2008, and his term as a director expired on the date of the annual meeting of stockholders on June 26, 2008. The Audit Committee currently consists of Howard A. Bain III, J. Thomas Bentley and Edmond R. Ward. Dr. Ward is not standing for re-election to our board of directors in 2009, and his term as a director will expire on the date of the annual meeting of stockholders on May 27, 2009. The board has appointed William G. Oldham, Ph.D., a current member of the board of directors, to replace Dr. Ward and serve on our Audit Committee.

Our board of directors has determined that each member of our Audit Committee, including Dr. Oldham, is "independent" within the meaning of the rules of the Securities and Exchange Commission and the Marketplace Rules of NASDAQ. Our board of directors has also determined that each member of the Audit Committee, including Dr. Oldham, is 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 qualifies as an "audit committee financial expert" as that term is used in the Securities and Exchange Commission rules. The Audit Committee met eight times during the fiscal year ended December 27, 2008.

The Audit Committee has adopted a written charter, which is available on our website at www.nanometrics.com/investor/governance.html.

Compensation Committee

Our Compensation Committee reviews and makes recommendations to the board of directors regarding our compensation policies and programs as well as the compensation of the chief executive officer and other executive officers of Nanometrics, and recommends to the board of directors a compensation program for outside members of the board of directors. The Compensation Committee may form and delegate authority to subcommittees or, with respect to compensation for employees and consultants who are not named executive officers for purposes of Section 16 of the Exchange Act, to Nanometrics officers, in either instance as the Compensation Committee determines appropriate.

The Compensation Committee is responsible for approving the grant of stock options to our employees under our 2000 Employee Stock Option Plan, 2002 Nonstatutory Stock Option Plan and 2005 Equity Incentive Plan.

The Compensation Discussion and Analysis included in this proxy statement includes additional information regarding the Compensation Committee's processes and procedures for considering and determining executive officer compensation.

The members of the Compensation Committee at the beginning of the fiscal year ended December 27, 2008 were J. Thomas Bentley, Stephen J Smith and Edmond R. Ward, each of whom is a non-employee member of our board of directors. Dr. Ward, who had served as the chairman of the Compensation Committee, exited the Compensation Committee in November 2008, at which time William G. Oldham joined the Compensation Committee and Mr. Bentley was appointed as chairman of the Compensation Committee by the board of directors, replacing Dr. Ward in that role. The Compensation Committee currently consists of J. Thomas Bentley, William G. Oldham and Stephen J Smith. Each 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 rules of the Securities and Exchange Commission and the Marketplace Rules of NASDAQ. The Compensation Committee met seven times during fiscal 2008.

The Compensation Committee has adopted a written charter, which is available on our website at www.nanometrics.com/investor/governance.html.

Nominating and Corporate Governance Committee

We also maintain a standing Nominating and Corporate Governance Committee that assists the board of directors in identifying and qualifying candidates to join the board of directors and addressing governance issues. Our board of directors has determined that each of the directors serving on our Nominating and Corporate Governance Committee is "independent" within the meaning of the rules of the Securities and Exchange Commission and the Marketplace Rules of NASDAQ. The Nominating and Corporate 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 Corporate Governance Committee will consider recommending various potential candidates to fill such vacancies. Candidates may come to the attention of the Nominating and Corporate Governance Committee through its current members, stockholders or other persons. The board of directors may consider properly submitted stockholder nominations for candidacy. Nominees may be submitted by stockholders in accordance with the stockholder communication policy described below. Director candidates submitted by stockholders will be considered under the same criteria as candidates recommended by directors or others.

The Nominating and Corporate 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 Corporate Governance Committee believes that board members should represent a balance of diverse backgrounds and skills, including marketing, finance, manufacturing, engineering, science, and international experience. The members of the Nominating and Corporate Governance Committee at the beginning of the fiscal year ended December 27, 2008 were William G. Oldham, Stephen J Smith and Joseph F. Dox. Dr. Smith serves as chairman of the Nominating and Corporate Governance Committee. In June 2008, Mr. Dox resigned from the Nominating and Corporate Governance Committee and was replaced by Edmond R. Ward. The Nominating and Corporate Governance Committee currently consists of William G. Oldham, and Stephen J Smith and Edmond R. Ward. Dr. Ward is not standing for re-election to our board of directors in 2009, and his term as a director will expire on the date of the annual meeting of stockholders on May 27, 2009, at which time our Nominating and Corporate Governance Committee will consist of Dr. Oldham and Dr. Smith. The Nominating and Corporate Governance Committee met seven times in the fiscal year ended December 27, 2008.

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

Lead Independent Director

In March 2007, the board of directors appointed William G. Oldham to serve in a lead capacity to work with the chairman of the board of directors in formulating the agendas of upcoming meetings of the board of directors and undertake such other duties as the chairman or the independent directors of the board of directors may request. The lead independent director position was eliminated in August 2008.

Code of Ethics

We have adopted a code of business conduct and ethics that applies to all executive officers and employees. We post our code of business conduct and ethics on our website at www.nanometrics.com. We intend to disclose any amendment to the provisions of the code of business conduct and ethics that apply specifically to executive officers by filing such information on a Current Report on Form 8-K with the SEC, to the extent such filing is required by SEC Rules or the NASDAQ Stock Market LLC's listing requirements; otherwise, we will disclose such waiver by posting such information on our website.

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 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. 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, in which case we have the authority to discard the communications or take appropriate legal action regarding the communication.

Report of the Audit Committee of the Board of Directors

The following is the report of the Audit Committee of the board of directors describing its review of materials and determinations with respect to its auditors and financial statements for the fiscal year ended December 27, 2008. The information contained in this report shall not be deemed to be “soliciting material” or to be “filed” with the Securities and Exchange Commission, nor shall such information be incorporated by reference into any future filing under the Securities Act or Exchange Act, except to the extent that we specifically incorporate it by reference into such filing.

In accordance with its written charter adopted by the board of directors, the Audit Committee assists the board of directors in fulfilling its responsibility for oversight of the quality and integrity of the accounting, auditing and financial reporting practices of Nanometrics. During the fiscal year ended December 27, 2008, the Audit Committee met eight times, and the Audit Committee chairman, as representative of the committee, discussed the interim financial information contained in quarterly earnings announcements with the chief financial officer and independent auditors prior to public release.

The Audit Committee reviewed with the independent auditors, who are responsible for expressing an opinion on the conformity of those audited financial statements with generally accepted accounting principles, their judgment as to the quality, not just the acceptability, of the Company’s accounting principles and such other matters as are required to be discussed with the Audit Committee under generally accepted auditing standards (including Statements on Auditing Standards (“SAS”) No. 61, as amended, “*Communication with Audit Committees*”). In addition, the Audit Committee has discussed with the independent auditors the auditors’ independence from management and the Company (including the matters in the written disclosure required by PCAOB Rule 3526), and considered the compatibility of non-audit services with the auditors’ independence.

Additionally, the Audit Committee reviewed and discussed the audited financial statements of Nanometrics as of and for the fiscal year ended December 27, 2008 with management and the independent auditors. Management has the responsibility for the preparation of our financial statements and the independent auditors have the responsibility for the audit of those statements.

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 27, 2008 be included in its Annual Report on Form 10-K, as amended, for the fiscal year ended December 27, 2008 for filing with the Securities and Exchange Commission.

Members of the Audit Committee

Howard A. Bain III, Chairman
J. Thomas Bentley
Edmond R. Ward

Audit Fees

The following table summarizes the aggregate fees that we paid or expect to pay our independent registered public accounting firm, BDO Seidman, LLP for fiscal 2008 and 2007.

	<u>Fiscal 2008</u>	<u>Fiscal 2007</u>
Audit Fees(1)	\$772,751	\$1,178,515
Audit Related Fees(2)	—	70,905
Tax Fees(3)	<u>20,000</u>	<u>21,000</u>
Total	<u>\$792,751</u>	<u>\$1,270,420</u>

- (1) Fees 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 for audit-related services billed in fiscal 2007 consisted of consultation concerning financial accounting and reporting standards.
- (3) This figure relates to tax return preparation for certain foreign subsidiaries in fiscal 2008 and 2007.

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.

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 BDO Seidman, LLP during the year ended December 27, 2008 and has concluded that the provision of these services is compatible with the accountants' independence.

Vote Required

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 BDO Seidman, LLP as Nanometrics' independent registered public accounting firm for the fiscal year ending December 26, 2009, the Audit Committee will consider whether it should select another independent registered public accounting firm.

SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

The following table sets forth beneficial ownership of Nanometrics common stock as of April 13, 2009, 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 13, 2009, there were 18,503,765 shares of common stock outstanding.

<u>Name Of Beneficial Owner—Principal Stockholders</u>	<u>Amount and Nature Of Beneficial Ownership(1) Shares</u>			<u>Percent Of Class</u>
	<u>Shares</u>	<u>Stock Options Exercisable Within 60 Days Of 4/13/09</u>	<u>Total Shares Beneficially Owned</u>	
Royce and Associates, LLC(2)	2,135,536	—	2,135,536	11.5%
Peter M. Joost(3)	1,444,158	—	1,444,158	7.8%
Dimensional Fund Advisors LP(4)	1,324,006	—	1,324,006	7.2%

<u>Name Of Beneficial Owner—Directors And Officers</u>	<u>Amount and Nature of Beneficial Ownership(1) Shares</u>			<u>Percent Of Class</u>
	<u>Shares</u>	<u>Stock Options Exercisable Within 60 Days Of 4/13/09</u>	<u>Total Shares Beneficially Owned</u>	
Bruce C. Rhine(5)	918,810	115,177	1,033,987	5.4%
Vincent J. Coates(6)	3,498,614	2,064	3,500,678	18.4%
Howard A. Bain III(7)	11,300	6,666	17,966	*
J. Thomas Bentley	667	36,664	37,331	*
William G. Oldham, Ph.D.	445	26,664	27,109	*
Stephen J Smith, Ph.D.	667	36,664	37,331	*
Timothy J. Stultz, Ph.D.	16,667	133,331	149,998	*
Edmond R. Ward, Ph.D.	2,667	26,664	29,331	*
Bruce A. Crawford	56,473	132,399	188,872	1.0%
Quentin B. Wright(8)	10,547	—	10,547	*
Gary C. Schaefer(9)	4,283	—	4,283	*
All officers and directors as a group (12 persons)	<u>4,521,140</u>	<u>516,293</u>	<u>5,037,433</u>	<u>26.4%</u>

* Less than 1%.

- (1) As determined in accordance with Rule 13d-3 under the Securities and Exchange Act of 1934. Shares include vested portion of RSU grants made to directors in January 2008.
- (2) According to a Schedule 13G filed with the SEC on January 27, 2009, Royce and Associates, LLC (“Royce”) may be deemed to be the beneficial owner of 2,135,536 shares of common stock. Various accounts managed by Royce have the right to receive or the power to direct the receipt of dividends from, or the proceeds from the sale of shares of the issuer. The interest of one account, Royce Opportunity Fund an investment company registered under the Investment Company Act of 1940 and managed by Royce, amounted to 1,495,336 shares. The address of Royce is 1414 Avenue of the Americas, New York, NY 10019.
- (3) According to a Schedule 13G filed with the SEC on February 3, 2009 and information available to us, Peter M. Joost may be deemed to be the beneficial owner of 1,444,158 shares of common stock which includes 1,036,416 shares of Nanometrics common stock held by JFI II, L.P. The sole general partner of JFI II, L.P. is Joost Enterprises Corporation. Mr. Joost is the President of, and Peter M. and Lindsay M. Joost, Trustees U/T/A dated April 11, 2002 hold all of the outstanding shares issued by, Joost Enterprises Corporation. Also includes 407,742 shares of Nanometrics common stock held by Peter M. and Lindsay M. Joost, Trustees U/T/A dated April 11, 2002, with respect to which Mr. and Mrs. Joost share voting and

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dispositive power. The address of these individuals and entities is c/o Joost Enterprises Corporation, 555 California Street, Suite 5180, San Francisco, California 94104.

- (4) According to a Schedule 13G filed with the SEC on February 9, 2009, Dimensional Fund Advisors LP may be deemed to be the beneficial owner of 1,324,006 shares of common stock. Dimensional Fund Advisors LP (“Dimensional”), an investment advisor registered under Section 203 of the Investment Advisors Act of 1940, furnishes investment advice to four investment companies registered under the Investment Company Act of 1940, and serves as investment manager to certain other commingled group trusts and separate accounts. These investment companies, trusts and accounts are the “Funds.” In its role as investment advisor or manager, Dimensional possesses investment and/or voting power over the securities of the Issuer described in this schedule that are owned by the Funds, and may be deemed to be the beneficial owner of the shares of the Issuer held by the Funds. However, all securities reported in this schedule are owned by the Funds. Dimensional disclaims beneficial ownership of such securities. The address of Dimensional is Palisades West, Building One, 6300 Bee Cave Road, Austin, Texas, 78746.
- (5) Includes (i) 12,518 shares held of record jointly by Mr. Rhine and his spouse as joint tenants with rights of survivorship and (ii) 906,292 shares held of record by the Bruce Charles Rhine and Martha Hawn Rhine Family Trust.
- (6) Includes (i) 120 shares held of record by Mr. Coates and (ii) 3,498,494 shares of common stock held of record by the Vincent J. Coates Separate Property Trust, U/D/T dated August 7, 1981, for which Mr. Coates acts as trustee.
- (7) Shares held of record by Mr. Bain and his spouse.
- (8) Mr. Wright, our former Vice President, External Reporting and Strategic Projects, served as the Chief Accounting Officer from September 5, 2008 until January 9, 2009.
- (9) Mr. Schaefer is our former Chief Financial Officer, whose employment with Nanometrics terminated on September 5, 2008.

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. Based solely on our review of the forms received by us or written representations from certain reporting persons, we believe that during the fiscal year ended December 27, 2008, our executive officers, directors and greater than 10% stockholders complied with all applicable filing requirements, except for: (i) two Form 4 filings made by Bruce A. Crawford, our Chief Operating Officer and former interim Chief Financial Officer, with respect to two transactions; (ii) one Form 4 filing made by Joseph F. Dox, our former director, with respect to four transactions; (iii) two Form 4 filings made by Bruce C. Rhine, our director, former Chief Strategy Officer and former interim Chief Executive Officer, in connection with three transactions; and (iv) one Form 4 filing made by Timothy J. Stultz, our President, Chief Executive Officer and director, in connection with one transaction.

COMPENSATION DISCUSSION AND ANALYSIS

Overview

Nanometrics' executive compensation program is intended to enable us to attract, retain and motivate high-quality executives and to align their compensation with our short-term and long-term performance. In accordance with the Compensation Committee Charter, a copy of which may be obtained on our website at www.nanometrics.com, the Compensation Committee acts on behalf of the board of directors and, by extension, our stockholders to establish, implement and continually monitor adherence with our compensation philosophy. The Compensation Committee ensures that the total compensation paid to our named executive officers is competitive and consistent with our compensation philosophy. In addition to being "independent directors" within the meaning of the rules of the Securities and Exchange Commission and the Marketplace Rules of NASDAQ, all members of the Compensation Committee are non-employee, outside directors. The Compensation Committee relies upon our employees and our human resources department to provide information and recommendations to establish specific compensation packages for executives.

Philosophy and Objectives

Nanometrics' compensation philosophy is set by the Compensation Committee and approved by the board of directors. The Compensation Committee believes that the most effective executive compensation program is one that is designed to align executives' interest with that of the stockholders in terms of producing short-term and long-term enhanced stockholder value. The Compensation Committee also recognizes that competitive compensation is critical to our ability to attract, motivate and retain key employees who are crucial to our long-term success.

Accordingly, in 2008, the Compensation Committee continued its efforts to refine the overall executive compensation structure and process consistent with evolving good governance practices. The Compensation Committee's principal objectives are to: (1) develop and approve compensation packages that will attract and retain key executive talent; (2) reward and motivate these individuals to achieve short-term and long-term corporate objectives that enhance stockholder value; (3) link executive compensation to the achievement of financial, management or other performance goals; and (4) 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.

Role of Executive Officers in Compensation Decisions

The Compensation Committee makes all compensation decisions for our executive officers, including the named executive officers, and approves recommendations regarding equity awards to all executive officers. The Compensation Committee has delegated its authority to grant stock options (in amounts up to 25,000 options) to non-executive level employees or consultants to the management Stock Option Committee. At the beginning of the fiscal year ended December 27, 2008, the Stock Option Committee was comprised of Timothy J. Stultz, our President and Chief Executive Officer and director, and Gary C. Schaefer, our then Chief Financial Officer and Vice President of Finance and Administration. In November 2008, the Compensation Committee approved the appointment of Bruce A. Crawford, our Chief Operating Officer and interim Chief Financial Officer, to the Stock Option Committee, replacing Gary C. Schaefer following his termination of employment as our Chief Financial Officer and Vice President of Finance and Administration. Each year, the Compensation Committee reviews the total compensation of our named executive officers, including salaries, target bonus award opportunities, target annual long-term incentive award values, perquisites and other benefits (including retirement, health, and welfare benefits), and severance arrangements. The Compensation Committee then sets each executive's compensation target for the current year. Typically, this involves establishing their annual bonus opportunities and granting long-term equity incentive awards. The Compensation Committee's decisions are reviewed and ratified by the board of directors.

The Chief Executive Officer annually reviews the performance of each executive officer (other than the Chief Executive Officer whose performance is reviewed by the board of directors) using the elements described under “2008 Executive Compensation Components” below and makes recommendations about the structure of the overall compensation program and individual compensation arrangements to the Compensation Committee. The Compensation Committee decisions are based in part, on these annual performance reviews, including decisions with respect to salary adjustments, annual bonus amounts, annual stock option grants and annual restricted stock unit grants. The Chief Executive Officer is generally present at Compensation Committee meetings when compensation, other than his own, is considered and approved; however, the Compensation Committee can exercise its discretion in modifying any recommendations of the Chief Executive Officer and has done so in the past and will continue to do so when appropriate.

Setting Executive Compensation

Nanometrics competes with many larger companies for top executive-level talent. Based on the foregoing philosophy and objectives, the Compensation Committee has structured our overall executive compensation in order to motivate executives to achieve the business goals set by us, to reward the executives for achieving such goals and to make us competitive from a compensation standpoint when compared to our peers, which tend to include similarly-sized semiconductor and semiconductor capital equipment companies. In order to aid the Compensation Committee in attaining its objectives, the Compensation Committee consults with our human resources department to evaluate equity grant information and to make recommendations with respect to compensation matters. Data on the compensation practices of our peer group generally is gathered through searches of publicly available information, including publicly available databases. We gather data with respect to base salary, bonus targets 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 group of employees.

As such, the Compensation Committee generally sets compensation for its executive officers within a competitive range of compensation paid to similarly situated executives of our peers as described below. The Compensation Committee’s process also includes an evaluation of our overall performance as well as the individual performance of its executive officers. This framework provides 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.

Decisions about individual compensation elements and total compensation are ultimately made by the Compensation Committee using its subjective judgment, focusing primarily on the executive officer’s performance against his or her individual financial and strategic objectives, as well as Nanometrics’ overall performance and the industry economic climate. The Compensation Committee also considers a variety of qualitative factors, including the business environment in which the results were achieved. Thus, the compensation of our executives is not entirely determined by any formula. The actual total compensation and/or amount of each compensation element for an individual executive officer may be more or less than these comparative figures for our peers.

2008 Executive Compensation Components

Nanometrics’ approach to total compensation is to create a comprehensive compensation package designed to reward individual performance based on our short-term and long-term performance and how this performance links to Nanometrics’ corporate strategy. For the fiscal year ended December 27, 2008, the principal components of compensation for named executive officers were:

- Base salary;
- Cash bonus;
- Stock option grants;

- Restricted stock unit (RSU) grants;
- Retirement and other benefits; and
- Perquisites and other personal benefits.

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 been and will continue to be effective in this regard. The use and weight 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, as well as the use of these elements for executives at peer companies. 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.

Base Salary

Base salaries serve as the foundation of Nanometrics' compensation program. The majority of other executive compensation elements, including annual short-term incentives, long-term incentives, and retirement benefits are driven from base salary. Nanometrics provides named executive officers and other employees with base salary to compensate them for services rendered during the fiscal year and are set at a level 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 position and responsibility. Base salary ranges are designed to be competitive with the salaries paid to high tech executives of similarly-sized companies in our peer group. During its review of base salaries for executives, the Compensation Committee primarily considers:

- the salaries of executive officers in similar positions at comparably-sized peer companies;
- our financial performance over the past year based upon revenues and operating results; and
- the individual performance of the executive officer's duties and areas of responsibility as evaluated by the Chief Executive Officer (except in the case of the Chief Executive Officer, whose performance is evaluated by the board of directors).

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. Stock price performance has not been a 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.

Salary increases for Nanometrics' named executive officers in 2008 were postponed due to the economic downturn. However, salaries will be reviewed and determined by the Compensation Committee after considering salary data from our peer comparison groups, as well as consideration of the internal pay relationships for our executives based on their relative duties and responsibilities

Cash Bonus

The Compensation Committee also approves cash bonuses awarded to certain named executive officers. The Compensation Committee views such bonuses as an integral part of its performance based compensation program and is designed to align participants' interests with our annual goals and objectives and stockholders' interests. Such bonuses are generally based on our financial and operational performance for the year and are determined as a percentage of the executive officer's salary.

The Compensation Committee recommends and the board of directors approves cash bonus targets for all named executive officers based on an evaluation of competitive market data. Such bonuses are earned based on the achievement of performance goals set by the Compensation Committee. At the conclusion of each performance period, the cash bonus award for each named executive officer is reviewed by the Compensation Committee and approved by the board of directors.

Per the terms of our employment contract with Dr. Timothy J. Stultz, who was appointed president and chief executive officer effective August 27, 2007, for each of the first and second quarters of 2008, Dr. Stultz' minimum bonus payout was \$50,000, and for each of the third and fourth quarters of 2008, his minimum bonus payout was \$25,000. Per the terms of our employment contract with Gary C. Schaefer, who was appointed chief financial officer effective November 5, 2007, for each of the first and second quarters of 2008, Mr. Schaefer's minimum bonus payout was \$30,000. Mr. Schaefer's employment with Nanometrics terminated on September 5, 2008.

For fiscal year 2008, the Compensation Committee approved a 2008 Executive Bonus Plan (the "2008 Plan"). Under the terms of the 2008 Plan, quarterly bonus payments were based on the quarterly achievement by Nanometrics of certain financial goals (primarily profitability) relative to our annual operating plan, which is a quarterly forecast of our statement of operations and certain balance sheet and cash flow forecasts, as well as individual performance for certain named executive officers. Other than the minimum contractually guaranteed amounts referenced above, no bonus was paid under the 2008 Plan, since the Company did not achieve profitability, as determined in accordance with accounting principles generally accepted in the United States of America, or GAAP, during any one quarter of fiscal 2008.

The 2008 Plan was not continued for fiscal year 2009. The Compensation Committee has delayed approval for a 2009 Executive Plan until further research and discussion has been conducted. James P. Moniz, who was appointed chief financial officer of the Company on February 18, 2009, will be eligible for an annual bonus payment of \$150,000 for fiscal year 2009 if the Company meets certain milestones included in an operating plan to be approved by the board of directors. Dr. Stultz and Mr. Crawford will similarly be eligible for an annual bonus payment for fiscal year 2009 if the Company meets those certain milestones included in an operating plan to be approved by the board of directors.

Stock Option Grants

The Compensation Committee believes that equity compensation plans are an essential tool to link the long-term interests of stockholders and employees, especially the executive officers, including the named executive officers, and serve to motivate executives to make decisions that will, in the long run, give the best returns to stockholders.

Grants under Nanometrics' Stock Option Plans enable us to:

- enhance the link between the creation of stockholder value and long-term executive incentive compensation;
- provide an opportunity for increased equity ownership by executives; and
- maintain competitive levels of total compensation.

Stock option award levels are determined based on market data and on our guidelines. Option awards vary among participants based on their positions within Nanometrics and are granted by the Stock Option Committee when granting less than 25,000 options per participant. Option awards over 25,000 per executive are reviewed and granted at the Compensation Committee's regularly scheduled and special meetings throughout the year. The Stock Option Committee provides minutes related to the committee's approval of grants to newly hired or promoted executives, at the first available meeting following their hire or promotion, unless the Compensation Committee has acted to approve their grants.

Options are awarded at the closing price of our common stock on the date of the grant. We have never granted options with an exercise price that is less than the closing price of our common stock on the grant date and do not intend to do so in the future.

Prior to December 2008, the majority of options granted by the Compensation Committee vested at a rate of 33 1/3% per year over the first three years of the seven-year option term on each of the first, second and third

anniversary of such grants. Starting in December 2008, the majority of the options granted for employees employed less than one year vest one-third (1/3rd) of the shares subject to the option on the first anniversary of the grant date, and vest one thirty-sixth (1/36th) each month for the following two years, for a total three year vesting period with a seven-year option term. Starting in November 2008, the majority of the options granted for existing employees employed over one year vest one thirty-sixth (1/36th) of the shares subject to the option and become exercisable in equal monthly installments starting on the monthly anniversary of the date of grant with a seven-year option term.

Vesting ceases upon termination of employment and, except in the case of death (subject to a one year limitation), disability or retirement, the vested stock options may generally be exercised for 90 days following the date of termination. Prior to the exercise of an option, the holder has no rights as a stockholder with respect to the shares subject to such option, including voting rights and the right to receive dividends or dividend equivalents.

In November 2008, the Compensation Committee approved the issuance of non-qualified options under the 2000 Plan and awarded 100,000 options to Tim Stultz, our Chief Executive Officer, and 50,000 options to Bruce Crawford, our Chief Operating Officer (and then interim Chief Financial Officer) with vesting at one thirty-sixth (1/36th) of the shares in equal monthly installments starting on the monthly anniversary of the date of grant.

In 2009, the Compensation Committee explored incentive and retention alternatives with respect to outstanding options with exercise prices significantly above the current price of the Company's common stock, and retained Compensia Inc., compensation consultants, to assist the Compensation Committee with respect to the Company's executive compensation. The proposal for the amendment and restatement of our 2005 Equity Incentive Plan and the implementation of a one-time stock option exchange program in 2009 to provide a retention and incentive tool is described in more detail in Proposal 3 below.

Restricted Stock Unit Grants

The Compensation Committee began awarding restricted stock units or RSUs to our named executive officers in 2007. Similar to stock options, the Compensation Committee believes that RSUs, which increase in value as the market price of our common stock increases, create the proper incentive for the executive officers to work towards the goal of creating stockholder value. RSUs also provide retention value even if our stock price does not increase or declines, and subject executive officers to the same downside risk experienced by stockholders. In addition, the Compensation Committee believes that RSUs will be used increasingly by other companies and we will need to offer such incentives to remain competitive in attracting and retaining executive talent.

The majority of the RSUs awarded by the Compensation Committee vest at a rate of 33 1/3% per year over three years. However, the 20,000 RSUs awarded to Mr. Crawford in July 2007 vested on the one year anniversary of the date of the award to reward Mr. Crawford for the extra duties he assumed during the transition of the chief executive officer. Vesting ceases upon termination of employment, except in the case of death (subject to a one year limitation), disability or retirement. Prior to the vesting of RSUs, the holder has no rights as a stockholder with respect to the shares subject to such RSUs, including voting rights and the right to receive dividends or dividend equivalents.

The Company did not issue RSUs to named executive officers during 2008.

Retirement Benefits and Generally Available Benefits Programs

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. 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 of all employee contributions. Company matching contributions to the plan totaled \$360,103, \$368,094 and \$256,341 for fiscal 2008, 2007 and 2006, respectively.

In fiscal 2008, all corporate officers and non-employee directors were eligible to participate in an Exec-U-Care/Executive (Phillips Administrative Service, Inc.) Reimbursement Plan to supplement our basic health plan by reimbursing expenses not covered under the underlying plan.

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, enhanced health and productivity, and support global workforce mobility, 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 and Other Personal Benefits

Nanometrics provides named executive officers with a limited number of perquisites and other personal benefits that we and the Compensation Committee believe are reasonable and consistent with our overall compensation program and with other similar companies in our peer group. The Compensation Committee periodically reviews the levels of perquisites and other personal benefits provided to named executive officers to better enable us to retain and attract executive-level employees for key positions. Although the Compensation Committee seeks the advice of the human resources department on general market competitiveness for these benefits, it does not use formal benchmarking information.

Attributed costs of the personal benefits described above for the named executive officers for the fiscal year ended December 27, 2008, are included in the "Summary Compensation Table" on page 25.

Chief Executive Officer Benefits and Perquisites

In 2007, the board of directors determined that in addition to the benefits and perquisites detailed above, in order to attract Dr. Stultz to Nanometrics, relocation benefits, an automobile allowance and reimbursement for select expenses associated with his initial employment were appropriate and reasonable. As part of his employment, Dr. Stultz relocated his family from Verona, Wisconsin to the San Francisco Bay area in the proximity of the Nanometrics' headquarters in Milpitas, California. As part of the relocation benefits, the board of directors approved a living allowance of \$8,000 per month for up to 12 months, reimbursements for two house hunting trips, shipment of personal goods and storage of relocated personal goods in the San Francisco Bay Area for six months, and an automobile allowance of \$1,200 per month or the use of a Company-leased car of equivalent value. We believe that these additional relocation benefits were a key incentive for Dr. Stultz to join us and also provide an efficient way to minimize travel time commitments and help mitigate business continuity risk. These relocation perquisites concluded in August 2008 following 12 months from Dr. Stultz' hire date.

Change in Control 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 decided to take appropriate 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 possibility of termination of employment without cause or in connection with a change in control. As a result, we have entered into agreements with certain named executive officers which provide severance payments and benefits upon a termination of employment, including following 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 order to aid the Compensation Committee in determining such severance payments and benefits upon a termination of employment, including following a change in control, the Compensation Committee analyzes data and suggestions from the human resources department, including benchmarking against the compensation peer group of publicly-traded semiconductor equipment manufacturing companies. This peer group consists of companies against which the Compensation Committee believes we must compete for talent and for stockholder investment. In 2008, the companies that comprised our peer group were various semiconductor equipment and materials companies of similar size as follows:

Cascade Microtech, Inc.
Intevac, Inc.
Mattson Technology, Inc
Rudolph Technologies, Inc.
Zygo Corporation
Cohu, Inc.

Electro Scientific Industries, Inc.
FSI International, Inc.
Keithley Instruments Inc.
Semitool, Inc.
Ultratech, Inc.

Data on the severance payments and benefits practices of the above-mentioned peer group generally is gathered through searches of publicly available information, including publicly available databases. Using the information from the peer group surveys, the Compensation Committee compares each executive officer's position to similar positions. Where there is no similar position, the Compensation Committee compares the Nanometrics position to a range of positions in the peer group that are the closest matches. The Compensation Committee uses these comparisons in its determinations of preliminary severance payments and benefits recommendations for each executive position. This framework provides a guide for the Compensation Committee's deliberations. The actual severance payments and benefits for an individual executive officer may be more or less than these comparative figures.

Decisions about individual severance and benefits upon termination, including following a change of control, are ultimately made by the Compensation Committee using its judgment, focusing primarily on the executive officer's performance against his or her individual financial and strategic objectives, as well as Nanometrics' overall performance and the industry economic climate. The Compensation Committee also considers a variety of qualitative factors, including the business environment in which the results were achieved. Thus, the severance and benefits upon termination for our executives is not entirely determined by any formula.

After considering industry practices and reviewing the policies and practices of the companies in our peer group, the Compensation Committee determined that these severance and benefits agreements were necessary and appropriate to provide competitive compensation to the types of individuals we wanted to recruit 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 our overall compensation philosophy of targeting the competitive median while preserving our ability to attract and retain key executives.

Tax and Accounting Implications

Deductibility of Executive Compensation

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 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 its 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 we could lose an income tax deduction for such payments. We have not provided any executive with tax “gross up” or other reimbursement for tax amounts the executive might be required to pay under to Section 4999.

Section 409A of the Internal Revenue Code imposes additional taxes and interest on underpayments in the event an executive defers compensation under a plan that does not meet the requirements of Section 409A. We believe 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.

Accounting for Stock-Based Compensation

Beginning on January 1, 2006, we began accounting for stock-based payments in accordance with the requirements of FASB Statement 123(R). Stock-based compensation expense recognized in the Company’s consolidated statement of operations for the years ended December 27, 2008, December 29, 2007 and December 30, 2006 included compensation expense for share-based payment awards in accordance with SFAS 123(R).

COMPENSATION COMMITTEE REPORT

Compensation Committee Report

The Compensation Committee of the board of directors of Nanometrics has reviewed and discussed the Compensation Discussion and Analysis required by Item 402(b) of Regulation S-K with management and, based on such review and discussions, the Compensation Committee recommended to the board of directors that the Compensation Discussion and Analysis be included in this proxy statement.

Members of the Compensation Committee

J. Thomas Bentley, Chairman
William G. Oldham
Stephen J Smith

Compensation of Executive Officers

The following table sets forth the compensation that we paid during the past three fiscal years to (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 27, 2008, all of whom are collectively referred to as the “named executive officers.”

James P. Moniz, who currently serves as our chief financial officer, is not included in the table below as he joined the Company on February 18, 2009, after the end of our fiscal year 2008. Pursuant to an Employment Agreement between the Company and Mr. Moniz, Mr. Moniz’ annual base salary is \$300,000 and he is eligible to participate in all Company employee benefit plans, policies and arrangements that are provided to the other executive officers and employees of the Company. Additionally, Mr. Moniz was granted a non-qualified option to purchase 100,000 shares of common stock, subject to a three-year vesting period.

SUMMARY COMPENSATION TABLE

Name and Principal Position	Year	Salary (\$)	Bonus \$(1)	Stock Awards \$(2)	Option Awards \$(3)	Non-Equity Incentive Plan Compensation \$(4)	All Other Compensation (\$)	Total (\$)
Timothy J. Stultz President, Chief Executive Officer and Director	2008	\$374,100	\$150,000	\$122,053	\$257,815	—	\$ 95,511(9)	\$999,479
	2007	\$123,250	\$168,681	\$ 40,908	\$ 85,850	—	\$ 56,300(10)	\$474,989
	2006	—	—	—	—	—	—	—
Bruce A. Crawford(5) Chief Operating Officer and Interim Chief Financial Officer	2008	\$313,500	—	\$ 72,087	\$260,486	—	\$ 27,378(11)	\$673,451
	2007	\$302,462	—	\$ 63,913	\$267,750	\$16,613	\$ 22,660(12)	\$673,398
	2006	\$ 94,769	—	—	\$137,623	—	\$ 30,984(13)	\$263,376
Bruce C. Rhine(6) Former Chief Strategy Officer, Former Chief Executive Officer and Chairman of the Board of Directors	2008	\$ 19,231	—	—	\$200,544	—	\$ 21,221(14)	\$240,996
	2007	\$279,009	—	—	\$224,501	\$22,150	\$117,150(15)	\$642,810
	2006	\$115,681	—	—	\$151,833	—	\$ 6,250(16)	\$273,764
Gary C. Schaefer(7) Former Chief Financial Officer and Vice President of Finance and Administration	2008	\$213,462	\$ 60,000	\$ 21,592	\$ 41,240	—	\$ 93,955(17)	\$430,249
	2007	\$137,307	\$ 23,946	\$ 9,253	\$ 38,834	—	—	\$209,340
	2006	—	—	—	—	—	—	—
Quentin B. Wright(8) Former Vice President External Reporting and Strategic Projects, Former CFO and Former Chief Accounting Officer	2008	\$222,804	—	—	\$ 80,277	—	\$ 6,635(18)	\$309,716
	2007	\$251,482	—	—	\$146,011	\$16,613	\$ 5,143(19)	\$419,249
	2006	\$205,661	—	—	\$119,954	—	\$ 4,000(20)	\$329,615

- (1) Bonuses paid to named executive officers were comprised of (i) the minimum bonus payable to Dr. Stultz during fiscal 2008 and 2007 per the terms of his August 2007 employment agreement and (ii) the minimum bonus payable to Mr. Schaefer during fiscal 2008 and 2007 per the terms of his November 2007 employment agreement.
- (2) Amounts shown do not reflect compensation actually received by the named executive officer. Instead, the amounts shown are the compensation costs we recognized in fiscal 2008 and 2007 for stock awards (of Restricted Stock Units, or RSUs), as determined pursuant to SFAS 123(R).
- (3) Amounts shown do not reflect compensation actually received by the named executive officer. Instead, the amounts shown are the compensation costs we recognized in fiscal 2008, 2007 and 2006 for option awards, as determined pursuant to SFAS 123(R). The assumptions used to calculate the value of option awards are set forth under Note 3 of the Notes to Consolidated Financial Statements included in Nanometrics' Annual Report on Form 10-K for fiscal 2008 filed with the SEC on March 27, 2009, except that the forfeiture rate is 0% for these options.
- (4) Reflects cash incentive plan award payments made to named executive officers in 2007 pursuant to the 2007 incentive cash award program.
- (5) Mr. Crawford was our Chief Financial Officer on an interim basis from September 5, 2008 until February 18, 2009. Employment with Nanometrics commenced on July 21, 2006 with our acquisition of Accent Optical Technologies, Inc. ("Accent").
- (6) Mr. Rhine resigned from his position as Chief Strategy Officer effective February 1, 2008. Employment with Nanometrics commenced on July 21, 2006 with our acquisition of Accent. He served as Chief Executive Officer on an interim basis from March 22, 2007 until August 27, 2007. Reflected in the amount for option awards are compensation costs we recognized in fiscal 2008, as determined pursuant to SFAS 123(R), for stock option grants to Mr. Rhine during the time he was an officer of the Company. On November 30, 2006, Mr. Rhine received a stock option grant to purchase 25,000 shares with an exercise price of \$8.55 and an expiration date of November 30, 2013, of which options to purchase 16,666 were exercisable as of December 27, 2008. Prior to that date, total stock option grants consisted of grants to purchase (i) 13,014 shares with an exercise price of \$8.89 and an expiration date of July 24, 2013, of which options to purchase 12,799 shares were exercisable as of December 27, 2008, and (ii) 84,942 shares with an exercise price of \$15.98 and an expiration date of January 25, 2013, of which options to purchase 56,628 shares were exercisable as of December 27, 2008, representing options assumed by Nanometrics upon our acquisition of Accent on July 21, 2006. Mr. Rhine's compensation as Chairman of the Board of Directors is provided on the Director Compensation Table on page 9.

- (7) Mr. Schaefer's employment commenced on November 5, 2007 and terminated on September 5, 2008.
- (8) Mr. Wright, our former Vice President, External Reporting and Strategic Projects, served as the Chief Accounting Officer from September 5, 2008 until January 9, 2009 and as Chief Financial Officer on an interim basis from April 24, 2007 until November 5, 2007.
- (9) Amount is comprised of \$64,000 for relocation benefits and living allowance, \$5,968 for reimbursement of relocation expenses, \$14,400 for a car allowance, \$7,043 of health care reimbursement benefit extended to directors and officers and \$4,100 of 401(k) plan employer matching benefit.
- (10) Amount is comprised of \$32,000 for relocation benefits and living allowance, \$17,470 for reimbursement of relocation expenses, \$5,200 for a car allowance, \$145 of health care reimbursement benefit extended to directors and officers and \$1,485 of 401(k) plan employer matching benefit.
- (11) Represents payments to Mr. Crawford of \$3,461 of health care reimbursement benefit extended to directors and officers, \$4,100 of 401(k) plan employer matching benefit and approximately \$19,817 to reimburse Mr. Crawford for transportation and accommodation expenses related to travel from his home in Bend, Oregon to our executive offices in Milpitas, California.
- (12) Represents payments to Mr. Crawford of \$2,490 of health care reimbursement benefit extended to directors and officers, \$4,100 of 401(k) plan employer matching benefit and approximately \$16,070 to reimburse Mr. Crawford for transportation and accommodation expenses related to travel from his home in Bend, Oregon to our executive offices in Milpitas, California.
- (13) Represents gain on the exercise of stock options.
- (14) Represents \$2,500 in auto allowance, \$4,100 of 401(k) plan employer matching benefit and \$14,621 in accrued holiday and PTO following Mr. Rhine's resignation as Chief Strategy Officer on February 1, 2008.
- (15) Represents \$13,750 in auto allowance, \$290 of health care reimbursement benefit extended to directors and officers, \$4,100 of 401(k) plan employer matching benefit and \$99,010 to reimburse Mr. Rhine for limited use of private air transportation from his home in Bend, Oregon to our executive offices in Milpitas, California during his service as Chief Executive Officer and in support of Dr. Stultz' transition as incoming Chief Executive Officer.
- (16) Amount is comprised of a car allowance.
- (17) Amount consists of \$86,538 related to severance paid following termination of employment, \$6,990 of health care reimbursement benefit extended to directors and officers and \$427 of 401(k) plan employer matching benefit.
- (18) Amount consists of \$2,535 of health care reimbursement benefit extended to directors and officers and \$4,100 of 401(k) plan employer matching benefit.
- (19) Amount is comprised of \$1,043 of health care reimbursement benefit extended to directors and officers and \$4,100 of 401(k) plan employer matching benefit.
- (20) Amount is comprised of 401(k) plan employer matching benefit.

Grants of Plan-Based Awards in the Fiscal Year Ended December 27, 2008

The following table sets forth information with respect to grants of plan-based awards during the fiscal year ended December 27, 2008 to each of the named executive officers.

GRANTS OF PLAN-BASED AWARDS For Fiscal Year 2008

Name	Grant Date	Estimated Possible Payouts Under Non-Equity Incentive Plan Awards(1)			Estimated Possible Payouts Under Equity Incentive Plan Awards			All Other Stock Awards:	All Other Option Awards:	Exercise or Base Price Of Option Awards (\$/sh)	Grant Date Fair Value Of Stock And Options Awards (\$)
		Threshold	Target	Maximum	Threshold	Target	Maximum	Number Of Shares Of Stock Or Units	Number Of Securities Underlying Options		
		(\$)	(\$)	(\$)	(#)	(#)	(#)	(#)	(#)		
Timothy J. Stultz	—	—	\$200,000	\$420,000	—	—	—	—	—	—	—
	11/19/2008	—	—	—	—	—	—	100,000	\$0.98	\$48,210	
Bruce A. Crawford	—	—	\$156,750	\$329,000	—	—	—	—	—	—	—
	11/19/2008	—	—	—	—	—	—	50,000	\$0.98	\$24,105	
Gary C. Schaefer	—	—	\$120,000	\$252,000	—	—	—	—	—	—	—

(1) These figures do not reflect awards actually paid to named executive officers. As reported in the Summary Compensation Table under the column "Non-Equity Incentive Plan Compensation" and described in the Compensation Discussion and Analysis, there were no performance-based payments under the non-equity incentive plan (the "2008 Plan") for fiscal 2008.

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 27, 2008.

Plan category	Number of securities to be issued upon exercise of outstanding options, warrants and rights	Weighted-average exercise price of outstanding options, warrants and rights	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in first numeric column)
Equity compensation plans approved by security holders	3,073,069	\$7.12	1,471,270
Equity compensation plans not approved by security holders(1)	489,368	\$8.35	193,773
Total	3,562,437	\$7.29	1,665,043

(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 13 of the Notes to Consolidated Financial Statements included in Nanometrics' Annual Report on Form 10-K for fiscal 2008 filed with the SEC on March 27, 2009.

Outstanding Equity Awards at Fiscal Year End

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 fiscal year which ended December 27, 2008.

OUTSTANDING EQUITY AWARDS AT FISCAL 2008 YEAR-END

Name	Option Awards(1)				Stock Awards(2)	
	Number of Securities Underlying Unexercised Options (#)		Option Exercise Price (\$)	Option Expiration Date	Number of Shares or Units of Stock That Have Not Vested (#)	Market Value of Shares or Units of Stock That Have Not Vested (\$)
	Exercisable	Un-exercisable				
Timothy J. Stultz	2,777	97,223	\$ 0.98	11/19/2015	—	—
	83,331	116,669	\$ 7.35	8/29/2010	—	—
	—	—	—	—	33,333	\$38,334
Bruce A. Crawford	1,388	48,612	\$ 0.98	11/19/2015	—	—
	4,166	2,084	\$ 6.25	6/8/2014	—	—
	3,385	2,865	\$ 6.25	6/8/2014	—	—
	3,242	1,622	\$ 8.55	11/30/2013	—	—
	66,666	33,334	\$ 8.89	7/24/2013	—	—
	2,066	—	\$ 8.89	7/24/2013	—	—
	4,751	—	\$ 8.89	7/24/2013	—	—
	4,454	194	\$ 8.89	7/24/2013	—	—
	9,279	1,050	\$ 8.89	7/24/2013	—	—
	11,016	5,509	\$15.98	1/25/2013	—	—
	3,098	—	\$ 7.27	5/8/2010	—	—
	2,065	—	\$ 7.27	12/13/2009	—	—
Quentin B. Wright(3)	4,166	2,084	\$ 6.25	6/8/2014	—	—
	3,385	2,865	\$ 6.25	6/8/2014	—	—
	10,000	5,000	\$ 9.87	7/5/2013	—	—
	50,000	—	\$11.52	4/15/2012	—	—

- (1) All option awards have a term of seven years. From the date of option award grant (or seven years prior to the Option Expiration Date provided in the table above), options have the following vesting schedule: 1) for options granted prior to November 19, 2008, options vest at a rate of 33 1/3% (1/3rd) per year on each of the first, second and third anniversary of such grant; 2) for options granted to Dr. Stultz and Mr. Crawford on November 19, 2008, options vest one thirty-sixth (1/36th) and become exercisable in equal monthly installments starting on the monthly anniversary of the date of the grant. Bruce C. Rhine was our Chief Strategy Officer until February 1, 2008; for further information regarding his outstanding options, see footnote 4 of the Director Compensation Table, page 9 and footnote 6 of the Summary Compensation Table, page 25.
- (2) The majority of RSUs awarded vest at a rate of 33 1/3% per year over three years on each of the first, second and third anniversary of such awards. However, the 20,000 RSUs awarded to Mr. Crawford in July 2007 vested on the one year anniversary of the date of the award to reward Mr. Crawford for the extra duties he assumed during the transition of the chief executive officer.
- (3) All of these outstanding awards will have expired as of the Proxy filing date.

Option Exercises, Vested Stock Awards and Fiscal Year-End Option and Stock Values

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 fiscal year ended on December 27, 2008.

OPTION EXERCISES AND STOCK VESTED For Fiscal Year 2008

Name	Option Awards		Stock Awards	
	Number Of Shares Acquired On Exercise (#)	Value Realized On Exercise (\$)(1)	Number Of Shares Acquired on Vesting (#)	Value Realized On Vesting (\$)
Timothy J. Stultz	—	—	16,667	\$ 60,501
Bruce A. Crawford	—	—	20,000	\$105,000
Gary C. Schaefer	—	—	6,667	\$ 21,934

- (1) The value realized equals the difference between the option exercise price and the fair market value of Nanometrics common stock on the date of exercise, multiplied by the number of shares for which the option was exercised.

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

As part of Nanometrics' hiring efforts, we sometimes enter into employment agreements and severance agreements with our named executive officers that provide for certain severance benefits, including but not limited to, continuation of salary, continuation of bonus plan participation, continuation of health care benefits and acceleration of equity. The Compensation Committee decided, in its judgment, that these types of agreements are often needed to recruit executive officers to join Nanometrics and to mitigate the risks associated with leaving former employers and assuming the challenges of new executive positions.

In August 2007, Nanometrics entered into an executive severance agreement with Timothy J. Stultz, Ph.D., our President, Chief Executive Officer and a director, which provides for certain severance benefits following a termination without cause, including in connection with a change in control. Specifically, Nanometrics agrees to pay Dr. Stultz (i) his annual salary, including bonuses earned or accrued, and reimbursements for his premium payments under COBRA for nine months from the date of separation in the event that Dr. Stultz' employment with Nanometrics is terminated by us without cause or Dr. Stultz resigns for good reason during the period beginning one year and one day after Dr. Stultz' hire date (which was August 27, 2007) until two years from Dr. Stultz' hire date; (ii) his annual salary, including bonuses earned or accrued, and reimbursements for his premium payments under COBRA for six months from the date of separation in the event that Dr. Stultz' employment with Nanometrics is terminated by us without cause or Dr. Stultz resigns for good reason during the period beginning two years and one day after Dr. Stultz' hire date or thereafter; and (iii) his annual salary, including bonuses earned or accrued, and reimbursements for his premium payments under COBRA for twelve (12) months and 100% acceleration of all equity awards, from the date of separation in the event that Dr. Stultz' employment with Nanometrics is terminated by us without cause or Dr. Stultz resigns for good reason within twelve months following a change in control, provided that Dr. Stultz executes a general release.

In August 2007 Nanometrics entered into an executive severance agreement with Bruce A. Crawford, our Chief Operating Officer, which provides for certain severance benefits following a termination without cause, including six months continuing salary at his then-effective annual rate, reimbursements for his premium payments under COBRA for twelve months and twelve months of partial equity award acceleration, provided that Mr. Crawford executes a general release.

In February 2009, Nanometrics entered into an executive severance agreement with James P. Moniz, our Chief Financial Officer, which provides for certain severance benefits if Mr. Moniz is terminated without cause or he resigns for good reason within twelve months of a change of control, including six months continuing salary, or \$150,000, full acceleration of all outstanding equity awards and up to twelve months of continued health benefits under COBRA (including dependents), provided that Mr. Moniz executes a general release.

The table below estimates amounts payable upon a separation as if the individuals were separated on December 27, 2008.

<u>Name</u>	<u>Benefit</u>	<u>Not in Connection with a Change of Control</u>	<u>In Connection with a Change of Control</u>
		<u>Due to Disability or Termination Without Cause (\$)</u>	<u>Termination Without Cause, for Good Reason or Due to Disability or Death (\$)</u>
Timothy J. Stultz	Severance pay	\$282,750	\$377,000
	Stock option vesting acceleration	—	54,861
	Health care benefits continuation	7,316	9,754
	Total value:	<u>\$290,066</u>	<u>\$441,615</u>
Bruce A. Crawford	Severance pay	\$156,750	\$156,750
	Stock option vesting acceleration	2,833	2,833
	Health care benefits continuation	14,787	14,787
	Total value:	<u>\$174,370</u>	<u>\$174,370</u>

Compensation Committee Interlocks and Insider Participation

Messrs. J. Thomas Bentley, Stephen J Smith and Edmond R. Ward served on the Compensation Committee during fiscal year 2008. No member of such Compensation Committee is or was at any time an officer or employee of Nanometrics or any of its subsidiaries. During fiscal year 2008, none of our executive officers served on the Compensation Committee or board of directors of any other company whose executive officers serve as a member of our board of directors or Compensation Committee.

Related Party Transaction Policy

Nanometrics’ policy towards Related Party Transactions 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 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.

PROPOSAL 2

APPROVAL OF AN AMENDMENT AND RESTATEMENT OF 2003 EMPLOYEE STOCK PURCHASE PLAN TO INCREASE THE NUMBER OF SHARES RESERVED FOR ISSUANCE

The Board of Directors is asking the stockholders to approve an amendment and restatement of our 2003 Employee Stock Purchase Plan (the "2003 Stock Plan") to increase by 1,200,000 shares (from 750,000 shares to 1,950,000 shares) the number of shares of the Company's common stock reserved for issuance under the 2003 Stock Plan.

The Board of Directors adopted certain amendments to the 2003 Stock Plan in March 2009, which amendments included the proposed increase to the number of shares reserved for issuance under the 2003 Stock Plan, which increase is the subject of this Proposal 2. In addition, the Board of Directors amended the 2003 Stock Plan to (i) reduce the number of shares of common stock that may be purchased by any one employee during each offering period from 5,000 shares to 4,000 shares, and (ii) limit the aggregate number of shares of common stock that may be purchased under the 2003 Stock Plan in a given offering period, which previously was unlimited, to 200,000 shares.

The 2003 Stock Plan is an employee benefit program that enables qualified employees of the Company and its designated subsidiaries to purchase shares of the Company's common stock through payroll deductions without incurring broker commissions. The purposes of the 2003 Stock Plan are to assist qualified employees of the Company and certain designated subsidiaries in acquiring a stock ownership interest in the Company and to encourage them to remain in the employ of the Company and its subsidiaries. The 2003 Stock Plan is intended to qualify for favorable federal income tax treatment under Section 423 of the Internal Revenue Code of 1986, as amended (the "Code").

We believe that the 2003 Stock Plan provides a valuable opportunity for employees to acquire an ownership interest in the Company and provides stockholder value by aligning employee and stockholder interests. We rely on equity incentives to attract and retain key employees, and we believe that such incentives are essential to our long-term growth and future success. The proposed share increase will ensure that a sufficient reserve of common stock remains available under the 2003 Stock Plan to allow us to continue to provide equity incentives to our key employees on a competitive level.

The 2003 Stock Plan, as amended and restated, is attached to this proxy statement as Appendix 1 and is incorporated herein by reference. The following description of the 2003 Stock Plan, as amended and restated, is a summary of certain important provisions and does not purport to be a complete description of the 2003 Stock Plan. Please see Appendix 1 for more detailed information.

THE BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS THAT THE STOCKHOLDERS VOTE "FOR" THE APPROVAL OF THE AMENDMENT AND RESTATEMENT OF THE COMPANY'S 2003 EMPLOYEE STOCK PURCHASE PLAN TO INCREASE THE NUMBER OF SHARES RESERVED FOR ISSUANCE.

Description of the 2003 Stock Plan

Shares Subject to the Plan. 750,000 shares of Common Stock are authorized for issuance under the 2003 Stock Plan. The Board of Directors is seeking stockholder approval to add 1,200,000 additional shares to the 2003 Stock Plan, for a total of 1,950,000 shares of Common Stock. As of April 13, 2009, 178,754 shares remained for issuance under the 2003 Stock Plan. It is anticipated that no shares will remain available for issuance under the 2003 Stock Plan after the April 30, 2009 employee purchases under the 2003 Stock Plan, at which time the 2003 Stock Plan will be suspended until the annual meeting of stockholders.

Administration. The 2003 Stock Plan may be administered by the Board of Directors or a committee of the Board of Directors designated by the Board of Directors (the “Administrator”). The Administrator has the authority to administer and interpret the 2003 Stock Plan and to make such rules and regulations as it deems necessary to administer the 2003 Stock Plan.

Eligible Employees. To participate in the 2003 Stock Plan, an individual employee must: (i) customarily work at least twenty hours per week, and (ii) customarily work more than five months in any calendar year. An employee is not eligible to participate or continue participation in the 2003 Stock Plan if the employee owns or will own, as a result of such participation, shares possessing 5% or more of the total combined voting power or value of all classes of stock of the Company or any subsidiary. Non-employee directors of the Company are not eligible to participate in 2003 Stock Plan. As of April 13, 2009, approximately 100 employees of the Company and its designated subsidiaries are expected to be eligible and participate in the 2003 Stock Plan.

For purposes of the 2003 Stock Plan, “designated subsidiary” includes all subsidiaries of the Company designated by the Administrator as eligible to participate in the 2003 Stock Plan.

Stock Purchases. The 2003 Stock Plan is divided into six-month offering periods. The first offering period of each fiscal year begins on the first trading day of May and terminates on the last trading day of October. The second offering period of each fiscal year begins on the first trading day of November and terminates on the last trading day of April of the following year. For purposes of the 2003 Stock Plan, “trading day” means a day on which national stock exchanges and the NASDAQ Stock Exchange are open for trading. The next offering period following the date hereof is scheduled to begin on November 2nd, 2009 and end on April 30th, 2010. Subject to the limitations set forth in the 2003 Stock Plan, the Administrator has the authority to establish offering periods of alternative lengths and to establish different commencing and ending dates for such offering periods. During each offering period, participating employees accumulate funds in an account used to buy common stock through payroll deductions at a rate of not less than 1% or more than 10% of such participant’s base pay during each payroll period in the offering period.

At the end of each offering period, the purchase price is determined and the participating employees’ accumulated funds are used to purchase the appropriate number of shares of common stock. Under the 2003 Stock Plan, no participant may purchase more than \$25,000 worth of common stock (based on the fair market value of the common stock on the date the option is granted) during any calendar year. In addition, the Board of Directors recently amended the 2003 Stock Plan to reduce the number of shares of common stock that may be purchased by any one employee during each offering period from 5,000 shares to 4,000 shares and to limit the aggregate number of shares of common stock that may be purchased under the 2003 Stock Plan in a given offering period to 200,000 shares.

Purchase Price. The purchase price per share of common stock is 85% of the lesser of (i) the fair market value of the common stock on the first day of an offering period and (ii) the fair market value of the common stock on the last day of an offering period, unless the Plan Administrator establishes a higher percentage for a future offering period. For purposes of the 2003 Stock Plan, “fair market value” means the closing price of the common stock on the NASDAQ Stock Market for such day. On April 13, 2009, the closing trading price for the Company’s common stock was \$1.49.

Effect of Termination of Employment. A participant is not eligible to continue his or her participation in the 2003 Stock Plan in the event of termination of employment for any reason. If termination occurs on or prior to the last business day of an offering period, the balance in the participant’s account will be paid to the participant or to his or her estate or designated beneficiary. Neither payroll deductions credited to a participant’s account nor any rights with regard to the purchase of shares under the 2003 Stock Plan may be assigned, transferred, pledged or otherwise disposed of in any way by a participant, other than by will or the laws of descent and distribution.

Change in Control, Dissolution or Liquidation. In the event of certain mergers or consolidations, changes in the composition of the Board of Directors or acquisition by another corporation of all or substantially all of the Company's assets, the rights to purchase shares under the 2003 Stock Plan will be assumed or equivalent rights substituted by the successor corporation, or a parent or subsidiary of the successor corporation. If the successor corporation refuses to assume or substitute for such rights or in the event of a dissolution or liquidation of the Company, the offering period during which a participant may purchase stock will be shortened and a new exercise date shall be set. The new exercise date will be on a day preceding the effective date of such event.

Amendment of the 2003 Stock Plan. The Administrator has the power to amend or terminate the 2003 Stock Plan, provided that in certain instances amendments may also require stockholder approval pursuant to Code Section 423 or any applicable law or regulation.

Term of the Plan. The 2003 Stock Plan will continue in effect until terminated by the Administrator.

Federal Income Tax Consequences

The Company intends that the 2003 Stock Plan qualify as an "employee stock purchase plan" under Code Section 423. The following discussion is only a brief summary of the material federal income tax consequences to the Company and the participating employees in the United States in connection with the 2003 Stock Plan. The discussion is general in nature and does not address issues relating to the income tax circumstances of any individual employee or any employee who is subject to taxation outside the United States. The discussion is based on the Code, applicable Treasury regulations and administrative and judicial interpretations thereof, each as in effect on the date of this proxy statement and is, therefore, subject to future changes in the law, possibly with retroactive effect. The discussion does not address the consequences of state, local or foreign tax laws. Participants are urged to consult their tax advisers regarding the consequences of participation in the 2003 Stock Plan (including state, local or foreign consequences) based on their particular circumstances.

Under the Code, the Company is deemed to grant participants an "option" on the first day of each offering period to purchase as many shares of Common Stock as the participant will be able to purchase with the payroll deductions credited to his or her account during the offering period. On the last day of each offering period, the purchase price is determined and the participant is deemed to have exercised the "option" and to have purchased the number of shares of Common Stock his or her accumulated payroll deductions will purchase at the purchase price on the last day of the offering period.

The amounts deducted from a participating employee's compensation pursuant to the 2003 Stock Plan will be included in the employee's compensation and be subject to federal income and employment tax. Generally, no additional income will be recognized by the employee either at the beginning of the offering period or when the employee purchases shares of Common Stock pursuant to the 2003 Stock Plan.

The required holding period for favorable federal income tax treatment upon disposition of Common Stock acquired under the 2003 Stock Plan is the later of (i) two years after the deemed "option" is granted (the first day of the relevant offering period), and (ii) one year after the deemed "option" is exercised and the Common Stock is purchased (the last day of the relevant offering period). When the Common Stock is disposed of after this period, or after the employee's death if the employee dies while holding the Common Stock (a "qualifying disposition"), the employee (or in the case of death the employee's estate) realizes ordinary income to the extent of the lesser of (a) the amount by which the fair market value of the Common Stock at the time the deemed "option" was granted exceeded the purchase price and (b) the amount by which the fair market value of the Common Stock at the time of the disposition exceeded the purchase price. The purchase price is generally equal to 85% of the lesser of the fair market value of the Common Stock on the first day of the offering period and the fair market value of the Common Stock on the last day of the offering period. Any further gain recognized on a qualifying disposition will be long-term capital gain. If the sale price is less than the option price, there is no ordinary income and any loss recognized generally will be a long-term capital loss.

When an employee sells or disposes of the Common Stock acquired under the 2003 Stock Plan (including by way of most gifts) before the expiration of the required holding period (a “disqualifying disposition”), the employee generally will recognize ordinary income to the extent of the difference between the purchase price for the Common Stock and the fair market value of the Common Stock at the date the option was exercised (the last day of an offering period), regardless of the price at which the Common Stock is sold. Any additional gain recognized upon the disqualifying disposition will be capital gain. The capital gain will be long-term if the employee held the shares more than 12 months. If the sale price is less than the fair market value of the Common Stock at the date of exercise, then the employee will have a capital loss equal to such difference.

Even though an employee must treat part of his or her gain on a qualifying disposition of Common Stock acquired under the 2003 Stock Plan as ordinary income, the Company may not take a business deduction for such amount. However, if an employee makes a disqualifying disposition of Common Stock acquired under the 2003 Stock Plan, the amount of income that the employee must report as ordinary income generally qualifies as a business deduction for the Company for the year of such disposition, subject to the limitations imposed under the Code.

Plan Benefits

Because participation in the 2003 Stock Plan is entirely within the discretion of the eligible employees, a new plan benefits table, as described in the federal proxy rules, is not provided. Because the Company cannot predict the participation levels by employees, the rate of employee contributions or the eventual purchase price under the 2003 Stock Plan, it is not possible to determine the value of benefits that may be obtained by executive officers and other employees under the 2003 Stock Plan. Non-employee directors are not eligible to participate in the 2003 Stock Plan.

PROPOSAL 3

APPROVAL OF AMENDMENT AND RESTATEMENT OF 2005 EQUITY INCENTIVE PLAN TO ALLOW FOR A ONE-TIME STOCK OPTION EXCHANGE PROGRAM FOR ELIGIBLE EMPLOYEES AND EXECUTIVE OFFICERS AND CLARIFY THE PLAN TERM

Introduction

We are seeking stockholder approval of an amendment and restatement of our 2005 Equity Incentive Plan to permit an option exchange program that would allow us to cancel “underwater” stock options currently held by some of our employees in exchange for the issuance of stock options exercisable for fewer shares of our common stock, with lower exercise prices and extended vesting terms. We are proposing this program because we believe that it will provide a more cost-effective retention and incentive tool to our key contributors than issuing incremental equity or paying additional cash compensation. If our stockholders approve this proposal to amend and restate the 2005 Equity Incentive Plan to permit such an option exchange program, the Board of Directors intends to commence the option exchange program during 2009. If our stockholders do not approve this proposal, the option exchange program as proposed below will not take place. In addition, the amendment and restatement of the 2005 Equity Incentive Plan would clarify the plan term.

Overview

In April 2009, the Compensation Committee recommended to our Board of Directors, and our Board of Directors authorized, a one-time stock option exchange program (the “Option Exchange Program”), subject to stockholder approval.

Stock options will be eligible for the Option Exchange Program if they (1) have an exercise price per share greater than or equal to the 52-week high trading price of the Company’s common stock when the Option Exchange Program commences; (2) have been granted at least 12 months prior to the date that the Option Exchange Program commences and (3) are scheduled to expire more than 12 months after the Option Exchange Program commences (“Eligible Options”). The opportunity to participate in the Option Exchange Program may be offered to our employees and our executive officers who hold Eligible Options that were granted under our 2005 Equity Incentive Plan, 2002 Nonstatutory Stock Option Plan and 2000 Employee Stock Option Plan (collectively referred to as the “Plan”) provided the proposed amendment to the 2005 Equity Incentive Plan is approved by stockholders. Eligible Options surrendered for exchange under the Option Exchange Program that were issued under the Plan will, upon the closing of the exchange offer, be exchanged for new options (“New Options”) granted pursuant to the Plan.

Under the proposed Option Exchange Program, each New Option will have: (1) an exercise price per share equal to the closing price of Company common stock on the day that our exchange offer expires, (2) a new expiration date of seven years from the date of grant and (3) a three-year vesting schedule with interim installment vesting as determined by the Compensation Committee.

The ratio of shares underlying New Options to shares underlying exchanged Eligible Options will be 1 to 1.5 for those Eligible Options with an exercise price not more than \$10 and 1 to 2 for those Eligible Options with an exercise price more than \$10. All New Options will be nonstatutory options.

We believe that, if approved by our stockholders, the Option Exchange Program will permit us to:

- enhance long-term stockholder value by restoring competitive incentives to the participants so they are further motivated to complete and deliver the important strategic and operational initiatives of our company, as exercise prices significantly in excess of market price undermine the effectiveness of options as employee and executive performance and retention incentives; and
- reduce potential overhang, which is the number of shares issuable upon the vesting and exercise of outstanding stock options and other stock awards, by reducing the total number of outstanding stock options.

Reasons for the Option Exchange Program

We believe that an effective and competitive employee incentive program is imperative for the future growth and success of our business. We rely on highly skilled and educated technical and managerial employees to implement our strategic initiatives, expand and develop our business and satisfy customer needs. Competition for these types of employees, particularly in the semiconductor and high-tech industry, is intense and many companies use stock options as a means of attracting, motivating and retaining their best employees. Stock options constitute a key part of our incentive and retention programs because our Board of Directors believes that equity compensation encourages employees to act like owners of the business, motivating them to work toward our success and rewarding their contributions by allowing them to benefit from increases in the value of our shares.

Our executive officers are expected to be among the primary drivers of long-term stockholder value. As a result, the retention and motivation of our executive officers are critical to our long-term success. Accordingly, we have elected to allow our executive officers to participate in this exchange offer and to exchange Eligible Options for New Options.

Many of our employees now hold stock options with exercise prices significantly higher than the current market price of our common stock. For example, on April 13, 2009, the closing price of our common stock on the NASDAQ Global Market was \$1.49 per share and, out of a total of 3,497,691 options outstanding, 2,534,504 or 72.5% have exercise prices above \$1.49 per share. Assuming that the Option Exchange Program were to be effected on or about July 15, 2009, eligible participants will hold outstanding stock options exercisable for 2,375,277 shares of our common stock that (i) have exercise prices of \$5.00 or more, which is our highest closing stock price since July 15, 2008 and (ii) expire after July 15, 2010. Although we continue to believe that stock options are an important component of our employees' total compensation, many of our employees view their existing options as having little or no value due to the difference between the exercise prices and the current market price of our common stock. As a result, for many employees, these options are ineffective at providing the incentives and retention value that our Board of Directors believes are necessary to motivate our management and our employees to increase long-term stockholder value.

In addition to providing key incentives to our employees and executives, the Option Exchange Program is also designed to benefit our stockholders by reducing the potential dilution to our capital structure from stock option exercises in the future and by providing us better retention tools for our key contributors due to the extended vesting terms for the New Options. Based on a projected Option Exchange date of July 15, 2009, we estimate a reduction in our overhang of outstanding stock options of approximately 902,794 shares, assuming full participation in the Option Exchange Program. The actual reduction in our overhang that may result from the Option Exchange Program could vary significantly and is dependent upon the date of the Option Exchange Program is effected and the actual level of participation in the Option Exchange Program.

Consideration of Alternatives

When considering how best to continue to incentivize and reward our employees who have underwater options, the Compensation Committee engaged an independent compensation consultant, Compensia, Inc., for assistance in developing a program that builds incentive and retention value for employees in a way that is balanced and appropriate from a stockholder and market perspective. Based on its review, the Company considered several potential alternatives including:

Take no action. This alternative would require us to conclude that underwater stock options would not impact our ability to retain qualified employees by providing competitive compensation packages. However, our Company feels offering valuable equity grants to our employees is warranted based on the practices of other companies in our business and geographic region as well as our view of the overall competitive landscape for qualified employees.

Increase cash compensation or provide cash retention bonuses. To replace equity incentives, we considered that we could increase base and target bonus compensation or provide cash retention bonuses. However, significant increases in cash compensation or bonuses would substantially increase our compensation expenses and reduce our cash flow from operations, which would adversely affect our business and operating results.

Grant additional equity compensation. We considered granting employees special supplemental stock option grants at current market prices in order to mitigate the loss in value of previously granted stock options that are now underwater. However, such supplemental option grants would increase our overhang and result in potential dilution to our stockholders and could also decrease our reported earnings, which could negatively impact our stock price.

Implement Option Exchange Program. After considering other alternatives, the Company determined that implementing an option exchange program under which employees could exchange Eligible Options was most attractive for a number of reasons, including the following:

- *Reasonable, Balanced Incentives.* We believe that the opportunity to exchange Eligible Options for New Options exercisable for fewer shares, together with a new minimum vesting requirement, represents a reasonable and balanced exchange program with the potential for a significant positive impact on employee retention, motivation and performance.
- *Reduction of the Number of Shares Subject to Outstanding Options.* In addition to the underwater options having little or no retention value, they also would not otherwise reduce our stock option overhang until they are exercised or expire unexercised. If approved by our stockholders, the Option Exchange Program will reduce our overhang of outstanding stock options by eliminating the ineffective options that are currently outstanding. Under the proposed Option Exchange Program, eligible participants will receive stock options covering fewer shares than the options surrendered. As a result, the number of shares subject to all outstanding equity awards will be reduced, thereby reducing the overhang. If all Eligible Options were exchanged, then based on the number of Eligible Options we expect will be outstanding on July 15, 2009, options to purchase approximately 2,375,277 shares could be surrendered and cancelled, while New Options covering approximately 1,472,483 shares could be issued. This would result in a net reduction in the overhang of our outstanding stock options by approximately 902,794 shares, or approximately 4.9% of the number of shares of our common stock outstanding as of April 13, 2009. The actual reduction in our overhang that may result from the Option Exchange Program could vary significantly and is dependent upon the actual level of participation in the Option Exchange Program. All Eligible Options that are not exchanged will remain outstanding and in effect in accordance with their existing terms.
- *Reduced Pressure for Additional Grants.* If we are unable to implement the Option Exchange Program, we may feel it necessary to issue additional options to our employees at current market prices, increasing our overhang. These grants would deplete the current pool of options available for future grants under the Plan and could also result in decreased reported earnings which could negatively impact our stock price.
- *Participation by Our Executive Officers.* Although we hold our executive officers accountable for driving the creation of long-term stockholder value, our Board of Directors believes that the significant decline in our stock price was primarily caused by the macro economic conditions that were outside the control of our Company and our executive officers. As a result, the retention and motivation of our executive officers is critical to our long-term success and the Board of Directors has elected to include executive officers as eligible participants in the Option Exchange Program.

Description of the Option Exchange Program

Implementing the Option Exchange Program. Eligible participants will be offered the opportunity to participate in the Option Exchange Program under a tender offer (an “Offer to Exchange”) which the Company intends to file with the Securities and Exchange Commission (the “SEC”). From the time the Offer to Exchange

commences, the eligible participants will be given at least 20 business days to make an election to surrender for cancellation all or a portion of their Eligible Options on a grant-by-grant basis in exchange for New Options. The New Options will be granted on the day the Offer to Exchange closes. Even if the Option Exchange Program is approved by our stockholders, our Board of Directors will retain the authority, in its sole discretion, to not commence or to terminate or postpone the Option Exchange Program at any time prior to the closing of the Offer to Exchange or to exclude certain Eligible Options or eligible participants from participating in the Option Exchange Program for any or no reason including due to tax, regulatory or accounting reasons or because participation would be inadvisable or impractical. Stockholder approval of the amendment permitting the Option Exchange Program applies only to this Option Exchange Program. If the Company were to implement a stock option exchange program in the future with respect to options under the 2005 Equity Incentive Plan, it would once again need to seek stockholder approval.

Outstanding Options Eligible for the Option Exchange Program. To be eligible for exchange under the Option Exchange Program, an option must have an exercise price that is greater than or equal to the 52-week high trading price of our common stock at the time the Option Exchange Program commences and the option must have been granted at least 12 months prior to the date that the Option Exchange Program commences and must be scheduled to expire at least 12 months after the date the Option Exchange Program commences. As of April 13, 2009, we had outstanding options to purchase 3,497,691 shares of our common stock, of which we estimate options to purchase approximately 2,375,277 shares would be eligible for exchange under the Option Exchange Program if the Option Exchange Program commenced as of July 15, 2009.

Eligibility. The Option Exchange Program may be open to all of our employees, including our executive officers who hold Eligible Options. Our directors are not eligible. To be eligible, an employee must be employed by us at the time the Offer to Exchange commences. Additionally, in order to receive the New Options, an eligible participant who surrenders his or her Eligible Options for exchange must be an employee on the date the New Options are granted. As of April 13, 2009, approximately 307 employees and 2 executive officers are holding Eligible Options if the Option Exchange Program commenced on, and such employees continued their employment until, July 15, 2009.

Exchange Ratios. In the proposed exchange offer, eligible participants would be offered a one-time opportunity to exchange their Eligible Options for New Options, with each New Option representing the right to purchase (1) one and one-half shares of common stock for every one share of common stock for which an underlying Eligible Option with an exercise price no greater than \$10 was tendered for exchange and (2) two shares of common stock for every one share of common stock for which an underlying Eligible Option with an exercise price greater than \$10 was tendered. New Options will be rounded down to the nearest whole share on a grant-by-grant basis.

Election to Participate. Participation in the Option Exchange Program will be voluntary. Eligible participants will be permitted to exchange all or none of their Eligible Options for New Options on a grant-by-grant basis.

Exercise Price of New Options. All New Options will be granted with an exercise price equal to the closing price of our stock on the NASDAQ stock exchange on the day of the close of the exchange offer.

Vesting of New Options. The New Options will vest over a three year period with interim installment vesting as determined by the Compensation Committee.

Term of the New Options. The New Options will have a new expiration date of seven years from the date of grant.

Other Terms and Conditions of the New Options. The other terms and conditions of the New Options will be determined by the Compensation Committee and set forth in option agreements to be entered into as of the New Option grant date. All New Options will be nonstatutory stock options granted under our Plan.

Return of Eligible Options Surrendered. Consistent with the terms of the Plan, the pool of shares available for the grant of future awards under our Plan will be increased by that number of shares equal to the difference between (a) the number of shares underlying surrendered Eligible Options issued under the Plan and (b) the number of shares underlying New Options issued under the Plan.

Accounting Treatment. Under Financial Accounting Standards Board Statement of Financial Accounting Standards No. 123 (Revised), or FAS 123(R), regarding accounting for share-based payments, we will recognize the incremental compensation cost of the stock options granted in the Option Exchange Program. The incremental compensation cost will be measured as the excess, if any, of the fair value of each New Option granted to employees, measured as of the date the New Options are granted, over the fair value of the Eligible Options surrendered in exchange for the New Options, measured immediately prior to the cancellation. This incremental compensation cost will be recognized ratably over the vesting period of the New Options. As would be the case with Eligible Options, in the event that any of the New Options are forfeited prior to their vesting due to termination of service, the incremental compensation cost for the forfeited New Options will not be recognized.

U.S. Federal Income Tax Consequences. The following is a summary of the material United States federal income tax consequences of the Option Exchange Program for those eligible participants who are subject to United States federal income tax. This summary is based on the federal tax laws in effect as of the date of this proxy statement. Changes to these laws could alter the tax consequences described below. A more detailed summary of the applicable tax considerations to eligible participants will be provided in the Exchange Offer. This summary does not discuss all of the tax consequences that may be relevant to an eligible participant in light of his or her personal circumstances, nor is it intended to be applicable in all respects to all categories of eligible participants.

We believe that the exchange of Eligible Options for New Options pursuant to the Option Exchange Program should be treated as a non-taxable exchange, and no income should be recognized for United States federal income tax purposes by the eligible participants upon the issuance of the New Options. All New Options will be nonstatutory stock options. As a result, upon the exercise of the New Options, the eligible participants will recognize ordinary compensation income equal to the excess, if any, of the fair market value of the purchased shares on the exercise date over the exercise price paid for those shares. Upon disposition of the shares, the eligible participants will recognize capital gain or loss (which will be short-term or long-term depending on whether the shares were held for more than one year from the date of exercise) equal to the difference between the selling price and the fair market value of the shares on the date of exercise. The holding period for the shares acquired through the exercise of an option will begin on the day after the date of exercise.

There should be no tax consequences to us with respect to the Option Exchange Program or the exercise of New Options (or Eligible Options not exchanged) except that we will generally be entitled to a deduction when an eligible participant has compensation income. Any such deduction will be subject to the limitations of Section 162(m) of the Internal Revenue Code.

Potential Modifications to Terms to Comply with Governmental Requirements. The terms of the Option Exchange Program will be described in an Offer to Exchange that we will file with the SEC. Although we do not anticipate that the SEC will require us to modify the terms significantly, it is possible we will need to alter the terms of the Option Exchange Program to comply with comments from the SEC. Changes in the terms of the Option Exchange Program may also be required for tax purposes for participants in the United States as the tax treatment of the Option Exchange Program is not entirely certain. The Compensation Committee may also consider it appropriate to modify the terms of the Option Exchange Program.

Effect on Stockholders

We are not able to predict the impact the Option Exchange Program will have on stockholder interests as a stockholder, as we are unable to predict how many participants will exchange their Eligible Options or what the

market price of our common stock will be on the date that the New Options are granted. If the Option Exchange Program is approved, the exchange ratio will result in (1) the issuance of fewer shares subject to the New Options than were subject to the cancelled Eligible Options tendered in the exchange offer and (2) an incremental compensation expense for financial reporting purposes from the Option Exchange Program. In addition, the Option Exchange Program is intended to reduce both our existing stock option overhang and our need to issue supplemental stock options in the future to remain competitive with our competitors. While we cannot predict how many Eligible Options will be exchanged, assuming full participation in the Option Exchange Program, the total number of shares underlying our outstanding options would be reduced by approximately 902,794 shares. The actual reduction in our overhang that could result from the Option Exchange Program could vary significantly and is dependent upon the actual level of participation in the Option Exchange Program.

Text of Amendment to Plan

To facilitate the Company's implementation of the Option Exchange Program under its 2005 Equity Incentive Plan and applicable NASDAQ listing rules, the Compensation Committee recommended and the Board of Directors approved an amendment and restatement of the Company's 2005 Equity Incentive Plan, subject to approval of the amendment and restatement by the Company's stockholders. The Company is seeking stockholder approval for the amendment and restatement of the Company's 2005 Equity Incentive Plan to allow for an Option Exchange Program in 2009 as well as clarify the term of the 2005 Equity Incentive Plan. The amendment and restatement would include a new Section 24 to the 2005 Equity Incentive Plan which new section would read as follows:

2009 Exchange Program. Notwithstanding any other provision of the Plan to the contrary, upon approval of the Company's shareholders, the Administrator may provide for, and the Company may implement, an Exchange Program, pursuant to which certain outstanding Options under the Plan as well as options under the 2002 Nonstatutory Stock Option Plan, the 2000 Employee Stock Option Plan and the Accent Optical Technologies, Inc. Stock Incentive Plan could, at the election of the Participant holding such Option, be tendered to the Company for cancellation in exchange for the issuance of a lesser amount of Options with a lower exercise price, provided that such Exchange Program is commenced within 2009.

If stockholders approve this proposed amendment and restatement of the 2005 Equity Incentive Plan, the Board of Directors and the Compensation Committee intend to commence the Option Exchange Program during 2009. If stockholders do not approve this proposal for the amendment and restatement of the 2005 Equity Incentive Plan, the Option Exchange Program will not take place in 2009 with respect to any Plan. In addition, the amendment and restatement of the 2005 Equity Incentive Plan clarifies that the term of the 2005 Equity Incentive Plan is 10 years from its 2005 adoption by the Board as described in the "Term of the Plan" section of the 2005 Equity Incentive Plan and in the summary of the 2005 Equity Incentive Plan provided to stockholders when the 2005 Equity Incentive Plan was submitted in 2005 to the stockholders for their approval. A separate section of the 2005 Equity Incentive Plan referred to the 2005 Equity Incentive Plan continuing in effect for five years from the approval of the stockholders. The amendment and restatement deletes one of two sections in the 2005 Equity Incentive Plan to clarify that the term of the 2005 Equity Incentive Plan is 10 years from its 2005 adoption by the Board. The amendment and restatement of the 2005 Equity Incentive Plan also conforms the 2005 Equity Incentive Plan to the Compensation Committee charter provisions which permit the delegation to one or more officers of the Company the authority to grant Awards to non-executive officers.

Summary of the Plan

The following paragraphs provide a summary of the principal features of the 2005 Equity Incentive Plan and its operation. The Plan as proposed to be amended and restated is set forth in its entirety as Appendix 2 to this proxy statement. The following summary is qualified in its entirety by reference to the 2005 Equity Incentive Plan.

A total of 1,200,000 shares of common stock were initially reserved for issuance under the 2005 Equity Incentive Plan, plus an annual increase to be added on the first day of the Company's fiscal year for three years (beginning in 2006 and ending after the 2008 increase), equal to the least of (i) 3% of the Company's outstanding common stock on that date or (ii) an amount determined by the board of directors. As a result of these increases, as of April 13, 2009, a total of 2,692,594 shares of common stock were authorized and 1,215,040 were available for issuance under the 2005 Equity Incentive Plan.

Background and Purpose of the 2005 Equity Incentive Plan

The 2005 Equity Incentive Plan permits the grant of stock options, stock appreciation rights, restricted stock, restricted stock units and performance shares (each individually, an "Award"). The 2005 Equity Incentive Plan is intended to attract and retain the best available personnel for positions of substantial responsibility, including (1) employees of the Company and any parent or subsidiary, (2) consultants who provide services to the Company and any parent or subsidiary, and (3) directors of the Company. The 2005 Equity Incentive Plan also is designed to provide additional incentive to these services providers, to promote the success of the Company's business and to permit the payment of compensation that qualifies as performance-based compensation under Section 162(m) of the Internal Revenue Code.

Administration of the 2005 Equity Incentive Plan

A committee (the "Committee") of the Board of Directors administers the 2005 Equity Incentive Plan. The Committee generally will be the compensation/stock option committee, which will consist of two or more directors who qualify as "non-employee directors" under Rule 16b-3 of the Securities Exchange Act of 1934, and as "outside directors" under Section 162(m) (so that the Company is entitled to a federal tax deduction for certain compensation paid under the 2005 Equity Incentive Plan). Notwithstanding the foregoing, the Board of Directors may itself administer the 2005 Equity Incentive Plan or one or more committees may be appointed to administer the 2005 Equity Incentive Plan with respect to different groups of service providers. The Board of Directors, the compensation committee or other committee administering the 2005 Equity Incentive Plan is referred to herein as the "Administrator."

Subject to the terms of the 2005 Equity Incentive Plan, the Administrator has the sole discretion to select the employees, consultants, and directors who will receive Awards, determine the terms and conditions of Awards (for example, the exercise price and vesting schedule), and interpret the provisions of the 2005 Equity Incentive Plan and outstanding Awards. The Administrator may not, however, reprice Awards or exchange Awards for other Awards, cash or a combination thereof, without the approval of the stockholders. As described above, the proposed amendment and restatement would specifically provide for an option exchange program in 2009.

If an Award is cancelled, expires, or is forfeited or repurchased by the Company for any reason without having been fully exercised or vested, the unvested, cancelled, forfeited or repurchased number of shares of Company common stock ("Shares") generally will be returned to the available pool of Shares reserved for issuance under the 2005 Equity Incentive Plan. Any Shares subject to options or stock appreciation rights generally will be counted against the available pool as one Share for every Share subject to the option or stock appreciation rights. Any Shares of restricted stock or Shares subject to performance shares or restricted stock units with a per share or unit purchase price lower than 100% of Fair Market Value on the date of grant generally will be counted against the available pool as two Shares for every one Share subject thereto. Shares actually issued under the 2005 Equity Incentive Plan or withheld to pay the exercise price of an Award or to satisfy tax withholding obligations with respect to an Award will not be returned to the 2005 Equity Incentive Plan and will not be available for future issuance under the 2005 Equity Incentive Plan. Also, if the Company experiences any dividend or other distribution (whether in the form of cash, Shares, other securities, or other property), recapitalization, stock split, reverse stock split, reorganization, merger, consolidation, split-up, spin-off, combination, repurchase, or exchange of Shares or other securities of the Company, or other change in the corporate structure of the Company affecting the Shares, a proportional adjustment will be made to the number of

Shares available for issuance under the 2005 Equity Incentive Plan, the number and price of Shares subject to outstanding Awards and the per-person limits on Awards, as appropriate to reflect the stock dividend or other change, should the Administrator determine that such an adjustment is appropriate in order to prevent dilution or enlargement of the benefits or potential benefits intended to be made available under the 2005 Equity Incentive Plan.

Eligibility to Receive Awards

The Administrator selects the employees, consultants, and directors who will be granted Awards under the 2005 Equity Incentive Plan. The actual number of individuals who will receive Awards cannot be determined in advance because the Administrator has the discretion to select the participants. As of April 13, 2009, the Company has 309 employees, one consultant and seven directors who could be selected to receive Awards.

Stock Options

A stock option is the right to acquire Shares at a fixed exercise price for a fixed period of time. Under the 2005 Equity Incentive Plan, the Administrator may grant nonstatutory stock options and/or incentive stock options (which entitle employees, but not the Company, to more favorable tax treatment). The Administrator will determine the number of Shares covered by each option, but during any fiscal year of the Company, no participant may be granted options and stock appreciation rights together covering more than 500,000 Shares.

The exercise price of the Shares subject to each option is set by the Administrator but cannot be less than 100% of the fair market value (on the date of grant) of the Shares covered by the option. In addition, the exercise price of an incentive stock option must be at least 110% of fair market value if (on the grant date) the participant owns stock possessing more than 10% of the total combined voting power of all classes of stock of the Company or any of its subsidiaries. The aggregate fair market value of the Shares (determined on the grant date) covered by incentive stock options which first become exercisable by any participant during any calendar year also may not exceed \$100,000.

Options issued under the 2005 Equity Incentive Plan become exercisable at the times and on the terms established by the Administrator. The Administrator also establishes the time at which options expire, but the expiration of an incentive stock option may not be later than ten years after the grant date (such term to be limited to 5 years in the case of an incentive stock option granted to a participant who owns stock possessing more than 10% of the total combined voting power of all classes of stock of the Company or any of parent or subsidiary of the Company).

The exercise price of each option must be paid in full at the time of exercise. The exercise price may be paid in any form as determined by the Administrator, including, but not limited to, cash, check, surrender of Shares that have a fair market value on the date of surrender equal to the aggregate exercise price of the shares as to which the option is being exercised, consideration received pursuant to a cashless exercise program, promissory note, through a reduction in the amount of Company liability to the participant, or other legal methods of consideration.

If a participant's service relationship with us terminates for any reason (excluding death or disability), then the participant may exercise the option within a period of time as determined by the Administrator and specified in the Award agreement to the extent that the Award is vested on the date of termination (but in no event later than the expiration of the term of such Award). In the absence of a specified time set forth in the Award agreement, the option will remain exercisable for three months following the termination of the participant's service relationship. If a participant's service relationship terminates due to the participant's disability or death, the participant (or his or her estate or beneficiary) may exercise the option within a period of time as determined by the Administrator and specified in the Award agreement to the extent the Award was vested on the date of termination of the service relationship (but in no event later than the expiration of the term of such Award). In the absence of a specified time in the Award agreement, the option will remain exercisable for the twelve months following the termination of the participant's service due to disability or death.

Stock Appreciation Rights

Stock appreciation rights are Awards that grant the participant the right to receive an amount equal to (1) the number of Shares exercised, times (2) the amount by which the Company's stock price exceeds the exercise price. The Administrator sets the exercise price. An individual will be able to profit from a stock appreciation right only if the fair market value of the stock increases above the exercise price. The Company's obligation arising upon the exercise of a stock appreciation right may be paid in Shares or in cash, or any combination thereof, as the Administrator may determine.

Awards of stock appreciation rights may be granted in connection with all or any part of an option or may be granted independently of options. No participant may be granted stock appreciation rights and options together covering more than 500,000 shares in any fiscal year of the Company.

The Administrator determines the terms of stock appreciation rights. A stock appreciation right will be exercisable, in whole or in part, at such time as the Administrator will specify in the Award agreement, but will expire no later than ten (10) years after the date of grant.

If a participant's service relationship with us terminates for any reason (excluding death or disability), then the participant may exercise the stock appreciation right within a period of time as determined by the Administrator and specified in the Award agreement to the extent that the Award is vested on the date of termination (but in no event later than the expiration of the term of such Award). In the absence of a specified time set forth in the Award agreement, the stock appreciation right will remain exercisable for three months following the termination of the participant's service relationship. If a participant's service relationship terminates due to the participant's disability or death, the participant (or his or her estate or beneficiary) may exercise the stock appreciation right within a period of time as determined by the Administrator and specified in the Award agreement to the extent the Award was vested on the date of termination of the service relationship (but in no event later than the expiration of the term of such Award). In the absence of a specified time in the Award agreement, the stock appreciation right will remain exercisable for the twelve months following the termination of the participant's service due to disability or death.

Restricted Stock

Awards of restricted stock are Shares that vest in accordance with the terms and conditions established by the Administrator. The Administrator may set vesting criteria based upon the achievement of Company-wide, departmental, business unit or individual goals, which may include continued employment or service, applicable federal or state securities or any other basis determined by the Committee. If the Administrator desires that the Award qualify as performance-based compensation under Section 162(m), any restrictions will be based on a specified list of performance goals (see "Performance Goals" below for more information). The Administrator will determine the number of Shares of restricted stock granted to any employee, consultant or director, but during any fiscal year of the Company, no participant may be granted more than 250,000 Shares in the aggregate of restricted stock, performance shares or restricted stock units.

Unless the Administrator determines otherwise, Shares of restricted stock will be held by the Company as escrow agent until any restrictions on the Shares have lapsed. The Administrator may accelerate the time at which any restriction may lapse or be removed. On the date set forth in the Award agreement, all unvested restricted stock will be forfeited to the Company.

Restricted Stock Units

Awards of restricted stock units are Shares that vest in accordance with terms and conditions established by the Administrator. The Administrator determines the number of restricted stock units granted to any employee, consultant or director, but during any fiscal year of the Company, no participant may be granted more than 250,000 Shares in the aggregate subject to restricted stock units, performance shares or restricted stock.

In determining whether an Award of restricted stock units should be made, and/or the vesting schedule for any such Award, the Administrator may impose whatever conditions to vesting it determines to be appropriate. The number of restricted stock units paid out to the participant will vary depending on the extent to which the vesting criteria are met. The Administrator may set vesting criteria based upon the achievement of Company-wide, departmental, business unit or individual goals, which may include continued employment or service, applicable federal or state securities or any other basis determined by the Committee. Notwithstanding the foregoing, if the Administrator desires that the Award qualify as performance-based compensation under Section 162(m), any restrictions will be based on a specified list of performance goals (see "Performance Goals" below for more information).

Upon satisfying the applicable vesting criteria, the participant shall be entitled to the payout specified in the Award agreement. Notwithstanding the foregoing, at any time after the grant of restricted stock units, the Administrator may reduce or waive any vesting criteria that must be met to receive a payout. The Administrator, in its sole discretion, may pay earned restricted stock units in cash, Shares, or a combination thereof. Shares represented by restricted stock units that are fully paid in cash will again be available for grant under the Plan. On the date set forth in the Award agreement, all unearned restricted stock units will be forfeited to the Company.

Performance Shares

Performance shares are Awards that will result in a payment to a participant only if performance objectives established by the Administrator are achieved or the Awards otherwise vest. The Administrator may set vesting criteria based upon the achievement of Company-wide, departmental, business unit or individual goals, which may include continued employment or service, applicable federal or state securities laws or any other basis determined by the Committee. Notwithstanding the foregoing, if the Administrator desires that the Award qualify as performance-based compensation under Section 162(m), any restrictions will be based on a specified list of performance goals (see "Performance Goals" below for more information).

Performance shares have an initial value equal to the fair market value of a share on the date of grant. Performance shares may be granted to employees, consultants or directors at any time as shall be determined by the Administrator in its sole discretion. Subject to the terms of the 2005 Equity Incentive Plan, the Administrator will have complete discretion to determine the number of shares subject to a performance share award and the conditions that must be satisfied, which typically will be based principally or solely on achievement of performance milestones but may include a service based component, upon which is conditioned on the grant or vesting of performance shares. Subject to the terms of the Plan, the Administrator will determine the number of performance shares granted to a service provider and, during any fiscal year of the Company, no participant may be granted more than 250,000 Shares in the aggregate subject to performance shares, restricted stock units, or restricted stock.

On the date set forth in the Award agreement, all unearned or unvested performance shares will be forfeited to the Company.

Performance Goals

Under Section 162(m) of the Code, the annual compensation paid to our Chief Executive Officer and to each of our other four most highly compensated executive officers may not be deductible to the extent it exceeds \$1 million. However, we are able to preserve the deductibility of compensation in excess of \$1 million if the conditions of Section 162(m) are met. These conditions include stockholder approval of the 2005 Equity Incentive Plan, setting limits on the number of awards that any individual may receive and for awards other than options, establishing performance criteria that must be met before the award actually will vest or be paid.

We have designed the Plan so that it permits us to pay compensation that qualifies as performance-based under Section 162(m). Thus, the Administrator (in its discretion) may make performance goals applicable to a participant with respect to an award. At the Administrator's discretion, one or more of the following performance goals may apply (all of which are defined in the Plan): annual revenue, cash position, earnings per share, individual performance objectives, marketing and sales expenses as a percentage of sales, net income as a percentage of sales, net income, operating cash flow, operating income, return on assets, return on equity, return on sales, and total stockholder return. The Performance Goals may differ from Participant to Participant and from Award to Award.

Any criteria used may be measured, as applicable (1) in absolute terms, (2) in relative terms (including, but not limited to, passage of time and/or against another company or companies), (3) on a per-share basis, (4) against the performance of the Company as a whole or a business unit of the Company, and/or (5) on a pre-tax or after-tax basis. The Administrator also will adjust any evaluation of performance under a performance goal to exclude (i) any extraordinary non-recurring items, or (ii) the effect of any changes in accounting principles affecting the Company's or a business units' reported results.

Merger or Change in Control

In the event of a merger or "change in control" of the Company, the successor corporation will either assume or provide a substitute award for each outstanding Award. In the event the successor corporation refuses to assume or provide a substitute award, the Award will immediately vest and become exercisable as to all of the Shares subject to such Award, or, if applicable, the Award will be deemed fully earned and will be paid out prior to the merger or change in control. In addition, if an option, stock appreciation right or right to purchase restricted stock has become fully vested and exercisable in lieu of assumption or substitution, the Committee will provide at least 15 days' notice that the option, stock appreciation right or right to purchase restricted stock will immediately vest and become exercisable as to all of the Shares subject to such Award and all outstanding options, stock appreciation rights and rights to purchase restricted stock will terminate upon the expiration of such notice period.

Awards to be Granted to Certain Individuals and Groups

The number of Awards (if any) that an employee, consultant, or director may receive under the 2005 Equity Incentive Plan is in the discretion of the Administrator and therefore cannot be determined in advance.

Limited Transferability of Awards

Awards granted under the 2005 Equity Incentive Plan generally may not be sold, transferred, pledged, assigned, or otherwise alienated or hypothecated, other than by will or by the applicable laws of descent and distribution and may be exercised during the lifetime of the participant, only by the participant. Notwithstanding the foregoing, the Administrator may permit an individual to transfer an Award. Any transfer shall be made in accordance with procedures established by the Administrator.

Federal Tax Aspects

The following paragraphs are a summary of the general federal income tax consequences to U.S. taxpayers and the Company of Awards granted under the 2005 Equity Incentive Plan. Tax consequences for any particular individual may be different.

Nonstatutory Stock Options

No taxable income is recognized when a nonqualified stock option is granted to a participant. Upon exercise, the participant will recognize ordinary income in an amount equal to the excess of the fair market value of the Shares on the exercise date over the exercise price. Any additional gain or loss recognized upon later disposition of the Shares is capital gain or loss.

Incentive Stock Options

No taxable income is recognized when an incentive stock option is granted or exercised (except for purposes of the alternative minimum tax, in which case taxation is the same as for nonstatutory stock options). If the participant exercises the option and then later sells or otherwise disposes of the Shares more than two years after the grant date and more than one year after the exercise date, the difference between the sale price and the exercise price will be taxed as capital gain or loss. If the participant exercises the option and then later sells or otherwise disposes of the Shares before the end of the two- or one-year holding periods described above, he or she generally will have ordinary income at the time of the sale equal to the fair market value of the Shares on the exercise date (or the sale price, if less) minus the exercise price of the option. Any additional gain or loss will be capital gain or loss.

Stock Appreciation Rights

No taxable income is reportable when a stock appreciation right is granted to a participant. Upon exercise, the participant generally will recognize ordinary income in an amount equal to the amount of cash received and the fair market value of any Shares received. Any additional gain or loss recognized upon any later disposition of the Shares would be capital gain or loss.

Restricted Stock, Restricted Stock Units and Performance Shares

A participant will not have taxable income upon grant unless he or she elects to be taxed at that time. Instead, he or she generally will recognize ordinary income at the time of vesting equal to the fair market value (on the vesting date) of the Shares or cash received minus any amount paid for the Shares.

Section 280G and Parachute Payments

Acceleration of vesting or payment of Awards under the 2005 Equity Incentive Plan in the event of a change of control may cause part or all of the amount involved to be treated as an “excess parachute payment” under Section 280G of the Internal Revenue Code. Such treatment may subject the participant to a 20% excise tax and preclude deduction of such amounts by the Company.

Section 409A and Deferred Compensation

Under Section 409A of the Internal Revenue Code, certain Awards granted under the 2005 Equity Incentive Plan may be treated as nonqualified deferred compensation. Section 409A of the Internal Revenue Code imposes on persons with nonqualified deferred compensation that does not meet the requirements of Section 409A of the Code (i) taxation immediately upon vesting of the nonqualified deferred compensation and earnings thereon (regardless of whether the compensation is then paid); (ii) interest at the underpayment rate plus 1%; and (iii) an additional 20% tax.

Tax Effect for the Company

The Company generally will be entitled to a tax deduction in connection with an Award under the 2005 Equity Incentive Plan in an amount equal to the ordinary income realized by a participant and at the time the participant recognizes such income (for example, the exercise of a nonqualified stock option). As discussed above, special rules limit the deductibility of compensation paid to our Chief Executive Officer and to certain other named executive officers.

However, the 2005 Equity Incentive Plan has been designed to permit the Administrator to grant Awards that qualify as performance-based compensation under Section 162(m), thereby permitting the Company to receive a federal income tax deduction in connection with such Awards.

Also as discussed above, certain amounts paid in connection with a change of control could be treated as an “excess parachute payment” and preclude the Company from taking a tax deduction for such amounts.

Amendment and Termination of the Plan

The Board generally may amend, alter, suspend or terminate the 2005 Equity Incentive Plan at any time and for any reason. However, no amendment, alteration, suspension, or termination may impair the rights of any participant in the 2005 Equity Incentive Plan without his or her consent. Amendments will be contingent on stockholder approval if required by applicable law. Unless terminated earlier by the Board, the 2005 Equity Incentive Plan will continue in effect until ten (10) years following the date of the Board of Director's adoption of the 2005 Equity Incentive Plan. The amendment and restatement deletes one of two sections in the 2005 Equity Incentive Plan to clarify that the term of the 2005 Equity Incentive Plan is ten (10) years from its 2005 adoption by the Board.

Plan Benefits

All Awards under the 2005 Equity Incentive Plan are made at the discretion of the Administrator. Therefore, the benefits and amounts that will be received or allocated under the 2005 Equity Incentive Plan are not determinable at this time. However, please refer to the description of grants made to our named executive officers in the last fiscal year described in the "Grants of Plan-Based Awards For Fiscal Year 2008" table. Grants made to our non-employee directors in the last fiscal year are described in "Director Compensation For Fiscal Year 2008." Also refer to "Compensation of Directors" for information regarding grants to directors. For further information regarding the potential benefits and amounts for participants in connection with the exchange program, see "Description of the Option Exchange Program" above.

THE BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS THAT THE STOCKHOLDERS VOTE "FOR" THE APPROVAL OF THE AMENDMENT AND RESTATEMENT OF THE 2005 EQUITY INCENTIVE PLAN TO ALLOW IN 2009 A ONE-TIME STOCK OPTION EXCHANGE PROGRAM AND TO CLARIFY THE PLAN TERM.

PROPOSAL 4
RATIFICATION OF APPOINTMENT OF
INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Audit Committee of the board of directors has appointed BDO Seidman, LLP, independent registered public accounting firm, to audit the consolidated financial statements of Nanometrics for the fiscal year ending December 26, 2009.

Representatives of BDO Seidman, LLP are expected to be present at our annual meeting with the opportunity to make a statement if they desire to do so, and are also expected to be available to respond to appropriate questions by stockholders.

THE BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS THAT STOCKHOLDERS VOTE “FOR” THE RATIFICATION OF THE APPOINTMENT OF BDO SEIDMAN, LLP AS NANOMETRICS’ INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM FOR THE FISCAL YEAR ENDING DECEMBER 26, 2009.

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.

THE BOARD OF DIRECTORS

Dated: April 21, 2009

APPENDIX 1

NANOMETRICS INCORPORATED AMENDED AND RESTATED 2003 EMPLOYEE STOCK PURCHASE PLAN

The following constitute the provisions of the Amended and Restated 2003 Employee Stock Purchase Plan of Nanometrics Incorporated.

1. **Purpose.** The purpose of the Plan is to provide employees of the Company and its Designated Subsidiaries with an opportunity to purchase Common Stock of the Company through accumulated payroll deductions. It is the intention of the Company to have the Plan qualify as an "Employee Stock Purchase Plan" under Section 423 of the Internal Revenue Code of 1986, as amended. The provisions of the Plan, accordingly, shall be construed so as to extend and limit participation in a uniform and nondiscriminatory manner consistent with the requirements of that section of the Code.

2. Definitions.

(a) "Administrator" shall mean the Board or any Committee designated by the Board to administer the plan pursuant to Section 14.

(b) "Board" shall mean the Board of Directors of the Company.

(c) "Change of Control" shall mean the occurrence of any of the following events:

(i) Any "person" (as such term is used in Sections 13(d) and 14(d) of the Exchange Act) becomes the "beneficial owner" (as defined in Rule 13d-3 of the Exchange Act), directly or indirectly, of securities of the Company representing fifty percent (50%) or more of the total voting power represented by the Company's then outstanding voting securities; or

(ii) The consummation of the sale or disposition by the Company of all or substantially all of the Company's assets; or

(iii) The consummation of a merger or consolidation of the Company, with any other corporation, other than a merger or consolidation which would result in the voting securities of the Company outstanding immediately prior thereto continuing to represent (either by remaining outstanding or by being converted into voting securities of the surviving entity or its parent) at least fifty percent (50%) of the total voting power represented by the voting securities of the Company, or such surviving entity or its parent outstanding immediately after such merger or consolidation.

(iv) A change in the composition of the Board, as a result of which fewer than a majority of the Directors are Incumbent Directors. "Incumbent Directors" shall mean Directors who either (A) are Directors of the Company, as applicable, as of the date hereof, or (B) are elected, or nominated for election, to the Board with the affirmative votes of at least a majority of those Directors whose election or nomination was not in connection with any transaction described in subsections (i), (ii) or (iii) or in connection with an actual or threatened proxy contest relating to the election of Directors of the Company.

(d) "Code" shall mean the Internal Revenue Code of 1986, as amended.

(e) "Common Stock" shall mean the Common Stock of the Company.

(f) "Committee" means a committee of the Board appointed by the Board in accordance with Section 14 hereof.

(g) "Company" shall mean Nanometrics Incorporated, a Delaware corporation.

(h) "Compensation" shall mean all base straight time gross earnings, exclusive of payments for overtime, shift premium, incentive compensation, incentive payments, bonuses, commissions and other compensation.

(i) "Designated Subsidiary" shall mean any Subsidiary that has been designated by the Administrator from time to time in its sole discretion as eligible to participate in the Plan.

(j) "Director" shall mean a member of the Board.

(k) "Eligible Employee" shall mean any individual who is a common law employee of the Company or any Designated Subsidiary whose customary employment with the Company or any Designated Subsidiary is at least twenty (20) hours per week and more than five (5) months in any calendar year. For purposes of the Plan, the employment relationship shall be treated as continuing intact while the individual is on sick leave or other leave of absence approved by the Company. Where the period of leave exceeds ninety (90) days and the individual's right to reemployment is not guaranteed either by statute or by contract, the employment relationship shall be deemed to have terminated on the 91st day of such leave.

(l) "Enrollment Date" shall mean the first day of each Offering Period.

(m) "Exercise Date" shall mean the last day of each Offering Period.

(n) "Fair Market Value" shall mean, as of any date, the value of Common Stock determined as follows:

(i) If the Common Stock is listed on any established stock exchange or a national market system, including without limitation the NASDAQ Global Market or The NASDAQ Capital Market of The NASDAQ Stock Market, its Fair Market Value shall be the closing sales price for such stock (or the closing bid, if no sales were reported) as quoted on such exchange or system, on the date of determination, as reported in The Wall Street Journal or such other source as the Board deems reliable, or;

(ii) If the Common Stock is regularly quoted by a recognized securities dealer but selling prices are not reported, its Fair Market Value shall be the mean between the high bid and low asked prices for the Common Stock on the date of determination, or;

(iii) In the absence of an established market for the Common Stock, the Fair Market Value thereof shall be determined in good faith by the Board.

(o) "Offering Periods" shall mean the periods of approximately six (6) months during which an option granted pursuant to the Plan may be exercised, (i) commencing on the first Trading Day of May and terminating on the last Trading Day of October, approximately six months later, and (ii) commencing on the first Trading Day of November and terminating on the last Trading Day of April of the following year, approximately six months later. The duration and timing of Offering Periods may be changed pursuant to Section 4 of this Plan.

(p) "Plan" shall mean this Amended and Restated 2003 Employee Stock Purchase Plan.

(q) "Purchase Price" shall mean an amount equal to 85% of the Fair Market Value of a share of Common Stock on the Enrollment Date or on the Exercise Date, whichever is lower; provided, however, that the Purchase Price may be adjusted by the Administrator pursuant to Section 20.

(r) "Subsidiary" shall mean a "subsidiary corporation," whether now or hereafter existing, as defined in Section 424(f) of the Code.

(s) "Trading Day" shall mean a day on which national stock exchanges are open for trading.

3. Eligibility.

(a) Offering Periods. Any Eligible Employee on a given Enrollment Date shall be eligible to participate in the Plan.

(b) Limitations. Any provisions of the Plan to the contrary notwithstanding, no Eligible Employee shall be granted an option under the Plan (i) to the extent that, immediately after the grant, such Eligible Employee (or any other person whose stock would be attributed to such Eligible Employee pursuant to

Section 424(d) of the Code) would own capital stock of the Company and/or hold outstanding options to purchase such stock possessing five percent (5%) or more of the total combined voting power or value of all classes of the capital stock of the Company or of any Subsidiary, or (ii) to the extent that his or her rights to purchase stock under all employee stock purchase plans of the Company and its subsidiaries accrues at a rate which exceeds twenty-five thousand dollars (\$25,000) worth of stock (determined at the fair market value of the shares at the time such option is granted) for each calendar year in which such option is outstanding at any time.

4. Offering Periods. The Plan shall be implemented by consecutive Offering Periods with a new Offering Period commencing on the first Trading Day of May and the first Trading Day of November, or on such other date as the Board shall determine, and continuing thereafter until terminated in accordance with Section 20 hereof. The Board shall have the power to change the duration of Offering Periods (including the commencement dates thereof) with respect to future offerings without shareholder approval if such change is announced prior to the scheduled beginning of the first Offering Period to be affected thereafter.

5. Participation. An Eligible Employee may become a participant in the Plan by completing a subscription agreement in the form of Exhibit A authorizing payroll deductions to this Plan and filing it with the Company's payroll office prior to the applicable Enrollment Date.

6. Payroll Deductions.

(a) At the time a participant files his or her subscription agreement, he or she shall elect to have payroll deductions made on each pay day during the Offering Period in an amount not less than one percent (1.0%) and not exceeding ten percent (10.0%) of the Compensation which he or she receives on each pay day during the Offering Period; provided, however, that should a pay day occur on an Exercise Date, a participant shall have the payroll deductions made on such day applied to his or her account under the new Offering Period. A participant's subscription agreement shall remain in effect for successive Offering Periods unless terminated as provided in Section 10 hereof.

(b) Payroll deductions for a participant shall commence on the first payday following the Enrollment Date and shall end on the last payday in the Offering Period to which such authorization is applicable, unless sooner terminated by the participant as provided in Section 10 hereof.

(c) All payroll deductions made for a participant shall be credited to his or her account under the Plan and shall be withheld in whole percentages only. A participant may not make any additional payments into such account.

(d) A participant may discontinue his or her participation in the Plan as provided in Section 10 hereof, or may increase or decrease the rate of his or her payroll deductions during the Offering Period by completing or filing with the Company a new subscription agreement authorizing a change in payroll deduction rate. The Administrator may, in its discretion, limit the nature and/or number of participation rate changes during any Offering Period. The change in rate shall be effective with the first full payroll period following five (5) business days after the Company's receipt of the new subscription agreement unless the Company elects to process a given change in participation more quickly.

(e) Notwithstanding the foregoing, to the extent necessary to comply with Section 423(b)(8) of the Code and Section 3(b) hereof, a participant's payroll deductions may be decreased to zero percent (0%) at any time during an Offering Period. Payroll deductions shall recommence at the rate provided in such participant's subscription agreement at the beginning of the first Offering Period which is scheduled to end in the following calendar year, unless terminated by the participant as provided in Section 10 hereof.

(f) At the time the option is exercised, in whole or in part, or at the time some or all of the Company's Common Stock issued under the Plan is disposed of, the participant must make adequate provision for the Company's federal, state, or other tax withholding obligations, if any, which arise upon the exercise of the option or the disposition of the Common Stock. At any time, the Company may, but shall not be obligated

to, withhold from the participant's compensation the amount necessary for the Company to meet applicable withholding obligations, including any withholding required to make available to the Company any tax deductions or benefits attributable to sale or early disposition of Common Stock by the Eligible Employee.

7. Grant of Option. On the Enrollment Date of each Offering Period, each Eligible Employee participating in such Offering Period shall be granted an option to purchase on the Exercise Date of such Offering Period (at the applicable Purchase Price) up to a number of shares of the Company's Common Stock determined by dividing such Eligible Employee's payroll deductions accumulated prior to such Exercise Date and retained in the Participant's account as of the Exercise Date by the applicable Purchase Price; provided that, subject to any adjustment pursuant to Section 19, (i) an Eligible Employee shall not be permitted to purchase during each Offering Period more than 4,000 shares of the Company's Common Stock and (ii) all Eligible Employees participating in a single Offering Period shall not be permitted to purchase more than 200,000 shares in aggregate of the Company's Common Stock in such Offering Period, and provided further that each such purchase shall be subject to the limitations set forth in Sections 3(b) and 13 hereof. The Eligible Employee may accept the grant of such option by turning in a completed and signed subscription agreement (in the form attached hereto as Exhibit A) to the Company on or prior to an Enrollment Date. The Administrator may, for future Offering Periods, increase or decrease, in its absolute discretion, the maximum number of shares of the Company's Common Stock that may be purchased during an Offering Period pursuant to this Section 7. Exercise of the option shall occur as provided in Section 8 hereof, unless the participant has withdrawn pursuant to Section 10 hereof. The option shall expire on the last day of the Offering Period.

8. Exercise of Option.

(a) Unless a participant withdraws from the Plan as provided in Section 10 hereof, his or her option for the purchase of shares shall be exercised automatically on the Exercise Date, and the maximum number of full shares subject to option shall be purchased for such participant at the applicable Purchase Price with the accumulated payroll deductions in his or her account. No fractional shares shall be purchased; any payroll deductions accumulated in a participant's account which are not sufficient to purchase a full share shall be retained in the participant's account for the subsequent Offering Period, subject to earlier withdrawal by the participant as provided in Section 10 hereof. Any other monies left over in a participant's account after the Exercise Date shall be returned to the participant. During a participant's lifetime, a participant's option to purchase shares hereunder is exercisable only by him or her.

(b) If the Administrator determines that, on a given Exercise Date, the number of shares with respect to which options are to be exercised may exceed (i) the number of shares of Common Stock that were available for sale under the Plan on the Enrollment Date of the applicable Offering Period, (ii) the number of shares available for sale under the Plan on such Exercise Date, or (iii) the number of shares that may be purchased by Eligible Employees pursuant to Section 7, the Administrator may, in its sole discretion, provide that the Company shall make a pro rata allocation of the shares available for purchase on such Enrollment Date or Exercise Date, as applicable, in as uniform a manner as shall be practicable and as it shall determine in its sole discretion to be equitable among all participants exercising options to purchase Common Stock on such Exercise Date. The Company may make pro rata allocation of the shares available on the Enrollment Date of any applicable Offering Period pursuant to the preceding sentence, notwithstanding any authorization of additional shares for issuance under the Plan by the Company's shareholders subsequent to such Enrollment Date.

9. Delivery. As promptly as reasonably practicable after each Exercise Date on which a purchase of shares occurs, the Company shall arrange the delivery to each participant, as appropriate, the shares purchased upon exercise of his or her option in determined by the Administrator.

10. Withdrawal.

(a) A participant may withdraw all but not less than all the payroll deductions credited to his or her account and not yet used to exercise his or her option under the Plan at any time by giving written notice to the Company in the form of Exhibit B to this Plan. All of the participant's payroll deductions credited to his or her account shall be paid to such participant promptly after receipt of notice of withdrawal and such participant's option for the Offering Period shall be automatically terminated, and no further payroll deductions for the purchase of shares shall be made for such Offering Period. If a participant withdraws from an Offering Period, payroll deductions shall not resume at the beginning of the succeeding Offering Period unless the participant delivers to the Company a new subscription agreement.

(b) A participant's withdrawal from an Offering Period shall not have any effect upon his or her eligibility to participate in any similar plan which may hereafter be adopted by the Company or in succeeding Offering Periods which commence after the termination of the Offering Period from which the participant withdraws.

11. Termination of Employment. Upon a participant's ceasing to be an Eligible Employee for any reason, he or she shall be deemed to have elected to withdraw from the Plan and the payroll deductions credited to such participant's account during the Offering Period but not yet used to exercise the option shall be returned to such participant or, in the case of his or her death, to the person or persons entitled thereto under Section 15 hereof, and such participant's option shall be automatically terminated. The preceding sentence notwithstanding, a participant who receives payment in lieu of notice of termination of employment shall be treated as continuing to be an Employee for the participant's customary number of hours per week of employment during the period in which the participant is subject to such payment in lieu of notice.

12. Interest. No interest shall accrue on the payroll deductions of a participant in the Plan.

13. Stock.

(a) Subject to adjustment upon changes in capitalization of the Company as provided in Section 19 hereof, the maximum number of shares of the Company's Common Stock which shall be made available for sale under the Plan shall be 1,950,000 shares.

(b) Until the shares are issued (as evidenced by the appropriate entry on the books of the Company or of a duly authorized transfer agent of the Company), a participant shall only have the rights of an unsecured creditor with respect to such shares, and no right to vote or receive dividends or any other rights as a shareholder shall exist with respect to such shares.

(c) Shares to be delivered to a participant under the Plan shall be registered in the name of the participant or in the name of the participant and his or her spouse.

14. Administration. The Administrator shall administer the Plan and shall have full and exclusive discretionary authority to construe, interpret and apply the terms of the Plan, to determine eligibility and to adjudicate all disputed claims filed under the Plan. Every finding, decision and determination made by the Administrator shall, to the full extent permitted by law, be final and binding upon all parties.

15. Designation of Beneficiary.

(a) A participant may file a written designation of a beneficiary who is to receive any shares and cash, if any, from the participant's account under the Plan in the event of such participant's death subsequent to an Exercise Date on which the option is exercised but prior to delivery to such participant of such shares and cash. In addition, a participant may file a written designation of a beneficiary who is to receive any cash from the participant's account under the Plan in the event of such participant's death prior to exercise of the option. If a participant is married and the designated beneficiary is not the spouse, spousal consent shall be required for such designation to be effective.

(b) Such designation of beneficiary may be changed by the participant at any time by written notice. In the event of the death of a participant and in the absence of a beneficiary validly designated under the Plan who is living at the time of such participant's death, the Company shall deliver such shares and/or cash to the executor or administrator of the estate of the participant, or if no such executor or administrator has been appointed (to the knowledge of the Company), the Company, in its discretion, may deliver such shares and/or cash to the spouse or to any one or more dependents or relatives of the participant, or if no spouse, dependent or relative is known to the Company, then to such other person as the Company may designate.

(c) All beneficiary designations shall be in such form and manner as the Administrator may designate from time to time.

16. Transferability. Neither payroll deductions credited to a participant's account nor any rights with regard to the exercise of an option or to receive shares under the Plan may be assigned, transferred, pledged or otherwise disposed of in any way (other than by will, the laws of descent and distribution or as provided in Section 15 hereof) by the participant. Any such attempt at assignment, transfer, pledge or other disposition shall be without effect, except that the Company may treat such act as an election to withdraw funds from an Offering Period in accordance with Section 10 hereof.

17. Use of Funds. All payroll deductions received or held by the Company under the Plan may be used by the Company for any corporate purpose, and the Company shall not be obligated to segregate such payroll deductions. Until shares are issued, participants shall only have the rights of an unsecured creditor.

18. Reports. Individual accounts shall be maintained for each participant in the Plan. Statements of account shall be given to participating Employees at least annually, which statements shall set forth the amounts of payroll deductions, the Purchase Price, the number of shares purchased and the remaining cash balance, if any.

19. Adjustments. Upon Changes in Capitalization, Dissolution, Liquidation, Merger or Change of Control.

(a) Changes in Capitalization. Subject to any required action by the shareholders of the Company, (i) the maximum number of shares of the Company's Common Stock which shall be made available for sale under the Plan, (ii) the maximum number of shares each participant may purchase per Offering Period and the maximum number of shares that all participants may purchase per Offering Period (pursuant to Section 7), and (iii) the price per share and the number of shares of Common Stock covered by each option under the Plan which has not yet been exercised shall be proportionately adjusted for any increase or decrease in the number of issued shares of Common Stock resulting from a stock split, reverse stock split, stock dividend, combination or reclassification of the Common Stock, or any other change in the number of shares of Common Stock effected without receipt of consideration by the Company; provided, however, that conversion of any convertible securities of the Company shall not be deemed to have been "effected without receipt of consideration." Such adjustment shall be made by the Administrator, whose determination in that respect shall be final, binding and conclusive. Except as expressly provided herein, no issuance by the Company of shares of stock of any class, or securities convertible into shares of stock of any class, shall affect, and no adjustment by reason thereof shall be made with respect to, the number or price of shares of Common Stock subject to an option.

(b) Dissolution or Liquidation. In the event of the proposed dissolution or liquidation of the Company, the Offering Period then in progress shall be shortened by setting a new Exercise Date (the "New Exercise Date"), and shall terminate immediately prior to the consummation of such proposed dissolution or liquidation, unless provided otherwise by the Administrator. The New Exercise Date shall be before the date of the Company's proposed dissolution or liquidation. The Administrator shall notify each participant in writing, at least ten (10) business days prior to the New Exercise Date, that the Exercise Date for the participant's option has been changed to the New Exercise Date and that the participant's option shall be exercised automatically on the New Exercise Date, unless prior to such date the participant has withdrawn from the Offering Period as provided in Section 10 hereof.

(c) Merger or Change of Control. In the event of a merger or Change of Control, each outstanding option shall be assumed or an equivalent option substituted by the successor corporation or a Parent or Subsidiary of the successor corporation. In the event that the successor corporation refuses to assume or substitute for the option, the Offering Period then in progress shall be shortened by setting a new Exercise Date (the "New Exercise Date"). The New Exercise Date shall be before the date of the Company's proposed merger or Change of Control. The Administrator shall notify each participant in writing, at least ten (10) business days prior to the New Exercise Date, that the Exercise Date for the participant's option has been changed to the New Exercise Date and that the participant's option shall be exercised automatically on the New Exercise Date, unless prior to such date the participant has withdrawn from the Offering Period as provided in Section 10 hereof.

20. Amendment or Termination.

(a) The Administrator may at any time and for any reason terminate or amend the Plan. Except as otherwise provided in the Plan, no such termination can affect options previously granted, provided that an Offering Period may be terminated by the Administrator on any Exercise Date if the Administrator determines that the termination of the Offering Period or the Plan is in the best interests of the Company and its shareholders. Except as provided in Section 19 and this Section 20 hereof, no amendment may make any change in any option theretofore granted which adversely affects the rights of any participant. To the extent necessary to comply with Section 423 of the Code (or any successor rule or provision or any other applicable law, regulation or stock exchange rule), the Company shall obtain shareholder approval in such a manner and to such a degree as required.

(b) Without shareholder consent and without regard to whether any participant rights may be considered to have been "adversely affected," the Administrator shall be entitled to change the Offering Periods, limit the frequency and/or number of changes in the amount withheld during an Offering Period, establish the exchange ratio applicable to amounts withheld in a currency other than U.S. dollars, permit payroll withholding in excess of the amount designated by a participant in order to adjust for delays or mistakes in the Company's processing of properly completed withholding elections, establish reasonable waiting and adjustment periods and/or accounting and crediting procedures to ensure that amounts applied toward the purchase of Common Stock for each participant properly correspond with amounts withheld from the participant's Compensation, and establish such other limitations or procedures as the Administrator determines in its sole discretion advisable which are consistent with the Plan.

(c) In the event the Administrator determines that the ongoing operation of the Plan may result in unfavorable financial accounting consequences, the Administrator may, in its discretion and, to the extent necessary or desirable, modify or amend the Plan to reduce or eliminate such accounting consequence including, but not limited to:

- (i) increasing the Purchase Price for any Offering Period including an Offering Period underway at the time of the change in Purchase Price;
- (ii) shortening any Offering Period so that Offering Period ends on a new Exercise Date, including an Offering Period underway at the time of the Board action; and
- (iii) allocating shares.

Such modifications or amendments shall not require shareholder approval or the consent of any Plan participants.

21. **Notices.** All notices or other communications by a participant to the Company under or in connection with the Plan shall be deemed to have been duly given when received in the form and manner specified by the Company at the location, or by the person, designated by the Company for the receipt thereof.

22. **Conditions Upon Issuance of Shares.** Shares shall not be issued with respect to an option unless the exercise of such option and the issuance and delivery of such shares pursuant thereto shall comply with all

applicable provisions of law, domestic or foreign, including, without limitation, the Securities Act of 1933, as amended, the Securities Exchange Act of 1934, as amended, the rules and regulations promulgated thereunder, and the requirements of any stock exchange upon which the shares may then be listed, and shall be further subject to the approval of counsel for the Company with respect to such compliance.

As a condition to the exercise of an option, the Company may require the person exercising such option to represent and warrant at the time of any such exercise that the shares are being purchased only for investment and without any present intention to sell or distribute such shares if, in the opinion of counsel for the Company, such a representation is required by any of the aforementioned applicable provisions of law.

23. Term of Plan. The Plan shall become effective upon the earlier to occur of its adoption by the Board of Directors or its approval by the shareholders of the Company. It shall continue in effect until terminated under Section 20 hereof.

APPENDIX 2

NANOMETRICS INCORPORATED 2005 EQUITY INCENTIVE PLAN

(as amended and restated on April 21, 2009)

1. *Purposes of the Plan.* The purposes of this Plan are:

- to attract and retain the best available personnel for positions of substantial responsibility,
- to provide additional incentive to Service Providers, and
- to promote the success of the Company's business.

Awards granted under the Plan may be Incentive Stock Options, Nonstatutory Stock Options, Restricted Stock, Stock Appreciation Rights, Performance Shares and Restricted Stock Units, as determined by the Administrator at the time of grant.

2. *Definitions.* As used herein, the following definitions shall apply:

(a) "*Administrator*" means the Board or any of its Committees as shall be administering the Plan, in accordance with Section 4 of the Plan.

(b) "*Annual Revenue*" means the Company's or a business unit's net sales for the Fiscal Year, determined in accordance with generally accepted accounting principles.

(c) "*Applicable Laws*" means the requirements relating to the administration of equity compensation plans under U.S. state corporate laws, U.S. federal and state securities laws, the Code, any stock exchange or quotation system on which the Common Stock is listed or quoted and the applicable laws of any other country or jurisdiction where Awards are, or will be, granted under the Plan.

(d) "*Award*" means, individually or collectively, a grant under the Plan of Options, Restricted Stock, Stock Appreciation Rights, Performance Shares or Restricted Stock Units.

(e) "*Award Agreement*" means the written or electronic agreement setting forth the terms and provisions applicable to each Award granted under the Plan. The Award Agreement is subject to the terms and conditions of the Plan.

(f) "*Awarded Stock*" means the Common Stock subject to an Award.

(g) "*Board*" means the Board of Directors of the Company.

(h) "*Cash Position*" means the Company's level of cash and cash equivalents.

(i) "*Change in Control*" means the occurrence of any of the following events, in one or a series of related transactions:

(i) any "person," as such term is used in Sections 13(d) and 14(d) of the Exchange Act, other than the Company, a subsidiary of the Company or a Company employee benefit plan, including any trustee of such plan acting as trustee, is or becomes the "beneficial owner" (as defined in Rule 13d-3 under the Exchange Act), directly or indirectly, of securities of the Company representing fifty percent (50%) or more of the combined voting power of the Company's then outstanding securities entitled to vote generally in the election of directors; or

(ii) the consummation of a merger or consolidation of the Company or any direct or indirect subsidiary of the Company with any other corporation, other than a merger or consolidation which would result in the voting securities of the Company outstanding immediately prior thereto continuing to represent (either by remaining outstanding or by being converted into voting securities of the

surviving entity) at least fifty percent (50%) of the total voting power represented by the voting securities of the Company or such surviving entity outstanding immediately after such merger or consolidation; or

(iii) the sale or disposition by the Company of all or substantially all the Company's assets; or

(iv) a change in the composition of the Board, as a result of which fewer than a majority of the directors are Incumbent Directors. "Incumbent Directors" shall mean directors who either (A) are Directors as of the date this Plan is approved by the Board, or (B) are elected, or nominated for election, to the Board with the affirmative votes of at least a majority of the Incumbent Directors and whose election or nomination was not in connection with any transaction described in (i) or (ii) above or in connection with an actual or threatened proxy contest relating to the election of directors of the Company.

(j) "*Code*" means the Internal Revenue Code of 1986, as amended.

(k) "*Committee*" means a committee of Directors or officers appointed by the Board in accordance with Section 4 of the Plan.

(l) "*Common Stock*" means the common stock of the Company.

(m) "*Company*" means Nanometrics Incorporated, a Delaware corporation.

(n) "*Consultant*" means any person, including an advisor, engaged by the Company or a Parent or Subsidiary to render services and who is compensated for such services.

(o) "*Continuous Status as a Service Provider*" means the absence of any interruption or termination of the employment or service relationship with the Company or any Subsidiary. Continuous Status as a Service Provider shall not be considered interrupted in the case of (i) medical leave, military leave, family leave, or any other leave of absence approved by the Administrator, provided, in each case, that such leave does not result in termination of the employment and service relationship with the Company or any Subsidiary, as the case may be, under the terms of the respective Company policy for such leave; however, vesting may be tolled while a Service Provider is on an approved leave of absence under the terms of the respective Company policy for such leave; or (ii) in the case of transfers between locations of the Company or between the Company, its Parent or any Subsidiary, or any successor. For purposes of Incentive Stock Options, no such leave may exceed ninety days, unless reemployment upon expiration of such leave is guaranteed by statute or contract. If reemployment upon expiration of a leave of absence approved by the Company is not so guaranteed, then three (3) months following the 91st day of such leave any Incentive Stock Option held by the Participant shall cease to be treated as an Incentive Stock Option and shall be treated for tax purposes as a Nonstatutory Stock Option.

(p) "*Director*" means a member of the Board.

(q) "*Disability*" means total and permanent disability as defined in Section 22(e)(3) of the Code.

(r) "*Dividend Equivalent*" means a credit, payable in cash, made at the discretion of the Administrator, to the account of a Participant in an amount equal to the cash dividends paid on one Share for each Share represented by an Award held by such Participant.

(s) "*Earnings Per Share*" means as to any Performance Period, the Company's or a business unit's Net Income, divided by a weighted average number of common shares outstanding and dilutive common equivalent shares deemed outstanding, determined in accordance with generally accepted accounting principles.

(t) "*Employee*" means any person, including Officers and Directors, employed by the Company or any Parent or Subsidiary of the Company. Neither service as a Chairman nor as a Director nor payment of a director's fee by the Company shall be sufficient to constitute "employment" by the Company.

(u) "*Exchange Act*" means the Securities Exchange Act of 1934, as amended.

(v) “*Exchange Program*” means a program under which (i) outstanding Awards are surrendered or cancelled in exchange for Awards of the same type (which may have lower exercise prices and different terms), Awards of a different type, and/or cash, and/or (ii) the exercise price of an outstanding Award is reduced. The terms and conditions of any Exchange Program will be determined by the Administrator in its sole discretion.

(w) “*Fair Market Value*” means, as of any date, the value of Common Stock determined as follows:

(i) If the Common Stock is listed on any established stock exchange or a national market system, including without limitation the NASDAQ Global Market or The NASDAQ Capital Market of The NASDAQ Stock Market, its Fair Market Value shall be the closing sales price for such stock (or the closing bid, if no sales were reported) as quoted on such exchange or system, on the date of determination, as reported in The Wall Street Journal or such other source as the Administrator deems reliable;

(ii) If the Common Stock is regularly quoted by a recognized securities dealer but selling prices are not reported, the Fair Market Value of a Share of Common Stock shall be the mean between the high bid and low asked prices for the Common Stock on the date of determination; or

(iii) In the absence of an established market for the Common Stock, the Fair Market Value shall be determined in good faith by the Administrator.

(x) “*Fiscal Year*” means a fiscal year of the Company.

(y) “*Individual Performance Objective*” means as to a Participant, the objective and measurable goals set by a “management by objectives” process and approved by the Committee (in its discretion).

(z) “*Incentive Stock Option*” means an Option intended to qualify as an incentive stock option within the meaning of Section 422 of the Code and the regulations promulgated thereunder and is expressly designated by the Administrator at the time of grant as an incentive stock option.

(aa) “*Marketing and Sales Expenses as a Percentage of Sales*” means as to any Performance Period, the Company’s or a business unit’s marketing and sales expenses stated as a percentage of sales, determined in accordance with generally accepted accounting principles.

(bb) “*Net Income as a Percentage of Sales*” means as to any Performance Period, the Company’s or a business unit’s Net Income stated as a percentage of sales, determined in accordance with generally accepted accounting principles.

(cc) “*Net Income*” means as to any Performance Period, the income after taxes of the Company or a business unit determined in accordance with generally accepted accounting principles, provided that prior to the beginning of the Performance Period, the Committee shall determine whether any significant item(s) shall be included or excluded from the calculation of Net Income with respect to one or more Participants.

(dd) “*Nonstatutory Stock Option*” means an Option that by its terms does not qualify or is not intended to qualify as an Incentive Stock Option.

(ee) “*Officer*” means a person who is an officer of the Company within the meaning of Section 16 of the Exchange Act and the rules and regulations promulgated thereunder.

(ff) “*Operating Cash Flow*” means the Company’s or a business unit’s sum of Net Income plus depreciation and amortization less capital expenditures plus changes in working capital comprised of accounts receivable, inventories, other current assets, trade accounts payable, accrued expenses, product warranty, advance payments from customers and long-term accrued expenses, determined in accordance with generally acceptable accounting principles.

(gg) “*Operating Income*” means the Company’s or a business unit’s income from operations determined in accordance with generally accepted accounting principles.

(hh) “*Outside Director*” means a Director who is not an Employee.

(ii) “*Option*” means a stock option granted pursuant to the Plan.

(jj) “*Participant*” means the holder of an outstanding Award granted under the Plan.

(kk) “*Parent*” means a “parent corporation,” whether now or hereafter existing, as defined in Section 424(e) of the Code.

(ll) “*Performance Goals*” means the goal(s) (or combined goal(s)) determined by the Committee (in its discretion) to be applicable to a Participant with respect to an Award. As determined by the Committee, the Performance Goals applicable to an Award may provide for a targeted level or levels of achievement using one or more of the following measures: (a) Annual Revenue, (b) Cash Position, (c) Earnings Per Share, (d) Individual Performance Objectives, (e) Marketing and Sales Expenses as a Percentage of Sales, (f) Net Income as a Percentage of Sales, (g) Net Income, (h) Operating Cash Flow, (i) Operating Income, (j) Return on Assets, (k) Return on Equity, (l) Return on Sales, and (m) Total Shareholder Return. The Performance Goals may differ from Participant to Participant and from Award to Award. The Committee shall appropriately adjust any evaluation of performance under a Performance Goal to exclude (i) any extraordinary non-recurring items as described in Accounting Principles Board Opinion No. 30 and/or in management’s discussion and analysis of financial conditions and results of operations appearing in the Company’s annual report to shareholders for the applicable year, or (ii) the effect of any changes in accounting principles affecting the Company’s or a business unit’s reported results. Any criteria used may be measured, as applicable, (i) in absolute terms, (ii) in relative terms (including, but not limited to, passage of time and/or against another company or companies), (iii) on a per-share basis, (iv) against the performance of the Company as a whole or of a business unit of the Company, and/or (v) to the extent not otherwise specified by the definition of the Performance Goal, on a pre-tax or after-tax basis.

(mm) “*Performance Period*” means the time period of any Fiscal Year or such longer period as determined by the Committee in its sole discretion during which the performance objectives must be met.

(nn) “*Performance Share*” means a performance share Award granted to a Participant pursuant to Section 14.

(oo) “*Period of Restriction*” means the period during which the transfer of Shares of Restricted Stock are subject to restrictions and therefore, the Shares are subject to a substantial risk of forfeiture. Such restrictions may be based on the passage of time (including the continuation of employment or service), the achievement of target levels of performance, or the occurrence of other events as determined by the Administrator.

(pp) “*Plan*” means this 2005 Equity Incentive Plan.

(qq) “*Restricted Stock*” means shares of Common Stock granted pursuant to Section 12 of the Plan, as evidenced by an Award Agreement.

(rr) “*Restricted Stock Unit*” means a bookkeeping entry representing an amount equal to the Fair Market Value of one Share, granted pursuant to Section 13. Each Restricted Stock Unit represents an unfunded and unsecured obligation of the Company.

(ss) “*Return on Assets*” means the percentage equal to the Company’s or a business unit’s Operating Income before incentive compensation, divided by average net Company or business unit, as applicable, assets, determined in accordance with generally accepted accounting principles.

(tt) “*Return on Equity*” means the percentage equal to the Company’s Net Income divided by average shareholder’s equity, determined in accordance with generally accepted accounting principles.

(uu) “*Return on Sales*” means the percentage equal to the Company’s or a business unit’s Operating Income before incentive compensation, divided by the Company’s or the business unit’s, as applicable, revenue, determined in accordance with generally accepted accounting principles.

(vv) “*Rule 16b-3*” means Rule 16b-3 of the Exchange Act or any successor to Rule 16b-3, as in effect when discretion is being exercised with respect to the Plan.

(ww) “*Section 16(b)*” means Section 16(b) of the Exchange Act.

(xx) “*Service Provider*” means an Employee, Director or Consultant.

(yy) “*Share*” means a share of the Common Stock, as adjusted in accordance with Section 17 of the Plan.

(zz) “*Stock Appreciation Right*” or “*SAR*” means a stock appreciation right granted pursuant to Section 10 below.

(aaa) “*Subsidiary*” means a “subsidiary corporation”, whether now or hereafter existing, as defined in Section 424(f) of the Code.

(bbb) “*Total Shareholder Return*” means the total return (change in share price plus reinvestment of any dividends) of a share of the Company’s common stock.

3. *Stock Subject to the Plan.* Subject to the provisions of Section 17 of the Plan, the maximum aggregate number of Shares which may issued under the Plan is 1,200,000 Shares, plus an annual increase to be added on the first day of the Company’s Fiscal Year for three years beginning in 2006 and ending after the 2008 annual increase equal to the *least* of (i) 3% of the outstanding Shares on such date or (ii) an amount determined by the Board. The Shares may be authorized, but unissued, or reacquired Common Stock.

Any Shares subject to Options or SARs shall be counted against the numerical limits of this Section 3 as one Share for every Share subject thereto. Any Shares of Restricted Stock or Shares subject to Performance Shares or Restricted Stock Units with a per share or unit purchase price lower than 100% of Fair Market Value on the date of grant shall be counted against the numerical limits of this Section 3 as two Shares for every one Share subject thereto. To the extent that a Share that was subject to an Award that counted as two Shares against the Plan reserve pursuant to the preceding sentence is recycled back into the Plan under the next paragraph of this Section 3, the Plan shall be credited with two Shares.

If an Award expires or becomes unexercisable without having been exercised in full or is surrendered pursuant to an Exchange Program, or, with respect to Options, Restricted Stock, Performance Shares or Restricted Stock Units, is forfeited to or repurchased by the Company, the unpurchased Shares (or for Awards other than Options and SARs, the forfeited or repurchased shares) which were subject thereto shall become available for future grant or sale under the Plan (unless the Plan has terminated). With respect to SARs, Shares actually issued pursuant to an SAR as well as the Shares withheld to pay the exercise price shall cease to be available under the Plan. Shares that have actually been issued under the Plan under any Award shall not be returned to the Plan and shall not become available for future distribution under the Plan; provided, however, that if Shares of Restricted Stock, Performance Shares or Restricted Stock Units are repurchased by the Company at their original purchase price or are forfeited to the Company, such Shares shall become available for future grant under the Plan. Shares used to pay the exercise price of an Option or the purchase price of Restricted Stock shall not become available for future grant or sale under the Plan. Shares used to satisfy tax withholding obligations shall not become available for future grant or sale under the Plan. To the extent an Award under the Plan is paid out in cash rather than stock, such cash payment shall not reduce the number of Shares available for issuance under the Plan. Any payout of Dividend Equivalents, because they are payable only in cash, shall not reduce the number of Shares available for issuance under the Plan. Conversely, any forfeiture of Dividend Equivalents shall not increase the number of Shares available for issuance under the Plan.

4. Administration of the Plan.

(a) Procedure.

(i) *Multiple Administrative Bodies.* The Board or different Committees with respect to different groups of Service Providers may administer the Plan.

(ii) *Section 162(m).* To the extent that the Administrator determines it to be desirable to qualify Awards granted hereunder as “performance-based compensation” within the meaning of Section 162(m) of the Code, the Plan shall be administered by a Committee of two or more “outside directors” within the meaning of Section 162(m) of the Code.

(iii) *Rule 16b-3.* To the extent desirable to qualify transactions hereunder as exempt under Rule 16b-3, the transactions contemplated hereunder shall be structured to satisfy the requirements for exemption under Rule 16b-3.

(iv) *Other Administration.* Other than as provided above, the Plan shall be administered by (a) the Board or (b) a Committee, which committee shall be constituted to satisfy Applicable Laws. Notwithstanding the foregoing, to the extent consistent with Applicable Laws, the Board or the Committee may authorize one or more officers of the Company to grant Awards to non-executive officers of the Company and act as the Administrator with respect to such Awards.

(b) *Powers of the Administrator.* Subject to the provisions of the Plan, and in the case of a Committee, subject to the specific duties delegated by the Board to such Committee, the Administrator shall have the authority, in its discretion:

(i) to determine the Fair Market Value;

(ii) to select the Service Providers to whom Awards may be granted hereunder;

(iii) to determine the number of shares of Common Stock or equivalent units to be covered by each Award granted hereunder;

(iv) to approve forms of Award Agreement for use under the Plan;

(v) to determine the terms and conditions, not inconsistent with the terms of the Plan, of any Award granted hereunder. Such terms and conditions include, but are not limited to, the exercise price, the date of grant, the time or times when Awards may be exercised (or are earned) (which may be based on performance criteria), any vesting acceleration or waiver of forfeiture restrictions, and any restriction or limitation regarding any Award or the Shares relating thereto, based in each case on such factors as the Administrator, in its sole discretion, shall determine;

(vi) to institute an Exchange Program; however, the Administrator may not institute an Exchange Program without shareholder approval.

(vii) to construe and interpret the terms of the Plan and Awards granted pursuant to the Plan;

(viii) to prescribe, amend and rescind rules and regulations relating to the Plan, including rules and regulations relating to sub-plans established for the purpose of satisfying applicable foreign laws and/or qualifying for preferred tax treatment under foreign tax laws;

(ix) to modify or amend each Award (subject to Section 19(c) of the Plan), including the discretionary authority to extend the post-termination exercisability period of Options and SARs longer than is otherwise provided for in the Plan;

(x) to allow Participants to satisfy withholding tax obligations by electing to have the Company withhold from the Shares or cash to be issued upon exercise of an Option, SAR or right to purchase Restricted Stock or upon vesting or payout of another Award, that number of Shares or cash having a Fair Market Value equal to the minimum amount required to be withheld. The Fair Market Value of the Shares to be withheld shall be determined on the date that the amount of tax to be withheld is to be

determined. All elections by a Participant to have Shares or cash withheld for this purpose shall be made in such form and under such conditions as the Administrator may deem necessary or advisable;

(xi) to determine whether Awards will be adjusted for Dividend Equivalents;

(xii) to authorize any person to execute on behalf of the Company any instrument required to effect the grant of an Award previously granted by the Administrator; and

(xiii) to make all other determinations deemed necessary or advisable for administering the Plan.

(c) *Effect of Administrator's Decision.* The Administrator's decisions, determinations and interpretations shall be final and binding on all Participants and any other holders of Awards.

5. *Eligibility.* Awards may be granted to Service Providers; provided, however, that Incentive Stock Options may be granted only to Employees.

6. *No Employment Rights.* Neither the Plan nor any Award shall confer upon a Participant any right with respect to continuing the Participant's relationship as an Employee or other Service Provider with the Company or its Subsidiaries, nor shall they interfere in any way with the Participant's right or the Company's or Subsidiary's right, as the case may be, to terminate such relationship at any time, with or without cause.

7. *Code Section 162(m) Provisions.*

(a) *Option and SAR Annual Share Limit.* No Participant shall be granted, in any Fiscal Year, Options and Stock Appreciation Rights to purchase more than 500,000 Shares; provided, however, that such limit shall be 250,000 Shares in the Participant's first Fiscal Year of Company service.

(b) *Restricted Stock, Performance Share and Restricted Stock Unit Annual Limit.* No Participant shall be granted, in any Fiscal Year, more than 250,000 Shares in the aggregate of the following: (i) Restricted Stock, (ii) Performance Shares, or (iii) Restricted Stock Units; provided, however, that such limit shall be 125,000 Shares in the Participant's first Fiscal Year of Company service.

(c) *Section 162(m) Performance Restrictions.* For purposes of qualifying grants of Restricted Stock, Performance Shares or Restricted Stock Units as "performance-based compensation" under Section 162(m) of the Code, the Administrator, in its discretion, may set restrictions based upon the achievement of Performance Goals. The Performance Goals shall be set by the Administrator on or before the latest date permissible to enable the Restricted Stock, Performance Shares or Restricted Stock Units to qualify as "performance-based compensation" under Section 162(m) of the Code. In granting Restricted Stock, Performance Shares or Restricted Stock Units which are intended to qualify under Section 162(m) of the Code, the Administrator shall follow any procedures determined by it from time to time to be necessary or appropriate to ensure qualification of the Award under Section 162(m) of the Code (e.g., in determining the Performance Goals).

(d) *Changes in Capitalization.* The numerical limitations in Sections 7(a) and (b) shall be adjusted proportionately in connection with any change in the Company's capitalization as described in Section 17(a).

(e) If an Award is cancelled in the same Fiscal Year in which it was granted (other than in connection with a transaction described in Section 17 of the Plan), the cancelled Award will be counted against the limits set forth in subsections (a) and (b) above. For this purpose, if the exercise price of an Option is reduced, the transaction will be treated as a cancellation of the Option and the grant of a new Option.

8. *Term of Plan.* Subject to Section 19 of the Plan, the Plan will become effective upon its adoption by the Board. It will continue in effect for a term of ten (10) years unless terminated earlier under Section 19 of the Plan.

9. *Stock Options.*

(a) *Type of Option.* Each Option shall be designated in the Award Agreement as either an Incentive Stock Option or a Nonstatutory Stock Option. However, notwithstanding such designation, to the extent that the aggregate Fair Market Value of the Shares with respect to which Incentive Stock Options are exercisable for the first time by the Participant during any calendar year (under all plans of the Company and any Parent or Subsidiary) exceeds \$100,000, such Options shall be treated as Nonstatutory Stock Options. For purposes of this Section 9(a), Incentive Stock Options shall be taken into account in the order in which they were granted. The Fair Market Value of the Shares shall be determined as of the time the Option with respect to such Shares is granted.

(b) *Term.* The term of each Option shall be stated in the Award Agreement. In the case of an Incentive Stock Option, the term shall be ten (10) years from the date of grant or such shorter term as may be provided in the Award Agreement. Moreover, in the case of an Incentive Stock Option granted to a Participant who, at the time the Incentive Stock Option is granted, owns stock representing more than ten percent (10%) of the total combined voting power of all classes of stock of the Company or any Parent or Subsidiary, the term of the Incentive Stock Option shall be five (5) years from the date of grant or such shorter term as may be provided in the Award Agreement.

(c) *Option Exercise Price and Consideration.*

(i) *Exercise Price.* The per Share exercise price for the Shares to be issued pursuant to exercise of an Option will be determined by the Administrator, subject to the following:

(1) In the case of an Incentive Stock Option granted to an Employee who, at the time the Incentive Stock Option is granted, owns stock representing more than ten percent (10%) of the voting power of all classes of stock of the Company or any Parent or Subsidiary, the per Share exercise price will be no less than 110% of the Fair Market Value per Share on the date of grant.

(2) In the case of all other Options, the per Share exercise price will be no less than 100% of the Fair Market Value per Share on the date of grant.

(3) Notwithstanding the foregoing, Options may be granted with a per Share exercise price of less than 100% of the Fair Market Value per Share on the date of grant pursuant to a merger or other corporate transaction.

(ii) *Waiting Period and Exercise Dates.* At the time an Option is granted, the Administrator shall fix the period within which the Option may be exercised and shall determine any conditions which must be satisfied before the Option may be exercised.

(iii) *Form of Consideration.* The Administrator shall determine the acceptable form of consideration for exercising an Option, including the method of payment. In the case of an Incentive Stock Option, the Administrator shall determine the acceptable form of consideration at the time of grant. Subject to Applicable Laws, such consideration may consist entirely of:

(1) cash;

(2) check;

(3) promissory note;

(4) other Shares which have a Fair Market Value on the date of surrender equal to the aggregate exercise price of the Shares as to which said Option shall be exercised and which meet the conditions established by the Administrator to avoid adverse accounting consequences (as determined by the Administrator);

(5) consideration received by the Company under a cashless exercise program implemented by the Company in connection with the Plan;

(6) a reduction in the amount of any Company liability to the Participant, including any liability attributable to the Participant's participation in any Company-sponsored deferred compensation program or arrangement;

(7) any combination of the foregoing methods of payment;

(8) such other consideration and method of payment for the issuance of Shares to the extent permitted by Applicable Laws; or

(9) any combination of the foregoing methods of payment.

10. *Stock Appreciation Rights.*

(a) *Grant of SARs.* Subject to the terms and conditions of the Plan, a SAR may be granted to Service Providers at any time and from time to time as will be determined by the Administrator, in its sole discretion.

(b) *Number of Shares.* The Administrator will have complete discretion to determine the number of SARs granted to any Service Provider, subject to the limits set forth in Section 7.

(c) *Exercise Price and Other Terms.* The Administrator, subject to the provisions of the Plan, will have complete discretion to determine the terms and conditions of SARs granted under the Plan.

(d) *Exercise of SARs.* SARs will be exercisable on such terms and conditions as the Administrator, in its sole discretion, will determine.

(e) *SAR Agreement.* Each SAR grant will be evidenced by an Award Agreement that will specify the exercise price, the term of the SAR, the conditions of exercise, and such other terms and conditions as the Administrator, in its sole discretion, will determine.

(f) *Expiration of SARs.* An SAR granted under the Plan will expire upon the date determined by the Administrator, in its sole discretion, and set forth in the Award Agreement; provided, however, that no SAR will have a term of more than ten (10) years from the date of grant.

(g) *Payment of SAR Amount.* Upon exercise of an SAR, a Participant will be entitled to receive payment from the Company in an amount determined by multiplying:

(i) The difference between the Fair Market Value of a Share on the date of exercise over the exercise price; times

(ii) The number of Shares with respect to which the SAR is exercised.

(h) *Form of Payment.* The Company's obligation arising upon the exercise of a SAR may be paid in Common Stock or in cash, or in any combination of Common Stock and cash, as the Administrator, in its sole discretion, may determine. Shares issued upon the exercise of a SAR shall be valued at their Fair Market Value as of the date of exercise.

11. *Exercise of Option or SAR.*

(a) *Procedure for Exercise; Rights as a Shareholder.* Any Option or SAR granted hereunder shall be exercisable according to the terms of the Plan and at such times and under such conditions as determined by the Administrator and set forth in the Award Agreement. An Option may not be exercised for a fraction of a Share.

An Option or SAR shall be deemed exercised when the Company receives: (i) written or electronic notice of exercise (in accordance with the terms of the Option or SAR) from the person entitled to exercise the Option or SAR, and (ii) full payment for the Shares with respect to which the Option is exercised. Full payment may consist of any consideration and method of payment authorized by the Administrator and permitted by the Award Agreement and the Plan. Shares issued upon exercise of an Option or SAR shall be issued in the name of the

Participant or, if requested by the Participant, in the name of the Participant and his or her spouse. Until the Shares are issued (as evidenced by the appropriate entry on the books of the Company or of a duly authorized transfer agent of the Company), no right to vote or receive dividends or any other rights as a shareholder shall exist with respect to the Awarded Stock, notwithstanding the exercise of the Option. The Company shall issue or cause to be issued (and which issuance may be in electronic entry form) such Shares promptly after the Option is exercised. No adjustment will be made for a dividend or other right for which the record date is prior to the date the Shares are issued, except as provided in Section 17 of the Plan.

Exercising an Option in any manner shall decrease the number of Shares thereafter available, both for purposes of the Plan and for sale under the Option, by the number of Shares as to which the Option is exercised. Exercise of a SAR in any manner shall, to the extent the SAR is exercised, result in a decrease in the number of Shares which thereafter shall be available for purposes of the Plan, and the SAR shall cease to be exercisable to the extent it has been exercised.

(b) *Termination of Continuous Status as a Service Provider.* Upon termination of a Participant's Continuous Status as a Service Provider (other than termination by reason of the Participant's death or Disability), the Participant may exercise his or her Option or SAR within such period of time as is specified in the Award Agreement to the extent that the Award is vested on the date of termination (but in no event later than the expiration of the term of such Award as set forth in the Award Agreement). In the absence of a specified time in the Option Agreement, the Option shall remain exercisable for three (3) months following the Participant's termination. If the Option or SAR is not so exercised within the time specified herein, the Option or SAR shall terminate, and the Shares covered by such Option or SAR shall revert to the Plan. Unless otherwise provided by the Administrator, if on the date of termination the Participant is not vested as to his or her entire Option or SAR, the Shares covered by the unvested portion of the Option or SAR will revert to the Plan on the date one (1) month following the Participant's termination. Notwithstanding the foregoing, in no event shall an Option or SAR be exercisable after the expiration of the term of the Award as provided in the Award Agreement.

(c) *Disability of Participant.* If a Participant terminates his or her Continuous Status as a Service Provider as a result of his or her Disability, the Participant may exercise his or her Option or SAR within such period of time as is specified in the Award Agreement to the extent the Option or SAR is vested on the date of termination (but in no event later than the expiration of the term of such Option or SAR as set forth in the Award Agreement). In the absence of a specified time in the Award Agreement, the Option or SAR shall remain exercisable for twelve (12) months following the Participant's termination. If, after termination, the Participant does not exercise his or her Option or SAR within the time specified herein, the Option or SAR shall terminate, and the Shares covered by such Option or SAR shall revert to the Plan. Unless otherwise provided by the Administrator, if on the date of termination the Participant is not vested as to his or her entire Option or SAR, the Shares covered by the unvested portion of the Option or SAR will revert to the Plan on the date one (1) month following the Participant's termination. Notwithstanding the foregoing, in no event shall an Option or SAR be exercisable after the expiration of the term of the Award as provided in the Award Agreement.

(d) *Death of Participant.* If a Participant dies while a Service Provider, the Option or SAR may be exercised following the Participant's death within such period of time as is specified in the Award Agreement (but in no event may the option be exercised later than the expiration of the term of such Option or SAR as set forth in the Award Agreement), by the Participant's designated beneficiary, provided such beneficiary has been designated prior to Participant's death in a form acceptable to the Administrator. If no such beneficiary has been designated by the Participant, then such Option may be exercised by the personal representative of the Participant's estate or by the person(s) to whom the Option or SAR is transferred pursuant to the Participant's will or in accordance with the laws of descent and distribution. In the absence of a specified time in the Award Agreement, the Option or SAR shall remain exercisable for twelve (12) months following Participant's death. If the Option or SAR is not so exercised within the time specified herein, the Option or SAR shall terminate, and the Shares covered by such Option or SAR shall revert to the

Plan. Unless otherwise provided by the Administrator, if on the date of termination the Participant is not vested as to his or her entire Option or SAR, the Shares covered by the unvested portion of the Option or SAR will revert to the Plan on the date one (1) month following the Participant's termination. Notwithstanding the foregoing, in no event shall an Option or SAR be exercisable after the expiration of the term of the Award as provided in the Award Agreement.

12. *Restricted Stock.*

(a) *Grant of Restricted Stock.* Subject to the terms and provisions of the Plan (including the limits set forth in Section 7), the Administrator, at any time and from time to time, may grant Shares of Restricted Stock to Service Providers in such amounts as the Administrator, in its sole discretion, will determine.

(b) *Restricted Stock Agreement.* Each Award of Restricted Stock will be evidenced by an Award Agreement that will specify the Period of Restriction, the number of Shares granted, and such other terms and conditions as the Administrator, in its sole discretion, will determine. Unless the Administrator determines otherwise, Shares of Restricted Stock will be held by the Company as escrow agent until the restrictions on such Shares have lapsed.

(c) *Transferability.* Unless determined otherwise by the Administrator, Shares of Restricted Stock may not be sold, pledged, assigned, hypothecated, transferred, or disposed of in any manner other than by will or by the laws of descent or distribution until the end of the applicable Period of Restriction.

(d) *Other Restrictions.* The Administrator, in its sole discretion, may impose such other restrictions on Shares of Restricted Stock as it may deem advisable or appropriate.

(i) *General Restrictions.* The Administrator may set restrictions based upon the achievement of Company-wide, departmental, business unit, or individual goals (including, but not limited to, continued employment or service), applicable federal or state securities laws, or any other basis determined by the Administrator in its discretion.

(ii) *Section 162(m) Performance Restrictions.* For purposes of qualifying grants of Restricted Stock as "performance-based compensation" under Section 162(m) of the Code, the Committee, in its discretion, may set restrictions based upon the achievement of Performance Goals. The Performance Goals shall be set by the Committee on or before the latest date permissible to enable the Restricted Stock to qualify as "performance-based compensation" under Section 162(m) of the Code. In granting Restricted Stock which is intended to qualify under Section 162(m) of the Code, the Committee shall follow any procedures determined by it from time to time to be necessary or appropriate to ensure qualification of the Restricted Stock under Section 162(m) of the Code (e.g., in determining the Performance Goals).

(e) *Removal of Restrictions.* Except as otherwise provided in this Section 12, Shares of Restricted Stock covered by each Restricted Stock grant made under the Plan will be released from escrow as soon as practicable after the last day of the Period of Restriction. The Administrator, in its discretion, may accelerate the time at which any restrictions will lapse or be removed.

(f) *Voting Rights.* During the Period of Restriction, Service Providers holding Shares of Restricted Stock granted hereunder may exercise full voting rights with respect to those Shares, unless the Administrator determines otherwise.

(g) *Dividends and Other Distributions.* During the Period of Restriction, Service Providers holding Shares of Restricted Stock will be entitled to receive all dividends and other distributions paid with respect to such Shares unless otherwise provided in the Award Agreement. If any such dividends or distributions are paid in Shares, the Shares will be subject to the same restrictions on transferability and forfeitability as the Shares of Restricted Stock with respect to which they were paid.

(h) *Return of Restricted Stock to Company.* On the date set forth in the Award Agreement, the Restricted Stock for which restrictions have not lapsed will revert to the Company and again will become available for grant under the Plan.

13. *Restricted Stock Units.*

(a) *Grant.* Restricted Stock Units may be granted at any time and from time to time as determined by the Administrator. Each Restricted Stock Unit grant shall be evidenced by an Award Agreement that shall specify such other terms and conditions as the Administrator, in its sole discretion, shall determine, including all terms, conditions, and restrictions related to the grant, the number of Restricted Stock Units (subject to the limitations set forth in Section 7) and the form of payout, which, subject to Section 13(d), may be left to the discretion of the Administrator.

(b) *Vesting Criteria and Other Terms.* The Administrator shall set vesting criteria in its discretion, which, depending on the extent to which the criteria are met, will determine the number of Restricted Stock Units that will be paid out to the Participant.

(i) *General Restrictions.* The Administrator may set vesting criteria based upon the achievement of Company-wide, departmental, business unit, or individual goals (including, but not limited to, continued employment or service), applicable federal or state securities laws, or any other basis determined by the Administrator in its discretion.

(ii) *Section 162(m) Performance Restrictions.* For purposes of qualifying grants of Restricted Stock Units as “performance-based compensation” under Section 162(m) of the Code, the Committee, in its discretion, may set performance objectives based upon the achievement of Performance Goals. The Performance Goals shall be set by the Committee on or before the latest date permissible to enable the Restricted Stock Units to qualify as “performance-based compensation” under Section 162(m) of the Code. In granting Restricted Stock Units that are intended to qualify under Section 162(m) of the Code, the Committee shall follow any procedures determined by it from time to time to be necessary or appropriate to ensure qualification of the Restricted Stock Units under Section 162(m) of the Code (e.g., in determining the Performance Goals).

(c) *Earning Restricted Stock Units.* Upon meeting the applicable vesting criteria, the Participant shall be entitled to receive a payout as specified in the Award Agreement. Notwithstanding the foregoing, at any time after the grant of Restricted Stock Units, the Administrator, in its sole discretion, may reduce or waive any vesting criteria that must be met to receive a payout.

(d) *Form and Timing of Payment.* Payment of earned Restricted Stock Units shall be made as soon as practicable after the date(s) set forth in the Award Agreement. The Administrator, in its sole discretion, may pay earned Restricted Stock Units in cash, Shares, or a combination thereof. Shares represented by Restricted Stock Units that are fully paid in cash again shall be available for grant under the Plan.

(e) *Cancellation.* On the date set forth in the Award Agreement, all unearned Restricted Stock Units shall be forfeited to the Company.

14. *Performance Shares.*

(a) *Grant of Performance Shares.* Subject to the terms and conditions of the Plan, Performance Shares may be granted to Service Providers at any time as shall be determined by the Administrator, in its sole discretion. Subject to Section 7 hereof, the Administrator shall have complete discretion to determine the number of Shares subject to a Performance Share Award granted to any Service Provider.

(b) *Value of Performance Shares.* Each Performance Share will have an initial value equal to the Fair Market Value of a Share on the date of grant.

(c) *Performance Objectives and Other Terms.* The Administrator will set performance objectives in its discretion which, depending on the extent to which they are met, will determine the number or value of Performance Shares that will be paid out to the Service Providers. Each Award of Performance Shares will be evidenced by an Award Agreement that will specify the performance period during which the applicable objectives must be met, and such other terms and conditions as the Administrator, in its sole discretion, will determine.

(i) *General Restrictions.* The Administrator may set performance objective based upon the achievement of Company-wide, departmental, business unit, or individual goals (including, but not limited to, continued employment or service), applicable federal or state securities laws, or any other basis determined by the Administrator in its discretion.

(ii) *Section 162(m) Performance Restrictions.* For purposes of qualifying grants of Performance Shares as “performance-based compensation” under Section 162(m) of the Code, the Committee, in its discretion, may set performance objectives based upon the achievement of Performance Goals. The Performance Goals shall be set by the Committee on or before the latest date permissible to enable the Performance Shares to qualify as “performance-based compensation” under Section 162(m) of the Code. In granting Performance Shares that are intended to qualify under Section 162(m) of the Code, the Committee shall follow any procedures determined by it from time to time to be necessary or appropriate to ensure qualification of the Performance Shares under Section 162(m) of the Code (e.g., in determining the Performance Goals).

(d) *Earning of Performance Shares.* After the applicable Performance Period has ended, the holder of Performance Shares will be entitled to receive a payout of the number of Performance Shares earned by the Participant over the Performance Period, to be determined as a function of the extent to which the corresponding performance objectives have been achieved. After the grant of a Performance Share, the Administrator, in its sole discretion, may reduce or waive any performance objectives for such Performance Share.

(e) *Form and Timing of Payment of Performance Shares.* Payment of earned Performance Shares will be made as soon as practicable after the expiration of the applicable Performance Period. The Administrator, in its sole discretion, may pay earned Performance Shares in the form of cash, in Shares (which have an aggregate Fair Market Value equal to the value of the earned Performance Shares at the close of the applicable performance period) or in a combination thereof.

(f) *Cancellation of Performance Shares.* On the date set forth in the Award Agreement, all unearned or unvested Performance Shares will be forfeited to the Company, and again will be available for grant under the Plan.

15. *Leaves of Absence.* Unless the Administrator provides otherwise or except as otherwise required by Applicable Laws, vesting of Awards granted hereunder shall cease commencing on the first day of any unpaid leave of absence and shall only recommence upon return to active service.

16. *Transferability of Awards.* Unless determined otherwise by the Administrator or as otherwise provided in the Plan, an Award may not be sold, pledged, assigned, hypothecated, transferred, or disposed of in any manner other than by will or by the laws of descent or distribution, and may be exercised, during the lifetime of the Participant, only by the Participant. If the Administrator makes an Award transferable, such Award shall contain such additional terms and conditions as the Administrator deems appropriate.

17. *Adjustments Upon Changes in Capitalization, Dissolution, Merger or Change in Control.*

(a) *Changes in Capitalization.* Subject to any required action by the shareholders of the Company, the number of shares of Common Stock covered by each outstanding Award and the number of shares of Common Stock which have been authorized for issuance under the Plan but as to which no Awards have yet been granted or which have been returned to the Plan upon cancellation or expiration of an Award, as well

as the price per share, if any, of Common Stock covered by each such outstanding Award and the 162(m) fiscal year share issuance limits under Sections 7(a) and (b) hereof shall, shall be proportionately adjusted for any dividend or other distribution (whether in the form of cash, Shares, other securities, or other property), recapitalization, stock split, reverse stock split, reorganization, merger, consolidation, split-up, spin-off, combination, repurchase, or exchange of Shares or other securities of the Company, or other change in the corporate structure of the Company affecting the Shares should the Committee (in its sole discretion) determine such an adjustment to be appropriate in order to prevent dilution or enlargement of the benefits or potential benefits intended to be made available under the Plan. Such adjustment shall be made by the Board or the Committee, whose determination in that respect shall be final, binding and conclusive. Except as expressly provided herein, no issuance by the Company of shares of stock of any class, or securities convertible into shares of stock of any class, shall affect, and no adjustment by reason thereof shall be made with respect to, the number or price of shares of Common Stock subject to an Award.

(b) *Dissolution or Liquidation.* In the event of the proposed dissolution or liquidation of the Company, all outstanding Awards will terminate immediately prior to the consummation of such proposed action, unless otherwise provided by the Administrator. The Administrator in its discretion may provide for a Participant to have the right to exercise his or her Option, SAR or right to purchase Restricted Stock until ten (10) days prior to such transaction as to all of the Awarded Stock covered thereby, including Shares as to which the Award would not otherwise be exercisable. In addition, the Administrator may provide that any Company repurchase option or forfeiture rights applicable to any Award shall lapse 100%, and that any Award vesting shall accelerate 100%, provided the proposed dissolution or liquidation takes place at the time and in the manner contemplated. To the extent it has not been previously exercised (with respect to Options, SARs and right to purchase Restricted Stock) or vested (with respect to other Awards), an Award will terminate immediately prior to the consummation of such proposed action.

(c) *Merger or Change in Control.* In the event of a merger or Change in Control, each outstanding Award shall be assumed or an equivalent award substituted by the successor corporation or a Parent or Subsidiary of the successor corporation. In the event that the successor corporation refuses to assume or substitute for the Award, the Participant shall (i) fully vest in and have the right to exercise the Option, SAR or right to purchase Restricted Stock as to all of the Awarded Stock, including Shares as to which it would not otherwise be vested or exercisable, and (ii) fully earn and receive a payout with respect to other Awards. If an Award is not assumed or substituted for in the event of a merger or Change in Control, the Administrator shall notify the Participant in writing or electronically that (i) the Option, SAR or right to purchase Restricted Stock shall be fully vested and exercisable for a period of fifteen (15) days from the date of such notice, and (ii) all outstanding Options, SARs and rights to purchase Restricted Stock shall terminate upon the expiration of such period and (iii) all other outstanding Awards shall be paid out immediately prior to the merger or Change in Control. For the purposes of this paragraph, the Award shall be considered assumed if, following the merger or Change in Control, the assumed Award confers the right to purchase or receive, for each Share of Awarded Stock subject to the Award immediately prior to the merger or Change in Control, the consideration (whether stock, cash, or other securities or property) received in the merger or Change in Control by holders of Common Stock for each Share held on the effective date of the transaction (and if holders were offered a choice of consideration, the type of consideration chosen by the holders of a majority of the outstanding Shares); provided, however, that if such consideration received in the merger or Change in Control is not solely common stock of the successor corporation or its Parent, the Administrator may, with the consent of the successor corporation, provide for the consideration to be received upon the exercise (or payout or vesting, as applicable) of the Award, for each Share of Awarded Stock subject to the Award, to be solely common stock of the successor corporation or its Parent equal in fair market value to the per share consideration received by holders of Common Stock in the merger or Change in Control.

18. *Date of Grant.* The date of grant of an Award shall be, for all purposes, the date on which the Administrator makes the determination granting such Award, or such other later date as is determined by the Administrator. Notice of the determination shall be provided to each Participant within a reasonable time after the date of such grant.

19. *Amendment and Termination of the Plan.*

(a) *Amendment and Termination.* The Board may at any time amend, alter, suspend or terminate the Plan.

(b) *Shareholder Approval.* The Plan will be subject to approval by the shareholders of the Company within twelve (12) months after the date the Plan is adopted. Such shareholder approval will be obtained in the manner and to the degree required under Applicable Laws. The Company shall obtain shareholder approval of any Plan amendment to the extent necessary and desirable to comply with Applicable Laws.

(c) *Effect of Amendment or Termination.* No amendment, alteration, suspension or termination of the Plan shall impair the rights of any Participant, unless mutually agreed otherwise between the Participant and the Administrator, which agreement must be in writing (or electronic format) and signed by the Participant and the Company. Termination of the Plan shall not affect the Administrator's ability to exercise the powers granted to it hereunder with respect to Awards granted under the Plan prior to the date of such termination.

20. *Conditions Upon Issuance of Shares.*

(a) *Legal Compliance.* Shares shall not be issued pursuant to the exercise or payout, as applicable, of an Award unless the exercise or payout, as applicable, of such Award and the issuance and delivery of such Shares shall comply with Applicable Laws and shall be further subject to the approval of counsel for the Company with respect to such compliance.

(b) *Investment Representations.* As a condition to the exercise or payout, as applicable, of an Award, the Company may require the person exercising such Option, SAR or right to purchase Restricted Stock, or in the case of another Award, the person receiving the payout, to represent and warrant at the time of any such exercise that the Shares are being purchased only for investment and without any present intention to sell or distribute such Shares if, in the opinion of counsel for the Company, such a representation is required.

21. *Inability to Obtain Authority.* The inability of the Company to obtain authority from any regulatory body having jurisdiction, which authority is deemed by the Company's counsel to be necessary to the lawful issuance and sale of any Shares hereunder, shall relieve the Company of any liability in respect of the failure to issue or sell such Shares as to which such requisite authority shall not have been obtained.

22. *Severability.* Notwithstanding any contrary provision of the Plan or an Award to the contrary, if any one or more of the provisions (or any part thereof) of this Plan or the Awards shall be held invalid, illegal or unenforceable in any respect, such provision shall be modified so as to make it valid, legal and enforceable, and the validity, legality and enforceability of the remaining provisions (or any part thereof) of the Plan or Award, as applicable, shall not in any way be affected or impaired thereby.

23. *Non-U.S. Employees.* Notwithstanding anything in the Plan to the contrary, with respect to any employee who is resident outside of the United States, the Administrator may, in its sole discretion, amend the terms of the Plan in order to conform such terms to the requirements of local law or to meet the objectives of the Plan. The Administrator may, where appropriate, establish one or more sub-plans for this purpose.

24. *2009 Exchange Program.* Notwithstanding any other provision of the Plan to the contrary, upon approval of the Company's shareholders, the Administrator may provide for, and the Company may implement, an Exchange Program, pursuant to which certain outstanding Options under the Plan as well as options under the 2002 Nonstatutory Stock Option Plan, the 2000 Employee Stock Option Plan and the Accent Optical Technologies, Inc. Stock Incentive Plan could, at the election of the Participant holding such Option, be tendered to the Company for cancellation in exchange for the issuance of a lesser amount of Options with a lower exercise price, provided that such Exchange Program is commenced within 2009.

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ANNUAL REPORT 2008

FORM 10-K
FOR THE FISCAL YEAR ENDED DECEMBER 27, 2008

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 27, 2008

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

(Address of principal executive offices)

95035

(Zip Code)

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

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

Common Stock, \$0.001 par value per share

The NASDAQ Stock Market LLC

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

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

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

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

As of June 28, 2008, 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 \$47,263,063. 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 17, 2009 was 18,501,717.

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 2009 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 27, 2008.

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FORM 10-K

NANOMETRICS INCORPORATED
FORM 10-K
FOR THE FISCAL YEAR ENDED DECEMBER 27, 2008

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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. The forward-looking statements are made as of the date of this Form 10-K and we assume no obligation to update the forward-looking statements, or to update the reasons why actual results could differ from those projected in the forward-looking statements.

PART I

ITEM 1. BUSINESS

Overview

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

Nanometrics was incorporated in California in 1975 and reincorporated in Delaware in 2006. We have been a pioneer and innovator in the field of optical metrology. Nanometrics has an extensive installed base of over 6,000 systems in over 150 production factories worldwide. Our major customers and OEM partners include Samsung Electronics Co. Ltd., Toshiba Semiconductor, Hynix Semiconductor, Applied Materials, Inc., Semiconductor Manufacturing International Corporation, Micron Technology, Inc., Intel Corporation and Renesas Technology Corp.

Additional information about Nanometrics is available on our website at <http://www.nanometrics.com>. The information that can be accessed through our website, however, is not part of this Annual Report. Our investor relations website is located at <http://www.nanometrics.com/investor.html>. We make available free of charge through our investor relations website our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and any amendments to those reports as soon as reasonably practicable after we electronically file or furnish such materials to the United States Securities and Exchange Commission ("SEC").

Our Business

We offer a comprehensive line of metrology products and technologies to address the manufacturing requirements of the high-tech industry. Our metrology systems can be categorized as follows:

- Standalone, fully automated systems for high-volume semiconductor manufacturing process control;
- Integrated systems incorporated onto semiconductor and solar PV processing systems that provide real-time measurements and feedback to improve process control and increase total system productivity; and
- Standalone, manual and semi-automated systems used to monitor material characteristics of various silicon and compound semiconductor devices and substrates.

We believe that there are numerous characteristics of the semiconductor, solar PV, high-brightness LED and other component manufacturing markets that drive a growing need for process control metrology. As films and film materials become thinner and more exotic, along with more demanding critical dimension control and overlay requirements, advanced process control metrology will continue to grow in importance, especially as wafers become more expensive to manufacture. We expect these factors will continue to drive the demand for our advanced standalone and integrated metrology products. Additionally, customers can deploy our products into their R&D lines to accelerate the process development cycle and enable faster production ramp.

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

We have made several strategic business decisions to enable us to further address these metrology trends, including:

- Introducing new leading-edge products in every core product line and primary market served;
- Restructuring our business and practices for operational and earnings leverage;
- Diversifying our product line and served markets through acquisitions, such as our 2006 acquisition of Accent Optical Technologies, Inc. and our 2008 acquisition of Tevet Process Control Technologies (Tevet), an integrated metrology supplier serving both semiconductor and solar PV industries;
- The continuing development of new measurement technologies for advanced chemical mechanical planarization, or CMP, and photolithographic processes; and
- Researching innovative applications of existing technology to new market opportunities within the solar PV industry.

Demand for our products continues to be driven by the increasing use of multiple thin film technologies by semiconductor manufacturers, and by the increased adoption of both integrated metrology and real-time process control. With feature sizes shrinking below 32 nanometers (nm), there is an increasing need for very tight process tolerances as well as productivity improvements in semiconductor fabrication facilities (fabs). As a result, semiconductor device and wafer manufacturers are investing in process control and metrology systems that improve their manufacturing efficiency by detecting process variations sooner and facilitating rapid diagnosis and corrective action. Our process control and metrology systems measure and characterize the physical dimensions, material composition, optical and electrical characteristics and other critical parameters of semiconductor devices during their fabrication. For the photolithography process, overlay and critical dimension systems provide enhanced control of layer alignment and device dimensions. For lattice engineering applications, metrology systems monitor the physical, optical, electrical and material characteristics of compound semiconductor, strained silicon and silicon-on-insulator (SOI) devices, including composition, crystal structure, layer thickness, dopant concentration, contamination and electron mobility.

Industry Background

Semiconductor Growth

The semiconductor industry continues to be driven by the need for increasingly higher performance chips as well as the need to produce these chips with increased production efficiencies at reduced costs. However, the semiconductor equipment industry is not immune to broader economic factors, and contracted in 2008 as a result of a net decline of 27% in capital spending by the semiconductor industry, down to \$46.1 billion according to Gartner/Dataquest. However, we believe that the technology development cycles of our end customers will continue in the longer term, with an increasing focus on productivity and cost of ownership helping to drive demand for our products. Our product line was completely refreshed in 2008 with a focus on key markets for both productivity and advanced technology node metrology, and consequently we believe we are well positioned for future growth as the semiconductor industry recovers and as the markets for solar PVs and HB-LEDs continue to grow.

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

The two significant factors affecting demand for our semiconductor measurement systems are new construction or refurbishment of semiconductor manufacturing facilities and the increasing complexity of the manufacturing process as a result of the demand for higher performance semiconductor devices and integrated circuits. Demand from our customers in the solar PV, silicon wafer, high-brightness LED and data storage industries is affected primarily by the increasing complexity of the manufacturing process.

Drive toward Productivity and Control

Increased Use of Integrated Metrology in Manufacturing

We believe that continually rising wafer costs are forcing semiconductor manufacturers to re-evaluate their manufacturing strategies at all levels, from individual process steps to fab-wide process optimization. Many major semiconductor manufacturers are adopting feed-forward and feedback process control of film thickness and critical dimensions, or CDs, based on real-time data from metrology systems. Major benefits of these new metrology strategies are higher manufacturing efficiencies from reduced rework, reduced headcount to perform at the same quality level and increased device performance. Additional benefits include process tool matching and more precise control of the overall manufacturing process. This product line sampling increases with additional mask steps, tighter control requirements and greater process complexity due to ever-shrinking process node requirements, resulting in an escalating need for additional metrology.

Cluster Metrology for High-Throughput Monitoring

Many key process steps require more than one type of measurement, e.g. the need for both critical dimension control and overlay control in certain lithography processing steps. Traditionally, customers buy multiple separate measurement systems for these control steps. The additional time to process data for multiple steps is a significant contributor to total processing time and the drive for greater efficiency results in a need to reduce time and cost associated with process control. Our customers are employing APC (advanced process control) schemes, adding algorithms and increasing the amount of measurement and sampling to enable a greater degree of process control on key steps; however, these improvements on process control typically reduce fab productivity. To complement the APC schemes and enable higher levels of customer control as well as higher productivity, Nanometrics has developed a cluster metrology solution in the Lynx™ platform. The Lynx platform enables our customers to combine the key process monitoring steps onto one system to reduce data latency, reduce fab footprint and reduce process monitoring complexity. Key solutions for overlay, thin film, optical CD (“OCD®”) and others can be enabled for optimizing process monitoring in the various segments of the fab. The modules are also interchangeable with our Integrated Metrology® systems, enabling seamless support for the highest possible productivity.

Adoption of Immersion Lithography and Development of Double Patterning for Critical Photolithographic Layers

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

Drive toward In-Device Metrology

For many years, semiconductor manufacturers have sought to improve performance by exerting additional levels of control on key processing steps. Traditionally, the thin film metrology segment has been a key aspect of our customers’ ability to drive process control. With recent changes in device requirements, the thin film market is experiencing a shift to metrology on structures. Nanometrics participates in this market with the deployment of our OCD scatterometry solutions. Our NanoCD™ suite extends our existing integrated and standalone products into these new market segments, giving our customers extended capability and applications for process metrology and control.

As device geometries continue to shrink, key parameters become increasingly difficult to measure and correlate to test structures. This is driving device manufacturers to increase levels of understanding on actual device structures. Scatterometry metrology enables the user to directly measure and control key process steps that contribute to device performance and yield. By choosing systems that can measure directly on these structures, without any interaction, NanoCD metrology solutions increase productivity with faster time to results and additional levels of process information.

Nanometrics has deployed scatterometry solutions across key fab segments including traditional photolithography and etch steps, and has extended applications to key process steps in thin film deposition, CMP, and diffusion applications. Scatterometry technology for process metrology and control is in production for all semiconductor segments including DRAM, Flash, Logic/IDM (integrated device manufacturers) and Foundries, with key insertion points in 45nm and 32nm nodes.

Non-Traditional Market Growth Includes Solar PV and HB-LED Sectors

Growth in the non-traditional semiconductor markets was robust in 2008. According to industry research, market demand for HB-LEDs grew over 10%, driven mostly by the use of LEDs as backlighting in flat panel displays. Growth in the market for solar PVs was over 30%, with even higher growth in the emerging thin film sector. These adjacent markets are served by a broad range of products that are used in research and development for device optimization, and then are ramped into production due to the increasing focus of process control in these sectors. Our primary offerings in this market are photoluminescence systems for HB-LED monitoring (due to the ability to measure directly on customer structures) and FTIR (Fourier-Transform Infrared) systems primarily to measure epitaxial film thickness of SOI wafer substrates. In the solar PV sector we offer Trajectory™ integrated metrology systems for real-time integrated metrology into high-volume production lines.

Nanometrics Offerings

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

- **Standalone, fully automated systems used for high-volume semiconductor manufacturing process control.** We offer a broad line of fully automated thin film thickness, critical dimension, defect inspection and overlay measurement systems. These systems remove the dependence on human operators by incorporating reliable wafer handling robots and are designed to meet the speed, measurement, performance and reliability requirements that are essential for today's semiconductor manufacturing facilities. Each of these measurement systems uses non-destructive, optical techniques to analyze and measure films. Our fully automated metrology product line also includes systems that are used to measure the critical dimensions and overlay registration accuracy of successive layers of semiconductor patterns on wafers in the photolithography process.
- **Integrated systems used to measure in-process wafers automatically and quickly without having to leave the enclosed wafer processing system.** Our integrated metrology systems are compact and monitor a multitude of small test points on the wafer using sophisticated pattern recognition. Our integrated systems can be attached to film deposition, planarization, lithography, etch and other process tools to provide rapid monitoring of films on each wafer immediately before or after processing. Integrated systems can offer customers significantly increased operating efficiency and equipment utilization, lower manufacturing costs and higher throughput, as well as tighter process control wafer to wafer, lot to lot, and tool to tool.
- **Standalone, manual and semi-automated systems used to monitor material characteristics of various silicon and compound semiconductor devices and substrates.** We offer a broad line of manual and semi-automated systems that are used to monitor the physical, optical, electrical and material characteristics of compound semiconductor, strained silicon and SOI devices. These characteristics include composition, crystal structure, layer thickness, dopant concentration, contamination and electron mobility.

Each of our materials characterization systems uses non-destructive, optical techniques to analyze and measure films. Our tabletop metrology systems are used to manually or semi-automatically measure thin films in engineering and low-volume production environments.

2008 marked a year of several new product introductions and advancements in our core metrology lines.

Our latest IMPULSE™ integrated metrology module is an advanced OCD and thin film measurement system, offering the best example of enabling technology for process control. The compact size and speed of this technology enables the system to be fully integrated into the customer's process tool, providing a complete, feed-forward and feedback process control solution for wafer-to-wafer closed loop control. By measuring the critical dimensions of developed photoresist, feeding this information back into the process and trimming the resist, the device manufacturer can adjust the final etched dimensions of a silicon gate-etch process, thereby achieving the shortest gate-length and the maximum possible microprocessor speed. In addition, new semiconductor process technologies, such as copper interconnects, require that new measurement technologies be developed in order to keep pace with the latest metrology demands. IMPULSE has the ability to plot copper conductor resistance across the wafer while the wafers are on-board the CMP system, reducing the need for costly and destructive testing. The IMPULSE integrated metrology module also provides a solution to the problem of measuring the remaining oxide film thickness as well as the loss of material over arrays of copper lines during the CMP process with the added capability of detecting residual films remaining after the polishing process. This technology has extended to applications in etch and photolithography processing steps.

Our recently introduced NanoCD Suite was developed to address the ever-demanding requirements of OCD metrology, which has proven to be an important application in the semiconductor manufacturing process. We offer our customers the ability to attach the NanoCD Suite of hardware and software solutions to our standalone and integrated metrology systems. Driven by proprietary analysis software and hardware, each product of the Suite greatly enhances a fab's capability to drive toward advanced OCD application levels. The NanoCD Suite is composed of key components enabling scalable, fab-wide OCD metrology solutions, including the NanoGen™, NanoMatch™, NanoStation™, NanoDiffract™ and a new NanoGen cluster controller option. The Suite offers industry-proven modeling methods, as well as a next-generation run time engine, comprehensive offline analysis tools, and an intuitive GUI (graphical user interface) for structure definition and modeling. The system enables visualization of complex device structures to enable process control on the most demanding applications across DRAM, Flash, and Logic cell design.

Each component of the NanoCD Suite is designed to take full advantage of the inherent connectivity between Nanometrics' standalone Atlas XP™ and Atlas-M™ systems for wafer and reticle metrology, and the IMPULSE/9010 integrated metrology systems. When combined with the NanoCD Suite, Nanometrics' systems have the broadest scatterometry metrology solution for today's semiconductor fabs.

Our new Lynx platform is the industry's first compact 300mm cluster metrology platform to enable thin film, OCD and overlay measurements in a single system. The Lynx's versatility provides for a range of custom configurations, from a streamlined single metrology platform to an expanded, high-productivity, multi-metrology platform. Modules can be easily installed or upgraded to extend system functionality, offering true mix-and-match capability. When deployed in the optimized configuration, our customers can achieve a 50% reduction in time to results for key production monitoring. The system can be scaled to enable high throughput and to reduce burden on overhead systems, further increasing productivity. When combined with the Caliper™, IMPULSE and NanoCD Suite, the Lynx platform enables turnkey solutions for every fab segment including CMP, etch, films, and demanding "double patterning" lithography applications.

Our latest Caliper 300mm overlay metrology system for monitoring microlithography stepper performance provides exceptional throughput and measurement performance required by today's demanding 45nm overlay control applications. Our Caliper line provides a cost-effective solution for today's most advanced overlay process technologies, enabling metrology on the industry's most flexible and capable "mark set," the Blossom.

To measure and control overlay at the required performance level, our customers place marks or measurement targets which comprise the “mark set” specifically designed for this purpose. The Blossom marks enable customers to balance demands of layout, performance, and process robustness without compromise. Additionally, the micro-Blossom mark extends the technology to enable in-device overlay metrology. The hardware system is optimized with the mark design to provide multi-generation lithography control.

Through our May 2008 acquisition of Tevet, we recently began offering the Trajectory integrated metrology system, which can be incorporated into numerous types of production equipment. The Trajectory technology leverages a fiber coupled design that lends itself to direct integration into both process chambers and interface chambers on various production tools. Applications include metrology for thin film and CVD (chemical vapor deposition) semiconductor production equipment, solar PV thin film metrology and monitoring, as well as emerging silicon ink applications. The Trajectory technology extends our spectroscopic reflectometry leadership position into high-volume process line monitoring. By providing a system that can quickly and cost-effectively monitor 100% of samples within a process tool with actionable metrology results, process engineers can respond promptly to line yield and process excursion events, thereby enabling our customers to continuously improve yields, lower costs and drive further process control improvement.

Technology

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

Spectroscopic Reflectometry. We pioneered the use of micro-spot spectroscopic reflectometry for semiconductor film metrology in the late 1970s. Reflectometry is the measurement of reflected light. Spectroscopic reflectometry uses multiple wavelengths (colors) of light to obtain an array of data for analysis of film thickness and other film parameters. Today’s semiconductor manufacturers still depend on spectroscopic reflectometry for most film metrology applications. For film metrology, a wavelength spectrum in the visible region is commonly used. Light reflected from the surfaces of the film and the substrate is analyzed using computers and measurement algorithms. The analysis yields thickness information and other parameters without contacting or destroying the film. In the mid-1980s, we introduced a DUV reflectometer for material analysis. In 1991, we were awarded a patent for the determination of absolute reflectance in the ultraviolet region. This technology provides enhanced measurement performance for thinner films and for films stacked on top of one another.

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

Optical Critical Dimension Technology. Our OCD technology is a critical dimension measurement technology that is used to precisely determine the dimensions on the semiconductor wafer that directly control the resulting performance of the integrated circuit devices. Our non-destructive, scatterometry OCD measurement technology has been applied to 65nm and 45nm manufacturing technology and can be extended below 32nm for future requirements in both photolithography and etch applications. OCD combines non-contact optical technology with extremely powerful data analysis software to provide highly accurate measurement results for line width, height and sidewall angles. This technology is available in both standalone and integrated platforms.

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

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

Fourier-Transform Infrared (FTIR) Spectroscopy Technology. Silicon producers around the world use our FTIR tools for the certification of silicon epitaxial, or epi, thickness in blanket epi layers, buried layer epi films and SOI epi films. The tools are also used for the precise measurement of interstitial oxygen and substitutional carbon in silicon substrates. Semiconductor device manufacturers use these FTIR systems for thin film metrology. BPSG (borophosphosilicate) films can be analyzed for the concentrations of boron and phosphorus; atomic hydrogen content in silicon nitride and silicon oxynitride can be estimated; low-K films can be characterized, such as fluorine content in FSG (fluorinated silicon oxide) films and carbon content in SiOC and SiCN films. The FTIR tools provide a rapid, non-contact method for the thin film metrology. The automated FTIR tools also provide full support for the factory automation needs of the device manufacturing community.

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

NanoDiffract Software. Our NanoCD Suite is designed around our proprietary NanoDiffract software and was developed in order to optimize the capability and connectivity of Nanometrics' Atlas and 9010 systems for OCD metrology. Our NanoDiffract software incorporates industry-proven modeling methods, real-time regression capability and comprehensive analysis tools, as well as a comprehensive GUI and input structure for true multi-variant modeling. The capabilities of our NanoDiffract software are delivered in intuitive and easy to deploy hardware form factors.

Products

Our products include thin film, optical critical dimension (OCD), overlay dimension, FTIR and photoluminescence (PL) metrology systems. Our measurement systems use microscope-based, non-contact spectroscopic reflectometry (SR), and some of our systems provide complementary scatterometry, spectroscopic ellipsometry (SE) and FTIR to measure the thickness and optical characteristics of films on a variety of substrates. We have a line of PL products for measuring properties of traditional silicon and compound semiconductor devices. In addition, we offer both integrated and standalone OCD metrology systems to measure critical dimensions of patterns on semiconductor wafers. We also manufacture a line of optical overlay registration systems that are used to determine the alignment accuracy of successive layers of semiconductor patterns on wafers in the photolithography process. Our products can be divided into three principle groups: standalone systems, integrated systems and materials characterization systems. We also introduced a new system platform in 2008, the Lynx. See Note 20 of the Notes to Consolidated Financial Statements for an analysis of our net revenues by principal product group.

System	Market	Substrate Size	Applications	Technology
System Platform				
Lynx	Semiconductor	300mm	Film, CD, Overlay	SR, OCD, Overlay
Automated Standalone Systems				
Atlas/Atlas XP/ Atlas-M	Semiconductor	150mm, 200mm, 300mm wafers, 6-inch masks/ reticles	CVD, CMP, Etch, Litho, Film Thickness, Film Stress, CD	SR, SE, OCD/SE, Stress/Bow
Caliper	Semiconductor	300mm	Overlay	Imaging
Q240 ^{AT}	Semiconductor	200mm	Overlay	Imaging
IVS-185	Semiconductor, MEMS	75mm, 100mm, 150mm, 200mm	Overlay, Macro CD	Imaging
NanoSpec 9100	Semiconductor	75-200mm	CVD, CMP, Etch, Litho, Film Thickness	SR, SE
Integrated Systems				
9000 Series	Semiconductor	200mm, 300 mm	CVD, Film Thickness	SR
9010 Series	Semiconductor	200mm, 300mm	CMP, Etch, Litho, Film Thickness, CD	SR, OCD
IMPULSE	Semiconductor	300mm	CMP, Etch, Litho, Film Thickness, CD	SR, OCD
Trajectory	Semiconductor	300mm	CMP, CVD, Solar PV, Film Thickness	SR
Materials Characterization Systems				
SiPHER	Substrate Semiconductor	200mm, 300mm	Substrate Defects, Metallic Contamination	Photoluminescence
VerteX	Compound Semiconductor	75mm, 125mm, 150mm	Epitaxial Layer Properties, Solar PV	Photoluminescence
QS1200	Substrate Semiconductor	100mm, 125mm, 150mm, 200mm, 300mm	Substrate Properties, Film Composition and Thickness, Solar PV	FTIR
QS2200/3300	Substrate Semiconductor	200mm, 300mm	Substrate Properties, Film Composition and Thickness	FTIR
NanoSpec 3000	Semiconductor	75mm, 150mm	Film Thickness (Tabletop)	SR
NanoSpec 6100	Semiconductor	75mm, 150mm, 200mm	Film Thickness (Tabletop)	SR

System Platform

Nanometrics Lynx Metrology Platform

The Lynx is the industry's first compact 300mm cluster metrology platform to enable thin film, OCD and overlay measurements in a single system. The Lynx's versatility provides for a range of custom configurations, from a streamlined single metrology platform to an expanded, high-productivity, multi-metrology platform. Modules can be easily installed or upgraded to extend system capabilities. Combinations of Nanometrics' technology on the Lynx enable the highest possible throughput as well as improved process control opportunities by combining appropriate technologies for various semiconductor manufacturing steps. The Lynx enables extendibility to future nodes as well as adaptability in the configuration to suit changing metrology demands.

Automated Standalone Systems

Our standalone systems are made up of manual, semi-automated and fully automated metrology systems which are employed in high-volume and low-volume production environments. The automated systems incorporate automated material handling interface options for a variety of fab automation environments and implement multiple measurement technologies for a broad range of substrate sizes. The manual and semi-automated systems are used primarily in engineering labs where automated handling and high throughput are not required. Our automated systems range in price from approximately \$200,000 to over \$1,300,000, depending on substrate sizes, measurement technologies, material handling interfaces and other options. The manual and semi-automated systems range in price from \$50,000 up to \$1,000,000 depending upon configurations and options.

Atlas/Atlas XP and Atlas-M

The Nanometrics Atlas® line of high-performance metrology system combines up to four metrology technologies on a single platform, providing increased measurement capabilities in a small footprint design for reduced cost of ownership. The combinations of technology include polarized, normal incidence spectroscopic ellipsometry for linewidth profile and critical dimensions, spectroscopic reflectometry for films and film stacks, ultra-violet (UV) and deep UV spectroscopic ellipsometry for ultra-thin films and film characterization, and film stress/wafer bow measurements. The Atlas offers high-accuracy, high-precision metrology for wafer characterization and can be configured for 150mm to 300mm wafer sizes or 6-inch masks and reticles. The Atlas XP is the newest product line in the Atlas family and addresses thin film and OCD for the 45nm and 32nm nodes currently in production and development, respectively. The Atlas-M further extends the versatility of this 300mm platform to provide fully-automated mask and reticle measurements. The systems are compatible with our NanoNet®, an optional software package that enables users to synchronize standalone and integrated metrology systems for remote process setup and monitoring.

Caliper

Our Caliper products represent our most advanced overlay metrology solutions, providing the most cost-effective solution for today's advanced 300mm overlay process technologies. Our most recently introduced Caliper system extends the production-proven élan™ platform with a refined optical metrology head coupled with advanced focusing and algorithms to provide increased productivity in both measurement (MAM) time and total measurement uncertainty (TMU).

Q240^{AT} and IVS-185

The Q240^{AT} is a 200mm overlay metrology system incorporating the same measurement technology as the Caliper élan for advanced overlay measurement. The IVS-185 200mm system supports critical dimension and overlay measurements for both semiconductor and MEMS manufacturing. The IVS-185 delivers unsurpassed measurement performance and reliability with the lowest possible cost-of-ownership supporting technologies produced on 2"-8" specialized substrates.

NanoSpec® 9100

The NanoSpec 9100 standalone, automated thin film measurement system is capable of handling wafers ranging in size from 75 to 200 millimeters in diameter. The 9100 can be configured with a deep ultraviolet, or DUV, to near infrared spectroscopic ellipsometer for ultra-thin, multiple film stack and DUV lithography measurement applications. Other 9100 options include a standard mechanical interface with mini-environment enclosures for use in ultra-clean manufacturing facilities. The 9100 uses technologies from the integrated film thickness systems to allow easy transfer of measurement recipes between the integrated and standalone film metrology systems.

Integrated Systems

Our integrated metrology systems are installed inside wafer processing equipment to provide near real-time measurements for improving process control and increasing throughput. Our integrated systems are available for wafer sizes up to 300 millimeters and offer DUV spectroscopic reflectometry and/or critical dimension measurement technologies. Our integrated metrology systems range in price from approximately \$80,000 to \$500,000 depending on features and technology and are sold directly to end customers and through our OEM channels.

9000 Series Integrated Metrology Platform

The 9000 Series of products are ultra-compact measurement systems designed for integration into semiconductor wafer processing equipment. The systems are primarily used for thickness control in CVD processing steps. In its basic configuration, the 9000 is equipped with visible wavelength spectroscopic reflectometry. Other products in the Series, which include solutions for both 200mm and 300mm wafer sizes, can be extended into deep ultraviolet wavelengths.

9010 Series Integrated Metrology Platform

The 9010b is the first integrated metrology tool to combine two measurement technologies on a single platform. The 9010b incorporates both ultra violet OCD spectroscopic ellipsometry and deep ultra violet (DUV) spectroscopic reflectometry. The 9010b provides thin film and film stack thickness measurements on pads as well as oxide, nitride and trench profile measurements on arrays in a single tool. The combined technologies provide a complete measurement solution over the entire range of measurement requirements for each process step. This complete metrology capability can be utilized across a number of lithography, deposition, copper planarization, dielectric planarization, poly-Si etch and dielectric etch applications.

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

The 9010Tx is an advanced, integrated metrology platform for OCD measurement and profiling. The 9010Tx system is designed to be incorporated into semiconductor equipment requiring leading-edge CD metrology for semiconductor applications. The 9010Tx offers an extended wavelength range down to 210nm, extending the CD measurement capabilities for line width structures down to 45nm. The system also incorporates the UV film thickness function, and its improved design offers a faster, more cost effective integrated CD measurement solution with increased throughput. The system is also offered as the 9010Tx-BOLTS, in the SEMI, BOLTS configuration for easy installation directly onto the OEM process equipment's standard 300mm loadport.

The 9010M utilizes our production-proven OCD metrology, and enables non-destructive, real-time measurement and profiling of critical features on photomasks and reticles without the limitations and drawbacks associated with critical dimension scanning electron microscope, or CD-SEM, metrology.

Current CD-SEM technology appears to be reaching its theoretical limits for making critical dimension measurements on these substrates. Photoresist-on-chrome-on-glass features found on reticles and masks suffer severe charging during CD-SEM metrology making critical dimension measurements impossible. OCD is a non-destructive technology that provides information not available from CD-SEM measurements.

IMPULSE Series Integrated Metrology Platform

The IMPULSE is our newest metrology platform for OCD measurement and profiling as well as employing a DUV channel for film thickness. The combined technologies provide a complete measurement solution over the entire range of measurement requirements for each process step. This complete metrology capability can be utilized across a number of lithography, deposition, copper planarization, dielectric planarization, poly-Si etch and dielectric etch applications. The platform enables higher performance and higher reliability for both Integrated applications as well as on the Lynx platform as a standalone tool enabling cluster metrology for high throughput. IMPULSE leverages the success of the 9010 platform with improved process control beyond 45nm and higher throughput for lower cost of ownership.

Trajectory Integrated Metrology System

Our Trajectory integrated metrology system provides a robust and cost-effective solution for in-line measurement of absorber layer and transparent conducting oxide (TCO) layer thickness in thin film solar cells where absorber layer thickness is directly relayed to cell efficiency. Trajectory systems are also qualified on several leading CVD equipment systems giving ultra fast measurements required on high throughput advanced CVD tools.

Materials Characterization Systems

We also offer a broad line of manual and semi-automated thin film thickness, critical dimension, defect inspection and composition measurement systems. Each of these measurement systems uses non-destructive, optical techniques to analyze and measure films. These products also include systems that are used to monitor the physical, optical, electrical and material characteristics of compound semiconductor, strained silicon and silicon-on-insulator (SOI) devices, including composition, crystal structure, layer thickness, dopant concentration, contamination and electron mobility. Tabletop systems are used to manually or semi-automatically measure thin films in engineering and low-volume production environments. We have been a pioneer and leading supplier of tabletop thin film thickness measurement systems, which are used primarily in low-volume production environments such as failure analysis and engineering labs. Our tabletop models have multiple capabilities and several available configurations, depending on wafer handling, range of films to be measured, uniformity mapping and other customer needs.

SiPHER™

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

VerteX™

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

QS2200/3300

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

NanoSpec 3000 and 6100

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

QS1200™

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

Customers

We sell our metrology systems worldwide to many of the major semiconductor manufacturers and equipment suppliers, as well as to producers of silicon wafers and photomasks. The majority of our systems are sold to customers located in Asia and the United States. Two customers, Samsung Electronics Co. Ltd., and Toshiba Semiconductor, represented 16.1% and 11.0% of our total net revenues in 2008, respectively. See Note 19 of the Notes to Consolidated Financial Statements for information regarding our major customers.

The following is a list of our top 25 customers (categorized by type of customer), based on revenues, during 2008.

<u>Original Equipment Manufacturers (OEMs) and Distributors</u>	<u>Semiconductor Companies (IDM, Foundry and Test/Packaging)</u>	<u>Wafer Substrate, Solar PV, HB-LED and Other Companies</u>
Applied Materials, Inc.	Samsung Electronics Co. Ltd.	Mimasu Semiconductor Industry Co.
Toho Technology Corp	Toshiba Semiconductor	Sumco Phoenix Corporation
Ebara Technology Inc.	Hynix Semiconductor, Inc.	OptiSolar Inc.
Quatek Co Ltd.	Semiconductor Mfg Int'l Corp.	Osram Opto Semiconductor GMBH
Tokyo Electron America Inc.	Micron Technology	Western Digital Corporation
	Intel Corporation	National Information Society
	Renesas Technology	Philips Lumileds Lighting Company
	STATSChipPAC	Siltronic Corporation
	Sony Semiconductor	
	IBM Corporation	
	Dongbu HiTek Semiconductor	
	Avago Technologies	

Sales and Marketing

We believe that the capability for direct sales and support is beneficial for developing and maintaining close customer relationships and for rapidly responding to changing customer requirements. We provide direct sales, service and application support from our corporate office in California for customers in the United States. We also have a direct sales presence in South Korea, Japan, Europe, Taiwan, China and Singapore. We use selected sales representatives in the United States and other countries. We intend to continue monitoring our network, our existing and new offices, as well as developing additional distribution relationships when needed. We believe that growing our international distribution network can enhance our competitive position. We maintain a direct sales force of technically sophisticated sales engineers who are knowledgeable in the use of metrology systems generally and with the features and advantages of our specific products. Our sales engineers are supported by applications scientists. Together, these highly trained individuals work closely with our customers to offer cost-effective solutions to complex measurement and process problems which our customers face.

Direct exports of our metrology systems to our foreign customers and shipments to our subsidiaries require general export licenses. See Note 20 of the Notes to Consolidated Financial Statements for information regarding total net revenues and long-lived assets of our foreign operations. See Item 1A, "Risk Factors" for information regarding risks related to our foreign operations.

In addition to our direct sales force, we address broader markets through various sales channels including established distributors and representatives within the United States, Europe, Taiwan, China, Japan and Russia.

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

	<u>2008</u>	<u>2007</u>	<u>2006</u>
United States	29.5%	31.8%	35.0%
Japan	28.0%	27.8%	17.4%
South Korea	20.5%	13.8%	26.3%
Taiwan	5.8%	7.8%	5.4%
China	7.3%	7.3%	6.2%
Europe	5.2%	10.0%	7.2%
All other countries	3.7%	1.5%	2.5%

In order to raise market awareness of our products, we advertise in trade publications, distribute promotional materials, publish technical articles, conduct marketing programs, issue corporate press releases and drive public relations through industry trade shows and various investor relations events. We also maintain a website at www.nanometrics.com.

Customer Service and Support

We believe that customer service and technical support are important factors to distinguish us from our competitors and are essential to building and maintaining close, long-term relationships with our customers. We provide support to our customers with factory technical support and globally deployed field service offices. The factory technical support operations provide both OEM and end-user customers with telephonic technical support access, direct training programs, operating manuals and other technical support information. We use our demonstration equipment for training programs, as well as for our sales and marketing efforts. Our technical training department has metrology systems that are used for customer training. We coordinate warranty and post-warranty field service and spare parts support from our corporate headquarters in Milpitas, California. We also have field service operations based in various locations throughout the United States and Europe. In Asia, service is provided by direct offices in Japan, South Korea, Taiwan and China.

We provide a standard one-year warranty on parts and labor for all of products. Service revenue, including sales of replacement parts, represented 26.0%, 13.8%, and 16.3% of total net revenues in 2008, 2007 and 2006, respectively.

Backlog

As of December 27, 2008 and December 29, 2007, our backlog was \$4.4 million and \$14.0 million, respectively. Backlog includes orders for products that we expect to ship within 12 months. Orders from our customers are subject to cancellation or delay by the customer without penalty. Historically, order cancellations and order rescheduling have not been significant, with the number of incidents of rescheduled orders increasing somewhat in 2008 relative to historical levels. However, orders presently in backlog could be canceled or rescheduled. As only a portion of our revenues for any fiscal quarter represent systems in backlog, we do not believe that backlog is necessarily an accurate indication of our future revenues or financial performance.

Competition

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

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

In the standalone segment, our principal competitor is KLA-Tencor. Our principal competitor in the integrated metrology segment is Nova Measuring Instruments. Our HB-LED and solar PV markets are served by numerous competitors with no one competitor establishing a majority position.

Manufacturing

The majority of our products are currently manufactured at our Milpitas, California facility. To a lesser degree, we also manufacture products at our subsidiary in South Korea. We perform limited subassembly for certain products at our York, England facility. We also use contract manufacturers in China, Israel, Japan and the United States. We combine proprietary measurement technology produced in our facilities with components and subassemblies obtained from outside suppliers. We currently do not expect our manufacturing operations to require us to make any additional major investments in capital equipment.

We have internalized the production of key parts and components. However, certain components, subassemblies and services necessary for the manufacture of our systems are obtained either from a sole supplier or limited group of suppliers. We do not maintain long-term supply agreements with any of our suppliers.

Research and Development

We continue to invest in R&D to ensure that Nanometrics' products stay in the forefront of current and future market demands. Whether it is for an advancement of current technology, new technology, or the development of a new application in our core or emerging markets, Nanometrics is committed to product excellence and longevity. We have several facilities located worldwide that focus on this objective.

We have extensive proprietary technology and expertise in such areas as spectroscopic reflectometry using our patented absolute reflectivity, robust pattern recognition and complex measurement software algorithms. We continue to add to our intellectual property portfolio, most recently in the areas of critical dimension measurement and integrated metrology. We also have extensive experience in systems integration engineering required to design compact, highly automated systems for advanced clean room environments.

Our research and development expenditures for each of the last three fiscal years were as follows:

	<u>Fiscal Year</u>		
	<u>2008</u>	<u>2007</u>	<u>2006</u>
Research and Development			
R&D Expenditures (in millions)	\$17.1	\$18.6	\$14.3
R&D Expenditures as percentage of revenues	16.8%	12.7%	14.8%

Patents and Intellectual Property

Our success depends in large part on the technical innovation of our products and protecting such innovations through a variety of methods. We actively pursue a program of filing patent applications to seek protection of technologically sensitive features of our metrology systems. As of December 27, 2008, we held 86 United States patents with 40 patent applications pending. The patents we own in the United States have expiration dates ranging from 2009 to 2026. We believe that our success will depend to a greater degree upon innovation, technological expertise and our ability to adapt our products to new technology. While we attempt to establish our intellectual property rights through patents and trademarks and protect intellectual property rights through non-disclosure agreements, we may not be able to protect our technology and competitors may be able to develop similar technology independently. Others may obtain patents and assert them against us. In addition, the laws of certain foreign countries may not protect our intellectual property to the same extent as do the laws of the United States. From time to time we receive communications from third parties asserting that our metrology systems may contain design features that are claimed to infringe their proprietary rights. We typically refer such matters to our legal counsel; see Item 3, "Legal Proceedings."

We have registered the following trademarks with the U.S. Patent and Trademark Office: Nanometrics®, Atlas®, NanoSpec®, Integrated Metrology®, NanoNet®, OCD® and others. Additionally, we use a variety of other trademarks and trade names such as Caliper, Lynx, IMPULSE, NanoCD, NanoGen, NanoMatch, NanoStation, NanoDiffract, VerteX, SiPHER, Trajectory, Q240^{AT}, IVS, the QS series, Accent and the Nanometrics logo. All other brand names, trade names and trademarks mentioned herein are the property of their respective holders. The effect of registering our trademarks is to further protect Nanometrics' brand and corporate identity.

Environmental Matters

We are subject to a variety of governmental regulations related to the discharge or disposal of toxic, volatile or otherwise hazardous waste. Our compliance with federal, state and local provisions regulating the discharge of materials into the environment, and the remedial actions we have taken with respect to environmental regulations, have not had, and are not expected to have, a material effect on our business, financial condition, results of operations or cash flows.

Employees

At December 27, 2008, we employed 465 persons worldwide with 65 in manufacturing and manufacturing support, 137 in customer service, 72 in applications, 92 in research and development, 39 in sales and marketing and 60 in general administration and finance. None of our employees are represented by a union and we have never experienced a work stoppage as a result of union actions. Many of our employees have specialized skills that are of value to us. Our future success will depend in large part upon our ability to attract and retain highly skilled scientific, technical and managerial personnel, who are in great demand in our industry. We consider our employee relations to be good.

Our Executive Officers

The names of our executive officers and their ages, titles and biographies as of December 27, 2008 are set forth below:

<u>Name</u>	<u>Age</u>	<u>Position</u>
Timothy J. Stultz	61	President, Chief Executive Officer and Director
Bruce A. Crawford	56	Chief Operating Officer and Interim Chief Financial Officer

Timothy J. Stultz, Ph.D., 61, has served as President, Chief Executive Officer and a director since August 2007. From June 2003 to August 2007, Dr. Stultz served as the President and Chief Executive Officer and a member of the board of directors of Imago Scientific Instruments Corporation, a supplier of proprietary 3-D atom probe microscopes to the research materials and microelectronics industries. Prior to Imago, Dr. Stultz served as President and Chief Executive Officer for ThauMDx, a developer of diagnostic systems and technologies for the analysis of biomolecules, drugs and chemicals. Dr. Stultz received his B.S., M.S. and Ph.D. in Materials Science and Engineering from Stanford University.

Bruce A. Crawford, 56, has served as our Chief Operating Officer since July 2006 and was Chief Financial Officer on an interim basis from September 2008 until February 2009. 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.

Subsequent to our fiscal year end, James P. Moniz, 51, was appointed as Chief Financial Officer (and our principal accounting officer) on February 18, 2009. Prior to joining the Company, Mr. Moniz served as Chief Financial Officer of Photon Dynamics, Inc., a global supplier of flat panel display test equipment, from April 2008 until October 2008. From October 2000 until February 2008, Mr. Moniz was Chief Financial Officer, Treasurer and Assistant Secretary of Nextest Systems Corporation. Mr. Moniz holds bachelor's degrees in both Accounting and Marketing, as well as an MBA in Finance, from San Jose State University.

ITEM 1A. RISK FACTORS

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

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

We are exposed to risks associated with the ongoing financial crisis and weakening global economy.

The recent severe tightening of the credit markets, turmoil in the financial markets and weakening global economy are contributing to slowdowns in the industries in which we operate. The slowdowns are expected to

worsen if these economic conditions are prolonged or deteriorate further. If we are unable to timely and appropriately adapt to changes resulting from the difficult economic environment, our business, financial condition and results of operations will be adversely affected, and we may be required to raise additional funds through public or private equity or debt financings. In that event, we could be forced to obtain financing on terms that are not favorable to us and, in the case of an equity or convertible debt financing, may result in dilution to our stockholders.

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 industry. Accordingly, we expect that we will continue to depend on a small number of large customers for a significant portion of our revenues for the foreseeable future. If our current relationships with our large customers are impaired, or if we are unable to develop similar collaborative relationships with important customers in the future, our-revenues could significantly decline.

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

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

We depend on OEM suppliers for sales of our integrated metrology systems, and the loss of our OEM suppliers as customers could harm our business.

We believe that sales of integrated metrology systems will continue to be an important source of our revenues. Sales of our integrated metrology systems depend upon the ability of OEMs to sell semiconductor equipment products that include our metrology systems as components. If our OEMs 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 OEMs as customers for any reason, our ability to realize sales from integrated metrology systems would be diminished, which would harm our business.

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

We rely on outside vendors to manufacture many components and subassemblies. Certain components, subassemblies and services necessary for the manufacture of our systems are obtained from a sole supplier or limited group of suppliers. We do not maintain any long-term supply agreements with any of our suppliers. We have entered into arrangements with J.A. Woolam Co., Inc. for the purchase of the spectroscopic ellipsometer component incorporated in 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. Our reliance on a sole or a limited group of suppliers involves several risks, including the following:

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

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

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

Our Chief Executive Officer joined the Company in August 2007 and in September 2008, our former Chief Financial Officer and Vice President, Administration, who joined us in November 2007, was replaced, on an interim basis, by Bruce Crawford, our Chief Operating Officer. Our former Chief Accounting Officer also resigned in December 2008. James P. Moniz was appointed as Chief Financial Officer (and our principal accounting officer) on February 18, 2009. Although we have employment agreements with certain key members of our senior management team, including Messrs. Stultz, Crawford and Moniz, these individuals or other key employees may still leave us. We do not have key person life insurance on any of our executives. In addition, to support our future growth, we will need to attract and retain additional qualified employees. Competition for such personnel in our industry is intense, and we may not be successful in attracting and retaining qualified employees. If we fail to attract, motivate and retain qualified senior management personnel, our business could be harmed and our ability to implement our strategy could be compromised.

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

Since 2007, we have taken steps, including reductions in force, facility closures, and internal reorganizations to reduce the size and cost of our operations and to better match our resources with our market opportunities. We may take similar steps in the future to improve efficiency and match our resources with market opportunities, and as a result of such actions, we may incur restructuring expenses. In the first and third quarters of 2008, we undertook a restructuring that involved a reduction of our global workforce by approximately 30 and 34 employees, respectively, which action caused us to record restructuring and reorganization charges of \$870,000 and \$655,000, respectively.

Several factors could cause a restructuring to adversely affect our business, financial condition and results of operations. These include potential disruption of our operations, the development of our technology, our supply chain and other aspects of our business. Employee morale and productivity could also suffer and result in unintended employee attrition. Loss of sales, service and engineering talent, in particular, could damage our business. Any restructuring would require substantial management time and attention and may divert management from other important work. If we undertake further employee reductions or other restructuring activities, we will likely record restructuring and related expenses and accounting charges. Accounting charges

may include inventory and technology-related write-offs, workforce reduction costs and charges relating to consolidation of excess facilities, and if we are required to take a substantial charge related to any future restructuring activities, our results of operations would be adversely affected in the period in which we take such a charge. Moreover, we could encounter delays in executing any restructuring plans, which could cause further disruption and additional unanticipated expense.

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

As a publicly traded company, we are subject to rules adopted by the SEC pursuant to Section 404 of the Sarbanes-Oxley Act of 2002. Section 404 requires us to include an internal control report from management in our Annual Report on Form 10-K. The internal control report must include the following: (1) a statement of management's responsibility for establishing and maintaining adequate internal control over financial reporting, (2) a statement identifying the framework used by management to conduct the required evaluation of the effectiveness of our internal control over financial reporting and (3) management's assessment of the effectiveness of our internal control over financial reporting as of the end of each fiscal year, including a statement as to whether or not internal control over financial reporting is effective. A statement that our independent registered public accounting firm has issued an attestation report on management's internal control over financial reporting was not required for 2008 as we are not an accelerated filer.

Our assessment as of December 29, 2007 identified a material weakness in our internal controls over financial reporting, which also adversely impacted our disclosure controls and procedures. A material weakness is a deficiency, or a combination of deficiencies, in internal controls over financial reporting, such that there is a reasonable possibility that a material misstatement of the Company's annual or interim financial statements will not be prevented or detected on a timely basis. The material weakness identified in 2007 was regarding our internal controls for the provision of income taxes in foreign jurisdictions.

Since discovery of the material weakness in 2007, we performed extensive additional work and implemented several procedures to obtain reasonable assurance regarding the reliability of our financial statements. Based on our testing of these enhanced procedures, in the quarter ended December 27, 2008, management determined that as of December 27, 2008, we have remediated the material weakness in internal controls over financial reporting and the controls are now operating effectively. Even with this remediation complete, however, we could have material weaknesses in the future. For additional information refer to Item 9A "Controls and Procedures".

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

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

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

Our products are complex and require technical expertise to design and manufacture properly. Various problems occasionally arise during the manufacturing process that may cause delays and/or impair product

quality. Any significant delays stemming from the failure of our products to meet or exceed our internal quality specifications, or for any other reasons, would delay our shipments. Shipment delays could harm our business and reputation in the industry.

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

Our commercial success depends, in part, on our ability to avoid infringing or misappropriating patents or other proprietary rights owned by third parties. From time to time we may receive communications from third parties asserting that our metrology systems may contain design features which are claimed to infringe on their proprietary rights. For example, in August 2005, we were served with a complaint by KLA-Tencor, or KLA, alleging that certain of our products infringe two of KLA's patents, Patent No. 6,483,580 and Patent No. 6,590,656. In January 2006, KLA added Patent No. 6,611,330 to its claim. For additional information, refer to Part II, Item 1. Legal Proceedings. Our new or current products may infringe valid intellectual property rights, but even if our products do not infringe, we may be required to expend significant sums of money to defend against infringement claims, or to actively protect our intellectual property rights through litigation.

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

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

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

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

If we do complete a sale, customers often purchase only one of our systems and then evaluate its performance for a lengthy period of time before purchasing additional systems. The purchases are generally made through purchase orders rather than through long-term contracts. The number of additional products that a customer purchases, if any, depends on many factors, including a customer's capacity requirements. The period between a customer's initial purchase and any subsequent purchases is unpredictable and can vary from three months to a year or longer. Variations in the length of this period could cause fluctuations in our operating results, which could adversely affect our stock price.

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

During any quarter, a significant portion of our revenue is derived from the sale of a relatively small number of systems. Our automated metrology systems range in price from approximately \$200,000 to over \$1,300,000 per system, and our integrated metrology systems range in price from approximately \$80,000 to \$500,000 per system. Accordingly, a small change in the number or mix of systems that we sell could cause significant changes in our operating results.

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

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

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

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

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

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

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

We have recently introduced several products to the market including the NanoCD Suite, Impulse and the Lynx platform. We have invested substantial time and resources into the development of these products. However, we cannot accurately predict the future level of acceptance of our new products by our customers. As a result, we may not be able to generate anticipated revenue from sales of these products. While we anticipate that our new products will become an increasingly larger component of our business, their failure to gain acceptance with our customers could materially harm our business. Additionally, if our new products do gain market acceptance, our ability to sell our existing products may be impeded and our business would suffer.

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

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

In addition to patent protection, we rely upon trade secret protection for our confidential and proprietary information and technology. We routinely enter into confidentiality agreements with our employees. However, in the event that these agreements may be breached, we may not have adequate remedies. Our confidential and proprietary information and technology might also be independently developed by or become otherwise known to third parties. We may be required to initiate litigation in order to enforce any patents issued to or licensed by us, or to determine the scope or validity of a third party's patent or other proprietary rights. Any such litigation, regardless of outcome, could be expensive and time consuming, and could subject us to significant liabilities or require us to re-engineer our product or obtain expensive licenses from third parties, any of which would adversely affect our business and operating results. In March 2006, we filed a complaint against Nova Measuring Instruments for infringing our Patent No. Re 34,783. In October 2006, we filed a new complaint against Nova for infringement of Patent No. 5,867,276 and 7,115,858. In April 2007, we and Nova agreed to dismiss, without prejudice, all pending patent litigation and entered into a covenant not to sue one another for any patent for a period of one year.

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 May 2008, we acquired Tevet Process Control Technologies, Ltd., an integrated metrology company serving the worldwide semiconductor and solar manufacturing industry. At the outset, we do not know if we will be able to complete any acquisitions, or whether we will be able to successfully integrate any acquired business, operate them profitably or retain their key employees. Integrating any business, product or technology that we acquire could be expensive and time consuming, disrupt our ongoing business and distract our management. In addition, in order to finance any acquisitions, we may be required to raise additional funds through public or private equity or debt financings. In that event, we could be forced to obtain financing on terms that are not favorable to us and, in the case of an equity or convertible debt financing, which may result in dilution to our stockholders. If we are unable to integrate any acquired entities, products or technologies effectively, our business will suffer.

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

We produce all of our systems in our manufacturing facilities located in Milpitas, California and to a lesser extent, we manufacture through our subsidiary in South Korea. 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 a severe fire or earthquake, could seriously harm our ability to satisfy our customer order deadlines.

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

In 2008, 2007 and 2006, 70.5%, 68.2% and 65.0%, respectively, of our total net revenues were derived from sales to customers in foreign countries, including certain countries in Asia, such as Japan, South Korea, China and Taiwan. The laws of some foreign countries do not protect our proprietary rights to as great an extent as do the laws of the United States, and many U.S. companies have encountered substantial problems in protecting their proprietary rights against infringement in such countries. If we fail to adequately protect our intellectual property in these countries, it would be easier for our competitors to sell competing products and our business would suffer.

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 lead us to change our methods, estimates and judgments. Changes in those methods, estimates and judgments could significantly affect our results of operations. In particular, our operating results have been affected by adoption of SFAS No. 123(R) for the calculation of share-based compensation expense and by implementation of SFAS 142 and 144 regarding the testing and potential impairment of long-lived assets such as goodwill and other intangible assets. The process of evaluating potential impairments is highly subjective and requires significant judgment, and our results of operations could vary in the future if the forecasts used in subjective assessments are inaccurate.

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

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

- changes in customer demand for our systems;
- economic conditions in the semiconductor industries;
- the timing, cancellation or delay of customer orders and shipments;
- market acceptance of our products and our customers’ products;
- our ability to recover the higher costs associated with meeting our customers’ increasing service demands;
- competitive pressures on product prices and changes in pricing by our customers or suppliers;
- the timing of new product announcements and product releases by us or our competitors and our ability to design, introduce and manufacture new products on a timely and cost-effective basis;
- the occurrence of potential impairments of long-lived assets;
- the timing of acquisitions of businesses, products or technologies;
- the levels of our fixed expenses, relative to our revenue levels; and
- fluctuations in foreign currency exchange rates, particularly the Japanese yen and the British pound sterling.

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

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

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

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

We maintain facilities in Japan, Taiwan, the United Kingdom, South Korea, China, Israel and the European Union. We anticipate that international sales will continue to account for a significant portion of our revenues. International sales and operations carry inherent risks such as:

- regulatory limitations imposed by foreign governments,
- obstacles to the protection of our intellectual property, political, military and terrorism risks,
- disruptions or delays in shipments caused by customs brokers or other government agencies,
- unexpected changes in regulatory requirements, tariffs, customs, duties and other trade barriers,
- difficulties in staffing and managing foreign operations,
- and potentially adverse tax consequences resulting from changes in tax laws.

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

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

As a global concern, we face exposure to adverse movements in foreign currency exchange rates. With our operations in Japan, South Korea, the United Kingdom, Taiwan, China and Israel, a significant percentage of our cash flows are exposed to foreign currency risk. 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 violate environmental laws or regulations in the future as a result of human error, the inability to obtain permits, 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.

Political instability could affect our business and results of operations.

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

We may not maintain NASDAQ listing requirements, which would adversely affect the price and liquidity of our common stock.

To maintain the listing of our common stock on The NASDAQ Global Market, we are required to meet certain listing requirements, including a minimum bid price of \$1.00 per share. If our stock trades below the \$1.00 minimum bid price for 30 consecutive business days, NASDAQ may choose to notify us that it may delist our common stock from The NASDAQ Global Market. If the closing bid price of our common stock did not thereafter regain compliance for a minimum of 10 consecutive trading days during the 180 days following notification by NASDAQ, NASDAQ could delist our common stock from trading on The NASDAQ Global Market. There can be no assurance that our common stock will remain eligible for trading on The NASDAQ Global Market. If our stock were delisted, the ability of our stockholders to sell any of our common stock at all would be severely, if not completely, limited, causing our stock price to continue to decline.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

At December 27, 2008, our owned or leased facilities included those described below:

Type	Location	Square Footage	Use
Owned	Milpitas, California	133,000	Corporate headquarters and manufacturing
Owned(1)	Pyongtaek-city, South Korea	39,000	Sales, service and manufacturing
Owned	Milpitas, California	3,038	Corporate housing
Leased	Tokyo, Japan	7,500	Sales, service and corporate housing
Leased	Kumamoto, Japan	3,250	Sales, service and engineering
Leased	Osaka, Japan	1,000	Sales and service
Leased	Yokkaichi, Japan	1,750	Sales and service
Leased	York, England	20,338	Sales, service and engineering
Leased	York, England	1,300	Corporate housing
Leased	Whasung-City, South Korea	4,780	Engineering
Leased	Dong-Guang, Taiwan	9,400	Sales and service
Leased	Shanghai, China	3,000	Sales and service
Leased	Austin, Texas	1,130	Sales and service
Leased	Bend, Oregon	5,200	Engineering, sales and service
Leased	Beaverton, Oregon	2,675	Sales and service
Leased(2)	Milpitas, California	7,000	Warehouse
Leased	Yokneam, Israel	2,625	Engineering, sales and Service

- (1) Real estate improvements on this property are owned. The underlying land, however, is leased.
- (2) This lease was terminated subsequent to our fiscal year ended December 27, 2008.

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

ITEM 3. LEGAL PROCEEDINGS

In August 2005, KLA-Tencor Corporation, or KLA, filed a complaint against us in the United States District Court for the Northern District of California. The complaint alleges that certain of our products infringe two of KLA's patents. On January 30, 2006, KLA added a third patent to their claim. The complaint seeks a preliminary and permanent injunction against the sale of these products as well as the recovery of monetary damages and attorneys' fees. We do not believe that any of our products infringe the intellectual property of any third party and we intend to vigorously and aggressively defend ourselves in the litigation. As part of such defense, we have filed a request for re-examination of the three allegedly infringed KLA patents with the U.S. Patent & Trademark Office, or PTO. In March 2006, we filed a motion for and were granted a stay in the patent litigation case until such re-examination is completed. On July 28, 2008, the PTO issued a Notice of Intent to issue a Reexamination Certificate for one of the KLA patents. The other two patent reexaminations remain pending. In all three of the reexamination proceedings, the PTO has issued Office Actions rejecting numerous claims and KLA has amended the claims in response.

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

No matters were submitted to a vote of security holders during the quarter ended December 27, 2008.

PART II

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

Market Information for Common Stock

Our common stock is quoted on the NASDAQ Global Market under the symbol "NANO." The following table sets forth, for the periods indicated, the high and low bid prices per share of our common stock as reported on the NASDAQ Global Market. These quotations represent prices between dealers and do not include retail markups, markdowns or commissions and may not necessarily represent actual transactions.

	High	Low
2008		
First Quarter	\$ 9.93	\$5.00
Second Quarter	\$ 8.50	\$5.75
Third Quarter	\$ 6.09	\$2.20
Fourth Quarter	\$ 3.04	\$0.80
2007		
First Quarter	\$ 8.51	\$6.63
Second Quarter	\$ 6.94	\$5.74
Third Quarter	\$ 9.00	\$6.12
Fourth Quarter	\$11.71	\$7.48

Stockholders

On March 17, 2009, the last reported sales price of our common stock on the NASDAQ Global Market was \$1.18 per share and there were approximately 284 holders of record of our common stock. Because brokers and the institutions on behalf of stockholders hold many of our shares of common stock, we are unable to estimate the total number of stockholders represented by these record holders.

Dividend Policy

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

Equity Compensation Plan Information

The following table gives information about the common stock that may be issued under all of our existing equity compensation plans as of December 27, 2008.

Plan category	Number of securities to be issued upon exercise of outstanding options, warrants and rights	Weighted-average exercise price of outstanding options, warrants and rights	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column)
Equity compensation plans approved by security holders	3,073,069	\$7.12	1,471,270
Equity compensation plans not approved by security holders(1)	489,368	\$8.35	193,773
Total	3,562,437	\$7.29	1,665,043

(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 13 to the consolidated financial statements.

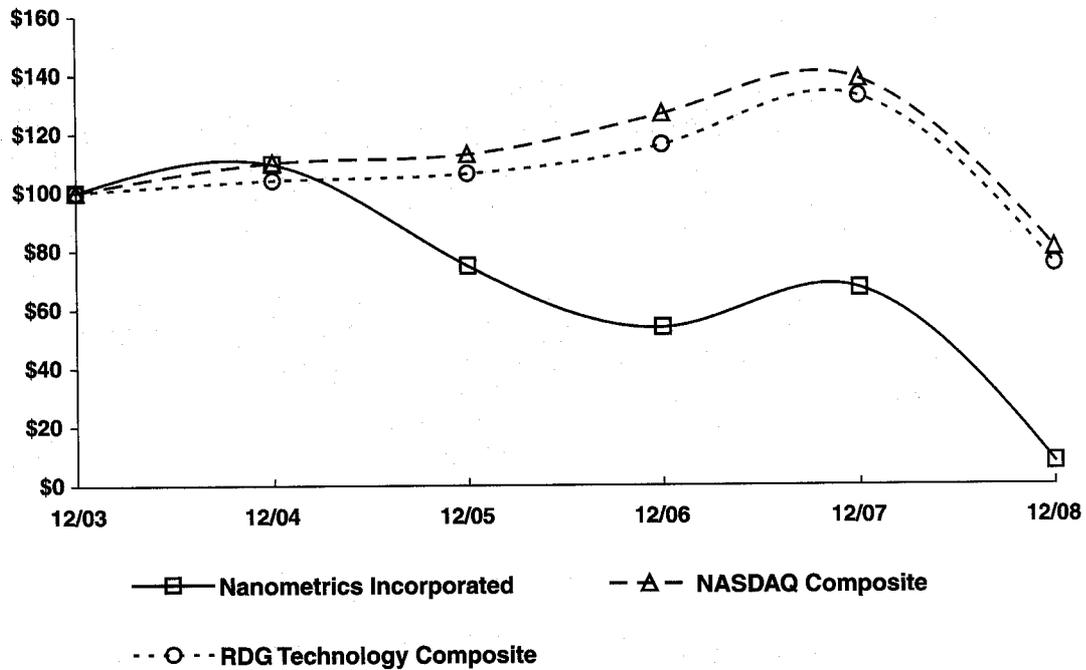
Stock Performance Graph

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 12/31/03 in stock or index, including reinvestment of dividends.
Fiscal year ending December 31.

Recent Sales of Unregistered Securities

None.

Issuer Purchases of Equity Securities

We repurchased the following shares of our common stock during the three-month period ended December 27, 2008:

Issuer Purchase of Equity Securities

<u>Period</u>	<u>Total Number of Shares Purchased</u>	<u>Average Price Paid per Share</u>	<u>Total Number of Shares Purchased as Part of a Publicly Announced Programs(1)</u>	<u>Maximum Dollar Value of Shares that May Yet Be Purchased Under the Program(1)</u>
Month Ending October 25, 2008	—	—	—	\$1,424,629
Month Ending November 22, 2008	85,995	\$1.22	85,995	\$1,319,675
Month Ending December 27, 2008	—	—	—	\$1,319,675
Total for the quarter ending December 27, 2008 ..	<u>85,995</u>	<u>\$1.22</u>	<u>85,995</u>	<u>\$1,319,675</u>

- (1) On July 26, 2007, our Board of Directors approved the repurchase of up to \$4.0 million of our common stock. Share repurchases under this program may be made through open market and privately negotiated transactions, at times and in such amounts as management deems appropriate. The timing and actual number of shares repurchased will depend on a variety of factors including price, corporate and regulatory requirements and other market conditions. The stock repurchase program may be limited or terminated at any time without prior notice. As of December 27, 2008, there remained \$1.3 million available for the future purchase 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 Form 10-K.

	Fiscal Year				
	2008	2007	2006(a)	2005	2004(b)
(in thousands, except per share data)					
Consolidated Statement of Operations Data:					
Net revenues:					
Products	\$ 75,596	\$126,049	\$ 80,636	\$61,012	\$62,147
Service	26,505	20,241	15,738	9,531	7,784
Total net revenues	102,101	146,290	96,374	70,543	69,931
Costs of revenues:					
Cost of products	38,692	63,938	44,016	28,917	27,812
Cost of service	18,675	20,717	16,610	10,695	8,404
Total cost of net revenues	57,367	84,655	60,626	39,612	36,216
Gross profit	44,734	61,635	35,748	30,931	33,715
Operating expenses:					
Research and development	17,110	18,577	14,253	12,533	12,827
Selling	17,798	19,561	16,977	10,945	11,748
General and administrative	19,689	21,704	21,305	11,882	5,137
Amortization of intangible assets	3,531	5,782	5,338	256	—
Restructuring charge	1,525	2,128	—	—	—
Gain on sale of assets	—	(2,100)	—	—	—
Merger termination fee	—	—	—	(8,300)	—
Asset impairment and disposition	68,545	—	—	2,232	—
Total operating expenses	128,198	65,652	57,873	29,548	29,712
(Loss) income from operations	(83,464)	(4,017)	(22,125)	1,383	4,003
Other (expense) income, net	1,174	(22)	(325)	346	122
Provision (benefit) for income taxes	436	(31)	(323)	218	426
Net (loss) income	<u>\$ (82,726)</u>	<u>\$ (4,008)</u>	<u>\$ (22,127)</u>	<u>\$ 1,511</u>	<u>\$ 3,699</u>
Basic net (loss) income per share	<u>\$ (4.46)</u>	<u>\$ (0.22)</u>	<u>\$ (1.47)</u>	<u>\$ 0.12</u>	<u>\$ 0.30</u>
Diluted net (loss) income per share	<u>\$ (4.46)</u>	<u>\$ (0.22)</u>	<u>\$ (1.47)</u>	<u>\$ 0.11</u>	<u>\$ 0.28</u>
Shares used in per share computation:					
Basic	<u>18,546</u>	<u>18,099</u>	<u>15,075</u>	<u>12,760</u>	<u>12,320</u>
Diluted	<u>18,546</u>	<u>18,099</u>	<u>15,075</u>	<u>13,471</u>	<u>13,364</u>

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

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

	Fiscal Year End				
	2008	2007	2006	2005	2004
	(in thousands)				
Consolidated Balance Sheet Data:					
Cash, cash equivalents and short-term investments	\$ 23,980	\$ 14,919	\$ 7,957	\$ 45,394	\$ 33,868
Working capital	57,739	57,062	49,721	76,731	68,588
Total assets	123,854	207,076	212,376	136,300	133,769
Long-term liabilities incl. current portion of debt obligation	14,140	1,560	1,807	1,796	4,164
Total stockholders' equity	92,767	175,844	174,631	120,343	116,829

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

Overview

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

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

Capital expenditures by manufacturers of semiconductors, especially in Asia, are critical to our success. Purchases of our systems by these manufacturers are driven by the expected market demand for their new products and new applications. The increasing complexity of the manufacturing processes for semiconductors is an important factor in the demand for our innovative metrology systems, as are the adoption of optical critical dimension (OCD) metrology across fabrication processes, adoption of immersion lithography and double patterning, adoption of new types of thin film materials and the need for improved process control to drive process efficiencies. Our strategy is to continue to innovate organically as well to evaluate strategic acquisitions in order to address business challenges and opportunities.

Our revenues are primarily derived from product sales but are also derived from customer service and system upgrades for the installed base of our products. In 2008, we derived 74.0% of our total net revenues from product sales and 26.0% of our total net revenues from services.

Important Themes and Significant Trends

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

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

- **Adoption of Immersion Lithography and Development of Double Patterning for Critical Photolithographic Layers.** In an effort to reduce costs and increase device performance, semiconductor manufacturers are decreasing both the die size and feature size. Both immersion processing and double patterning techniques are being implemented to achieve the requisite device linear dimension and density. The additional rigors of these technologies increase the burden on overlay and registration capability as well as critical dimension monitoring and control. These techniques are shrinking total available process windows faster than the scaling predicted by Moore's Law, resulting in the need for additional metrology and process control for both overlay and OCD systems.
- **Adoption of New Types of Thin Film Materials.** The need for ever increasing device circuit speed coupled with lower power consumption has pushed semiconductor device manufacturers to begin the replacement of the traditional aluminum etch back interconnect flows as well as conventional gate dielectric materials, all which drive a broader adoption of thin film and OCD metrology systems. To achieve greater semiconductor device speed, manufacturers have adopted copper in Logic/IDM and it is now proliferating in next generation DRAM and Flash nodes. Additionally, to achieve improved transistor performance in logic devices and higher cell densities in memory devices, new materials including high dielectric constant (or high-k) gate materials are increasingly being substituted for traditional silicon-oxide gate dielectric materials. High-k materials are comprised of complex thin films including layers of hafnium oxide and a bi-layer of thin film metals. Our advanced metrology solutions are required for thickness control of these layers, which is critical to enable the device performance improvements that these new materials allow.
- **Need for Improved Process Control to Drive Process Efficiencies.** Competitive forces influencing semiconductor device manufacturers, such as price-cutting and shorter product life cycles, place pressure on manufacturers to rapidly achieve production efficiency. Device manufacturers are using our integrated and standalone metrology systems throughout the fab to ensure that manufacturing processes scale rapidly, are accurate and can be repeated on a consistent basis.
- **Reduced Number of Customers.** Because of the escalating cost of 300mm manufacturing facilities, fewer semiconductor manufacturers can afford the significant investment in these next generation facilities. Therefore, fewer opportunities for semiconductors equipment companies exist. Given that the available number of potential customers is decreasing, pre-existing customer relationships, product positioning and critical mass take on greater importance.

Critical Accounting Policies

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

Revenue Recognition – We recognize revenue when persuasive evidence of an arrangement exists, delivery has occurred or services have been rendered, the seller's price is fixed or determinable, and collectibility is reasonably assured. Product revenue includes hardware and also software that is incidental to the products as defined pursuant to AICPA Statement of Position ("SOP") No. 97-2, *Software Revenue Recognition*. We derive

revenue from three sources—sales of process control metrology systems, spare part sales and, in certain arrangements, separately stated service contracts. Service revenue includes product upgrades. Our arrangements for sales of our systems often include customer-specified objective acceptance criteria. Our systems include hardware and software that is incidental to the system. We periodically review the software element of our equipment systems in accordance with AICPA Statement of Position (“SOP”) No. 97-2, *Software Revenue Recognition*, and Emerging Issues Task Force (“EITF”) Issue No. 03-05, *Applicability of SOP 97-2 to Non-Software Deliverables in an Arrangement Containing More-than-Incidental Software*, to ascertain that the software continues to be incidental.

For product sales to existing customers, revenue recognition occurs at the time title and risk of loss transfer, which usually occurs upon delivery, if we have reliably demonstrated that the product has successfully met the defined customer specified criteria, and all other recognition criteria has been met. This occurs at the time of shipment, as our terms are FOB shipping point. For initial sales of product where we have not previously met the defined customer acceptance criteria, product revenues are recognized upon the earlier of receipt of written customer acceptance or expiration of the contractual acceptance period. In Japan, where our contractual terms with the customer specify risk of loss and title transfers upon customer acceptance, revenue is recognized upon receipt of written customer acceptance, provided all other recognition criteria have been met.

All of our products are assembled prior to shipment to our customers. We often perform installation for our customers; however such installation is inconsequential and perfunctory as it may also be performed by third parties and is not considered essential to the functionality of the equipment. Revenue related to spare parts sales is recognized upon shipment and is included as part of service revenue. Service revenue also includes service contracts, spare parts, and non-warranty and billable repairs of systems, and product upgrades. Whereas service revenue related to service contracts is recognized ratably over the period under contract, service revenue related to billable repairs of systems is recognized as services are performed and service parts are delivered. On occasion, customers request a warranty period longer than our standard 12 month warranty. In those instances where extended warranty services are separately quoted to the customer, we follow the guidance of Financial Accounting Standards Board Technical Bulletin 90-1, *Accounting for Separately Priced Extended Warranty and Product Maintenance Contracts*, associated revenue is deferred and recognized to income ratably over the term of the contract. Unearned maintenance and service contract revenue is included in deferred revenue. Furthermore, generally we do not provide our customers with any return rights.

The guidance in EITF No. 00-21, *Revenue Arrangements with Multiple Deliverables*, is considered in cases where certain elements of a sales arrangement are not delivered and accepted at the same time. In such cases, we defer the relative fair value of the undelivered element until that element is delivered and accepted by the customer. In order to recognize revenue associated with delivered elements, the following criteria must be met: (a) the delivered item(s) has value to the customer on a standalone basis; (b) there is objective and reliable evidence of the fair value of the undelivered item(s); and (c) delivery or performance of the undelivered item(s) is considered probable and substantially in our control. If the arrangement does not meet all the above criteria, the entire amount of the sales contract is deferred until the criteria have been met or all elements have been delivered to the customer. Objective and reliable evidence of the fair value is based on the amounts for which we sell equivalent products or services on a standalone basis. Upon recognition of product revenue, a liability is recorded for anticipated warranty costs. Service contracts may be purchased by the customer during or after the warranty period.

Allowance for Doubtful Accounts – We maintain allowances for estimated losses resulting from the inability of our customers to make required payments. Credit limits are established through a process of reviewing the financial history and stability of our customers. Where appropriate and available, we obtain credit rating reports and financial statements of customers when determining or modifying their credit limits. We regularly evaluate the collectibility of our trade receivable balances based on a combination of factors such as the length of time the receivables are past due, customary payment practices in the respective geographies and our historical collection experience with customers. We believe that our allowance for doubtful accounts reflects our risk associated with

smaller rather than larger customers and that our reported allowances are adequate. If however, the financial conditions of customers were to deteriorate, resulting in their inability to make payments, we would assess the necessity to record additional allowances which would result in additional general and administrative expenses being recorded for the period in which such determination was made.

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

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

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

Goodwill and Intangible Assets – Goodwill is initially recorded when the purchase price paid for an acquisition exceeds the estimated fair value of the net identified tangible and intangible assets acquired. Under Statement of Financial Accounting Standards (“SFAS”) No. 142, “*Goodwill and Other Intangible Assets*” (“SFAS 142”), intangible assets with finite lives are amortized over their useful lives while goodwill and indefinite lived assets are not amortized but tested annually for impairment. Our impairment review process is completed as of the last day of November of each year or whenever events or circumstances occur which indicate that an impairment might have occurred. SFAS 142 provides for a two-step approach to determining whether and by how much goodwill has been impaired. The first step requires a comparison of the fair value of Nanometrics’ reporting units (product and service) to its net book value. If the fair value is greater, then no impairment is deemed to have occurred. If the fair value is less, then the second step must be performed to determine the amount, if any, of actual impairment.

The process of evaluating the potential impairment of goodwill is highly subjective and requires significant judgment. In estimating the fair value of Nanometrics, we make estimates and judgments about future revenues and cash flows for each reporting unit. To determine the fair value, our review process includes the income method and is based on a discounted future cash flow approach that uses estimates including the following for each reporting unit: revenue, based on assumed market growth rates and our assumed market share; estimated costs; and appropriate discount rates based on the particular business'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 the second step in determining the amount of goodwill impairment, if any, we allocate the fair value of the reporting units to all of its assets and liabilities as if the reporting units had been acquired in a business combination and the fair value of the reporting units was the price paid to acquire the reporting unit. The excess of the fair value of each reporting unit over the amount assigned to its assets and liabilities is the implied fair value of goodwill. When impairment is deemed to have occurred, we will recognize an impairment charge to reduce the carrying amount of our goodwill to its implied fair value.

Income Tax Assets and Liabilities – We account for income taxes based on SFAS 109, “*Accounting for Income Taxes*”, whereby deferred tax assets and liabilities must be recognized using enacted tax rates for the effect of temporary differences between the book and tax accounting for assets and liabilities. Also, deferred tax assets must be reduced by a valuation allowance if it is more likely than not that a portion of the deferred tax asset will not be realized in the future. We evaluate the deferred tax assets on a quarterly basis to determine whether or not a valuation allowance is appropriate. Factors used in this determination include future expected income and the underlying asset or liability which generated the temporary tax difference. Our income tax provision is primarily impacted by federal statutory rates, state and foreign income taxes and changes in our valuation allowance.

Stock-Based Compensation – Upon adoption of SFAS 123(R), “*Share based payment*”, on January 1, 2006, we began estimating 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 allowed by Staff Accounting Bulletin 107 and extended by Staff Accounting Bulletin 110. The expected volatility is based on the historical volatility of our stock price.

Restructuring Charge – During 2008 and 2007, we implemented a restructuring program based on our business strategy and recorded significant accruals in connection with the restructuring program. In connection with the plan we have recorded estimated expenses for severance and other costs. In accordance with SFAS 146, “*Accounting for Costs Associated with Exit or Disposal Activities*”, generally 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. In addition post-employment benefits accrued for workforce reductions related to restructuring activities are accounted for under SFAS 112, “*Employer's Accounting Post-Employment Benefits*”. 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 we believe that these estimates accurately reflect the costs of the restructuring programs, actual results may vary or differ, thereby requiring us to record additional provisions or reverse a portion of such provisions.

Recent Accounting Pronouncements

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

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 27, 2008, December 29, 2007 and December 30, 2006.

	Fiscal Year		
	2008	2007	2006
Net revenues:			
Products	74.0%	86.2%	83.7%
Service	26.0	13.8	16.3
Total net revenues	100.0	100.0	100.0
Costs of net revenues:			
Cost of products	37.9	43.7	45.7
Cost of service	18.3	14.2	17.2
Total costs of net revenues	56.2	57.9	62.9
Gross profit	43.8	42.1	37.1
Operating expenses:			
Research and development	16.8	12.7	14.8
Selling	17.4	13.4	17.6
General and administrative	19.3	14.8	22.1
Amortization of intangibles	3.5	3.9	5.5
Restructuring charge	1.5	1.5	—
Gain on sale of assets	—	(1.4)	—
Asset impairment	67.1	—	—
Total operating expenses	125.6	44.9	60.0
Loss from operations	(81.7)	(2.8)	(22.9)
Other income (expense):			
Interest income	0.2	0.1	0.9
Interest expense	(0.6)	(0.1)	(0.1)
Other, net	1.6	(0.0)	(1.2)
Total other income (expense), net	1.1	(0.0)	(0.4)
Loss before provision (benefit) for income taxes	(80.6)	(2.8)	(23.3)
Provision (benefit) for income taxes	0.4	(0.1)	(0.3)
Net loss	(81.0)%	(2.7)%	(23.0)%

Fiscal years 2008, 2007 and 2006 (ended December 27, 2008, December 29, 2007 and December 30, 2006, respectively)

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

	Fiscal Year		Change	
	2008	2007		
Automated Metrology	\$ 40,623	\$ 68,165	\$(27,542)	(40)%
Materials Characterization	19,009	28,960	(9,951)	(34)%
Integrated Systems	15,964	28,924	(12,960)	(45)%
Total product revenue	75,596	126,049	(50,453)	(40)%
Service	26,505	20,241	6,264	31%
Total net revenues	<u>\$102,101</u>	<u>\$146,290</u>	<u>\$(44,189)</u>	<u>(30)%</u>

	Fiscal Year		Change	
	2007	2006		
Automated Metrology	\$ 68,165	\$ 44,321	\$ 23,844	54%
Materials Characterization	28,960	12,852	16,108	125%
Integrated Systems	28,924	23,463	5,461	23%
Total product revenue	126,049	80,636	45,413	56%
Service	20,241	15,738	4,503	29%
Total net revenues	<u>\$146,290</u>	<u>\$ 96,374</u>	<u>\$ 49,916</u>	<u>52%</u>

In 2008, net revenues from automated metrology decreased by \$28 million and from integrated systems by \$13 million when compared to 2007 due to global reductions in capital spending by the majority of semiconductor manufacturers. Service revenue improved by \$6.3 million over 2007 primarily due to increased demand for OCD in-the-field upgrades to existing tools, as well as improved service field practices.

In 2007, net revenues from automated metrology increased \$24 million as compared to 2006 reflecting demand for our automated and integrated products as semiconductor manufacturers continue to increase their manufacturing capacity. Also contributing to the higher revenues in 2007 was a full year of sales from Accent and Soluris related products. Incremental revenues from Accent and Soluris related products for 2007, over the comparable 2006 levels, was \$14.1 million. Service revenue increased reflecting a full year of service activity from our Accent and Soluris acquisitions which contributed to higher sales of parts and services, due in part to a larger installed base of systems. In addition, we experienced a higher level of in-the-field tool upgrades than in the previous year.

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

	Fiscal Year		
	2008	2007	2006
Products	48.8%	49.3%	45.4%
Service	29.5%	(2.4)%	(5.5)%

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

The product gross margin increased in 2007 as compared to 2006 due to improved efficiencies achieved from both higher volumes and the integration of manufacturing operations for Accent and Soluris related products. Also, contributing to the higher gross margin in 2007 were lower warranty expenses of \$0.8 million due to improvements in product reliability. The improvement in gross margin for Service in 2007 reflects the favorable margin achieved from our in-the-field tool upgrades and our focus on controlling expenses including personnel, personnel related expenses and material costs as compared to 2006.

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

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

	Fiscal Year		Change	
	2007	2006		
Research and development	\$ 18,577	\$14,253	\$ 4,324	30.3%
Selling	19,561	16,977	2,584	15.2%
General and administrative	21,704	21,305	399	1.9%
Amortization of intangible assets	5,782	5,338	444	8.3%
Operating expenses before restructuring or gain on asset sale	\$ 65,624	\$57,873	\$ 7,751	13.4%
Restructuring charge	2,128	—	2,128	100.0%
Gain on sale of assets	(2,100)	—	(2,100)	100.0%
Total operating expenses	<u>\$ 65,652</u>	<u>\$57,873</u>	<u>\$ 7,779</u>	13.4%

Research and development.

The \$1.5 million decrease in research and development expenses in 2008 was primarily due to lower engineering materials costs of \$0.5 million, lower stock-based compensation expense of \$0.3 million and reduced outside consulting fees related to the development of next generation stages of \$0.3 million.

The increase in research and development in 2007 of \$4.3 million reflected expenses for the full year related to the additional headcount and related development expenses associated with our acquisitions of Accent in July 2006 and Soluris in March 2006, partially offset by lower stock-based compensation charges of \$0.3 million.

Selling.

Selling expenses decreased by \$1.8 million in 2008 compared to 2007. Contributing to the decrease were lower commission expenses of \$0.4 million and lower freight out, supplies, taxes and other costs of approximately \$0.9 million associated with the decrease in revenue. Depreciation expense decreased \$0.2 million for 2008 and costs for the Company's Taiwan pension plan decreased \$0.3 million for 2008.

Selling expenses increased \$2.6 million for the year 2007 over 2006, reflecting expenses for the full year related to the additional headcount and related expenses associated with the acquisitions of Accent in July 2006 and Soluris in March 2006, and also including higher commission expenses of \$0.4 million associated with higher revenue levels.

General and administrative.

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

General and administrative expenses in 2007 increased slightly over the comparable period of 2006 as a result of termination charges for certain senior executives of \$0.8 million, consulting, travel and recruiting expenses of \$0.9 million and costs associated with enhancing our internal information technology infrastructure of \$1.7 million. The 2007 increases were partially offset by lower legal expenses of \$0.6 million as we settled the patent litigation with Nova in April 2007; lower regulatory and accounting compliance costs of \$1.4 million and lower stock-based compensation charges of \$0.7 million.

Amortization of intangible assets.

Amortization of intangible assets for 2008 decreased \$2.3 million from the comparable period in 2007 as impairment charges were recorded in the second and third quarters of 2008 to reflect certain brand names, customer relationships and developed technology at their fair value in accordance with SFAS No. 144 "*Accounting for the Impairment or Disposal of Long-lived Assets*". Amortization associated with these intangible assets ceased in the second and third quarter of 2008 as we wrote off values to the asset impairment account.

Amortization of intangible assets for 2007 increased \$0.4 million from the comparable period in 2006 due primarily to incurring amortization charges for the full year in 2007 as compared to incurring amortization for only a part of the year in 2006, as the Soluris acquisition closed in March 2006 and the Accent acquisition closed in July 2006.

Restructuring charge.

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

During the third quarter of 2007, we announced that we would close our Milpitas, California machine shop and plating facility as part of our mission to reverse our manufacturing vertical integration and lower our breakeven point. In conjunction with this closure, we recorded a restructuring charge of \$2.1 million consisting of \$1.9 million write-down of fixed assets, \$0.1 million for professional fees and \$0.1 million for severance payments. No restructuring charges were recorded in 2006.

Asset impairment.

Asset impairment charges of \$68.5 million were recorded in 2008, resulting from write-downs of goodwill, intangible assets and property, plant and equipment.

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. In accordance with SFAS 142 goodwill is reviewed annually or whenever events or circumstances occur which indicate that goodwill might be impaired. SFAS 142 provides for a two-step approach to determining whether and by how much goodwill has been impaired. The first step requires a comparison of the fair value of the Company (reporting units, product and service) to its net book value. If the fair value is greater, then no impairment is deemed to have occurred. If the fair value is less, then the second step must be performed to determine the amount, if any, of actual impairment. The process of evaluating the potential impairment of goodwill is highly subjective and requires significant judgment.

Prior to performing step one of the goodwill impairment testing process for a reporting unit under SFAS 142, if there is reason to believe that other non-goodwill related intangible assets (finite or indefinite lived) and/or long-lived assets may be impaired, these other intangible assets and long-lived assets must first be tested for impairment under SFAS 144. Assets governed by SFAS 144 require a recoverability test whereby the gross undiscounted cash flows are determined specific to the asset. If the sum of gross undiscounted cash flows for the fixed-life intangible asset or long-lived asset exceeds the carrying value of that asset, the test results in no impairment to the asset. If not, then the fair value of the asset must be determined and the impairment is measured by the differential between the fair value and the carrying value. For non-goodwill related indefinite-lived assets, a fair value determination is made. If the carrying value of the asset exceeds the fair value, then impairment occurs. The carrying values of these assets are impaired as necessary to provide the appropriate carrying value for the goodwill impairment calculation.

As a result of a significant decrease in our net revenues and stock price during the second quarter 2008, the Company determined that indicators of impairment existed for our goodwill and long-lived assets in the second quarter of 2008. Accordingly, in accordance with SFAS 142 and SFAS 144, the Company performed impairment tests relative to its long-lived assets and goodwill during the second quarter of 2008 for its reporting units, product and service. As a result of this testing, while the Company determined that there was no impairment of goodwill, the Company recorded a pre-tax, non-cash impairment charge of \$11.8 million for intangible assets and \$1.5 million for other long-lived assets during the second quarter 2008.

During the third quarter 2008, as a result of continued significant declines in the Company's stock price and further evidence of the semiconductor industry being in a prolonged cyclical downturn, the Company determined that indicators of impairment existed for our goodwill and long-lived assets in the third quarter of 2008. Accordingly, in accordance with SFAS 142 and SFAS 144, the Company performed impairment tests to its long-lived assets and goodwill during the third quarter of 2008 for its reporting units, product and service. As a result of this testing, the Company determined and recorded a pre-tax, non-cash impairment charge of \$54.0 million for goodwill and \$1.4 million for intangible assets during the third quarter 2008. The \$54.0 million represented 100% impairment of the goodwill balance. The Company also determined that there was no impairment of other long-lived assets at the end of third quarter 2008.

During the fourth quarter 2008, due to the continued and prolonged semiconductor cyclical downturn, the Company determined that indicators of impairment existed for our long-lived assets and, in accordance with SFAS 144, the Company performed impairment tests to its long-lived assets during the fourth quarter of 2008. The Company determined that no impairment existed as of the end of fourth quarter 2008 for its long-lived assets and intangible assets.

The process of evaluating the potential impairment of long-lived assets is highly subjective and requires significant judgment. In estimating the fair value of these assets, the Company made estimates and judgments about future revenues and cash flows. The Company's forecasts were based on assumptions that are consistent with the plans and estimates the Company is using to manage the business. Changes in these estimates could change the Company's conclusion regarding impairment of the long-lived assets and potentially result in future impairment charges for all or a portion of their balance at December 27, 2008.

Due to the decline in our forecasted revenues for certain product lines relating to specific intangible assets acquired in the 2006 acquisitions of Accent Optical Technologies, Inc. and Soluris, Inc., as well as the weakening conditions in the semiconductor equipment market, the Company performed an analysis in accordance with SFAS 144. The Company performed step one of the impairment test for certain of its long-lived assets as of June 28, 2008 and September 27, 2008, and determined that the net book value exceeded the undiscounted future cash flows for certain intangible assets. Accordingly, the Company completed step two of the impairment analysis utilizing a present value technique to estimate the fair value of the impaired assets. As a result of this analysis, in the second and third quarters of 2008 the Company recorded \$13.1 million in impairment charges for intangible assets, of which \$3.7 million was developed technology, \$7.5 million was customer relationships, \$1.6 million was brand names and \$0.3 million was trade mark.

Also in accordance with SFAS 144, the Company performed impairment tests for other long-lived assets such as property, plant and equipment during 2008. The Company performed an impairment analysis on its long-lived assets associated with its machine shop and plating facility, which was subcontracted in 2007, due to the significant reduction in forecasted future cash flows resulting from the operational limitations of the facility. Due to these reduced forecasts, the Company performed step one of the impairment test for the machine shop and plating facility as of June 28, 2008, and determined that the net book value exceeded the undiscounted future cash flows. Accordingly, the Company completed step two of the impairment analysis utilizing a present value technique to estimate the fair value of the impaired assets. As a result of this analysis, an impairment charge of \$1.5 million was recorded in the second quarter of 2008 to reduce those assets to fair value. The Company also performed step one of the impairment test on the remainder of its long lived assets in the second, third, and fourth quarters of 2008, and determined that no impairment existed.

After considering the results of the intangible and long-lived asset impairments as determined under SFAS 144, the Company then proceeded with step one of its impairment testing of goodwill under SFAS 142. The Company compared the fair value of each reporting unit to its carrying value and determined whether or not the reporting units were impaired as of June 28, 2008 and September 27, 2008.

In 2008, in estimating the fair value of the Company, the Company made estimates and judgments about future revenues and cash flows for each reporting unit. To determine the fair value, the Company's review process included the income method based on a discounted future cash flow approach that uses estimates including the following for each reporting unit: revenue, based on assumed market growth rates and its assumed market share; estimated costs; and appropriate discount rates based on the particular business's weighted average cost of capital. The Company's estimates of market segment growth, market segment share and costs are based on historical data, various internal estimates and certain external sources, and are based on assumptions that are consistent with the plans and estimates it uses to manage the underlying businesses. The Company's business consists of both established and emerging technologies and its forecasts for emerging technologies are based upon internal estimates and external sources rather than historical information. The Company also considered its market capitalization on the dates of its impairment tests in determining the fair value of the respective businesses. The Company completed the first step of the SFAS 142 test of its goodwill at June 28, 2008 and determined that the fair value of its reporting units was in excess of the net book value on that date, and hence there was no impairment of goodwill as of the end of our second quarter 2008.

In accordance with SFAS 142, the Company concluded that events had occurred and circumstances had changed during the third quarter of 2008 which might indicate the existence of impairment indicators including a significant decline in the Company's stock price and continued deterioration in the semiconductor equipment market and the related impact on revenue forecasts of each reporting unit. Consistent with the Company's approach in its annual impairment testing, in assessing the fair value of the reporting unit, the Company considered both the market approach and income approach. Under the market approach, the fair value of the reporting unit is based on quoted market prices and the number of shares outstanding of the Company's common stock. Under the income approach, the fair value of the reporting unit is based on the present value of estimated future cash flows. At September 27, 2008, the Company determined that the fair value of its reporting units was

less than the net book value of the net assets of each reporting unit and accordingly, the Company performed step two of the impairment test.

In step two of the impairment test, the Company determined the implied fair value of the goodwill and compared it to the carrying value of the goodwill. With the assistance of a third party valuation firm, the Company allocated the fair value of the reporting units to all of its assets and liabilities as if the reporting unit had been acquired in a business combination and the fair value of the reporting units was the price paid to acquire the reporting unit. The excess of the fair value of the reporting unit over the amount assigned to its assets and liabilities is the implied fair value of goodwill. The Company's step two analysis resulted in no implied fair value of goodwill, and therefore, the Company recognized an impairment charge of \$54.0 million in the third quarter of 2008, representing a write-off of the entire amount of the Company's previously recorded goodwill including goodwill from the Tevet acquisition which was a part of the impaired reporting units.

Gain on the sale of assets.

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

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

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

* NM = not meaningful

	Fiscal Year		Change	
	2007	2006		
Interest income	\$ 202	\$ 851	\$ (649)	(76.3)%
Interest expense	(211)	(60)	(151)	251.7%
Other income (expense)	(13)	(1,116)	1,103	(98.8)%
Total other income (expense), net	<u>\$ (22)</u>	<u>\$ (325)</u>	<u>\$ 303</u>	(93.2)%

Interest income decreased slightly in 2008 as a result of slightly higher average cash and cash equivalent balances being offset by lower yields obtained on our investments. Higher interest expense in 2008 resulted from the issuance of debt obligations in the third quarter of 2008 and the sale of receivables without recourse in Japan. Other income (expense) includes foreign exchange gains/losses, commission income and rental income and miscellaneous expenses. Higher other income in 2008 resulted from foreign exchange gains due to exchange rate fluctuations associated with foreign entities' balances denominated in non-US currencies that were settled during 2008, or for intercompany balances otherwise considered not permanent investments.

In 2007, lower interest income is due to lower average cash and cash equivalent balances and lower yields obtained on our investments. Interest expenses relate to our debt obligations in Japan, which were fully paid in July 2007, and the United Kingdom. In addition we incur interest expense associated with the sale of our

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accounts receivable. With the acquisition of Accent in 2006, we incurred foreign exchange losses due to exchange rate fluctuations associated with extensive intercompany balances assumed with the transaction.

Provision/Benefit for income taxes.

The Company's provision for income taxes for 2008 of \$0.4 million was primarily a result of foreign income taxes. A benefit for income taxes in 2007 of \$0.0 million and in 2006 of \$0.3 million was primarily due to benefiting the losses of certain foreign jurisdictions where sufficient deferred tax liabilities exist. Our effective tax rate was 0.5%, (0.8)% and (1.4%) in 2008, 2007 and 2006, respectively. In the future, we will continue to review our expectations for future taxable income to determine the amount of valuation allowance necessary to reserve against deferred tax assets.

Liquidity and Capital Resources

At December 27, 2008, our cash and cash equivalents totaled \$24.0 million compared to \$14.9 million as of December 29, 2007. At December 27, 2008, we had working capital of \$57.7 million compared to \$57.1 million at December 29, 2007.

Operating activities provided cash of \$4.0 million for the twelve-month period ended December 27, 2008 resulting from our \$82.7 million net loss being offset by certain non-cash charges including \$68.5 million of impairment charges for long-lived assets, \$8.4 million of amortization and depreciation and \$3.9 million in stock-based compensation, and increases attributable to changes in our net current assets and liabilities of \$6.7 million. Operating activities provided cash of \$2.7 million for the twelve-month period ended December 29, 2007 resulting from our net loss of \$4.0 million being offset by certain non-cash charges such as \$10.9 million of amortization and depreciation, \$3.8 million of stock-based compensation and increases in working capital of \$6.9 million due primarily to increases in accounts receivable of \$9.5 million reflecting the increase in our revenues. Uses of net cash for operating activities was \$16.7 million for 2006 was comprised of a net loss of \$22.1 million, increases in inventories of \$11.3 million offset by reductions of accounts receivable of \$4.2 million and non-cash expenses of \$13.2 million. The non-cash expenses were comprised of \$8.6 million in depreciation and amortization and stock-based compensation of \$5.0 million.

Investing activities for the twelve-month period ended December 27, 2008 used cash of \$6.0 million primarily related to cash outlays of \$3.4 million for our acquisition of Tevet Process Control Technologies, Ltd. ("Tevet") and capital equipment acquisitions of \$3.2 million. Investing activities provided net cash of \$2.4 million in 2007 and used cash of \$3.8 million in 2006. In 2007, we received sales proceeds of \$3.8 million from the sale of assets (see preceding discussion for "Gain on sale of assets") offset by capital expenditures of \$1.4 million. Cash used by investing activities for 2006 of \$3.8 million included cash outlays of \$7.5 million related to our acquisitions of Soluris and Accent and capital expenditures of \$1.1 million offset by the net reduction in our short-term investments, primarily United States Treasury Bills of \$5.0 million.

For the twelve-month period ended December 27, 2008, financing activities provided cash of \$11.8 million. Proceeds from the issuance of \$13.2 million of debt obligation (excluding issuance costs), as more fully described below, and \$0.8 million from the sale of stock from employee stock plans and purchase plan were offset by \$1.9 million used for the repurchase of our common stock and \$0.2 million for debt payments. Financing activities provided net cash of \$1.8 million 2007 and used net cash of \$13.2 million in 2006, respectively. Cash provided by financing activities for 2007 resulted from the \$4.1 million of proceeds of sale of common stock under our employee stock purchase and stock option plans offset by the repayment of debt of \$1.5 million and repurchases of stock of \$0.7 million. Cash used by financing activities for 2006 was due to repayments of short-term and long-term debt in Japan of \$1.6 million and repayment of \$14.0 million of debt assumed in the Accent acquisition. These amounts were partially offset by proceeds from the sale of stock from the exercise of employee stock options of \$2.0 million.

In February 2007, we entered into a two-year agreement, subsequently extended until May 2009, for a revolving line of credit facility with a maximum principal amount of up to \$15 million. The instrument governing the facility includes certain financial covenants regarding minimum liquidity ratio and net tangible worth. All borrowings under this credit line bear interest, at our election, at a per annum rate equal to the bank's prime rate or at the London Interbank Offered Rate (or LIBOR) plus 2.25%. The revolving line of credit agreement includes a provision for the issuance of commercial or standby letters of credit by the bank on our behalf. The value of all letters of credit outstanding reduces the total line of credit available. The revolving line of credit is collateralized by a blanket lien on all of our domestic assets excluding intellectual property and real estate. We may use the proceeds of any future borrowing under this credit facility for general corporate purposes. While we anticipate we will renew the line of credit, the present economic conditions in the banking and financing industry are very volatile and uncertain. We may be unable to renew the line of credit under the same general terms and conditions under which we presently operate.

In July 2008, we entered into a loan agreement pursuant to which we borrowed \$13.5 million. The loan initially bears interest at the rate of 7.18% per annum, which rate will be reset after five years to 3.03% over the then weekly average yield of five-year U.S. Dollar Interest Rate Swaps as published by the Federal Reserve. Monthly principal and interest payments are based on a twenty year amortization for the first sixty months and fifteen year amortization thereafter. The remaining principal balance of the loan and any accrued but unpaid interest will be due on August 1, 2018. The loan is secured, in part, by a lien on and security interest in the building and land comprising our principal offices in Milpitas, California. We will use the loan for general corporate purposes.

We have evaluated and will continue to evaluate the acquisition of products, technologies or businesses that are complementary to our business. These activities may result in product and business investments, which may affect our cash position and working capital balances. Some of these activities might require significant cash outlays. For example, in the third quarter of 2007, our Board of Directors authorized a stock repurchase program of up to \$4 million, of which there remains \$1.3 million available for future repurchases. However, we believe our working capital including cash and cash equivalents will be sufficient to meet our needs through the next twelve months.

Contractual obligations

The following table summarizes our contractual cash obligations as of December 27, 2008, and the effect such obligations are expected to have on liquidity and cash flow in future periods (in thousands):

	Total	Payments due by period			
		Less than 1 Year	1-3 Years	3-5 Years	More than 5 Years
Debt obligations	\$13,496	\$413	\$711	\$822	\$11,550
Other long-term liabilities	\$ 644	\$—	\$162	\$—	\$ 482
Operating lease obligations	\$ 1,689	\$649	\$604	\$436	\$ —

We maintain certain open inventory purchase agreements with our suppliers to ensure a smooth and continuous supply chain for key components. Our liability in these purchase commitments is generally restricted to a forecasted time-horizon as mutually agreed upon between the parties. This forecast time-horizon can vary among different suppliers. We estimate our open inventory purchase commitment as of December 27, 2008 was approximately \$7.8 million. Actual expenditures will vary based upon the volume of the transactions and length of contractual service provided. In addition, the amounts paid under these arrangements may be less in the event that the arrangements are renegotiated or cancelled. Certain agreements provide for potential cancellation penalties.

Recent Accounting Pronouncements

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

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ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

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

Foreign Currency Risk

A substantial part of our business consists of sales made to customers outside the United States: 70.5%, 68.2% and 65.0% of sales in 2008, 2007 and 2006, respectively. A portion of the net revenues we receive from such sales is denominated in currencies other than the U.S. dollar. Additionally, portions of our costs of net revenues and our other operating expenses are incurred by our international operations and denominated in local currencies. Foreign currency transactions resulted in a gain for 2008 of \$1.0 million and a loss for years 2007 and 2006 of \$0.2 million and \$1.2 million, respectively. In addition, our exposure to foreign exchange rate fluctuations arises in part from current intercompany accounts in which costs from the United States and the United Kingdom are charged to our foreign subsidiaries. These current intercompany accounts are denominated in U.S. dollars, Japanese yen and British pounds sterling and the net payable from the United States parent amounted to \$1.6 million as of December 27, 2008. A hypothetical 10% change in the foreign currency exchange rate at December 27, 2008 would result in an increase or decrease of approximately \$0.2 million in transaction gains or losses which would be included in our statement of operations.

In foreign locations we have \$4.8 million of net liabilities, including long-term loans payable of \$17.3 million to the United States. As of December 27, 2008, the \$17.3 million in long-term loans between Japan and the U.S. are no longer being considered as permanently invested. A hypothetical 10% increase in the foreign currency exchange rate at December 27, 2008 would result in \$1.7 million in exchange losses in the statement of operations and a \$1.2 million increase in other comprehensive income.

Interest Rate Risk

At December 27, 2008 and December 29, 2007, the Company did not hold investments in marketable securities. We have fixed-rate debt obligations in the United Kingdom that are denominated in British pounds sterling and have no interest rate risk. In July 2008, we entered into a loan agreement pursuant to which we borrowed \$13.5 million. The loan initially bears interest at the rate of 7.18% per annum, which rate will be reset after five years to 3.03% over the then weekly average yield of five-year U.S. Dollar Interest Rate Swaps as published by the Federal Reserve. Monthly principal and interest payments are based on a twenty year amortization for the first sixty months and fifteen year amortization thereafter. The remaining principal balance of the loan and any accrued but unpaid interest will be due on August 1, 2018. The loan is secured, in part, by a lien on and security interest in the building and land comprising our principal offices in Milpitas, California. At December 27, 2008 and December 29, 2007, our total debt obligation was \$13.5 million and \$0.3 million, respectively, with a long-term portion of \$13.1 million and \$0.1 million, respectively. A hypothetical 10% change in interest rates at December 27, 2008 would have an impact of about \$0.1 million on our results of operations.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

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

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Report of Independent Registered Public Accounting Firm

Board of Directors and Stockholders
Nanometrics Incorporated
Milpitas, California

We have audited the accompanying consolidated balance sheets of Nanometrics Incorporated as of December 27, 2008 and December 29, 2007, and the related consolidated statements of operations, stockholders' equity and comprehensive loss, and cash flows for each of the three years in the period ended December 27, 2008. In connection with our audits of the financial statements, we have also audited the consolidated financial statement schedule listed in Item 15. These financial statements and schedule are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements and schedule based on our audits.

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

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of Nanometrics Incorporated at December 27, 2008 and December 29, 2007, and the results of its operations and its cash flows for each of the three years in the period ended December 27, 2008, in conformity with accounting principles generally accepted in the United States of America.

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

/s/ BDO Seidman, LLP

San Francisco, California
March 27, 2009

NANOMETRICS INCORPORATED
CONSOLIDATED BALANCE SHEETS
(In thousands, except share amounts)

	<u>December 27, 2008</u>	<u>December 29, 2007</u>
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 23,980	\$ 14,919
Accounts receivable, net of allowances of \$309 and \$323, respectively	17,143	34,855
Inventories	31,583	33,343
Inventories- delivered systems	205	785
Prepaid expenses and other	1,838	2,598
Deferred income taxes	350	—
Total current assets	<u>75,099</u>	<u>86,500</u>
Property, plant and equipment, net	40,136	44,419
Goodwill and indefinite lived intangible asset	—	52,532
Intangible assets, net	6,901	21,820
Other assets	1,718	1,805
Total assets	<u>\$123,854</u>	<u>\$207,076</u>
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Revolving line of credit	\$ —	\$ —
Accounts payable	4,824	13,931
Accrued payroll and related expenses	3,435	4,514
Deferred revenue	1,701	2,501
Other current liabilities	5,800	7,243
Income taxes payable	1,187	1,101
Current portion of debt obligations	413	148
Total current liabilities	<u>17,360</u>	<u>29,438</u>
Deferred income taxes	—	382
Other long-term liabilities	644	1,283
Debt obligations	13,083	129
Total liabilities	<u>31,087</u>	<u>31,232</u>
Commitments and contingencies (See Note 12)		
Stockholders' equity:		
Preferred stock, \$0.001 par value; 3,000,000 shares authorized; no shares issued or outstanding	—	—
Common stock, \$0.001 par value per share; 47,000,000 shares authorized; 18,413,054 and 18,620,682 respectively, outstanding	18	19
Additional paid-in capital	189,927	187,180
Accumulated deficit	(96,643)	(13,917)
Accumulated other comprehensive income (loss)	(535)	2,562
Total stockholders' equity	<u>92,767</u>	<u>175,844</u>
Total liabilities and stockholders' equity	<u>\$123,854</u>	<u>\$207,076</u>

See notes to consolidated financial statements.

NANOMETRICS INCORPORATED
CONSOLIDATED STATEMENTS OF OPERATIONS
(In thousands, except per share amounts)

	Years Ended		
	December 27, 2008	December 29, 2007	December 30, 2006
Net revenues:			
Products	\$ 75,596	\$126,049	\$ 80,636
Service	26,505	20,241	15,738
Total net revenues	<u>102,101</u>	<u>146,290</u>	<u>96,374</u>
Costs of net revenues:			
Cost of products	38,692	63,938	44,016
Cost of service	18,675	20,717	16,610
Total costs of net revenues	<u>57,367</u>	<u>84,655</u>	<u>60,626</u>
Gross profit	44,734	61,635	35,748
Operating expenses:			
Research and development	17,110	18,577	14,253
Selling	17,798	19,561	16,977
General and administrative	19,689	21,704	21,305
Amortization of intangibles assets	3,531	5,782	5,338
Restructuring charge	1,525	2,128	—
Gain on sale of assets	—	(2,100)	—
Asset impairment	68,545	—	—
Total operating expenses	<u>128,198</u>	<u>65,652</u>	<u>57,873</u>
Loss from operations	<u>(83,464)</u>	<u>(4,017)</u>	<u>(22,125)</u>
Other income (expense):			
Interest income	185	202	851
Interest expense	(635)	(211)	(60)
Other, net	1,624	(13)	(1,116)
Total other income (expense), net	<u>1,174</u>	<u>(22)</u>	<u>(325)</u>
Loss before income taxes	(82,290)	(4,039)	(22,450)
Provision (benefit) for income taxes	436	(31)	(323)
Net loss	<u>\$ (82,726)</u>	<u>\$ (4,008)</u>	<u>\$(22,127)</u>
Basic net loss per share	<u>\$ (4.46)</u>	<u>\$ (0.22)</u>	<u>\$ (1.47)</u>
Diluted net loss per share	<u>\$ (4.46)</u>	<u>\$ (0.22)</u>	<u>\$ (1.47)</u>
Shares used in per share computation:			
Basic	<u>18,546</u>	<u>18,099</u>	<u>15,075</u>
Diluted	<u>18,546</u>	<u>18,099</u>	<u>15,075</u>

See notes to consolidated financial statements.

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

	Common Stock		Additional Paid-In Capital	Retained Earnings (Accumulated Deficit)	Accumulated Other Comprehensive Income (Loss)	Total Stockholders' Equity	Comprehensive Loss
	Shares	Amount					
Balances, January 1, 2006	12,990,894	\$ 107,294	\$ —	\$ 12,218	\$ 831	\$120,343	
Reincorporation in Delaware		(107,281)	107,281				
Comprehensive loss:							
Net loss	—	—	—	(22,127)	—	(22,127)	\$(22,127)
Other comprehensive income, net of tax:							
Foreign currency translation adjustments	—	—	—	—	1,595	1,595	1,595
Comprehensive loss	—	—	—	—	—	—	\$(20,532)
Issuance of common stock under stock-based compensation plans	285,481	—	1,970	—	—	1,970	
Stock-based compensation expense	—	—	5,025	—	—	5,025	
Issuance of common stock in the Accent acquisition	4,865,214	5	67,820	—	—	67,825	
Balances, December 30, 2006	18,141,589	\$ 18	182,096	(9,909)	2,426	174,631	
Comprehensive loss:							
Net loss	—	—	—	(4,008)	—	(4,008)	\$(4,008)
Other comprehensive income, net of tax:							
Employee benefit plan adjustment	—	—	—	—	(345)	(345)	(345)
Foreign currency translation adjustments	—	—	—	—	481	481	481
Comprehensive loss	—	—	—	—	—	—	\$(3,872)
Issuance of common stock under stock-based compensation plans	717,374	1	4,093	—	—	4,094	
Stock-based compensation expense	—	—	3,767	—	—	3,767	
Accent purchase price adjustment	(146,826)	—	(2,037)	—	—	(2,037)	
Repurchases of common stock	(91,455)	—	(739)	—	—	(739)	
Balances, December 29, 2007	18,620,682	\$ 19	\$187,180	\$(13,917)	\$ 2,562	\$175,844	
Comprehensive loss:							
Net loss	—	—	—	(82,726)	—	(82,726)	\$(82,726)
Other comprehensive income, net of tax:							
Employee benefit plan adjustment	—	—	—	—	157	157	157
Foreign currency translation adjustments	—	—	—	—	(3,254)	(3,254)	(3,254)
Comprehensive loss	—	—	—	—	—	—	\$(85,823)
Issuance of common stock under stock-based compensation plans	339,424	—	806	—	—	806	
Stock-based compensation expense	—	—	3,881	—	—	3,881	
Repurchases of common stock	(547,052)	(1)	(1,940)	—	—	(1,941)	
Balances, December 27, 2008	18,413,054	\$ 18	\$189,927	\$(96,643)	\$ (535)	\$ 92,767	

See notes to consolidated financial statements.

NANOMETRICS INCORPORATED
CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands, except share amounts)

	Years Ended		
	December 27, 2008	December 29, 2007	December 30, 2006
Cash flows from operating activities:			
Net loss	\$(82,726)	\$ (4,008)	\$(22,127)
Reconciliation of net loss to net cash provided by (used in) operating activities:			
Depreciation and amortization	8,429	10,936	8,604
Stock-based compensation	3,881	3,767	5,025
Asset impairment	68,545	—	—
Loss (gain) on disposal of asset	(72)	(2,100)	21
Deferred taxes	(771)	(847)	(437)
Non-cash portion of restructuring charges	—	1,910	—
Changes in assets and liabilities, net of effects of acquisitions:			
Accounts receivable	18,304	(9,519)	4,218
Inventories	(145)	1,905	(7,945)
Inventories – delivered systems	580	3,427	(3,307)
Prepaid expenses and other	1,172	1,403	(799)
Accounts payable, accrued and other liabilities	(12,714)	3,302	(6,129)
Deferred revenue	(777)	(7,748)	6,223
Income taxes payable	261	243	(86)
Net cash provided by (used in) operating activities	<u>3,967</u>	<u>2,671</u>	<u>(16,739)</u>
Cash flows from investing activities:			
Acquisitions of businesses and assets, net of cash acquired	(3,357)	—	(7,538)
Sales/maturities of short-term investments	—	—	4,949
Purchases of property, plant and equipment	(3,237)	(1,434)	(1,183)
Proceeds from sale of assets	625	3,863	—
Net cash provided by (used in) investing activities	<u>(5,969)</u>	<u>2,429</u>	<u>(3,772)</u>
Cash flows from financing activities:			
Proceeds from issuance of debt obligations, net of issuance costs	13,203	—	424
Repayments of debt obligations	(243)	(1,536)	(15,578)
Repurchase of stock	(1,941)	(739)	—
Proceeds from issuance of common stock under employee stock purchase and stock option plans	806	4,094	1,970
Net cash provided by (used in) financing activities	<u>11,825</u>	<u>1,819</u>	<u>(13,184)</u>
Effect of exchange rate changes on cash and cash equivalents	(762)	43	1,207
Net increase (decrease) in cash and cash equivalents	9,061	6,962	(32,488)
Cash and cash equivalents, beginning of year	14,919	7,957	40,445
Cash and cash equivalents, end of year	<u>\$ 23,980</u>	<u>\$ 14,919</u>	<u>\$ 7,957</u>
Supplemental disclosure of cash flow information:			
Cash paid for interest	\$ 623	\$ 149	\$ 46
Cash paid (received) for income taxes, net	\$ 797	\$ 462	\$ (22)
Capitalization of inventory as property, plant and equipment	\$ 255	\$ 6,746	\$ —
Goodwill adjustment (Note 8)	\$ —	\$ 2,685	\$ —
Fair value of Nanometrics shares issued to former Accent stockholders	\$ —	—	\$ 67,481
Fair value of Nanometrics shares issued to former Accent optionees	\$ —	—	\$ 344

See notes to consolidated financial statements.

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Years Ended December 27, 2008, December 29, 2007 and December 30, 2006

Note 1. Significant Accounting Policies

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

Basis of Presentation – The consolidated financial statements include Nanometrics Incorporated and its wholly-owned subsidiaries. The results of operations of our newly acquired Tevet Process Control Technologies (“Tevet”) were included in the Company’s consolidated statement of operations from the date of acquisition (see Note 2). 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, 2008 consisted of 52 weeks ending December 27, 2008, 2007 consisted of 52 weeks and ended on December 29, 2007, and 2006 consisted of 52 weeks and ended on December 30, 2006.

Reclassification – The Company reclassifies certain prior year amounts to conform to the current presentation. During 2008 the Company determined that amortization of demonstration systems, which was previously recorded on the cash flow statement as a reduction in the carrying value of its inventories, should be reclassified to the depreciation and amortization line item on the cash flow statement. Amortization of demonstration systems was \$1.2 million, \$1.6 million and \$0.8 million for fiscal years 2008, 2007 and 2006, respectively.

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

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Years Ended December 27, 2008, December 29, 2007 and December 30, 2006

operations in the period incurred and consist of a gain for 2008 of \$1.0 million and a loss for years 2007 and 2006 of \$0.2 million and \$1.2 million, respectively.

Revenue Recognition – The Company recognizes revenue when persuasive evidence of an arrangement exists, delivery has occurred or services have been rendered, the seller's price is fixed or determinable, and collectibility is reasonably assured. Product revenue includes hardware and also software that is incidental to the products as defined pursuant to AICPA Statement of Position ("SOP") No. 97-2, *Software Revenue Recognition*. The Company derives revenue from three sources—sales of its process control metrology systems, spare part sales and, in certain arrangements, separately stated service contracts. Service revenue includes product upgrades. The Company's arrangements for sales of its systems often include customer-specified objective acceptance criteria. The Company's systems include hardware and software that is incidental to the system. The Company periodically reviews the software element of its equipment systems in accordance with AICPA Statement of Position ("SOP") No. 97-2, *Software Revenue Recognition*, and Emerging Issues Task Force ("EITF") Issue No. 03-05, *Applicability of SP 97-2 to Non-Software Deliverables in an Arrangement Containing More-Than-Incidental Software*, to ascertain that the software continues to be incidental.

For product sales to existing customers, revenue recognition occurs at the time title and risk of loss transfer, which usually occurs upon delivery, if the Company has reliably demonstrated that the product has successfully met the defined customer specified criteria, and all other recognition criteria has been met. This occurs at the time of shipment, as the Company's terms are FOB shipping point. For initial sales of product where the Company has not previously met the defined customer acceptance criteria, product revenues are recognized upon the earlier of receipt of written customer acceptance or expiration of the contractual acceptance period. In Japan, where the Company's 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 all other recognition criteria have been met.

All of the Company's products are assembled prior to shipment to its customers. The Company often performs installation for its customers; however such installation is inconsequential and perfunctory as it may also be performed by third parties and is not considered essential to the functionality of the equipment. Revenue related to spare parts sales is recognized upon shipment and is included as part of service revenue. Service revenue also includes service contracts, spare parts, and non-warranty and billable repairs of systems, and product upgrades. Whereas service revenue related to service contracts is recognized ratably over the period under contract, service revenue related to billable repairs of systems is recognized as services are performed and service parts are delivered. On occasion, customers request a warranty period longer than the Company's standard 12 month warranty. In those instances where extended warranty services are separately quoted to the customer, the Company follows the guidance of Financial Accounting Standards Board Technical Bulletin 90-1, *Accounting for Separately Priced Extended Warranty and Product Maintenance Contracts*, associated revenue is deferred and recognized to income ratably over the term of the contract. Unearned maintenance and service contract revenue is included in deferred revenue. Furthermore, generally the Company does not provide its customers with any return rights.

The guidance in EITF No. 00-21, *Revenue Arrangements with Multiple Deliverables*, is considered in cases where certain elements of a sales arrangement are not delivered and accepted at the same time. In such cases, the Company defers the relative fair value of the undelivered element until that element is delivered and accepted by the customer. In order to recognize revenue associated with delivered elements, the following criteria must be met: (a) the delivered item(s) has value to the customer on a standalone basis; (b) there is objective and reliable evidence of the fair value of the undelivered item(s); and (c) delivery or performance of the undelivered item(s)

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Years Ended December 27, 2008, December 29, 2007 and December 30, 2006

is considered probable and substantially in the control of the Company. If the arrangement does not meet all the above criteria, the entire amount of the sales contract is deferred until the criteria have been met or all elements have been delivered to the customer. Objective and reliable evidence of the fair value is based on the amounts for which the Company sells equivalent products or services on a standalone basis. Upon recognition of product revenue, a liability is recorded for anticipated warranty costs. Service contracts may be purchased by the customer during or after the warranty period.

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

Fair Value of Financial Instruments – Financial instruments include cash and cash equivalents, accounts receivable, accounts payable and debt obligations. Cash equivalents are stated at fair market value based on quoted market prices. The carrying values of accounts receivable and accounts payable approximate their fair values because of the short-term maturity of these financial instruments. The carrying values of long-term debt obligations approximate their fair value because the interest rate is fixed with a reset provision after five years.

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 collectibility of its trade receivable balances based on a combination of factors such as the length of time the receivables are past due, customary payment practices in the respective geographies and historical collection experience with customers. The Company believes that its allowance for doubtful accounts reflects the risk associated with smaller rather than larger customers and that reported allowances are adequate. If however, the financial conditions of customers were to deteriorate, resulting in their inability to make payments, the Company may need to record additional allowances which would result in additional general and administrative expenses being recorded for the period in which such determination was made.

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

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Years Ended December 27, 2008, December 29, 2007 and December 30, 2006

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. Under Statement of Financial Accounting Standards (“SFAS”) No. 142, “*Goodwill and Other Intangible Assets*” (“SFAS 142”), intangible assets with finite lives are amortized over their useful lives while goodwill and indefinite lived assets are not amortized but tested annually for impairment. The Company’s impairment review process is completed as of the last day of November of each year or whenever events or circumstances occur which indicate that an impairment might have occurred. SFAS 142 provides for a two-step approach to determining whether and by how much goodwill has been impaired. The first step requires a comparison of the fair value of Nanometrics’ reporting units (product and service) to its net book value. If the fair value is greater, then no impairment is deemed to have occurred. If the fair value is less, then the second step must be performed to determine the amount, if any, of actual impairment.

The process of evaluating the potential impairment of goodwill is highly subjective and requires significant judgment. In estimating the fair value of Nanometrics, the Company makes estimates and judgments about future revenues and cash flows for each reporting unit. To determine the fair value, the Company’s review process includes the income method and is based on a discounted future cash flow approach that uses estimates including the following for each reporting unit: revenue, based on assumed market growth rates and the Company’s assumed market share; estimated costs; and appropriate discount rates based on the particular business’s weighted average cost of capital. The Company’s estimates of market segment growth, market segment share and costs are based on historical data, various internal estimates and certain external sources, and are based on assumptions that are consistent with the plans and estimates the Company is using to manage the underlying businesses. The Company’s business consists of both established and emerging technologies and its forecasts for emerging technologies are based upon internal estimates and external sources rather than historical information. The Company also considers market capitalization on the dates of impairment tests in determining the fair value of the respective businesses. As part of the second step in determining the amount of goodwill impairment, if any, the Company allocates the fair value of the reporting units to all of its assets and liabilities as if the reporting units had been acquired in a business combination and the fair value of the reporting units was the price paid to acquire the reporting unit. The excess of the fair value of each reporting unit over the amount assigned to its assets and liabilities represents the implied fair value of goodwill. When impairment is deemed to have occurred, the Company will recognize an impairment charge to reduce the carrying amount of goodwill to its implied fair value. See Note 4, Goodwill and Long-Lived Asset Impairment.

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

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Years Ended December 27, 2008, December 29, 2007 and December 30, 2006

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 4, Goodwill and Long-Lived Asset Impairment.

Restructuring Charge – During 2008 and 2007, the Company implemented a restructuring program based on its business strategy and recorded significant accruals in connection with the restructuring program. In connection with the plan the Company recorded estimated expenses for severance and other costs. In accordance with SFAS 146, “*Accounting for Costs Associated with Exit or Disposal Activities*”, generally 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. In addition post-employment benefits accrued for workforce reductions related to restructuring activities are accounted for under SFAS 112, “*Employer’s Accounting Post-Employment Benefits*”. 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 based on SFAS No. 109 “*Accounting for Income Taxes*” (“SFAS 109”), whereby deferred tax assets and liabilities must be recognized using enacted tax rates for the effect of temporary differences between the book and tax accounting for assets and liabilities. Also, deferred tax assets must be reduced by a valuation allowance to the extent that management concludes that it is more likely than not that a portion of the deferred tax asset will not be realized in the future. The Company evaluates the deferred tax assets on an annual basis to determine whether or not a valuation allowance is appropriate. Factors used in this determination include future expected income and the underlying asset or liability which generated the temporary tax difference. The income tax provision is primarily impacted by federal statutory rates, state and foreign income taxes and changes in the valuation allowance.

Accumulated Other Comprehensive Income (Loss) – Accumulated other comprehensive income (loss) of \$(0.5) million as of December 27, 2008 consists of (\$0.2) million and (\$0.3) million of unrealized loss related to Taiwan pension activity and accumulated translation adjustments, respectively. Accumulated other comprehensive income of \$2.6 million as of December 29, 2007 consists of (\$0.3) million of unrealized loss related to Taiwan pension activity and accumulated translation adjustments, net of income taxes, of \$2.9 million.

Product Warranties – The Company sells the majority of its products with a twelve-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

NANOMETRICS INCORPORATED
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
Years Ended December 27, 2008, December 29, 2007 and December 30, 2006

products sold as of the balance sheet date. The Company periodically assesses the adequacy of its recorded warranty reserve and adjusts the amounts in accordance with changes in these factors.

A reconciliation of the changes to the Company's warranty accrual for 2008, 2007 and 2006 is as follows (in thousands):

	Years Ended		
	December 27, 2008	December 29, 2007	December 30, 2006
Balance as of beginning of period	\$ 4,545	\$ 4,349	\$ 1,440
Balance assumed through acquisitions	—	—	1,330
Actual warranty costs	(5,259)	(3,207)	(2,626)
Provision for warranty	2,789	3,403	4,205
Balance as of end of period	<u>\$ 2,075</u>	<u>\$ 4,545</u>	<u>\$ 4,349</u>

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 27, 2008 and December 29, 2007.

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 amounted to \$0.07 million and \$0.11 million during 2008 and 2007, respectively, and did not include expenses related to trade shows.

Stock-Based Compensation – Upon adoption of SFAS 123(R) “Share Based Payments” on January 1, 2006, the Company began estimating the value of employee stock options on the date of grant using the Black-Scholes model. Prior to the adoption of SFAS 123(R), the value of each employee stock option was estimated on the date of grant using the Black-Scholes model for the purpose of the pro forma financial disclosure in accordance with SFAS 123. The determination of fair value of share-based payment awards on the date of grant using an option-pricing model is affected by the Company's stock price as well as assumptions regarding a number of highly complex and subjective variables. These variables include, but are not limited to the expected stock price volatility over the term of the awards, and actual and projected employee stock option exercise behaviors. The expected term of options granted is calculated based on the simplified method allowed by Staff Accounting Bulletin (“SAB”) No. 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

NANOMETRICS INCORPORATED

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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. Obligations are recorded under the corridor method in accordance with SFAS No. 158, “*Employers Accounting for Defined Benefit Pension and Other Post Retirement Plans*” (“SFAS 158”).

Net Income Per Share – Basic net income (loss) per share excludes dilution and is computed by dividing net income (loss) by the number of weighted average common shares outstanding for the period. Diluted net income (loss) per share reflects the potential dilution from outstanding dilutive stock options (using the treasury stock method) and shares issuable under the employee stock purchase plan. During 2008, 2007 and 2006, diluted net loss per share excludes common equivalent shares outstanding, as their effect is anti-dilutive. The total number of common equivalent shares outstanding during 2008, 2007 and 2006 was 3.0 million, 2.3 million and 2.2 million, respectively. The total number of common equivalent shares include stock options with exercise prices in excess of the fair market value of our common stock, which are always excluded from diluted weighted average shares outstanding, as their effect is anti-dilutive. The reconciliation of the share denominator used in the basic and diluted net income per share computations is as follows (in thousands):

	Years Ended		
	December 27, 2008	December 29, 2007	December 30, 2006
Weighted average shares outstanding – shares used in basic net income per share computation	18,546	18,099	15,075
Dilutive effect of stock options, using the treasury stock method	—	—	—
Shares used in diluted net income per share computation	18,546	18,099	15,075

Certain Significant Risks and Uncertainties – Financial instruments which potentially subject the Company to concentration of credit risk consist of cash and cash equivalents, and accounts receivable (see Note 5).

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

The Company sells its products primarily to end users in the United States, Asia and Europe and, generally, does not require its customers to provide collateral or other security to support accounts receivable. Management performs ongoing credit evaluations of its customers’ financial condition and maintains an allowance for estimated potential bad debt losses. The Company’s customer base is highly concentrated and a relatively small number of customers have accounted for a significant portion of its revenues. Aggregate revenue from the Company’s top twenty five largest customers in 2008 and 2007 consisted of 75% and 76%, respectively, of its total net revenues. See Note 19, Major Customers.

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

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changes in domestic and international economic and/or political regulations; availability of necessary components or subassemblies; disruption of manufacturing facilities; and its ability to attract and retain employees necessary to support its growth.

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

Recently Issued Accounting Pronouncements

In April 2008, the Financial Accounting Standards Board ("FASB") issued FASB Staff Position ("FSP") No. 142-3, "*Determination of the Useful Life of Intangible Assets*", ("FSP 142-3") that amends the factors considered in developing renewal or extension assumptions used to determine the useful life of a recognized intangible asset under Statement of Financial Accounting Standards ("SFAS") SFAS No. 142, "*Goodwill and Other Intangible Assets*" ("SFAS 142"). FSP 142-3 requires a consistent approach between the useful life of a recognized intangible asset under SFAS 142 and the period of expected cash flows used to measure the fair value of an asset under SFAS No. 141 (R), "*Business Combinations*" ("SFAS 141R"). The FSP also requires enhanced disclosures when an intangible asset's expected future cash flows are affected by an entity's intent and/or ability to renew or extend the arrangement. FSP 142-3 is effective for financial statements issued for fiscal years beginning after December 15, 2008 and is applied prospectively. Early adoption is prohibited. The Company does not expect the adoption of FSP 142-3 to have a material impact on its consolidated results of operations or financial condition.

In March 2008, the FASB issued SFAS No. 161 "*Disclosures about Derivative Instruments and Hedging Activities an amendment of FASB Statement No. 133*" ("SFAS 161"). The new standard requires additional disclosures regarding a company's derivative instruments and hedging activities by requiring disclosure of the fair values of derivative instruments and their gains and losses in a tabular format. It also requires disclosure of derivative features that are credit risk-related as well as cross-referencing within the notes to the financial statements to enable financial statement users to locate important information about derivative instruments, financial performance, and cash flows. The standard is effective for the Company's fiscal year and interim periods within such year, beginning January 1, 2009, with early application encouraged. The Company does not anticipate the adoption of SFAS 161 will have a material impact on the Company's consolidated financial position, results of operations or cash flows.

In December 2007, the FASB issued SFAS 141R, "*Business Combinations*" ("SFAS 141R"). SFAS 141R will change the accounting for business combinations. Under SFAS 141R, an acquiring entity will be required to recognize all the assets acquired and liabilities assumed in a transaction at the acquisition-date fair value with limited exceptions. SFAS 141R will change the accounting treatment for certain specific items, including, acquisition costs will generally be expensed as incurred, non-controlling interest will be valued at fair value at the acquisition date, acquired contingent liabilities will be recorded at fair value at the acquisition date and subsequently measured at either the higher of such amount or the amount determined under existing guidance for non-acquired contingencies, in-process research and development will be recorded at fair value as an indefinite-lived intangible asset at the acquisition date, restructuring costs associated with a business combination will be generally expensed subsequent to the acquisition date, and changes in the deferred tax asset valuation allowances

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and income tax uncertainties after the acquisition date generally will affect income tax expense. SFAS 141R also includes a substantial number of new disclosure requirements. SFAS 141R applies prospectively to business combinations for which the acquisition date is on or after the beginning of the first annual reporting period beginning on or after December 15, 2008, or the first quarter of 2009. Earlier adoption is prohibited. The Company will apply this standard prospectively to all business combinations consummated after December 27, 2008.

In December 2007, the FASB issued SFAS No. 160, “*Non-controlling interests in Consolidated Financial Statements—an amendment of ARB No. 51*” (“SFAS 160”). SFAS 160 requires that ownership interests in subsidiaries held by parties other than the parent, and the amount of consolidated net income, be clearly identified, labeled, and presented in the consolidated financial statements. It also requires once a subsidiary is deconsolidated, any retained non-controlling equity investment in the former subsidiary be initially measured at fair value. Sufficient disclosures are required to clearly identify and distinguish between the interests of the parent and the interests of the non-controlling owners. It is effective for fiscal years beginning on or after December 15, 2008 and requires retroactive adoption of the presentation and disclosure requirements for existing minority interests. All other requirements shall be applied prospectively. The Company currently do not have any non-controlling interests for the application of SFAS 160 and does not anticipate the adoption of SFAS 160 will have a material impact on the Company’s consolidated financial position, results of operations or cash flows.

In September 2006, the FASB finalized SFAS No. 157, “*Fair Value Measurements*” (“SFAS 157”). This Statement defines fair value, establishes a framework for measuring fair value, and expands disclosures about fair value measurements; however, it does not require any new fair value measurements. In February 2008, the FASB issued FSP No. 157-2, “*Effective Date of FASB Statement 157*” (“FSP 157-2”). Effective upon issuance, FSP 157-2 delays the effective date of SFAS 157 for nonfinancial assets and nonfinancial liabilities to fiscal years beginning after November 15, 2008. FSP 157-2 also covers interim periods within the fiscal years for items within its scope. The delay is intended to allow the FASB and its constituents the time to consider the various implementation issues associated with SFAS 157. The Company is currently evaluating the impact of adopting SFAS 157 for non-financial assets and liabilities on its consolidated financial statements.

Note 2. Acquisitions

On May 19, 2008, Nanometrics announced that it had acquired the assets and liabilities of Tevet Process Control Technologies, Ltd. (“Tevet”), an Israel-based privately held corporation. Nanometrics acquired Tevet, an integrated metrology company serving the worldwide semiconductor and solar PV manufacturing industry, in order to further Nanometrics’ strategy to offer a breadth of process control metrology solutions that address both advanced technology as well as cost of ownership. Under the terms of the asset purchase agreement, which was an all-cash transaction, the total consideration to purchase all assets and assume specified liabilities of Tevet was \$3.6 million, including \$0.2 million in transaction fees, which include legal, valuation and accounting fees. The asset purchase has been accounted for under the purchase method of accounting in accordance with SFAS 141, “*Business Combinations*”. Under the purchase method of accounting, the total purchase price is allocated to the net tangible and identifiable intangible assets of Tevet acquired in connection with the transaction, based on their respective estimated fair values. When estimating fair values of assets acquired and liabilities assumed, management considered a number of factors, including valuations and appraisals. The results of operations of Tevet were included in the Company’s consolidated statements of operations from the date of the acquisition.

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

Assets acquired:	
Cash	\$ 448
Accounts receivable	12
Inventories	467
Other assets	24
Property, plant and equipment	62
Total assets acquired	<u>1,013</u>
Liabilities assumed:	
Accounts payable	129
Deferred revenue	250
Other accrued liabilities	393
Total liabilities assumed	<u>772</u>
Net assets acquired	241
Goodwill and other intangible assets:	
Goodwill	1,848
Developed technology	1,269
Backlog	230
Total goodwill and other intangible assets	<u>3,347</u>
Net estimated purchase price	<u><u>\$3,588</u></u>

The purchase price of \$3.6 million is still subject to the final close of escrow, which is expected to occur by the end of May 2009. The developed technology and backlog are being amortized over their estimated useful lives of seven years and one year, respectively. In the third quarter of 2008, the Company recognized an impairment charge of \$54.0 million, representing a write-off of the entire amount of the Company's previously recorded goodwill, including the \$1.8 million in goodwill arising from the Tevet acquisition. No impairment of intangible assets from the Tevet acquisition was deemed to have occurred in 2008. See Note 4, Goodwill and Long-Lived Asset Impairment.

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

	Years Ended	
	December 27, 2008	December 29, 2007
	(Unaudited)	(Unaudited)
Net revenues	\$102,644	\$148,193
Net income (loss)	(84,438)	(7,020)
Net income (loss) per share:		
Basic	\$ (4.55)	\$ (0.38)
Diluted	\$ (4.55)	\$ (0.38)

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Note 3. Stock-Based Compensation

On January 1, 2006, the Company adopted SFAS No. 123 (revised 2004), “*Share-Based Payment*”, (“SFAS 123(R)”), which requires the measurement and recognition of compensation expense for all share-based payment awards made to employees and directors including employee stock options and employee stock purchases related to the Employee Stock Purchase Plan (collectively “Employee Stock Purchases”) based on estimated fair values. SFAS 123(R) requires companies to estimate the fair value of share-based payment awards on the date of grant using an option-pricing model. The value of the portion of the award that is ultimately expected to vest is recognized as expense over the requisite service periods in the Company’s consolidated statement of operations.

Stock-based compensation expense recognized during the period is based on the value of the portion of share-based payment awards that is ultimately expected to vest during the period. Stock-based compensation expense recognized in the Company’s consolidated statement of operations for the years ended December 27, 2008, December 29, 2007 and December 30, 2006 included compensation expense for share-based payment awards granted prior to, but not yet vested as of December 30, 2005 based on the grant date fair value estimated in accordance with the pro forma provisions of SFAS 123 and compensation expense for the share-based payment awards granted subsequent to December 30, 2005 based on the grant date fair value estimated in accordance with the provisions of SFAS 123(R). As stock-based compensation expense recognized in the consolidated statement of operations for the years ended December 27, 2008, December 29, 2007 and December 30, 2006 is based on awards ultimately expected to vest, it has been reduced for estimated forfeitures. SFAS 123(R) requires forfeitures to be estimated at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differ from those estimates. The Company’s estimated forfeiture rate in 2008, 2007 and 2006 of 19.7%, 22.7%, and 14.4% respectively, was based on historical forfeiture experience. SFAS 123(R) requires the cash flows resulting from the tax benefits resulting from tax deductions in excess of the compensation cost recognized for those options to be classified as financing cash flows. There were no such tax benefits during fiscal 2008, 2007 and 2006.

Valuation and Expense Information under SFAS 123(R)

The fair value of stock-based awards to employees is calculated using the Black-Scholes option pricing model, even though this model was developed to estimate the fair value of freely tradable, fully transferable options without vesting restrictions, which differ significantly from the Company’s stock options. The Black-Scholes model requires subjective assumptions, including future stock price volatility and expected time to exercise, which greatly affect the calculated values. The expected term of options granted was calculated using the simplified method allowed by SAB 107. The risk-free rate is based on the U.S Treasury rates in effect during the corresponding period of grant. The expected volatility is based on the historical volatility of Nanometrics’ stock price. These factors could change in the future, which would affect the stock-based compensation expense in future periods.

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

	Years Ended		
	December 27, 2008	December 29, 2007	December 30, 2006
Stock Options:			
Expected life	4.3 years	4.4 years	4.5 years
Volatility	56.9%	59.3%	71.2%
Risk free interest rate	2.22%	4.96%	4.80%
Dividends	—	—	—
Employee Stock Purchase Plan:			
Expected life	0.5 years	0.5 years	0.5 years
Volatility	87.7%	35.0%	42.0%
Risk free interest rate	1.02%	2.52%	3.49%
Dividends	—	—	—

The weighted average fair value per share of the stock options awarded in 2008, 2007 and 2006 of \$3.04, \$7.69 and \$11.71, respectively, was based on the fair market value of the Company's common stock on the grant dates.

The following table summarizes stock-based compensation expense for all share-based payment awards made to the Company's employees and directors pursuant to the Employee Stock Purchases under SFAS 123(R) which was allocated as follows (in thousands):

	Years Ended		
	December 27, 2008	December 29, 2007	December 30, 2006
Cost of products	\$ 310	\$ 287	\$ 354
Cost of service	363	337	305
Research and development	696	997	1,313
Selling	751	755	988
General and administrative	1,761	1,391	2,065
Total stock-based compensation expense related to employee stock options and employee stock purchases	<u>\$3,881</u>	<u>\$3,767</u>	<u>\$5,025</u>

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A summary of activity under the Company's stock option plans during 2008 is as follows:

	<u>Shares Available</u>	<u>Number of Shares</u>	<u>Weighted Average Exercise Price</u>	<u>Weighted Average Remaining Contractual Term (in Years)</u>	<u>Aggregate Intrinsic Value (in Thousands)</u>
Options					
Outstanding at December 29, 2007	1,607,911	3,120,467	\$ 9.94		
Shares added through 2005 Equity					
Incentive Plan	558,620	—	—		
Exercised	—	(35,978)	5.81		
Granted	(1,339,666)	1,339,666	3.04		
RSU allocation	(20,000)	—	—		
Canceled	858,178	(861,718)	10.14		
Outstanding at December 27, 2008	<u>1,665,043</u>	<u>3,562,437</u>	<u>\$ 7.29</u>	<u>5.1</u>	<u>\$176</u>
Exercisable at December 27, 2008		<u>1,663,383</u>	<u>\$10.05</u>	<u>3.6</u>	<u>\$ 5</u>

The Company granted 20,000 and 90,000 Restricted Stock Units ("RSU") during the year-end December 27, 2008 and December 29, 2007 respectively to key employees with vesting periods spanning from one to three years.

The aggregate intrinsic value in the preceding table represents the total pretax intrinsic value, based on the Company's closing stock price of \$1.15 as of December 27, 2008, 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 2008, 2007 and 2006 was \$0.1 million, \$0.6 million, and \$1.0 million respectively. The fair value of options vested during 2008, 2007 and 2006 was \$6.3 million, \$6.6 million and \$5.5 million respectively.

The following table summarizes significant ranges of outstanding and exercisable options as of December 27, 2008.

<u>Range of Exercise Prices</u>	<u>Options Outstanding</u>			<u>Options Exercisable</u>	
	<u>Number Outstanding</u>	<u>Weighted Average Remaining Contractual Life (Years)</u>	<u>Weighted Average Exercise Price</u>	<u>Number Exercisable</u>	<u>Weighted Average Exercise Price</u>
\$0.49-\$0.49	6,487	1.91	\$ 0.49	6,487	\$ 0.49
\$0.93-\$0.93	665,700	6.93	\$ 0.93	—	—
\$0.98-\$5.54	356,340	6.09	\$ 3.19	37,005	\$ 4.30
\$5.69-\$6.12	443,580	3.87	\$ 5.91	244,627	\$ 5.84
\$6.25-\$7.35	467,835	6.61	\$ 7.03	184,085	\$ 6.99
\$7.49-\$8.89	533,063	4.47	\$ 8.51	360,586	\$ 8.64
\$9.07-\$11.34	359,744	4.28	\$ 9.80	217,260	\$ 9.95
\$11.52-\$13.65	440,366	3.39	\$12.94	365,179	\$12.80
\$13.75-\$19.08	282,322	3.67	\$15.58	241,154	\$15.52
\$20.14-\$20.14	7,000	2.09	\$20.14	7,000	\$20.14
\$0.49-\$20.14	<u>3,562,437</u>	5.07	\$ 7.29	<u>1,663,383</u>	\$10.05

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As of December 27, 2008 the total unrecognized compensation costs related to unvested stock options was \$3.0 million which is expected to be recognized as an expense over the weighted average remaining amortization period of 2.13 years.

Note 4. 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. In accordance with SFAS 142 goodwill is reviewed annually or whenever events or circumstances occur which indicate that goodwill might be impaired. SFAS 142 provides for a two-step approach to determining whether and by how much goodwill has been impaired. The first step requires a comparison of the fair value of the Company (reporting units, product and service) to its net book value. If the fair value is greater, then no impairment is deemed to have occurred. If the fair value is less, then the second step must be performed to determine the amount, if any, of actual impairment. The process of evaluating the potential impairment of goodwill is highly subjective and requires significant judgment.

Prior to performing step one of the goodwill impairment testing process for a reporting unit under SFAS 142, if there is reason to believe that other non-goodwill related intangible assets (finite or indefinite lived) and/or long-lived assets may be impaired, these other intangible assets and long-lived assets must first be tested for impairment under SFAS 144. Assets governed by SFAS 144 require a recoverability test whereby the gross undiscounted cash flows are determined specific to the asset. If the sum of gross undiscounted cash flows for the fixed-life intangible asset or long-lived asset exceeds the carrying value of that asset, the test results in no impairment to the asset. If not, then the fair value of the asset must be determined and the impairment is measured by the differential between the fair value and the carrying value. For non-goodwill related indefinite-lived assets, a fair value determination is made. If the carrying value of the asset exceeds the fair value, then impairment occurs. The carrying values of these assets are impaired as necessary to provide the appropriate carrying value for the goodwill impairment calculation.

As a result of a significant decrease in our net revenues and stock price during the second quarter 2008, the Company determined that indicators of impairment existed for our goodwill and long-lived assets in the second quarter of 2008. Accordingly, in accordance with SFAS 144, the Company performed impairment tests to its long-lived assets and goodwill during the second quarter of 2008 for its reporting units, product and service. As a result of this testing, while the Company determined that there was no impairment of goodwill, the Company recorded a pre-tax, non-cash impairment charge of \$11.8 million for intangible assets and \$1.5 million for other long-lived assets during the second quarter 2008.

During the third quarter 2008, as a result of continued significant declines in the Company's stock price and further evidence of the semiconductor industry being in a prolonged cyclical downturn, the Company determined that indicators of impairment existed for our goodwill and long-lived assets in the third quarter of 2008. Accordingly, in accordance with SFAS 142 and SFAS 144, the Company performed impairment tests to its long-lived assets and goodwill during the third quarter of 2008 for its reporting units, product and service. As a result of this testing, the Company determined and recorded a pre-tax, non-cash impairment charge of \$54.0 million for goodwill and \$1.4 million for intangible assets during the third quarter 2008. The \$54.0 million represented 100% impairment of the goodwill balance. The Company also determined that there was no impairment of other long-lived assets at the end of third quarter 2008.

During the fourth quarter 2008, due to the continued and prolonged semiconductor cyclical downturn, the Company determined that indicators of impairment existed for our long-lived assets and, in accordance with

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SFAS 144, the Company performed impairment tests to its long-lived assets during the fourth quarter of 2008. The Company determined that no impairment existed as of the end of fourth quarter 2008 for its long-lived assets and intangible assets.

The process of evaluating the potential impairment of long-lived assets is highly subjective and requires significant judgment. In estimating the fair value of these assets, the Company made estimates and judgments about future revenues and cash flows. The Company's forecasts were based on assumptions that are consistent with the plans and estimates the Company is using to manage the business. Changes in these estimates could change the Company's conclusion regarding impairment of the long-lived assets and potentially result in future impairment charges for all or a portion of their balance at December 27, 2008.

Due to the decline in our forecasted revenues for certain product lines relating to specific intangible assets acquired in the 2006 acquisitions of Accent Optical Technologies, Inc. and Soluris, Inc., as well as the weakening conditions in the semiconductor equipment market, the Company performed an analysis in accordance with SFAS 144. The Company performed step one of the impairment test for certain of its long-lived assets as of June 28, 2008 and September 27, 2008, and determined that the net book value exceeded the undiscounted future cash flows for certain intangible assets. Accordingly, the Company completed step two of the impairment analysis utilizing a present value technique to estimate the fair value of the impaired assets. As a result of this analysis, in the second and third quarters of 2008 the Company recorded \$13.1 million in impairment charges for intangible assets, of which \$3.7 million was developed technology, \$7.5 million was customer relationships, \$1.6 million was brand names and \$0.3 million was trade mark.

Also in accordance with SFAS 144, the Company performed impairment tests for other long-lived assets such as property, plant and equipment during 2008. The Company performed an impairment analysis on its long-lived assets associated with its machine shop and plating facility, which was subcontracted in 2007, due to the significant reduction in forecasted future cash flows resulting from the operational limitations of the facility. Due to these reduced forecasts, the Company performed step one of the impairment test for the machine shop and plating facility as of June 28, 2008, and determined that the net book value exceeded the undiscounted future cash flows. Accordingly, the Company completed step two of the impairment analysis utilizing a present value technique to estimate the fair value of the impaired assets. As a result of this analysis, an impairment charge of \$1.5 million was recorded in the second quarter of 2008 to reduce those assets to fair value. The Company also performed step one of the impairment test on the remainder of its long lived assets in the second, third, and fourth quarters of 2008, and determined that no impairment existed.

After considering the results of the intangible and long-lived asset impairments as determined under SFAS 144, the Company then proceeded with step one of its impairment testing of goodwill under SFAS 142. The Company compared the fair value of each reporting unit to its carrying value and determined whether or not the reporting units were impaired as of June 28, 2008 and September 27, 2008.

In 2008, in estimating the fair value of the Company, the Company made estimates and judgments about future revenues and cash flows for each reporting unit. To determine the fair value, the Company's review process included the income method based on a discounted future cash flow approach that uses estimates including the following for each reporting unit: revenue, based on assumed market growth rates and its assumed market share; estimated costs; and appropriate discount rates based on the particular business's weighted average cost of capital. The Company's estimates of market segment growth, market segment share and costs are based on historical data, various internal estimates and certain external sources, and are based on assumptions that are consistent with the plans and estimates it uses to manage the underlying businesses. The Company's business

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consists of both established and emerging technologies and its forecasts for emerging technologies are based upon internal estimates and external sources rather than historical information. The Company also considered its market capitalization on the dates of its impairment tests in determining the fair value of the respective businesses. The Company completed the first step of the SFAS 142 test of its goodwill at June 28, 2008 and determined that the fair value of its reporting units was in excess of the net book value on that date, and hence there was no impairment of goodwill as of the end of our second quarter 2008.

In accordance with SFAS 142, the Company concluded that events had occurred and circumstances had changed during the third quarter of 2008 which might indicate the existence of impairment indicators including a significant decline in the Company's stock price and continued deterioration in the semiconductor equipment market and the related impact on revenue forecasts of each reporting unit. Consistent with the Company's approach in its annual impairment testing, in assessing the fair value of the reporting unit, the Company considered both the market approach and income approach. Under the market approach, the fair value of the reporting unit is based on quoted market prices and the number of shares outstanding of the Company's common stock. Under the income approach, the fair value of the reporting unit is based on the present value of estimated future cash flows. At September 27, 2008, the Company determined that the fair value of its reporting units was less than the net book value of the net assets of each reporting unit and accordingly, the Company performed step two of the impairment test.

In step two of the impairment test, the Company determined the implied fair value of the goodwill and compared it to the carrying value of the goodwill. With the assistance of a third party valuation firm, the Company allocated the fair value of the reporting units to all of its assets and liabilities as if the reporting unit had been acquired in a business combination and the fair value of the reporting units was the price paid to acquire the reporting unit. The excess of the fair value of the reporting unit over the amount assigned to its assets and liabilities is the implied fair value of goodwill. The Company's step two analysis resulted in no implied fair value of goodwill, and therefore, the Company recognized an impairment charge of \$54.0 million in the third quarter of 2008, representing a write-off of the entire amount of the Company's previously recorded goodwill including goodwill from the Tevet acquisition which was a part of the impaired reporting units.

Note 5. 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 established by SFAS No. 140, "*Accounting for Transfers and Servicing of Financial Assets and Extinguishments of Liabilities*" ("SFAS 140"), had been met. Under SFAS 140, 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 1.675% to 2.0% based on the anticipated length of time between the date the sale is consummated and the expected collection date of the receivables sold. In 2008, 2007 and 2006 there were no material gains or losses on the sale of such receivables. In 2008 and 2007, the Company sold \$21.7 million and \$22.4 million, respectively of receivables under the terms of the agreement. There were no amounts due from the acquiring party financial institution at December 27, 2008 and December 29, 2007.

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Note 6. Inventories

Inventories consist of the following (in thousands):

	At	
	December 27, 2008	December 29, 2007
Raw materials and subassemblies	\$19,113	\$19,685
Work in process	3,662	7,134
Finished goods	8,808	6,524
Total inventories	\$31,583	\$33,343

During 2007, the Company determined that certain demonstration/evaluation equipment would no longer be marketed to be sold. Accordingly, equipment totaling \$6.7 million was transferred from inventory to property, plant and equipment. During 2008, an additional \$0.3 million was transferred.

Note 7. Property, Plant and Equipment

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

	At	
	December 27, 2008	December 29, 2007
Land	\$ 15,577	\$ 15,597
Building and improvements	20,973	21,191
Machinery and equipment	15,427	17,234
Furniture and fixtures	2,142	2,184
Capital in progress	2,940	1,521
	57,059	57,727
Accumulated depreciation and amortization	(16,923)	(13,308)
Total property, plant and equipment, net	\$ 40,136	\$ 44,419

Depreciation expense was \$4.9 million, \$5.1 million, and \$3.2 million for 2008, 2007 and 2006, respectively. The amounts associated with capital in progress for 2008 and 2007 of \$2.9 million and \$1.5 million, respectively, were related to machinery and equipment projects.

Note 8. Goodwill and Intangible Assets

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. In accordance with SFAS 142, goodwill and indefinite-lived assets are reviewed annually or whenever events or circumstances occur which indicate that goodwill might be impaired.

Goodwill and Indefinite Lived Assets

The Company's step two analysis (as described in the Note 4. Asset Impairment) resulted in no implied fair value of goodwill, and therefore, the Company recognized an impairment charge of \$54.0 million in the third quarter of 2008, representing a write-off of the entire amount of the Company's previously recorded goodwill



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including goodwill from the Tevet acquisition which was a part of the impaired reporting units. Changes in goodwill are as follows (in thousands):

	At	
	December 27, 2008	December 29, 2007
Balance, beginning of period	\$ 52,132	\$54,817
Deferred tax liability adjustment	—	(648)
Settlement of escrow shares	—	(2,037)
Goodwill from Tevet acquisition	1,848	—
Impairment	(53,980)	—
Balance, end of period	<u>\$ —</u>	<u>\$52,132</u>

Intangible Assets

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. On March 15, 2006, as a result of the Company's acquisition of Soluris Inc., the Company acquired a trademark with a value of \$0.4 million with an indefinite life. During the first quarter of 2008, the Company determined the trademark no longer had an indefinite life. Accordingly, a remaining life of five years was assigned and the Company began amortization of the finite-lived intangible asset.

During the second quarter of 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 27, 2008 and December 29, 2007 consist of the following (in thousands):

	Original Cost	Impairment & Tax Adjustment(a)	New Cost Basis	Accumulated Amortization	Net Intangible Assets
December 27, 2008					
Developed technology	\$11,069	\$ (3,750)	\$ 7,319	\$ 3,147	\$ 4,172
Customer relationships	15,700	(7,517)	8,183	6,330	1,853
Brand names	3,600	(1,673)	1,927	1,087	840
Patented technology	1,790	—	1,790	1,790	—
Trade Mark	400	(320)	80	44	36
Backlog	3,361	—	3,361	3,361	—
Non-compete agreement	50	—	50	50	—
Other	250	—	250	250	—
Total	<u>\$36,220</u>	<u>\$(13,260)</u>	<u>\$22,960</u>	<u>\$16,059</u>	<u>\$ 6,901</u>
December 29, 2007					
Developed technology	\$ 9,800	\$ —	\$ 9,800	\$ 2,037	\$ 7,763
Customer relationships	15,700	—	15,700	4,638	11,062
Brand names	3,600	—	3,600	749	2,851
Patented technology	1,790	—	1,790	1,646	144
Backlog	3,131	—	3,131	3,131	—
Non-compete agreement	50	—	50	50	—
Other	250	—	250	250	—
Total	<u>\$34,321</u>	<u>\$ —</u>	<u>\$34,321</u>	<u>\$12,501</u>	<u>\$21,820</u>

(a) Amounts include impairments charges recorded in the second and third quarters of 2008 of \$11,762 and \$1,352, respectively, and a tax adjustment of \$146 recorded in the third quarter of 2008.

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The amortization of finite-lived intangibles is computed using the straight-line method except for customer relationships which is computed using an accelerated method. Estimated lives of finite-lived intangibles range from five to ten years, except for the non-compete agreement and backlog which are amortized over one year. Total amortization expense was \$3.5 million, \$5.8 million, \$5.3 million for fiscal 2008, 2007 and 2006, respectively.

The estimated future amortization expense as of December 27, 2008 is as follows (in thousands):

<u>Fiscal Years</u>	
2009	\$1,350
2010	1,267
2011	1,108
2012	972
2013	811
Thereafter	1,393
Total amortization	<u>\$6,901</u>

Note 9. Other Current Liabilities

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

	At	
	<u>December 27, 2008</u>	<u>December 29, 2007</u>
Accrued warranty	\$2,075	\$4,545
Accrued professional services	883	529
Other	2,842	2,169
Total other current liabilities	<u>\$5,800</u>	<u>\$7,243</u>

Note 10. Debt Obligations

Debt obligations consist of the following (in thousands):

	At	
	<u>December 27, 2008</u>	<u>December 29, 2007</u>
Milpitas building mortgage	\$13,400	\$ —
Equipment financing	96	277
Total debt obligations	13,496	277
Current portion of debt obligations	(413)	(148)
Long-term debt obligations	<u>\$13,083</u>	<u>\$ 129</u>



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

The equipment financing was obtained in November 2006 by the Company’s subsidiary in the United Kingdom and is collateralized by the financed assets. The loan is denominated in British pounds sterling (£64,809 at December 27, 2008) and bears interest at 5.53% per annum. The loan is payable in monthly installments with unpaid principal and interest due in November 2009.

The Company is not in breach of any restrictive covenants in connection with its debt as of December 27, 2008. At December 27, 2008, future annual maturities of debt obligations were as follows (in thousands):

2009	\$ 413
2010	343
2011	368
2012	396
2013	426
Thereafter	<u>11,550</u>
Total	<u>\$13,496</u>

Note 11. Line of Credit

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 million. This agreement was subsequently extended until May 2009 and all other original terms remain unchanged. The instrument governing the facility includes certain financial covenants regarding net tangible worth. The Company is in compliance with all covenants as of December 27, 2008. All borrowings under this credit line bear interest, at the Company’s election, at a per annum rate equal to the bank’s prime rate or at the London Interbank Offered Rate (or LIBOR) plus 2.25%. The revolving line of credit agreement includes a provision for the issuance of commercial or standby letters of credit by the bank on 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. No withdrawals have been made as of December 27, 2008. Although the Company has no current plans to request advances under this credit facility, it may use the proceeds of any future borrowing for general corporate purposes or for future acquisitions or expansion of the Company’s business.

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Years Ended December 27, 2008, December 29, 2007 and December 30, 2006

Note 12. Commitments and Contingencies

The Company leases facilities and certain equipment under non-cancellable operating leases. Rent expense, which is recorded on a straight-line basis over the term of the respective lease, for 2008, 2007, and 2006 was approximately \$1.4 million, \$2.2 million and \$1.0 million, respectively. Future minimum lease payments under its operating leases are as follows (in thousands):

	Operating Leases
2009	\$ 649
2010	357
2011	247
2012	229
2013	207
Total	<u>\$1,689</u>

In August 2007, Nanometrics entered into an executive severance agreement with Timothy J. Stultz, Ph.D., President, Chief Executive Officer and a director, which provides for certain severance benefits following a termination without cause, including in connection with a change in control. Specifically, Nanometrics agrees to pay Dr. Stultz (i) his annual salary, including bonuses earned or accrued, and reimbursements for his premium payments under COBRA for nine months from the date of separation in the event that Dr. Stultz' employment with Nanometrics is terminated by us without cause or Dr. Stultz resigns for good reason during the period beginning one year and one day after Dr. Stultz' hire date (which was August 27, 2007) until two years from Dr. Stultz' hire date; (ii) his annual salary, including bonuses earned or accrued, and reimbursements for his premium payments under COBRA for six months from the date of separation in the event that Dr. Stultz' employment with Nanometrics is terminated by us without cause or Dr. Stultz resigns for good reason during the period beginning two years and one day after Dr. Stultz' hire date or thereafter; and (iii) his annual salary, including bonuses earned or accrued, and reimbursements for his premium payments under COBRA for twelve (12) months and 100% acceleration of all equity awards, from the date of separation in the event that Dr. Stultz' employment with Nanometrics is terminated by us without cause or Dr. Stultz resigns for good reason within twelve months following a change in control, provided that Dr. Stultz executes a general release.

In August 2007, Nanometrics entered into an executive severance agreement with Bruce A. Crawford, Chief Operating Officer, which provides for certain severance benefits following a termination without cause, including six months continuing salary at his then-effective annual rate, reimbursements for his premium payments under COBRA for twelve months and twelve months of partial equity award acceleration, provided that Mr. Crawford executes a general release.

In February 2009, Nanometrics entered into an executive severance agreement with James P. Moniz, Chief Financial Officer, which provides for certain severance benefits if Mr. Moniz is terminated without cause or he resigns for good reason within twelve months of a change of control, including six months continuing salary, full acceleration of all outstanding equity awards and reimbursements for his premium payments under COBRA for up to twelve months, provided that Mr. Moniz executes a general release.

In August 2005, KLA-Tencor Corporation, or KLA, filed a complaint against us in the United States District Court for the Northern District of California. The complaint alleges that certain of the Company's products infringe two of KLA's patents. On January 30, 2007, KLA added a third patent to their claim. The complaint



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seeks a preliminary and permanent injunction against the sale of these products as well as the recovery of monetary damages and attorneys' fees. The Company does not believe that any of its products infringe the intellectual property of any third party and intends to vigorously and aggressively defend itself in the litigation. As part of such defense, the Company filed a request for re-examination of the three allegedly infringed KLA patents with the U.S. Patent & Trademark Office, or PTO. In March 2006, the Company filed a motion for and was granted a stay in the patent litigation case until such re-examination is completed. On July 28, 2008, the PTO issued a Notice of Intent to issue a Reexamination Certificate for one of the KLA patents. The other two patent reexaminations remain pending. In all three of the reexamination proceedings, the PTO has issued Office Actions rejecting numerous claims and KLA has amended the claims in response.

Note 13. Stockholders' Equity

Preferred and Common Stock

Nanometrics was incorporated in California in 1975. On September 29, 2006, the Company was reincorporated in the State of Delaware. As part of the reincorporation, each outstanding share of the California corporation, no par value common stock, was converted automatically to one share of the new Delaware corporation, \$0.001 par value common stock. The authorized capital stock of Nanometrics consists of 47,000,000 shares of common stock, par value \$0.001 per share, and 3,000,000 shares of preferred stock, par value \$0.001 per share.

Stock Option Plans

Options to acquire common stock generally vest at a rate of 33.3% upon each anniversary of the stock option grant, and generally expire between five and seven years from the date of grant. The Nanometrics option plans are as follows:

<u>Plan Name</u>	<u>Participants</u>	<u>Shares Authorized</u>
2005 Equity Incentive Plan	Employees, consultants and directors	2,692,594
2002 Non-statutory Stock Option Plan	Employees and consultants	1,200,000
2000 Employee Stock Option Plan	Employees and consultants	2,450,000
2000 Director Stock Option Plan	Non-employee directors	250,000
1991 Stock Option Plan	Employees and consultants	3,000,000
Accent Optical Technologies, Inc. Stock Incentive Plan	Employees and consultants	205,003

See Note 3 above for information on option activity in 2008.

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 27, 2008 Nanometrics had 178,754 shares remaining for issuance under the ESPP. Shares issued under the ESPP were 267,649 in 2008 at a weighted average price of \$2.26, 111,680 in 2007 at a weighted average price of \$5.30, and 71,432 in 2006 at a weighted average price of \$9.38.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Years Ended December 27, 2008, December 29, 2007 and December 30, 2006

Note 14. Restructuring Charge

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

	<u>Professional Fees</u>	<u>Severance and other benefits</u>	<u>Other Charges</u>	<u>Total</u>
Restructuring charges- First Quarter 2008	\$ —	\$ 786	\$ 84	\$ 870
Restructuring charges- Second Quarter 2008	—	655	—	655
Cash paid	—	\$(1,361)	\$ (84)	\$(1,445)
Reserve balance at December 27, 2008	<u>\$ —</u>	<u>\$ 80</u>	<u>\$ —</u>	<u>\$ 80</u>

The Company anticipates that the remaining restructuring reserve balance of \$0.08 million will be paid or utilized by first quarter of fiscal 2009. The balance is reflected in "Other current liabilities" in the accompanying consolidated balance sheet.

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

	<u>Professional Fees</u>	<u>Severance and other benefits</u>	<u>Other Charges</u>	<u>Total</u>
Restructuring charges	\$ 126	\$ 92	\$ 1,910	\$ 2,128
Non-cash charges	—	—	(1,910)	(1,910)
Cash paid	(126)	(92)	—	(218)
Reserve balance at December 29, 2007	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>

Note 15. Gain on the Sale of Assets

In August 2007, the Company sold land and a building in Japan and realized a gain on the sale of \$1.1 million. In July 2007, the Company sold a condominium in California and realized a gain of \$0.2 million in the third quarter of 2007. The Company also sold other non-strategic assets during 2007 realizing a gain of \$0.8 million. Gain on sale of assets was insignificant during 2008 and 2006.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Years Ended December 27, 2008, December 29, 2007 and December 30, 2006

Note 16. Defined Benefit Pension Plan

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

Change in fair value of plan assets

	For Years Ended	
	December 27, 2008	December 29, 2007
Fair value of plan assets at beginning of year	\$55	\$23
Actual return on plan assets	2	1
Employer contributions	21	31
Fair value of plan assets at end of year	\$78	\$55

Change in projected benefit obligations

	For Years Ended	
	December 27, 2008	December 29, 2007
Projected benefit obligation at the beginning of the year	\$ 808	\$784
Interest cost	18	24
Actuarial gain/loss	(15)	—
Effects due to curtailment	(251)	—
Benefit obligation	\$ 560	\$808
Funding deficiency	\$ 482	\$753

The funding deficiency is reflected in other long-term liabilities on the balance sheet at December 27, 2008, and December 29, 2007 respectively.

The accumulated benefit obligation as of December 27, 2008 and December 29, 2007 was \$0.4 million and \$0.5 million respectively.

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

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

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Pension Benefit Expense

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

	<u>For Years Ended</u>	
	<u>December 27, 2008</u>	<u>December 29, 2007</u>
Interest cost	\$ 18	\$ 24
Amortization of transition obligation	18	36
Amortization of net loss	(2)	—
Expected return on plan assets	(2)	—
Curtailment or settlement (gain)/loss	(146)	—
Actual return on plan assets	—	(1)
Service cost	—	—
Net pension benefit cost/(gain) for the year	<u>\$(114)</u>	<u>\$ 59</u>

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

	<u>For Years Ended</u>	
	<u>December 27, 2008</u>	<u>December 29, 2007</u>
Average increase in compensation levels	2.0%	3.0%
Discount rate	2.5%	3.0%
Expected long-term returns on the assets	2.5%	2.5%

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

Note 17. Income Taxes

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

	<u>Years Ended</u>		
	<u>December 27, 2008</u>	<u>December 29, 2007</u>	<u>December 30, 2006</u>
Domestic	\$(69,860)	\$(10,918)	\$(14,258)
Foreign	(12,430)	6,879	(8,192)
Loss before income taxes	<u>\$(82,290)</u>	<u>\$ (4,039)</u>	<u>\$(22,450)</u>

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

	Years Ended		
	December 27, 2008	December 29, 2007	December 30, 2006
Current:			
Federal	\$ (127)	\$ —	\$ —
State	72	146	20
Foreign	1,238	719	94
	<u>1,183</u>	<u>865</u>	<u>114</u>
Deferred:			
Federal	(238)	—	(437)
State	—	—	—
Foreign	(509)	(896)	—
	<u>(747)</u>	<u>(896)</u>	<u>(437)</u>
Provision (benefit) for income taxes	<u>\$ 436</u>	<u>\$ (31)</u>	<u>\$ (323)</u>

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

	At	
	December 27, 2008	December 29, 2007
Deferred tax assets – current:		
Reserves and accruals not currently deductible	\$ 5,202	\$ 9,287
Capitalized inventory costs	1,284	1,214
Total gross deferred tax assets – current	6,486	10,501
Valuation allowance	(6,136)	(10,501)
Total net deferred tax assets – current	<u>\$ 350</u>	<u>\$ —</u>
Deferred tax assets (liabilities) noncurrent:		
Tax credit carry-forwards	\$ 6,773	\$ 6,669
Depreciation	(460)	(1,537)
Reserves and accruals	2,749	3,416
Intangible assets	3,025	(1,859)
Net operating loss carry-forwards	16,694	22,710
Translation adjustments	—	—
Total net deferred tax assets (liabilities) – noncurrent	28,781	29,399
Valuation allowance	(28,766)	(29,781)
Total net deferred tax assets (liabilities) – noncurrent	<u>\$ 15</u>	<u>\$ (382)</u>

As of December 27, 2008, the Company had net operating loss carry-forwards for federal income tax purposes of \$34.3 million, which expire after 2023. Of the federal net operating loss carry-forwards, \$1.2 million relate to stock options and will be credited to additional paid-in-capital when realized. As of December 27, 2008, the Company had net operating loss carry-forwards of \$25.1 million in California and net operating loss carry forward of \$5.2 million and \$0.4 million in Japan and the United Kingdom, respectively.

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As of December 27, 2008, the Company had available for carry-forward research and experimental tax credits, minimum tax credits and foreign tax credits for federal income tax purposes of \$3.7 million, \$0.3 million and \$1.3 million respectively. Federal credit carry-forwards begin to expire in 2008.

As of December 27, 2008, the Company had available for carry-forward state research and experimental tax credits of \$2.2 million. State research and experimental tax credits carry-forward indefinitely.

During the years ended December 27, 2008 and December 29, 2007 the valuation allowance increased/ (decreased) by \$(5.4) million and \$15.6 million respectively. The valuation allowance decreased in 2008 due to the release of the valuation allowance against foreign deferred taxes.

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 27, 2008	December 29, 2007	December 30, 2006
Income taxes computed at U.S. statutory rate	\$(28,804)	\$(1,373)	\$(7,588)
State income taxes	72	144	20
Foreign tax provision higher than U.S. rates	4,647	(33)	79
Change in valuation allowance	4,683	798	7,195
Tax credits	(83)	—	(199)
Goodwill Impairment	18,294	—	—
Other, net	1,627	433	170
Provision (benefit) for income taxes	<u>\$ 436</u>	<u>\$ (31)</u>	<u>\$ (323)</u>

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

In June 2006, the Financial Accounting Standards Board (FASB) issued interpretation No. 48, "Accounting for Uncertainty in income taxes" ("FIN 48"). FIN 48 clarifies the accounting for uncertainty in income taxes recognized in an enterprise's financial statements in accordance with Statement of Financial Accounting Standards No. 109, "Accounting for Income Taxes" ("FAS109"). This interpretation prescribes a recognition threshold and measurement attribute for the financial statement recognition and measurement of a tax position taken or expected to be taken in a tax return. FIN 48 also provides guidance on de-recognition of tax benefits, classification on the balance sheet, interest and penalties, accounting in interim periods, disclosure and transition. The Company adopted FIN 48 effective January 1, 2007.



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

Unrecognized tax benefits – as of December 31, 2006	\$ 463
Settlements	(120)
Unrecognized tax benefits – as of December 29, 2007	<u>\$ 343</u>
Foreign Currency Movements	—
Gross Increases – tax positions in prior period	835
Gross Decreases – tax positions in prior period	—
Gross increases – current period tax positions	296
Settlements	—
Lapse of statute of limitations	<u>(100)</u>
Unrecognized tax benefit – as of December 27, 2008	<u>\$1,374</u>

As of December 27, 2008, the total amount of net unrecognized tax benefit is \$1.4 million of which \$0.7 million, if recognized would affect the effective tax rate. The Company accrues interest and penalties related to unrecognized tax benefits in its provision for income taxes. The total amount of penalties and interest is not material as of December 27, 2008. Additionally the Company does not expect a material change in its unrecognized tax benefits within the next 12 months.

Due to tax attribute carry-forward, 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 state jurisdiction for tax years 1996 forward, none of which were individually material. The Company is subject to examination for tax years 2003 forward for various foreign jurisdictions.

Note 18. Bonus Plans

The Company incurred \$1.1 million and \$1.4 million in 2008 and 2007, respectively, under a Company-wide formal discretionary cash bonus plan, which covers all eligible employees. There was no expense under the Company-wide formal discretionary cash bonus plan for 2006.

Note 19. Major Customers

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

	Years Ended		
	December 27, 2008	December 29, 2007	December 30, 2006
Samsung Electronics Co. Ltd.	16.1%	15.7%	14.3%
Toshiba Semiconductor	11.0%	***	***
Hynix Semiconductor, Inc.	***	10.6%	13.5%
Applied Materials, Inc.	***	***	20.1%

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

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

	At	
	December 27, 2008	December 29, 2007
Hynix Semiconductor, Inc.	27.0%	***
Samsung Electronics Co. Ltd.	***	14.1%

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

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Years Ended December 27, 2008, December 29, 2007 and December 30, 2006

Note 20. Product, Segment and Geographic Information

The Company has one operating segment, as defined in SFAS No. 131, "Disclosures about Segments of an Enterprise and Related Information". The Company's operating segment is the sale, design, manufacture, marketing and support of thin film, optical critical dimension and overlay dimension metrology systems. For the years ended December 27, 2008, December 29, 2007 and December 30, 2006, 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 27, 2008	December 29, 2007	December 30, 2006
Total net revenues:			
United States	\$ 30,102	\$ 46,712	\$33,691
Japan	28,572	40,610	16,810
South Korea	20,944	20,116	25,308
Taiwan	5,871	11,447	5,158
China	7,470	10,675	5,972
Europe	5,315	14,563	6,937
All other	3,827	2,167	2,498
Total net revenues*	<u>\$102,101</u>	<u>\$146,290</u>	<u>\$96,374</u>

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

	At	
	December 27, 2008	December 29, 2007
Long-lived tangible assets:		
United States	\$35,322	\$37,758
Japan	1,138	1,165
South Korea	3,853	5,599
Taiwan	102	143
China	17	10
Europe	1,152	1,545
All Other	270	4
Total long-lived assets	<u>\$41,854</u>	<u>\$46,224</u>

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. 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 27, 2008	December 29, 2007	December 30, 2006
Automated Metrology	\$40,623	\$ 68,165	\$44,321
Materials Characterization	19,009	28,960	12,852
Integrated Systems	15,964	28,924	23,463
Total product revenues	<u>\$75,596</u>	<u>\$126,049</u>	<u>\$80,636</u>

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Years Ended December 27, 2008, December 29, 2007 and December 30, 2006

Note 21. Selected Quarterly Financial Results (Unaudited)

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

	<u>Quarters Ended</u>			
	<u>Dec. 27, 2008</u>	<u>Sept. 27, 2008</u>	<u>June 28, 2008</u>	<u>March 29, 2008</u>
Total net revenues	\$20,475	\$ 23,137	\$ 23,761	\$34,728
Gross profit	8,630	10,209	10,067	15,828
Income (loss) from operations	(3,452)	(60,023)	(19,044)	(945)
Net loss	(2,641)	(60,447)	(18,914)	(724)
Net loss per share:				
Basic	\$ (0.14)	\$ (3.25)	\$ (1.02)	\$ (0.04)
Diluted	\$ (0.14)	\$ (3.25)	\$ (1.02)	\$ (0.04)
Shares used in per share computations:				
Basic	18,385	18,574	18,632	18,590
Diluted	18,385	18,574	18,632	18,590

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

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

None.

ITEM 9A. CONTROLS AND PROCEDURES

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

Evaluation of Disclosure Controls and Procedures

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

As described below under "Report of Management on Internal Control over Financial Reporting," we identified a material weakness in the internal control over financial reporting in the fiscal year ended December 29, 2007. Since discovery of the material weakness, we performed extensive additional work and implemented several procedures to obtain reasonable assurance regarding the reliability of our financial statements. Based on our testing of these enhanced procedures, in the quarter ended December 27, 2008, management determined that as of December 27, 2008, we have remediated the material weakness in internal controls over financial reporting and the controls are now operating effectively.

Our Chief Executive Officer and Chief Financial Officer have concluded that, as of the end of the period covered by this Annual Report on Form 10-K, the Company's disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act) were effective.

Report of Management on Internal Control over Financial Reporting

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

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

A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the control system's objectives will be met. Further, the design of a control system must reflect the fact that there are resource constraints. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, within our company have been detected. Under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, we assessed the effectiveness of our internal control over financial reporting as of December 27, 2008. 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 27, 2008.

Our assessment of the effectiveness of our internal control over financial reporting as of December 27, 2008, has not been audited by BDO Seidman LLP, our independent registered public accounting firm, as the Company is a non-accelerated filer as of December 27, 2008, as determined by the Company's public float at the end of second quarter 2008, and hence our independent registered accounting firm is not required to opine on our internal controls over financial reporting as of the end of our fiscal year 2008.

Changes in Internal Control over Financial Reporting

The material weakness that existed in our internal controls relating to international income tax accounting as of December 29, 2007 resulted in changes in the Company's internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) during the year ended December 27, 2008.

During the year ended December 27, 2008, we took the following steps to remediate the material weakness described above:

- Completion of global transfer pricing study,
- Increased oversight and monitoring of accounting procedures and review of our international tax accounting and,
- Rationalization and simplification of the tax structures of our foreign entities.

Based on our testing of these enhanced procedures, in the quarter ended December 27, 2008, management determined that as of December 27, 2008, we have remediated the material weakness in internal control over financial reporting and the controls are now operating effectively.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information required by this Item concerning our directors, compliance with Section 16 of the Securities and Exchange Act of 1934, our code of ethics that applies to our principal executive officer, principal financial officer and principal accounting officer and our Audit Committee is incorporated by reference to the information set forth in the sections entitled “Proposal One—Election of Directors,” “Section 16(a) Beneficial Ownership Reporting Compliance” and “Corporate Governance” in our Proxy Statement for our 2009 Annual Meeting of Stockholders to be filed with the Securities and Exchange Commission not later than 120 days after the end of our fiscal year (the “Proxy Statement”). Information regarding the Registrant’s executive officers is set forth at the end of Part I of this Annual Report on Form 10-K under the caption “Executive Officers of the Registrant.”

ITEM 11. EXECUTIVE COMPENSATION

Information required by this Item is incorporated by reference to the information set forth under the caption “Executive Compensation” in the Proxy Statement.

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

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

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS AND DIRECTOR INDEPENDENCE

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

ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES

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

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULE

Consolidated Financial Statements.

See Index to Consolidated Financial Statements at Item 8 on page 49 of this Annual Report on Form 10-K.

Consolidated Financial Statement Schedule.

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

<u>Schedule</u>	<u>Page</u>
I – Valuation and Qualifying Accounts	92

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

Exhibits.

The following exhibits are filed or incorporated by reference with this Annual Report on Form 10-K:

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

<u>Exhibit No.</u>	<u>Description</u>
10.15(10)	Separation and Release Agreement between John D. Heaton and the Registrant dated June 25, 2007
10.16(6)	Employment Agreement between Gary C. Schaefer and the Registrant effective as of November 5, 2007
	All Other Material Contracts
10.17(7)	Loan and Security Agreement effective as of February 14, 2007 by and between Comerica Bank, the Registrant, Accent Optical Technologies Nanometrics, Inc. and Nanometrics IVS Division, Inc.
10.18	Notice of Extension as of February 14, 2009 of the Maturity Date of the Above Referenced Loan and Security Agreement
14	Code of Ethics
14(11)	Registrant's Code of Business Conduct and Ethics
21	Subsidiaries
21	Subsidiaries of the Registrant
23	Consents of Experts and Counsel
23.1	Consent of BDO Seidman, LLP, Independent Registered Public Accounting Firm
24	Power of Attorney
24	Power of Attorney (see page 91)
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 James P. Moniz, principal financial officer and principal accounting officer of the Registrant, pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32	Section 1350 Certifications
32.1	Certification of Timothy J. Stultz, principal executive officer of the Registrant, and James P. Moniz, principal financial officer and principal accounting officer of the Registrant pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
<hr/>	
(1)	Incorporated by reference to exhibits filed with the Registrant's Current Report on Form 8-K filed October 5, 2006
(2)	Incorporated by reference to Exhibit 4.1 filed with the Registrant's Quarterly Report on Form 10-Q filed November 9, 2006
(3)	Incorporated by reference to Exhibit 10.1 filed with the Registrant's Annual Report on Form 10-K filed March 15, 2007
(4)	Incorporated by reference to Exhibit 4.1 filed with the Registrant's Registration Statement on Form S-8 (File No. 333-33583) filed on August 14, 1997
(5)	Incorporated by reference to Exhibit 4.2 filed with the Registrant's Registration Statement on Form S-8 (File No. 333-40866) filed on July 6, 2000
(6)	Incorporated by reference to exhibits filed with the Registrant's Annual Report on Form 10-K filed March 13, 2008
(7)	Incorporated by reference to exhibits filed with the Registrant's Quarterly Report on Form 10-Q filed May 10, 2007
(8)	Incorporated by reference to Exhibit 4.1 filed with the Registrant's Registration Statement on Form S-8 (File No. 333-108474) filed on September 3, 2003
(9)	Incorporated by reference to exhibits filed with the Registrant's Current Report on Form 8-K filed August 8, 2007
(10)	Incorporated by reference to exhibits filed with the Registrant's Quarterly Report on Form 10-Q filed November 8, 2007
(11)	Incorporated by reference to Exhibit 14 filed with the Registrant's Annual Report on Form 10-K filed April 1, 2004

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 27, 2009

NANOMETRICS INCORPORATED

By: /s/ TIMOTHY J. STULTZ

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

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Timothy J. Stultz and James P. Moniz jointly and severally, his attorneys-in-fact, each with the power of substitution, for him in any and all capacities, to sign any and all amendments to this Report on Form 10-K, and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, hereby ratifying and confirming all that said attorneys-in-fact, or his substitute or substitutes, may do or cause to be done by virtue hereof.

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

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ TIMOTHY J. STULTZ</u> Timothy J. Stultz	President, Chief Executive Officer and Director (Principal Executive Officer)	March 27, 2009
<u>/s/ JAMES P. MONIZ</u> James P. Moniz	Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	March 27, 2009
<u>/s/ BRUCE C. RHINE</u> Bruce C. Rhine	Chairman of the Board of Directors	March 27, 2009
<u>/s/ VINCENT J. COATES</u> Vincent J. Coates	Vice-Chairman of the Board of Directors	March 27, 2009
<u>/s/ EDMOND R. WARD</u> Edmond R. Ward	Director	March 27, 2009
<u>/s/ HOWARD A. BAIN III</u> Howard A. Bain III	Director	March 27, 2009
<u>/s/ STEPHEN J SMITH</u> Stephen J Smith	Director	March 27, 2009
<u>/s/ J. THOMAS BENTLEY</u> J. Thomas Bentley	Director	March 27, 2009
<u>/s/ WILLIAM G. OLDHAM</u> William G. Oldham	Director	March 27, 2009

SCHEDULE I**NANOMETRICS INCORPORATED****VALUATION AND QUALIFYING ACCOUNTS****Allowance for Doubtful Accounts Receivable**

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

<u>Year Ended</u>	<u>Balance at beginning of period</u>	<u>Balance assumed through acquisitions</u>	<u>Charged to costs and expenses</u>	<u>Deductions – write-offs of accounts</u>	<u>Balance at end of period</u>
December 27, 2008	\$323	—	—	\$ 14	\$309
December 29, 2007	\$841	—	—	\$518	\$323
December 30, 2006	\$592	\$355	—	\$106	\$841

**Certification of the Principal Executive Officer Pursuant to
Act of Rules 13a-14(a) or 15d-14(a) of the Securities Exchange 1934,
As Adopted Pursuant to
Section 302 of the Sarbanes-Oxley Act of 2002**

I, Timothy J. Stultz, the Chief Executive Officer of Nanometrics Incorporated, certify that:

1. I have reviewed this annual report on Form 10-K of Nanometrics Incorporated;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this annual report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this annual report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth quarter in the case of an annual report) that has materially affected or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 27, 2009

By: /s/ TIMOTHY J. STULTZ
Name: Timothy J. Stultz
Title: Chief Executive Officer

**Certification of the Principal Financial Officer Pursuant to
Rules 13a-14(a) or 15d-14(a) of the Securities Exchange Act of 1934,
As Adopted Pursuant to
Section 302 of the Sarbanes-Oxley Act of 2002**

I, James P. Moniz, the Chief Financial Officer of Nanometrics Incorporated, certify that:

1. I have reviewed this annual report on Form 10-K of Nanometrics Incorporated;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this annual report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this annual report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth quarter in the case of an annual report) that has materially affected or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 27, 2009

By: /s/ JAMES P. MONIZ

Name: James P. Moniz

Title: Chief Financial Officer

**CERTIFICATION OF CHIEF EXECUTIVE OFFICER AND CHIEF FINANCIAL OFFICER
PURSUANT TO 18 U.S.C. SECTION 1350, AS ADOPTED
PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

Each of the undersigned hereby certifies, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, in his capacity as an officer of Nanometrics Incorporated (the "Company") that based on his knowledge:

1. The Annual Report on Form 10-K of the Company for the fiscal year ended December 27, 2008 (the "Report") fully complies with the requirements of Section 13(a) or 15(d), as applicable, of the Securities Exchange Act of 1934, as amended, and
2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: March 27, 2009

By: /s/ TIMOTHY J. STULTZ

Name: Timothy J. Stultz

Title: Chief Executive Officer

Date: March 27, 2009

By: /s/ JAMES P. MONIZ

Name: James P. Moniz

Title: Chief Financial Officer

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nanometrics

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