

nanometrics

2016 ANNUAL REPORT | 2017 PROXY STATEMENT

LETTER TO STOCKHOLDERS

NANOMETRICS INCORPORATED

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2016 marked a performance inflection point for Nanometrics. Our revenue growth reflected the significant market share gains we have achieved over the past few years, along with secular tailwinds that are increasing the demand for our optical metrology platforms and solutions. Revenues of \$221 million were up 18% from 2015, well outpacing the growth in overall industry spending.

Over the last few years, customer investments in the 3D-NAND memory market have dramatically increased, as demand for these devices has outpaced all other semiconductor devices. This secular growth combined with our leading market share and strong positions with every company ramping production of these devices, drove record sales into the 3D-NAND market, nearly doubling from the prior year – which was also at record levels.

In addition to increasing demand and deployment of our automated and integrated products throughout the fab, adoption of our proprietary NanoDiffract® modeling and analytics software platform is increasing, as our customers use these software tools to control process variations across multiple process steps, using feed-forward and feed-backward Advanced Process Control strategies.

In 2016 our revenue profile continued to improve, with all six of the leading global semiconductor manufacturers now being significant contributors to our business, bringing with them strong revenue contributions from all major devices – NAND, DRAM and foundry/logic.

Below the top line, our relentless focus on improving operational efficiencies resulted in a marked improvement in our financial performance. On 18% revenue growth, gross margin improved by over 3.3 percentage points and operating margin improved by over 9.2 percentage points, and we delivered incremental gross and operating margins of over 70% and 65%, respectively, well ahead of our business model.

In 2016 we also launched two new products into the market: the Atlas® III and the IMPULSE®+. These products, which address the needs and challenges of our customers developing next generation devices, are already ramping and should contribute significantly to our revenues and growth in the current and coming years.

Importantly, revenue growth accompanied by margin improvements enable us to step up our R&D investments for the development of entirely new technology platforms – targeting emerging or underserved applications – that can significantly expand our served markets and contribute to future revenue growth. We are optimistic about these future products and expect to deploy more resources to new product development over the course of 2017.

2016 was a very good year for Nanometrics. Our management team and board of directors are aligned and confident in our strategy and ability to continue to grow shareholder value through focus and execution. And we say with deep gratitude and appreciation that our accomplishments are directly tied to our terrific team of employees and business partners who help make it all happen.

Sincerely,



Dr. Timothy J. Stultz
President and Chief Executive Officer



Bruce C. Rhine
Chairman of the Board

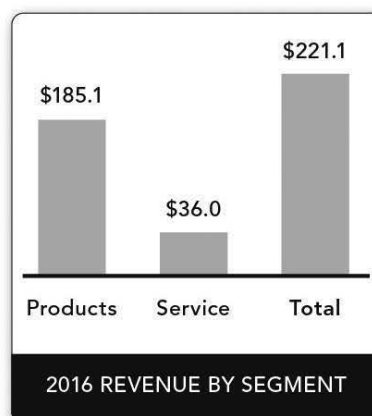
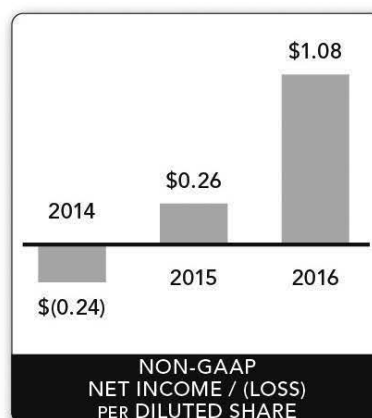
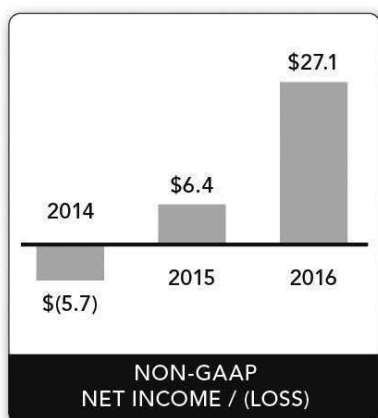
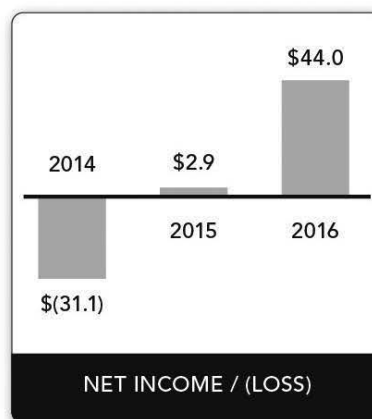
This Letter to Stockholders, which is accompanied by the proxy statement and Annual Report on Form 10-K, contains forward-looking statements. For information on how to identify forward-looking statements and cautionary language with respect to forward-looking statements, please see “Cautionary Information Regarding Forward-Looking Statements” in the Annual Report on Form 10-K.

Financial Notes

The company ended fiscal 2016 with cash, cash equivalents and marketable securities of \$130 million, working capital of \$174 million, and tangible book value (stockholders' equity excluding goodwill and other intangible assets) of \$234 million.

A reconciliation between GAAP operating results and non-GAAP operating results follows the financial notes below. Non-GAAP results exclude acquisition-related expenses such as amortization of acquired intangibles and transaction costs, asset impairments, restructuring charges, and certain discrete tax items.

(Dollars in millions, except per share amounts)



(Amounts in millions, except per share amounts)	2014	2015	2016
GAAP net income (loss)	<u>\$(31.1)</u>	<u>\$2.9</u>	<u>\$44.0</u>
Non-GAAP adjustments:			
Amortization of intangible assets	3.1	2.1	1.5
Restructuring charge	2.3	1.4	-
Income tax effect of non-GAAP adjustments	(1.4)	-	-
Discrete tax items	<u>21.4</u>	<u>-</u>	<u>(18.4)</u>
Non-GAAP net income (loss)	<u>\$(5.7)</u>	<u>\$6.4</u>	<u>\$27.1</u>
GAAP net income (loss) per diluted share	<u>\$(1.30)</u>	<u>\$0.12</u>	<u>\$1.75</u>
Non-GAAP net income (loss) per diluted share	<u>\$(0.24)</u>	<u>\$0.26</u>	<u>\$1.08</u>
Shares used in diluted income (loss) per share calculation	<u>23.9</u>	<u>24.4</u>	<u>25.2</u>

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NOTICE OF 2016 ANNUAL STOCKHOLDERS MEETING AND PROXY STATEMENT

NANOMETRICS INCORPORATED

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NANOMETRICS INCORPORATED
1550 Buckeye Drive
Milpitas, California 95035

NOTICE OF ANNUAL MEETING OF STOCKHOLDERS

To Be Held On May 23, 2017

Dear Stockholder:

You are cordially invited to attend the Annual Meeting of Stockholders of **NANOMETRICS INCORPORATED**, a Delaware corporation. The meeting will be held on Tuesday, May 23, 2017, at 9:00 a.m. local time, at our Corporate Headquarters located at 1550 Buckeye Drive, Milpitas, California 95035 for the following purposes:

1. To elect the Board's seven nominees for director to serve until the next annual meeting and until their successors are duly elected and qualified.
2. To approve, on an advisory basis, the compensation of Nanometrics' named executive officers, as disclosed in this proxy statement.
3. To approve, on an advisory basis, the frequency of advisory votes on executive compensation.
4. To approve the Nanometrics Incorporated 2017 Executive Performance Bonus Plan.
5. To approve the Nanometrics Incorporated Amended and Restated 2005 Equity Incentive Plan.
6. To ratify the appointment by the Audit Committee of the Board of Directors of PricewaterhouseCoopers LLP as the independent registered public accounting firm of Nanometrics for its fiscal year ending December 30, 2017.
7. To conduct any other business properly brought before the meeting.

These items of business are more fully described in the Proxy Statement accompanying this Notice.

The record date for the Annual Meeting is March 27, 2017. Only stockholders of record at the close of business on that date may vote at the meeting or any adjournment thereof.

**Important Notice Regarding the Availability of Proxy Materials for the Stockholders' Meeting to Be Held on
May 23, 2017, at 1550 Buckeye Drive, Milpitas, California 95035.**

The proxy statement and annual report to stockholders are available at www.proxyvote.com

By Order of the Board of Directors

/s/ Bruce C. Rhine

Bruce C. Rhine

Chairman of the Board of Directors

Milpitas, California

April 3, 2017

You are cordially invited to attend the meeting in person. Whether or not you expect to attend the meeting, please complete, date, sign and return the proxy card that may be mailed to you, or vote over the telephone or the Internet as instructed in these materials, as promptly as possible in order to ensure your representation at the meeting. Even if you have voted by proxy, you may still vote in person if you attend the meeting. Please note, however, that if your shares are held of record by a broker, bank or other nominee and you wish to vote at the meeting, you must obtain a proxy issued in your name from that record holder.

NANOMETRICS INCORPORATED
2017 ANNUAL MEETING OF STOCKHOLDERS

TABLE OF CONTENTS

QUESTIONS AND ANSWERS ABOUT THESE PROXY MATERIALS AND VOTING	1
PROPOSAL 1: ELECTION OF DIRECTORS	6
Director Nominees	6
CORPORATE GOVERNANCE	8
Report of the Audit Committee of the Board of Directors	13
SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT	14
SECTION 16(a) BENEFICIAL OWNERSHIP REPORTING COMPLIANCE	15
EXECUTIVE COMPENSATION	15
2016 Compensation Discussion and Analysis	15
2016 Summary Compensation	22
2016 Grants of Plan-Based Awards	23
Outstanding Equity Awards at Fiscal 2016 Year End	24
Option Exercises and Stock Vested	25
Employment Contracts and Termination of Employment and Change-in-Control Arrangements	25
Termination of Employment and Change-in-Control Potential Payouts	26
COMPENSATION COMMITTEE REPORT	27
COMPENSATION OF DIRECTORS	28
2016 Director Compensation	28
COMPENSATION COMMITTEE INTERLOCKS AND INSIDER PARTICIPATION	28
PROPOSAL 2: ADVISORY (NON-BINDING) VOTE ON EXECUTIVE COMPENSATION	29
PROPOSAL 3: ADVISORY (NON-BINDING) VOTE ON FREQUENCY OF ADVISORY VOTES ON EXECUTIVE COMPENSATION	30
PROPOSAL 4: APPROVAL OF THE NANOMETRICS 2017 EXECUTIVE PERFORMANCE BONUS PLAN	31
PROPOSAL 5: APPROVAL OF THE NANOMETRICS AMENDED AND RESTATED EQUITY INCENTIVE PLAN	33
PROPOSAL 6: RATIFICATION OF APPOINTMENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM	41
EQUITY COMPENSATION PLAN INFORMATION	42
HOUSEHOLDING OF PROXY MATERIALS	43
OTHER MATTERS	43

NANOMETRICS INCORPORATED
1550 Buckeye Drive
Milpitas, California 95035

PROXY STATEMENT FOR THE 2017 ANNUAL MEETING OF STOCKHOLDERS

May 23, 2017

QUESTIONS AND ANSWERS ABOUT THESE PROXY MATERIALS AND VOTING

Why did I receive a notice regarding the availability of proxy materials on the Internet?

Pursuant to rules adopted by the Securities and Exchange Commission (the "SEC"), we have elected to provide access to our proxy materials over the Internet. Accordingly, we have sent you a Notice of Internet Availability of Proxy Materials (the "Notice") because the Board of Directors of Nanometrics Incorporated is soliciting your proxy to vote at the 2017 Annual Meeting of Stockholders, including at any adjournments or postponements of the meeting. All stockholders will have the ability to access the proxy materials on the website referred to in the Notice or request to receive a printed set of the proxy materials. Instructions on how to access the proxy materials over the Internet or to request a printed copy may be found in the Notice.

We intend to mail the Notice on or about April 11, 2017, to all stockholders of record entitled to vote at the annual meeting.

Will I receive any other proxy materials by mail?

We may send you a proxy card, along with a second Notice, on or after April 21, 2017.

How do I attend the annual meeting?

The meeting will be held on Tuesday, May 23, 2017, at 9:00 a.m., local time, at our Corporate Headquarters located at 1550 Buckeye Drive, Milpitas, California 95035. Directions to the annual meeting may be found on our website www.nanometrics.com by clicking on "Contact" then "Map & Local Driving Directions." Information on how to vote in person at the annual meeting is discussed below.

Who can vote at the annual meeting?

Only stockholders of record at the close of business on March 27, 2017, will be entitled to vote at the annual meeting. On this record date, there were 25,226,960 shares of common stock outstanding and entitled to vote.

Stockholder of Record: Shares Registered in Your Name

If on March 27, 2017, your shares were registered directly in your name with Nanometrics' transfer agent, Computershare Trust Company, N.A., then you are a stockholder of record. As a stockholder of record, you may vote in person at the meeting or vote by proxy. Whether or not you plan to attend the meeting, we urge you to fill out and return a proxy card (if you have received one), or vote by proxy over the telephone or on the Internet as instructed below, to ensure your vote is counted.

Beneficial Owner Shares Registered in the Name of a Broker or Bank

If on March 27, 2017, your shares were held, not in your name, but rather in an account at a brokerage firm, bank, dealer or other similar organization, then you are the beneficial owner of shares held in "street name" and the Notice is being forwarded to you by that organization. The organization holding your account is considered to be the stockholder of record for purposes of voting at the annual meeting. As a beneficial owner, you have the right to direct your broker or other agent regarding how to vote the shares in your account. You are also invited to attend the annual meeting. However, since you are not the stockholder of record, you may not vote your shares in person at the meeting unless you request and obtain a valid proxy from your broker or other agent.

What am I voting on?

There are six matters scheduled for a vote:

- Election of seven directors;
- Advisory approval of the compensation of Nanometrics' named executive officers, as disclosed in this proxy statement in accordance with SEC rules;
- Approval on an advisory basis of the frequency of advisory votes on executive compensation; and
- Approval of the Nanometrics Incorporated 2017 Executive Performance Bonus Plan;
- Approval of the Nanometrics Incorporated Amended and Restated 2005 Equity Incentive Plan; and
- Ratification of appointment by the Audit Committee of the Board of Directors of PricewaterhouseCoopers LLP as the independent registered public accounting firm of Nanometrics for its fiscal year ending December 30, 2017.

What if another matter is properly brought before the meeting?

The Board of Directors knows of no other matters that will be presented for consideration at the Annual Meeting. If any other matters are properly brought before the meeting, it is the intention of the persons named in the accompanying proxy to vote on those matters in accordance with their best judgment.

How do I vote?

You may either vote "For" all the nominees to the Board of Directors or you may "Withhold" your vote for any nominee you specify. For each of the other matters to be voted on, you may vote "For" or "Against" or "Abstain" from voting.

The procedures for voting are as follows:

Stockholder of Record: Shares Registered in Your Name

If you are a stockholder of record, you may vote in person at the annual meeting or vote by proxy over the telephone, or vote by proxy through the Internet, or vote by proxy using a proxy card that you may request or that we may elect to deliver at a later time. Whether or not you plan to attend the meeting, we urge you to vote by proxy to ensure your vote is counted. You may still attend the meeting and vote in person even if you have already voted by proxy.

- To vote in person, come to the annual meeting and you will receive a ballot when you arrive.
- To vote using a proxy card, you may request a proxy card and simply complete, sign and date the proxy card that may be delivered and return it promptly in the envelope that will be provided with the proxy card. If you return your signed proxy card to us before the annual meeting, we will vote your shares as you direct.
- To vote over the telephone, dial toll-free 1-800-690-6903 using a touch-tone phone and follow the recorded instructions. You will be asked to provide the company number and control number from the **Notice**. Your telephone vote must be received by 11:59 p.m., Eastern Time on May 22, 2017, to be counted.
- To vote through the Internet, go to www.proxyvote.com to complete an electronic proxy card. You will be asked to provide the company number and control number from the Notice. Your Internet vote must be received by 11:59 p.m., Eastern Time on May 22, 2017, to be counted.

Beneficial Owner: Shares Registered in the Name of Broker or Bank

If you are a beneficial owner of shares registered in the name of your broker, bank, or other agent, you should have received a Notice containing voting instructions from that organization rather than from Nanometrics. Simply follow the voting instructions in the Notice to ensure that your vote is counted. To vote in person at the annual meeting, you must obtain a valid proxy from your broker, bank or another agent. Follow the instructions from your broker or bank included with these proxy materials, or contact your broker or bank to request a proxy form.

Internet proxy voting may be provided to allow you to vote your shares online, with procedures designed to ensure the authenticity and correctness of your proxy vote instructions. However, please be aware that you must bear any costs associated with your Internet access, such as usage charges from Internet access providers and telephone companies.

How many votes do I have?

On each matter to be voted upon, you have one vote for each share of common stock you own as of March 27, 2017.

What happens if I do not vote?

Stockholder of Record: Shares Registered in Your Name

If you are a stockholder of record and do not vote by completing your proxy card, by telephone, through the Internet or in person at the annual meeting, your shares will not be voted.

Beneficial Owner: Shares Registered in the Name of Broker or Bank

If you are a beneficial owner and do not instruct your broker, bank, or other agent how to vote your shares, the question of whether your broker or nominee will still be able to vote your shares depends on whether the New York Stock Exchange (“NYSE”) deems the particular proposal to be a “routine” matter. Brokers and nominees can use their discretion to vote “uninstructed” shares with respect to matters that are considered to be “routine,” but not with respect to “non-routine” matters. Under the rules and interpretations of the NYSE, “non-routine” matters are matters that may substantially affect the rights or privileges of stockholders, such as mergers, stockholder proposals, elections of directors (even if not contested), executive compensation (including any advisory stockholder votes on executive compensation and on the frequency of stockholder advisory votes on executive compensation), and certain corporate governance proposals, even if management-supported. Accordingly, your broker or nominee may not vote your shares on Proposals 1, 2, 3, 4 or 5 without your instructions, but may vote your shares on Proposal 6 even in the absence of your instruction.

What if I return a proxy card or otherwise vote but do not make specific choices?

If you return a signed and dated proxy card or otherwise vote without marking voting selections, your shares will be voted, as applicable, “For” the election of all seven nominees for director, “For” the advisory approval of executive compensation, “For” the advisory approval of a frequency of one year on advisory votes on executive compensation, “For” the approval of the Nanometrics Incorporated 2017 Executive Performance Bonus Plan, “For” the approval of the Nanometrics Incorporated Amended and Restated 2005 Equity Incentive Plan, and “For” the ratification of the appointment by the Audit Committee of the Board of Directors of PricewaterhouseCoopers LLP as the independent registered public accounting firm of Nanometrics for its fiscal year ending December 30, 2017. If any other matter is properly presented at the meeting, your proxyholder (one of the individuals named on your proxy card) will vote your shares using his or her best judgment.

Who is paying for this proxy solicitation?

We will pay for the entire cost of soliciting proxies. In addition to these proxy materials, our directors and employees may also solicit proxies in person, by telephone, or by other means of communication. Directors and employees will not be paid any additional compensation for soliciting proxies. We may also reimburse brokerage firms, banks and other agents for the cost of forwarding proxy materials to beneficial owners.

What does it mean if I receive more than one Notice?

If you receive more than one Notice, your shares may be registered in more than one name or in different accounts. Please follow the voting instructions on the Notices to ensure that all of your shares are voted.

Can I change my vote after submitting my proxy?

Stockholder of Record: Shares Registered in Your Name

Yes. You can revoke your proxy at any time before the final vote at the meeting. If you are the record holder of your shares, you may revoke your proxy in any one of the following ways:

- You may submit another properly completed proxy card with a later date.
- You may grant a subsequent proxy by telephone or through the Internet.
- You may send a timely written notice that you are revoking your proxy to Nanometrics’ Secretary at Nanometrics Incorporated, 1550 Buckeye Drive, Milpitas, California 95035.
- You may attend the annual meeting and vote in person. Simply attending the meeting will not, by itself, revoke your proxy.

Your most current proxy card or telephone or Internet proxy is the one that is counted.

Beneficial Owner: Shares Registered in the Name of Broker or Bank

If your shares are held by your broker or bank as a nominee or agent, you should follow the instructions provided by your broker or bank.

When are stockholder proposals and director nominations due for next year's annual meeting?

To be considered for inclusion in next year's proxy materials, your proposal must be submitted in writing by December 12, 2017, to Nanometrics' Secretary at Nanometrics Incorporated, 1550 Buckeye Drive, Milpitas, California 95035. If the date of our 2018 annual meeting is changed by more than 30 days from the one year anniversary of the date of the 2017 annual meeting, the proposal must be received a reasonable time before we begin to print and mail our proxy materials. The submission of a stockholder proposal does not guarantee that it will be included in our proxy statement.

If you wish to submit a proposal (including a director nomination) at the meeting that is not to be included in next year's proxy materials, you must do so by December 12, 2017 to Nanometrics' Secretary at Nanometrics Incorporated, 1550 Buckeye Drive, Milpitas, California 95035. If we set the date of our 2018 annual meeting to a date more than 30 days from the one year anniversary of the date of our 2017 annual meeting, then the deadline for receipt of stockholder proposals will be no later than the close of business on the later of 120 calendar days in advance of the 2018 annual meeting or ten days following the date on which we first publicly announce the date of the 2018 annual meeting. You are also advised to review Nanometrics' Bylaws, which contain additional requirements about advance notice of stockholder proposals and director nominations.

How are votes counted?

Votes will be counted by the inspector of election appointed for the meeting, who will separately count the votes for the proposals as follows:

- Proposal 1, to elect directors, votes "For," "Withhold" and broker non-votes;
- Proposal 2, the advisory vote on executive compensation, votes "For" and "Against," abstentions and, if applicable, broker non-votes;
- Proposal 3, the advisory vote on frequency of advisory votes on executive compensation, votes for the frequency of "1 YEAR," "2 YEARS" and "3 YEARS," abstentions and, if applicable, broker non-votes; and
- Proposal 4, the approval of the Nanometrics Incorporated 2017 Executive Performance Bonus Plan, votes "For" and "Against," abstentions and, if applicable, broker non-votes;
- Proposal 5, the approval of the Nanometrics Incorporated Amended and Restated 2005 Equity Incentive Plan, votes "For" and "Against," abstentions and, if applicable, broker non-votes; and
- Proposal 6, the ratification of the appointment by the Audit Committee of the Board of Directors of PricewaterhouseCoopers LLP as the independent registered public accounting firm of Nanometrics for its fiscal year ending December 30, 2017, votes "For" and "Against," abstentions and, if applicable, broker non-votes.

What are "broker non-votes"?

As discussed above, when a beneficial owner of shares held in "street name" does not give instructions to the broker or nominee holding the shares as to how to vote on matters deemed by the NYSE to be "non-routine," the broker or nominee cannot vote the shares. These unvoted shares are counted as "broker non-votes."

How many votes are needed to approve each proposal?

For Proposal 1, the election of directors, the seven nominees receiving the most "For" votes from the holders of shares present in person or represented by proxy and entitled to vote on the election of directors will be elected. Only votes "For" or "Withheld" will affect the outcome. However, the Board of Directors has adopted a Majority Vote Policy, pursuant to which any director-nominee that is elected but fails to receive more "For" votes than "Withheld" votes must submit his/her resignation for consideration by the Board. The Board will then decide whether to accept the director's resignation. Details of the Majority Vote Policy are set out below under "Corporate Governance - Voting for Directors - Majority Vote Policy."

For Proposal No. 2, the advisory approval of the compensation of Nanometrics' named executive officers, will be approved if it receives "For" votes from the holders of a majority of shares present in person or represented by proxy and entitled to vote on the matter. If you "Abstain" from voting, it will have the same effect as an "Against" vote. Broker non-votes will have no effect.

For Proposal 3, the advisory vote on the frequency of advisory votes on Nanometrics' executive compensation, the frequency ("1 Year," "2 Years" or "3 Years") receiving the greatest number of votes will be considered the frequency recommended by the stockholders to the Board of Directors. If you abstain from voting the abstention will have no effect on this advisory vote since approval by a percentage of the shares present or outstanding is not required. Broker non-votes will have no effect.

For Proposal No. 4, the approval of the Nanometrics Incorporated 2017 Executive Performance Bonus Plan, will be approved if it receives "For" votes from the holders of a majority of shares present in person or represented by proxy and entitled to vote on the matter. If you "Abstain" from voting, it will have the same effect as an "Against" vote. Broker non-votes will have no effect.

For Proposal No. 5, the approval of the Nanometrics Incorporated Amended and Restated 2005 Equity Incentive Plan, will be approved if it receives "For" votes from the holders of a majority of shares present in person or represented by proxy and entitled to vote on the matter. If you "Abstain" from voting, it will have the same effect as an "Against" vote. Broker non-votes will have no effect.

For Proposal No. 6, ratification of the appointment by the Audit Committee of the Board of Directors of PricewaterhouseCoopers LLP as the independent registered public accounting firm of Nanometrics for its fiscal year ending December 30, 2017, will be approved if it receives "For" votes from the holders of a majority of shares present in person or represented by proxy and entitled to vote on the matter. If you "Abstain" from voting, it will have the same effect as an "Against" vote. Broker non-votes will have no effect.

What is the quorum requirement?

A quorum of stockholders is necessary to hold a valid meeting. A quorum will be present if stockholders holding at least a majority of the outstanding shares entitled to vote are present at the meeting in person or represented by proxy. On the record date, there were 25,226,960 shares outstanding and entitled to vote. Thus, the holders of 12,613,481 shares must be present in person or represented by proxy at the meeting to have a quorum.

Your shares will be counted towards the quorum only if you submit a valid proxy (or one is submitted on your behalf by your broker, bank or other nominee) or if you vote in person at the meeting. Abstentions and broker non-votes will be counted towards the quorum requirement. If there is no quorum, the holders of a majority of shares present at the meeting in person or represented by proxy may adjourn the meeting to another date.

How can I find out the results of the voting at the annual meeting?

Preliminary voting results will be announced at the annual meeting. In addition, final voting results will be published in a current report on Form 8-K that we expect to file within four business days after the annual meeting. If final voting results are not available to us in time to file a Form 8-K within four business days after the meeting, we intend to file a Form 8-K to publish preliminary results and, within four business days after the final results are known to us, file an additional Form 8-K to publish the final results.

PROPOSAL 1: ELECTION OF DIRECTORS

At the 2017 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 the Board of Directors.

The Board of Directors currently has seven members. All current directors are standing for election at the 2017 annual meeting. The nominees were recommended by the Nominating and Governance Committee of the Board of Directors. All of the nominees named below, with the exception of Robert G. Deuster, were previously elected as directors by our stockholders. Mr. Deuster was identified by and recommended to the Nominating and Governance Committee as a member of our Board of Directors by a non-management director.

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 to fill the vacancy. We do not have any reason to believe that any of the nominees will be unable or will decline to serve as a director. Directors are elected by a plurality of the votes of the holders of shares present in person or by proxy and entitled to vote on the election of directors. The seven nominees receiving the highest number of affirmative votes will be elected. Pursuant to our Majority Vote Policy, if a nominee for director receives a greater number of “Withhold” votes than “For” votes, that director shall promptly tender to the Nominating and Governance Committee his/her offer of resignation. Within 90 days following certification of the stockholder vote, the Committee shall recommend to the Board the action to be taken with respect to such offer of resignation, and the Board shall consider and act upon the Committee’s recommendation. Unless marked otherwise, the proxy holders will vote proxies returned to us for the nominees named below.

Director Nominees

Set forth below is information regarding each of our directors, including their ages, as of April 6, 2017, the periods during which they have served as a director, certain information as to principal occupations and directorships held by them in corporations whose shares are publicly registered, and a discussion of the specific experience, qualifications, attributes or skills of each nominee that led the Board to nominate that person as a nominee for director, as of the date of this proxy statement.

J. Thomas Bentley, age 67, 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, from 1990, when he co-founded the firm, 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 Master of Science in Management from the Massachusetts Institute of Technology. Mr. Bentley’s extensive knowledge of the capital markets, strategic planning and mergers and acquisitions from his experience at SVB Alliant provides expertise to the Board in matters regarding Nanometrics’ capital requirements and strategic direction.

Edward J. Brown, Jr., age 59, has served as a director since February 2013. From May 2013 until September 2015, Mr. Brown was the Chief Executive Officer of Cymer Light Source, following the merger of Cymer, Inc. with ASML Holding Ltd. Mr. Brown served as President and Chief Operating Officer of Cymer, Inc. from September 2005 until the May 2013 merger with ASML. From 1984 to 2005, Mr. Brown was employed at Applied Materials, Inc. where he held numerous high-level management positions including group vice president and senior advisor to the president, vice president and general manager of the Intel business unit, as well as managing director heading up their largest product division, Global Operations. Prior to Applied Materials Inc., Mr. Brown held key engineering positions at TRW Corporation and Burroughs Corporation. Mr. Brown received a master’s degree in business administration from National University and a bachelor’s degree in industrial studies from San Diego State University. Mr. Brown’s qualifications to serve as a director include his 30 years of experience in the semiconductor equipment industry and his extensive senior executive management experience.

Robert Deuster, age 66, has served as a director since March 2017. Mr. Deuster has been the Chief Executive Officer of Collective Universe, Inc., a public company that provides authentication and grading services to dealers and collectors of coins, trading cards, event tickets, autographs and historical and sports memorabilia, since October 2012. He is also a director of Collective Universe, Inc. Mr. Deuster served as Chairman and Chief Executive Officer of Newport Corporation (acquired by MKS Instruments in 2016), a public company that is a global supplier of laser, optical and motion control products, from May 1996 until his retirement in October of 2007. He also served as President of Newport from May 1996 until July 2004, and in June 1997 became Chairman of the Board. From 1985 to 1996, Mr. Deuster served in various senior management positions at Applied Power, Inc. (now Actuant Corporation, a New York Stock Exchange listed company), which is a global manufacturer of electrical and hydraulic products, serving as Senior Vice President of the Distributed Products Group from 1994 to 1996, President of the Barry Controls Division from 1989

to 1994, President of the APITECH Division from 1986 to 1989 and Vice President of Sales and Marketing of the Enerpac Division from 1985 to 1986. From 1975 to 1985, he held engineering and marketing management positions at General Electric Company's Medical Systems Division. Mr. Deuster currently serves as a director of Ondax, Inc., a private optical components company. He also was a director of Symmetry Medical Inc., a publicly traded provider of medical devices and solutions to the global orthopedic market, until that company was sold in June 2016. Mr. Deuster received a B.S. in Electrical Engineering from Marquette University in 1973. Mr. Deuster holds a Masters Professional Director Certification from the American College of Corporate Directors, a public company director education and credentialing organization. Mr. Deuster's extensive management experience, including as a CEO of and a senior executive at other public companies, combined with his experience as an independent director of both public and private companies, qualifies him to serve as a member of our Board of Directors.

Bruce C. Rhine, age 59, has served as our Chairman of the Board of Directors since July 2007 and as a director since July 2006. From July 2006 to February 2008, Mr. Rhine served as our Chief Strategy Officer. From March 2007 to August 2007, Mr. Rhine served as our Chief Executive Officer. From 2000 to 2006, Mr. Rhine served as Chairman and Chief Executive Officer of Accent Optical Technologies, Inc. and as its 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. In addition to his experience from his prior senior management service to Nanometrics, Mr. Rhine brings extensive industry knowledge and executive management experience to the Board.

Christopher A. Seams, age 54, has served as a director since August 2015. Mr. Seams served as the Chief Executive Officer of Deca Technologies from June 2013 to 2016, where he was responsible for the overall management of the business. Prior to Deca Technologies, Mr. Seams served as executive vice president of sales and marketing at Cypress Semiconductor, and held various technical and operational management positions in its manufacturing, development and operations. Prior to joining Cypress in 1990, he worked in process development for Advanced Micro Devices and Philips Research Laboratories. Mr. Seams also serves on the Board of Directors of Xperi Corporation, and previously served on the Board of Directors of Tessera Technologies, Inc. until December 2016. Mr. Seams earned his bachelor's degree in electrical engineering from Texas A&M University and his master's degree in electrical and computer engineering from the University of Texas at Austin. Mr. Seams is a senior member of the Institute of Electrical and Electronics Engineers. The Board believes that Mr. Seams brings extensive management, sales and marketing, and engineering experience in the semiconductor industry to his role as a member of the Board.

Timothy J. Stultz, Ph.D., age 69, has served as President, Chief Executive Officer and director of Nanometrics Incorporated since August 2007. Dr. Stultz has more than 30 years of executive management experience. Prior to joining Nanometrics, Dr. Stultz was 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; President and Chief Executive Officer for ThauMDx, a developer of diagnostic systems for the healthcare industry; and Vice President and General Manager of Veeco Instruments' Metrology and Instrumentation Business. Dr. Stultz, previously served as a member of the board of directors of Tessera Technologies, Inc. Dr. Stultz received his B.S., M.S. and Ph.D. in Materials Science and Engineering from Stanford University. In addition to his institutional knowledge as the executive leader of Nanometrics, Dr. Stultz's scientific background and significant senior executive management experience in high tech industries is important to the Board.

Christine A. Tsingos, age 58, has served as a director since May 2014. Ms. Tsingos is currently the Executive Vice President and Chief Financial Officer of Bio-Rad Laboratories. In 2002, Ms. Tsingos was named Bio-Rad's Chief Financial Officer; in 2003, she became Vice President and in 2012, she was named Executive Vice President. Bio-Rad designs, manufactures and distributes a broad range of innovative products and solutions for the global life science and clinical diagnostic markets. Prior to Bio-Rad, Ms. Tsingos held executive positions at Autodesk, The Cooper Companies, and Attest Systems. Prior to that, Ms. Tsingos was a consultant to Attest Systems from 2000 to 2002. Ms. Tsingos also serves on the Board of Directors of Varex Imaging Corporation. She earned her bachelor of arts in International Studies from the American University in Washington D.C. and an M.B.A in International Business from the George Washington University. In 2010, Ms. Tsingos was awarded the prestigious Bay Area CFO of the Year. Ms. Tsingos' qualifications to serve as a director include over 25 years of financial and operational experience

THE BOARD OF DIRECTORS RECOMMENDS A VOTE IN FAVOR OF EACH NAMED NOMINEE.

CORPORATE GOVERNANCE

Board Structure

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

The Board's Role in Risk Oversight

One of the Board's primary responsibilities is reviewing Nanometrics' strategic plans and objectives, including oversight of the principal risk exposures of the company. The Board does not have a standing risk management committee, but rather administers this oversight function directly through the Board as a whole, as well as through various Board standing committees that address risks inherent in their respective areas of oversight. In particular, the Board is responsible for monitoring and assessing strategic risk exposure, including a determination of the nature and level of risk appropriate for the company. The Audit Committee assists the Board in oversight and monitoring of the legal and financial risks facing Nanometrics, and management's approach to addressing these risks and strategies for risk mitigation. The Audit Committee is also responsible for discussing guidelines and policies governing the process by which management and other persons responsible for risk management, assess and manage Nanometrics' exposure to risk, as well as Nanometrics' major financial risk exposures and the steps management has taken to monitor and control such exposures, based on consultation with Nanometrics' management and independent auditors. Our Compensation Committee assesses and monitors whether any of our compensation policies and programs has the potential to encourage excessive risk-taking. The Board addresses, at least annually, the principal current and future risk exposures of Nanometrics. The Board receives regular reports from members of senior management on areas of material risk to Nanometrics, including operational, financial, legal and regulatory, strategic and reputation risks.

Board of Directors Meetings and Committees

The full Board of Directors met seven times during the fiscal year ended December 31, 2016. During the fiscal year ended December 31, 2016, all directors attended at least 75% of the aggregate number of meetings of the Board of Directors and meetings of committees on which they served. The standing committees of the Board of Directors include an Audit Committee, a Compensation Committee and a Nominating and Governance Committee.

Directors are encouraged to attend the annual meeting of stockholders. All members of the Board of Directors, then in office, attended the 2016 annual meeting of stockholders.

The Board of Directors has determined that all of its directors meet the independence requirements of the NASDAQ Stock Market, with the exception of Timothy J. Stultz, Ph.D., due to his position as our President and Chief Executive Officer.

The Board has a standing Audit Committee, Compensation Committee and Nominating and Governance Committee. The following table provides membership and meeting information for fiscal 2016 for each of the Board standing committees:

Name	Audit	Compensation	Nominating and Governance
Bruce C. Rhine	X		X*
J. Thomas Bentley	X	X	
Edward J. Brown, Jr.		X*	X
Christopher A. Seams	X		X
Christine A. Tsingos	X*	X	
Total meetings in fiscal 2016	8	5	5

* Chair of the committee

Audit Committee

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

The Board of Directors has determined that each member of our Audit Committee is “independent” within the meaning of the rules of the Securities and Exchange Commission and the Listing Rules of NASDAQ, and has the qualifications or previous experience to be able to read and understand financial statements. Further, the Board of Directors has determined that each of Ms. Tsingos, Chair of the Audit Committee, and Mr. Bentley qualify as an “audit committee financial expert,” as such term is used in the Securities and Exchange Commission rules.

The report of the Audit Committee is included at the end of the “Corporate Governance” section of this Proxy Statement. The Board of Directors has adopted a written Audit Committee Charter, which is available on our website at <http://investor.nanometrics.com/governance.cfm>.

Compensation Committee

The Compensation Committee has overall responsibility for evaluating and approving our executive officer compensation, including incentive compensation, benefit, severance, equity-based and other compensation plans, policies and programs. During the 2016 fiscal year, the Compensation Committee reviewed and approved our compensation policies and programs for the chief executive officer, as well as established and had oversight responsibility with regard to the compensation of other executive officers of Nanometrics. The Compensation Committee also has the responsibility to recommend to the Board of Directors a compensation program for non-employee members of the Board.

The Compensation Committee is also responsible for approving the grant of stock options and stock awards to our employees under our equity compensation plans. The Compensation Committee has delegated to Nanometrics’ officers the authority, within certain parameters, to approve the grant of stock options and restricted stock units, or RSUs, with respect to employees and consultants who are not executive officers for purposes of Section 16 of the Exchange Act and hold positions below the level of vice president. The Compensation Committee also assists the Board of Directors in assessing the risks, if any, associated with Nanometrics’ overall compensation policies. Although the Compensation Committee has not done so to date, the Compensation Committee may, to the extent permitted under applicable law, the rules of NASDAQ and the Securities and Exchange Commission, and Nanometrics’ Certificate of Incorporation and Bylaws, form and delegate its authority to a subcommittee, when appropriate, including delegating to a subcommittee consisting solely of independent, non-employee, outside directors to make grants of stock options or RSUs to executive officers and directors, provided that such grants are presented to the full Compensation Committee for approval at the following Compensation Committee meeting.

Each current member of our Compensation Committee is an “outside” director as defined in Section 162(m) of the Internal Revenue Code of 1986, as amended, and a “non-employee” director within the meaning of Rule 16b-3 of the Exchange Act. The Board of Directors has determined that each of the directors serving on our Compensation Committee is “independent” within the meaning of the Listing Rules of NASDAQ as currently in effect.

The Compensation Committee Report is included under the caption “Compensation Committee Report” of this Proxy Statement. The Board of Directors has adopted a written Compensation Committee Charter, which is available on our website at <http://investor.nanometrics.com/governance.cfm>.

Compensation Committee Processes and Procedures. Typically, the Compensation Committee meets at least quarterly, and with greater frequency, if necessary. The Compensation Committee meets regularly in executive session. However, from time to time, various members of management and other employees as well as outside consultants may be invited by the Compensation Committee to make presentations, to provide financial or other background information or advice, or to otherwise participate in Compensation Committee meetings. The Chief Executive Officer may not participate in, or be present during, any deliberations or determinations of the Compensation Committee regarding his compensation. The charter of the Compensation Committee grants the Compensation Committee full access to all books, records, facilities and personnel of Nanometrics, as well as authority to obtain, at the expense of Nanometrics, advice and assistance from internal and external legal, accounting or other advisers and consultants and other external resources that the Compensation Committee considers necessary or appropriate in the performance of its duties. In particular, the Compensation Committee has the authority to retain compensation consultants to assist in its evaluation of executive and director compensation, including the authority to approve the consultant’s reasonable fees and other retention terms.

The Compensation Committee typically makes most of the significant adjustments to annual compensation, determines bonus and equity awards, and approves annual performance objectives, at one or more meetings held during the first quarter of the year. However, the Compensation Committee also considers matters related to individual compensation, such as compensation for new executive hires, as well as high-level strategic issues, such as the efficacy of Nanometrics' compensation strategy, potential modifications to that strategy and new trends, plans or approaches to compensation, at various meetings throughout the year. Generally, the Compensation Committee's process comprises two related elements: the determination of compensation levels and the establishment of performance objectives for the current year. As discussed further in the Compensation Discussion and Analysis below, for executives other than the Chief Executive Officer, the Compensation Committee solicits and considers evaluations and recommendations submitted to the Committee by the Chief Executive Officer. In the case of the Chief Executive Officer, the evaluation of his performance is conducted by the Compensation Committee, which determines any adjustments to his compensation as well as awards to be granted. For all executives, as part of its deliberations, the Compensation Committee may review and consider, as appropriate, materials such as financial reports and projections, operational data, tax and accounting information, tally sheets that set forth the total compensation that may become payable to executives in various hypothetical scenarios, executive and director stock ownership information, company stock performance data, analyses of historical executive compensation levels, current company-wide compensation levels, and recommendations of the Compensation Committee's compensation consultant, including analyses of executive compensation paid at other companies identified by the consultant. Under its charter, the Compensation Committee may select, or receive advice from, a compensation consultant, legal counsel or other adviser to the Compensation Committee, other than in-house counsel and certain other types of advisers, only after taking into consideration six factors, prescribed by the SEC and NASDAQ, that bear upon the adviser's independence; however, there is no requirement that any adviser be independent.

During the past fiscal year, the Compensation Committee engaged Compensia, Inc. as its compensation consultant. Compensia has advised the committee for several years and is very familiar with the industry and geographies in which Nanometrics operates. The Compensation Committee requested that Compensia:

- evaluate the efficacy of Nanometrics' existing compensation strategy and practices in supporting and reinforcing Nanometrics' long-term strategic goals;
- assist in refining Nanometrics' compensation strategy and in developing and implementing an executive compensation program to execute that strategy; and
- provide market information to assist Compensation Committee in establishing 2016 executive compensation.

As part of its engagement, the Compensation Committee requested that Compensia develop a comparative group of companies and to perform analyses of competitive performance and compensation levels for that group. The Committee instructed Compensia to select comparator companies similarly sized and in the same or closely related industry to that of Nanometrics using factors such as, but not limited to, revenue size, market capitalization, and number of employees. At the request of the Compensation Committee, Compensia also provided information regarding the labor markets in which Nanometrics competes. Compensia ultimately developed recommendations that were presented to the Compensation Committee for its consideration. Following an active dialogue with Compensia, the Compensation Committee made its independent determinations regarding the compensation of Nanometrics' executive officers. These decisions are discussed in the Compensation Discussion and Analysis section of this Proxy Statement.

Nominating and Governance Committee

The Nominating and Governance Committee assists the Board of Directors in identifying and qualifying candidates to join the Board of Directors and addresses various governance issues. The Nominating and Governance Committee utilizes a variety of methods for identifying and evaluating nominees. Its general policy is to assess the appropriate size and needs of the Board of Directors and whether any vacancies are expected due to retirement or otherwise. In addition, candidates for director nominees are typically reviewed in the context of the current composition of the Board, the operating requirements of Nanometrics, the current needs of the Board, and the long-term interests of stockholders, with the goal of maintaining a balance of knowledge, experience and capability. In the event those vacancies are anticipated, or otherwise arise, the Nominating and Governance Committee will consider recommending various potential candidates to fill such vacancies. Candidates may come to the attention of the Nominating and Governance Committee through its current members, stockholders or other persons. Pursuant to the Nominating and Governance Committee charter, the Committee will consider properly submitted stockholder recommendations for nominations for candidacy. Stockholders who wish to recommend individuals for consideration by the Nominating and Governance Committee to become nominees for election to the Board may do so by delivering a written recommendation to the Nominating and Governance Committee at our principal offices. Nominees may also be submitted directly by stockholders in accordance with Nanometrics' Bylaws as discussed under "Questions and Answers About These Proxy Materials and Voting - When are stockholder proposals and director nominations due for next year's annual meeting?" above. Although the Nominating and Governance Committee does not have a formal policy regarding stockholder recommendations for director nominees because the Board of Directors has an open policy regarding communications with

stockholders and has not deemed it necessary to develop a formal policy regarding recommendations for director nominations by stockholders, the Nominating and Governance Committee intends to consider director candidates properly submitted by stockholders under the same criteria as candidates recommended by directors or others.

The Nominating and Governance Committee has no specific minimum qualifications for director candidates. In general, however, persons considered for Board of Directors positions must have demonstrated leadership capabilities, be of sound mind and high moral character, have no personal or financial interest that would conflict or appear to conflict with the interests of Nanometrics and be willing and able to commit the necessary time for Board of Directors and committee service. The Nominating and Governance Committee also intends to consider such factors as possessing relevant expertise upon which to be able to offer advice and guidance to management, demonstrated excellence in his or her field, having the ability to exercise sound business judgment and having the commitment to rigorously represent the long-term interests of Nanometrics' stockholders. However, the Nominating and Governance Committee retains the right to modify these qualifications from time to time.

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

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

The Board of Directors has determined that each of the directors serving on our Nominating and Governance Committee is "independent" within the meaning of the Listing Rules of NASDAQ.

The Board of Directors has adopted a written Nominating and Governance Committee Charter, which is available on our website at <http://investor.nanometrics.com/governance.cfm>.

Voting For Directors – Majority Vote Policy

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

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

Stockholder Communication Policy

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

Code of Ethics

We have adopted a Code of Business Conduct and Ethics that applies to all directors, executive officers and employees. We post our Code of Business Conduct and Ethics on our website at: <http://investor.nanometrics.com/governance.cfm>. If Nanometrics makes any substantive amendments to the Code of Business Conduct and Ethics or grants any waiver from a provision of the Code of Business Conduct and Ethics to any executive officer or director, Nanometrics will promptly disclose the nature of the amendment or waiver on its website.

Stock Ownership Guidelines

We have a stock ownership policy that establishes for our non-employee directors and executive officers guidelines for minimum levels of stock ownership in the company by 2019 or within five years of their appointment to the Board of Directors, hire date, or promotion, whichever is later. The stock ownership guidelines are as follows:

- For non-employee directors, ownership of stock with a value equal to three times the annual Board retainer;
- For our Chief Executive Officer, ownership of stock with a value equal to three times his annual base salary; and
- For each other executive officer, ownership of stock with a value equal to his or her annual base salary.

Related Person Transaction Policy

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

Report of the Audit Committee of the Board of Directors*

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

In this context, the Audit Committee reviewed and discussed with management the audited financial statements of Nanometrics for the year ended December 31, 2016. The Audit Committee has discussed with the independent registered public accounting firm the matters required to be discussed by Auditing Standard 1301, Communications with Audit Committees, as adopted by the Public Company Accounting Oversight Board ("PCAOB"). In addition, the Audit Committee has received the written disclosures and the letter from the independent registered public accounting firm required by applicable requirements of the PCAOB regarding the independent registered public accounting firm's communications with the Audit Committee concerning independence, and has discussed with the independent registered public accounting firm its independence.

Based on the foregoing, the Audit Committee recommended to the Board of Directors that our audited financial statements as of and for the year ended December 31, 2016, be included in our Annual Report on Form 10 K for the fiscal year ended December 31, 2016, for filing with the United States Securities and Exchange Commission.

The Audit Committee
Christine A. Tsingos (Chair)
J. Thomas Bentley
Bruce C. Rhine
Christopher A. Seams

* The material in this report is not "soliciting material," is not deemed "filed" with the Securities and Exchange Commission and is not to be incorporated by reference in any filing of Nanometrics under the Securities Act or the Exchange Act, whether made before or after the date hereof and irrespective of any general incorporation language in any such filing.

SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

The following table sets forth beneficial ownership of Nanometrics common stock as of March 1, 2017, 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, all persons and entities have sole voting and investment power over the shares reported. As of the close of business on March 1, 2017, there were 25,186,831 shares of common stock outstanding.

Name of Beneficial Owner – Principal Stockholders	Amount and Nature of Beneficial Ownership ⁽¹⁾ Shares	
	Number of Shares Beneficially Owned	Percent of Shares Beneficially Owned
Franklin Resources, Inc. ⁽²⁾	1,476,218	5.9%
Royce & Associates, LLC ⁽³⁾	1,846,681	7.3%
BlackRock, Inc. ⁽⁴⁾	2,826,067	11.2%

Name of Beneficial Owner – Directors And Officers	Amount and Nature of Beneficial Ownership ⁽¹⁾ Shares	
	Number of Shares Beneficially Owned	Percent of Shares Beneficially Owned
Bruce C. Rhine ⁽⁵⁾	755,031	3.0%
J. Thomas Bentley ⁽⁶⁾	85,532	*
Edward Brown Jr.	19,318	*
Christine A. Tsingos ⁽⁷⁾	327,287	1.3%
Christopher A. Seams	5,108	*
Robert Deuster	—	*
Timothy J. Stultz, Ph.D. ⁽⁸⁾	450,768	1.8%
Jeffrey Andreson	27,880	*
Janet Taylor	6,064	*
Dr. S. Mark Borowicz ⁽⁹⁾	4,428	*
Rollin Kocher ⁽¹⁰⁾	313	*
All executive officers and directors as a group (12 persons) ⁽¹¹⁾	1,700,074	6.7%

* Less than 1 percent

- (1) As determined in accordance with Rule 13d-3 under the Securities and Exchange Act of 1934. Information with respect to principal stockholders is obtained from Schedules 13G and 13G/A and except as indicated in the footnotes below, is as of December 31, 2016, and does not reflect changes, if any, since that date.
- (2) According to a Schedule 13G/A filed with the SEC on February 9, 2017, reporting beneficial ownership as of December 31, 2016, each of Franklin Resources, Inc. ("FRI"), Charles B. Johnson and Rupert H. Johnson has no voting or investment power over any of these shares but may be deemed to be the beneficial owner of these shares of common stock. Franklin Advisers, Inc. has sole voting and investment power over 1,456,118 of these shares. The address of FRI, Mr. Johnson, Mr. Johnson and Franklin Advisers, Inc. is One Franklin Parkway, San Mateo, CA 94403. Each of these entities disclaim beneficial ownership of these shares.
- (3) According to a Schedule 13G/A filed with the SEC on January 11, 2017, reporting beneficial ownership as of December 31, 2016, Royce & Associates, LP has sole voting and investment power over all of these shares. The address of Royce & Associates, LP is 745 Fifth Avenue, New York, NY 10151.
- (4) According to a Schedule 13G/A filed with the SEC on January 17, 2017, reporting beneficial ownership as of December 31, 2016, BlackRock, Inc. has sole voting power with respect to 2,776,671 of these shares and sole investment power over all of these shares. The address of BlackRock, Inc. is 55 East 52nd Street, New York, NY 10022.
- (5) Includes 6,988 shares that may be acquired by exercise of stock options within 60 days of March 1, 2017. Mr. Rhine has indirect beneficial ownership over 1,428 shares owned by his spouse.
- (6) Includes 6,988 shares that may be acquired by exercise of stock options within 60 days of March 1, 2017.
- (7) Includes 314,899 number of shares owned by Bio Rad Laboratories Inc. over which Ms. Tsingos has shared voting and investment power.
- (8) Includes 252,499 shares that may be acquired by exercise of stock options or vesting of restricted stock units within 60 days of March 1, 2017.
- (9) Includes 209 shares that may be acquired by exercise of stock options within 60 days of March 1, 2017.
- (10) Includes 313 shares that may be acquired by exercise of stock options within 60 days of March 1, 2017.
- (11) Includes 266,997 shares that may be acquired by exercise of stock options or vesting of restricted stock units within 60 days of March 1, 2017, including those reflected in footnotes 5 through 9 above.

SECTION 16(a) BENEFICIAL OWNERSHIP REPORTING COMPLIANCE

Section 16(a) of the Exchange Act requires our executive officers and directors, and persons who own more than 10% of a registered class of our equity securities, to file reports of ownership and changes in ownership with the Securities and Exchange Commission. Executive officers, directors and greater than 10% stockholders are required by Securities and Exchange Commission regulations to furnish Nanometrics with copies of all Section 16(a) forms that they file. Nanometrics assists our executive officers and directors in the preparation and filing of Forms 4, and generally files the Forms 4 on behalf of our directors and executive officers using the powers of attorney given to certain executive officers of Nanometrics by our executive officers and directors delegating the authority to make the filings. Based solely on our review of the copies of such form received by us or written representations from certain reporting persons, we believe that our executive officers, directors and greater than 10% stockholders have complied with all applicable filing requirements, except as follows: each of Dr. Timothy J. Stultz, our Chief Executive Officer, Janet Taylor, our General Counsel, and Kevin Heidrich, our Senior Vice President, Strategic Marketing and Business Development, filed one Form 4 late.

EXECUTIVE COMPENSATION

2016 Compensation Discussion and Analysis

Philosophy and Objectives

Nanometrics' compensation program for our named executive officers (the officers appearing in our summary compensation table) is intended to enable us to attract, retain and motivate key executives and to align their interests with those of the stockholders by tying executive compensation to our short-term and long-term company performance. The Compensation Committee acts on behalf of the Board of Directors and, by extension, on behalf of our stockholders, to establish, implement and continually monitor adherence to our compensation philosophy. The Compensation Committee's philosophy is to design a compensation package that addresses the need for alignment between the interests of executive officers and stockholders in terms of producing short-term and long-term enhanced stockholder value, as well as achieves retention and motivation through appropriate incentives. This philosophy takes into account both internal equity and external market information relative to our industry and size. The Compensation Committee designs the executive compensation program with the goal of providing total compensation to our named executive officers that is competitive and consistent with our compensation philosophy.

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

Philosophy and Objectives Applied

The Compensation Committee relied on an independent outside compensation consulting firm, Compensia, our human resources department, and (other than with respect to himself) Timothy Stultz, our Chief Executive Officer ("CEO"), to provide information and recommendations to establish specific compensation packages for our named executive officers for the 2016 fiscal year that ended December 31, 2016.

Our executive compensation packages for the 2016 fiscal year included three primary components - base salaries, cash bonus award opportunities and long-term equity incentive awards. Other elements of compensation include limited perquisites, other benefits (including retirement (401(k) plan, including matching contributions), health, and welfare benefits), and severance arrangements. The Compensation Committee considered the three primary components individually and in the aggregate to assess their competitiveness and effectiveness in retaining our executives and motivating them to create short-term and long-term enhanced stockholder value.

In the Compensation Committee's review of our named executive compensation for the 2016 fiscal year, the Compensation Committee considered publicly available market data for companies that typically include similarly-sized semiconductor and semiconductor capital equipment or similar firms for each executive in a like or similar role. In November 2015, for compensation decisions for the 2016 fiscal year, Compensia recommended and the Compensation Committee approved modifications to the group of peer companies for conducting compensation analysis to better reflect our size and business. The Compensation Committee considered the following factors:

- primary focus on semiconductor and semiconductor equipment companies, and secondary focus on hardware companies;
- revenues;

- market capitalization; and
- several other factors including profitability, growth and revenues relative to market capitalization.

The Compensation Committee removed eight companies from the peer group companies used in our 2015 fiscal year analysis: two companies (PLX Technology, Inc. and Silicon Image, Inc.) because they were acquired; one company (Ambarella) because it was above the market capitalization range; and five companies (Brooks Automation, Inc., The GSI Group, Inc., Lattice Semiconductor Corporation, Veeco Instruments Inc., and Xcerra Corporation) because they were above the revenue range. The Compensation Committee added three new companies (Electro Scientific Industries, Inc., Axcelis Technologies, Inc., and Mattson Technology, Inc.) to our peer group for the 2016 fiscal year analysis that reflect the criteria described above. Our peer group companies considered for compensation for the 2016 fiscal year are listed below.

2016 Fiscal Year Peer Group Companies	
Axcelis Technologies, Inc.	Form Factor, Inc.
Cascade Microtech, Inc.	Mattson Technology, Inc.
Cohu, Inc.	Maxwell Technologies Inc.
Electro Scientific Industries, Inc.	Rudolph Technologies Inc.
Exar Corporation	Ultratech, Inc.
FARO Technologies, Inc.	

The Compensation Committee selected companies above because they operate in our industry or similar industries, are comparable to Nanometrics based on both survey data and proxy data, revenues (in the range of \$90 million to \$370 million), and/or market capitalization (in the range of \$100 million to \$1.0 billion). Compensia gathered data with respect to base salary, target bonus awards and all equity awards, including stock options, restricted stock units (“RSUs”) and performance based equity. We generally do not gather data regarding employee benefits such as 401(k) or health care coverage normally available to broad groups of employees.

While the market data may identify a certain percentile of the market in which we operate with regard to base salary, bonus or long-term incentives, the Compensation Committee did not target any specific percentile but instead looked at each element as compared to the total targeted cash package and the various components, in light of the desired results, internal equity and the information provided, and then decided if a change to compensation was warranted or not. The Compensation Committee also consulted with our Chief Executive Officer with respect to the appropriate compensation for the executives who reported to him, including: Mr. Andreson, our Chief Financial Officer; Dr. Borowicz, our Executive Vice President, Business Operations; Ms. Taylor, our General Counsel; and Mr. Kocher, our Senior Vice President, Commercial Operations. The Chief Executive Officer reviewed the experience and qualifications, and performance of our executives using the elements and framework described under “2016 Executive Compensation Components” below, and made recommendations to the Compensation Committee about the structure of the overall compensation program and individual compensation arrangements. This framework provided a guide for the Compensation Committee’s deliberations and recommendations regarding proposals for base salary, bonus opportunities and long-term equity incentive awards for each executive position. The Compensation Committee considered those factors that are controllable by management such as expenses and cash, account penetration and long-term stockholder value delivery and others that are less within management control such as revenue, which is subject to the short-term industry cycles and the timing of customer capital spending cycles. The Compensation Committee did not apply formulas or assign specific mathematical weights to the peer group data or any of the factors or elements of compensation discussed above, but rather exercised its business judgment and discretion to make a subjective determination of both the amounts of compensation as well as the distribution of compensation among the various components, after considering all the measures collectively. The Compensation Committee then concluded based on the framework outlined above to approve an appropriate compensation package for each executive.

2016 Executive Compensation Components

For the 2016 fiscal year, the principal components of compensation for our named executive officers, Drs. Stultz and Borowicz, Messrs. Andreson and Kocher, and Ms. Taylor, were:

- Base salary;
- Bonus;
- Equity awards; and
- Retirement and other benefits.

The Compensation Committee has chosen these components because it believes that each supports achievement of one or more of our compensation objectives, and that together they will be effective in this regard. The use of each compensation component is based on a determination by the Compensation Committee of the importance of each compensation objective in supporting our business and talent strategies. These components are commonly used for executives at companies within our peer group and, therefore, the Compensation Committee finds these to be appropriate in our talent retention strategy. The Compensation Committee's 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, and individual performance. The Compensation Committee did not apply formulas or assign specific mathematical weights to any of these factors, but rather exercised its business judgment and discretion to make a subjective determination after considering all the measures collectively.

Base Salary

Base salaries serve as the foundation of Nanometrics' compensation program. Other executive compensation elements, including annual short-term cash incentives and long-term equity incentives, the Compensation Committee derives by weighing them against base salary. Nanometrics provides named executive officers with base salaries to compensate them for services rendered during the fiscal year and sets base salaries at levels which the Compensation Committee believes will effectively attract and retain top talent. The Compensation Committee determines base salaries for each named executive officer based on his or her experience, position and responsibility, as well as the contribution that he or she brings to Nanometrics through performance. During its annual review of base salaries for executives, the Compensation Committee primarily considers:

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

The Compensation Committee considers salary levels annually as part of our performance review process as well as upon a promotion or other change in job responsibility. The Compensation Committee reviews and determines salaries after reviewing salary data supplied by Compensia, including data regarding our peer comparison group, as well as consideration of the compensation for our executives on a company-wide basis, based on their relative duties and responsibilities and the recommendations of our Chief Executive Officer as it relates to the executives who report to him. Stock price performance has not been a direct factor in determining annual base salary compensation because the price of our common stock is subject to a variety of factors outside of our control. The Compensation Committee also considered comparisons of peer group compensation to peer group performance provided by Compensia. The Compensation Committee did not apply formulas or assign specific mathematical weights to any of these factors, but rather exercised its business judgment and discretion to make a subjective determination regarding each executive's base salary after considering all of these measures collectively.

For fiscal year 2016, based on all of the data considered, the Compensation Committee exercised its business judgment and discretion to make a subjective determination regarding each named executive officer's 2016 base salary as set forth in the table below. Mr. Kocher was promoted in 2016, and therefore his salary for 2016 is not compared to his salary in 2015 in the table below.

Named Executive Officer	Annual Base Salary Approved for Fiscal Year 2016	Year-Over-Year Percentage Increase Represented by Fiscal Year 2015 Base Salary
Timothy J. Stultz, Ph.D. President, Chief Executive Officer and Director	\$ 500,000	1.3%
Jeffrey Andreson Chief Financial Officer	\$ 340,000	3.0%
S. Mark Borowicz, Ph.D. Executive Vice President, Business Operations	\$ 305,000	4.4%
Rollin Kocher ⁽¹⁾ Senior Vice President, Commercial Operations	\$ 271,889	n/a
Janet Taylor General Counsel	\$ 276,000	2.2%

(1) Mr. Kocher became our SVP Commercial Operations in September 2016.

Bonus

The Compensation Committee views cash bonuses as part of its performance-based compensation program designed to align the recipient's interests with our annual goals and objectives and our stockholders' interests. At our 2012 annual meeting of stockholders, the stockholders approved the Executive Performance Bonus Plan (the "Plan"). Within the parameters of the Plan, the Compensation Committee established the 2016 Executive Performance Bonus Program (the "2016 Bonus Program"). The 2016 Bonus Program is intended to motivate senior executives to achieve short-term and long-term corporate objectives relating to the performance of Nanometrics or one of its business units as established by the Compensation Committee of the Board of Directors and to reward them when those objectives are achieved, thereby tying performance to stockholder value. Bonuses would be triggered upon our achievement of target metrics determined by the Compensation Committee.

As part of the 2016 Bonus Program, the Compensation Committee established the following target bonus opportunities:

Named Executive Officer ⁽¹⁾	Target Bonus Opportunity (as a % of annual base salary)
Timothy J. Stultz, Ph.D.	100%
Jeffrey Andreson	60%
S. Mark Borowicz, Ph.D.	60%
Rollin Kocher	30%
Janet Taylor	45%

The Compensation Committee reviews and approves target bonus opportunities for each executive officer based on market data and each executive officer's relative duties and responsibilities.

For Dr. Stultz, Mr. Andreson, Dr. Borowicz and Ms. Taylor 100% of the target bonus opportunity was based upon overall company financial performance objectives recommended by the CEO and approved by the Compensation Committee. For Mr. Kocher, 50% of the target bonus opportunity was based on overall company financial performance objectives recommended by the CEO and approved by the Compensation Committee, while the remaining 50% was based on individual management objectives determined by the CEO prior to the time Mr. Kocher became an executive officer. In addition, Mr. Kocher received commissions based on recognized revenue from sale of products, upgrades and service contracts.

The maximum award that an executive could receive under the 2016 Bonus Program was two times the target bonus opportunity. Achievement of the bonus opportunity tied to the overall company performance for the 2016 Bonus Program was determined based on annual Revenues and Non-GAAP Operating Margin. The 2016 Bonus Program provided that Annual Revenue of \$200 million and Non-GAAP Operating Margin of 10% resulted in funding at 100% of the company performance component of Total Target Bonus. The formula for determining the actual company performance component was the product of (i) achieved Non-GAAP Operating Margin divided by 10% and (ii) \$200 million in annual Revenues divided by actual annual Revenues achieved. The company performance factor would be zero when Non-GAAP Operating Margin is less than or equal to 0%. For the 2016 Bonus Program, Non-GAAP Operating Margin was defined as Operating Income/(Loss) as reported in accordance with generally accepted accounting principles in the United States, plus amortization of intangible assets, and any unusual charges, such as restructurings, litigation or acquisition charges, divided by Annual Revenues.

For Mr. Kocher, a portion of his bonus was tied to the achievement of individual management objectives. His individual management objectives related to (i) achieving forecasted sales and service revenue, (ii) improved operating efficiencies, (iii) accurately forecasting revenue, and (iv) other organization-wide initiatives. For fiscal year 2016, based on achieved Revenues and Non-GAAP Operating Income, the Compensation Committee approved the following bonus amounts for the named executive officers:

Named Executive Officer	Approved Bonus under 2016 Bonus Program
Timothy J. Stultz, Ph.D.	\$ 625,000
Jeffrey Andreson	\$ 255,000
S. Mark Borowicz, Ph.D.	\$ 228,750
Rollin Kocher ⁽¹⁾	\$ 101,959
Janet Taylor	\$ 155,250

(1) Mr. Kocher became our SVP Commercial Operations in September 2016. He was also eligible for Commission Plan in the amount of \$237,514.

Long-Term Incentive Compensation

The Compensation Committee believes that equity compensation plans are an essential tool to link the long-term interests of Nanometrics' stockholders and our employees, particularly our executive officers, and serve to motivate executives to make decisions that will, in the long run, optimize returns to our stockholders. Equity compensation plans also enable us to provide an opportunity for increased equity ownership by executives, thereby increasing the link between the incentives of our executives and the interests of our stockholders, and maintain competitive levels of total compensation. Each year the Compensation Committee considers incentive and retention needs, market competitiveness and industry and business conditions to make its subjective determination of the appropriate balance of RSUs, which provide a more predictable value; and Performance Stock Units, or PSUs, which provide predictable value to the extent pre-defined performance metrics are achieved. The company has not granted stock options since 2014. The Compensation Committee considered both the broader market environment and the individual equity profile of each executive in awarding all Named Executive Officers RSUs for 2016, and awarding the CEO PSUs for 2016.

Restricted Stock Unit Grants. All of the executives received RSU awards during the 2016 fiscal year. The Compensation Committee believes that RSUs, which increase in value as the market price of our common stock increases, both encourage our executives to work toward the longer term goal of creating stockholder value and provide retention value. RSUs align the interests of our executives to the interests of our stockholders because an executive that holds RSUs is exposed to the same market risks to which our stockholders are exposed. The Compensation Committee approved RSU award levels for 2016 based on an analysis of peer group data related to the size of equity awards as described under our section "Philosophy and Objectives Applied" above. The Compensation Committee did not benchmark to a specific target percentile, but instead considered proposed RSU awards in the context of each executive's cash and total compensation package. In addition, the Compensation Committee considered other factors when determining each executive's RSU award, including: the level of resulting alignment with the interests of our stockholders; such executive's position within the organization and the appropriate level of equity compensation for such position relative to others in the organization's hierarchy; such executive's contributions to our financial, operational and general performance; our stock price; and the value of such awards based on the company's currency stock price. The Compensation Committee did not apply formulas or assign specific mathematical weights to any of these factors, but rather exercised its business judgment and discretion to make a subjective determination regarding whether to grant, and the size of grants of RSUs to each executive.

Performance Stock Unit Grants. Our CEO received his 2016 equity value 50% in time-based RSUs and 50% in performance-based RSUs ("PSUs"). The 2016 PSUs are earned based on Nanometrics' stock price performance relative to the Top 30 companies in the Philadelphia Stock Exchange Semiconductor Index over a one, two and three-year performance period. To earn the target number of shares, Nanometrics' stock price performance must be at the 50th percentile of the Index; for stock price performance at or above the 75th percentile, the CEO earns 150% of the target shares (maximum payout is 150% of target). If Nanometrics' stock price performance for any period is negative, the number of shares earned is capped at target, regardless of performance relative to the Index. The Compensation Committee determined the PSU award level for our CEO in 2016 based on an analysis of peer group data related to the size of equity awards as described under our section "Philosophy and Objectives Applied" above.

Although historically the Compensation Committee granted PSUs only to our CEO, in 2017, the Compensation Committee determined to grant PSUs to our CEO as well as to our CFO, Mr. Andreson, and to Dr. Borowicz and Mr. Kocher.

Our Compensation Committee grants equity awards under our 2005 Equity Incentive Plan to the named executive officers and other employees as incentive compensation. The Compensation Committee meeting schedule is determined several months in advance, and, therefore, proximity of any award date to a material news announcement or a change in our stock price, if any, is coincidental. We do not backdate equity awards or make equity awards retroactively. In addition, we do not coordinate our equity grants to precede announcements of favorable information or follow announcements of unfavorable information. Equity awards are priced using the closing market price of the common stock on the date of grant.

Other Elements of Compensation

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

Perquisites

Nanometrics provides certain named executive officers with a limited number of perquisites that the Compensation Committee believes are reasonable and consistent with our overall compensation program. Although the Compensation Committee seeks the advice of the human resources department on general market competitiveness for these benefits, it does not use a formal benchmarking process. The aggregate incremental costs to Nanometrics of these perquisites are included in the Summary Compensation Table in the “All Other Compensation” column. Dr. Stultz receives a car allowance. All named executive officers are eligible to participate in an Executive Healthcare Reimbursement plan that provides for reimbursement of usual and customary costs that may not be covered under the medical, dental and eye care plans available to all other Nanometrics employees; actual amounts reimbursed are included in the Summary Compensation Table as “All Other Compensation.”

Severance Benefits

The Compensation Committee considers maintaining a stable and effective management team to be essential to protecting and enhancing the best interests of Nanometrics and its stockholders. Accordingly, the Compensation Committee has taken steps to encourage the continued attention, dedication and continuity of members of our management to their assigned duties without the distraction that may arise from the potential termination of employment. Specifically, we have entered into agreements with our named executive officers providing for severance payments and benefits, consisting of cash severance, accelerated vesting of equity awards and continued health care benefits, upon a termination of employment without cause or resignation for good reason in connection with a “change in control” of Nanometrics, as described in greater detail below in the section titled “Employment Contracts and Termination of Employment and Change-in-Control Arrangements.” Nanometrics entered into these agreements with Dr. Stultz in 2010, and with Mr. Andreson in 2014. In May 2015, these agreements were superseded and replaced with new agreements, which Nanometrics entered into with Dr. Stultz, Mr. Andreson and Dr. Borowicz, and with Ms. Taylor in July 2015 when she was hired. Nanometrics entered into such an agreement with Mr. Kocher in 2016 when he became an executive officer.

When entering into these agreements, the Compensation Committee analyzed data and suggestions from Compensia in 2014 as well as our human resources department. The Compensation Committee then exercised its business judgment and discretion to make a subjective determination after considering this information.

After considering industry practices, the Compensation Committee determined that our severance and benefits agreements are necessary and appropriate in substance and scope to provide competitive compensation to the types of individuals that Nanometrics desires to attract, hire and retain. The Compensation Committee also believes that these agreements are consistent with our overall compensation philosophy. The Compensation Committee periodically monitors industry practice in this area to ensure that these agreements remain consistent with industry practice and our overall compensation philosophy of offering competitive compensation to preserve our ability to attract and retain key executives.

Tax and Accounting Implications

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

As part of its role, the Compensation Committee reviews and considers the deductibility of executive compensation under Section 162(m) of the Internal Revenue Code, which provides that we may not deduct compensation of more than \$1,000,000 that is paid to certain executive officers, unless certain exemption requirements are met. Exemptions to this deductibility limit may be made for various forms of “performance-based” compensation. However, in certain situations, the Compensation Committee may approve compensation that will not meet these requirements to ensure competitive levels of total compensation for our executive officers.

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

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

Risks Associated With Compensation Plans

In 2016, the Compensation Committee determined that our compensation policies and practices for our employees are not reasonably likely to cause employees to take risks that would have a material adverse effect on the company.

Equity Ownership Guidelines

We have a stock ownership policy that establishes, for our executive officers, guidelines for minimum levels of stock ownership in the company by 2019 or within five years of their hire date or promotion date, whichever is later. The stock ownership guidelines are, for our Chief Executive Officer, ownership of stock with a value equal to three times his annual base salary, and for each other executive officer, ownership of stock with a value equal to his or her annual base salary.

Results of 2016 Shareholder Advisory Vote to Approve Executive Compensation

At our 2013, 2014, 2015 and 2016 annual meetings of stockholders, we requested our stockholders to approve, on an advisory (non-binding) basis, the compensation paid to our executive officers as reported in the proxy statements for those annual meetings. Our stockholders expressed substantial support for our executive compensation, with approximately 97.8%, 96.1%, 95.1% and 92.7%, respectively, of the shares present and entitled to vote voting for approval of the “say-on-pay” advisory vote approving our executive compensation. Because of the high level of support expressed by our stockholders for the executive compensation, the Compensation Committee has continued to apply a similar approach for executive compensation decisions and policies.

Clawback Policy

We have established a clawback policy. This policy provides that in the event of a material restatement of our consolidated financial statements resulting from fraud or intentional misconduct by any Section 16 officer who has either erroneously been awarded or paid a greater amount of incentive compensation than he or she would have received had the financial statements been fairly stated, the Board or its designated committee has the discretion to direct that the company either recoup or cancel payment, though not forced, of all or a portion of the excess of performance-based cash or equity compensation to the Section 16 officer(s). This clawback policy is effective for compensation awarded or paid after implementation of the policy and applies to current Section 16 officers as well as those who terminate after the clawback program has been approved by the Board. The covered period is the three-year period preceding the effective date for which it is determined that a restatement is required.

Insider Trading Policy

We have an insider trading policy that, in addition to prohibiting insider trading, has provisions prohibiting margining the company’s securities, engaging in short sales of securities not owned, and trading in derivative securities.

2016 Summary Compensation

The following table sets forth compensation information for (i) our Chief Executive Officer, (ii) our Chief Financial Officer, and (iii) each of our other three highest compensated executive officers during fiscal 2016, all of whom are collectively referred to as the “named executive officers.”

Summary Compensation Table
Fiscal Year 2016

	<u>Year</u>	<u>Salary (\$)</u>	<u>Stock Awards^{(1),(2)}</u>	<u>Non-Equity Incentive Plan Compensation⁽³⁾</u>	<u>All Other Compensation⁽⁴⁾</u>	<u>Total (\$)</u>
Timothy J. Stultz, Ph.D. President, Chief Executive Officer and Director	2016	\$ 498,343	\$ 1,170,482	\$ 625,000	\$ 28,205	\$ 2,322,030
	2015	\$ 493,204	\$ 1,817,800	\$ 468,702	\$ 26,002	\$ 2,805,708
	2014	\$ 479,000	\$ 1,596,300	\$ 593,960	\$ 27,767	\$ 2,697,027
Jeffrey Andreson ⁽⁵⁾ Chief Financial Officer	2016	\$ 337,500	\$ 357,210	\$ 255,000	\$ 7,229	\$ 956,939
	2015	\$ 330,000	\$ 179,200	\$ 188,100	\$ 5,830	\$ 703,130
	2014	\$ 86,308	\$ 578,000	\$ 75,000	\$ —	\$ 739,308
Janet Taylor ⁽⁶⁾ General Counsel	2016	\$ 274,500	\$ 132,300	\$ 155,250	\$ 7,218	\$ 569,268
	2015	\$ 124,615	\$ 276,800	\$ 60,995	\$ 5,460	\$ 467,870
S. Mark Borowicz, Ph.D. ⁽⁷⁾ Executive VP, Business Operations	2016	\$ 301,750	\$ 330,750	\$ 228,750	\$ 4,530	\$ 865,780
	2015	\$ 291,871	\$ 161,280	\$ 151,110	\$ 5,545	\$ 609,806
Rollin Kocher ⁽⁸⁾ Sr. VP, Commercial Operations	2016	\$ 269,909	\$ 244,156	\$ 339,473	\$ 4,800	\$ 858,338

- (1) Amounts shown do not reflect compensation actually received by the named executive officer. Instead, the amounts shown are the aggregate grant date fair value of equity awards granted for financial statement reporting purposes in accordance with Financial Accounting Standards Board (“FASB”) Accounting Standards Codification (“ASC”) Topic 718. The assumptions used to calculate the value of the restricted stock units (“RSUs”) and/or performance stock units (“PSUs”) are set forth under Note 13 of the Notes to Consolidated Financial Statements included in Nanometrics’ Annual Report on Form 10-K for the fiscal year ended December 31, 2016, filed with the SEC on March 3, 2017. The amount with respect to PSUs is also based on the probable outcome of the satisfaction of the performance conditions; the grant date fair value assuming satisfaction of the performance conditions is \$575,132.
- (2) For fiscal year 2016, the Board of Directors awarded on February 22, 2016: Dr. Stultz RSUs to acquire 45,000 shares, and PSUs to acquire 67,500 shares; Mr. Andreson RSUs to acquire 27,000 shares; Ms. Taylor RSUs to acquire 10,000 shares; and Dr. Borowicz RSUs to acquire 25,000 shares. The grant date fair value of these grants was \$13.23 per share. Mr. Kocher received an award of 12,987 RSUs at the grant date value of \$18.80 per share on May 27, 2016. All RSUs vest annually over three years from grant date, and all PSUs vest annually over three years on February 22 of each year subject to attainment of certain stock performance metrics.
- (3) Amounts reflected for each fiscal year are those earned, but not paid until the following fiscal year, under our executive performance bonus programs and in the case of Mr. Kocher, \$237,514 in sales commissions.
- (4) Fiscal 2016 amounts represent additional compensation for the named executive officers as follows: Dr. Stultz received reimbursements under our Executive Health Care Plan in the amount of \$9,005, an employer 401(k) match in the amount of \$4,800, and a car allowance in the amount of \$14,400; Mr. Andreson received reimbursements under our Executive Health Care Plan \$2,504 and an employer 401(k) match of \$4,725; Ms. Taylor received reimbursements under our Executive Health Care Plan in the amount of \$2,418 and an employer 401(k) match of \$4,800; Dr. Borowicz received reimbursements under our Executive Health Care Plan in the amount of \$930 and an employer 401(k) match of \$3,600; and Mr. Kocher received an employer 401(k) match of \$4,800.
- (5) Mr. Andreson joined Nanometrics in September 2014.
- (6) Ms. Taylor joined Nanometrics in July 2015.
- (7) Dr. Borowicz became an executive officer in February 2015.
- (8) Mr. Kocher became an executive officer in September 2016.

2016 Grants of Plan-Based Awards

The following table sets forth information with respect to grants of plan-based awards during the 2016 fiscal year that ended December 31, 2016, to each of the named executive officers.

Grants of Plan-Based Awards For Fiscal Year 2016

Name	Estimated Future Payouts Under Non-Equity Incentive Plan Awards ⁽¹⁾				All Other Stock Awards:		Grant Date Fair value Of Stock And Options Awards (\$) ⁽⁴⁾
	Grant Date	Threshold (\$)	Target (\$)	Maximum (\$)	Number of Shares of Stock or Units (#)		
Timothy J. Stultz, Ph.D.	2/22/2016	\$ —	\$ 500,000	\$ 1,000,000			
	2/22/2016 ⁽²⁾				45,000	\$	595,350
	2/22/2016 ⁽³⁾				67,500	\$	575,132
Jeffrey Andreson	2/22/2016	\$ —	\$ 204,000	\$ 408,000			
	2/22/2016 ⁽²⁾				27,000	\$	357,210
Janet Taylor	2/22/2016	\$ —	\$ 124,200	\$ 248,400			
	2/22/2016 ⁽²⁾				10,000	\$	132,300
S. Mark Borowicz, Ph.D.	2/22/2016	\$ —	\$ 183,000	\$ 366,000			
	2/22/2016 ⁽²⁾				25,000	\$	330,750
Rollin Kocher	2/22/2016	\$ —	\$ 81,557	\$ 163,114			
	5/27/2016 ⁽²⁾				12,987	\$	244,156

(1) Reflects awards under our 2016 Executive Performance Bonus Plan as described under "Compensation Discussion and Analysis".

(2) Restricted stock units vest in equal annual installments over a three-year period.

(3) PSUs vest in equal annual installment over a three-year period subject to achievement of certain metrics.

(4) Amounts shown do not reflect compensation actually received by the named executive officer. Instead, the amounts shown are the aggregate grant date fair value of equity awards granted for financial statement reporting purposes, as determined pursuant to ASC Topic 718. The assumptions used to calculate the value of the RSUs and PSUs are set forth under Note 13 of the Notes to Consolidated Financial Statements included in Nanometrics' Annual Report on Form 10-K for the fiscal year ended December 31, 2016, filed with the SEC on March 3, 2017. The amount with respect to PSUs (granted to Dr. Stultz in 2016) is also based on the probable outcome of the satisfaction of the performance conditions: the grant date fair value assuming satisfaction of the performance conditions is \$575,132.

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

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

In the 2016 fiscal year, all corporate officers and non-employee directors were eligible to participate in a Nanometrics self-funded Executive Reimbursement Plan (currently administered by Benefit and Risk Management Services). This plan is intended to supplement our basic health plan by reimbursing expenses that are not covered by our health plan. Dr. Stultz is also entitled to a car allowance. Attributed costs of the perquisites described above for the named executive officers for the fiscal year ended December 31, 2016, are included in the "Summary Compensation Table." All such perquisites are taxable to the executive and included as a portion of such executive's wages.

Outstanding Equity Awards at Fiscal 2016 Year End

The following table sets forth the number of shares covered by both stock options and stock awards held by each of the named executive officers at the end of the fiscal year which ended December 31, 2016.

Name	Grant Date	Option Awards				Stock Awards	
		Exercisable	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 (\$) ⁽¹⁾
Timothy J. Stultz, Ph.D.	2/22/2016 ⁽⁶⁾					67,500	\$1,691,550
	2/22/2016 ⁽²⁾					45,000	\$1,127,700
	3/18/2015 ⁽⁵⁾					40,000	\$1,002,400
	2/24/2015 ⁽²⁾					26,666	\$668,250
	3/6/2014 ⁽²⁾					28,333	\$710,025
	3/12/2013 ⁽³⁾	56,250	—	\$15.85	03/12/2020		
	2/17/2012 ⁽³⁾	50,000	—	\$19.03	02/17/2019		
	11/16/2010 ⁽³⁾	114,166	—	\$11.37	11/16/2017		
Jeffrey Andreson	2/22/2016 ⁽²⁾					27,000	\$676,620
	2/24/2015 ⁽²⁾					6,666	\$167,050
	11/9/2014 ⁽⁴⁾					13,333	\$334,125
Janet Taylor	2/22/2016 ⁽²⁾					10,000	\$250,600
	8/28/2015 ⁽²⁾					13,333	\$334,125
S. Mark Borowicz, Ph.D.	2/22/2016 ⁽²⁾					25,000	\$626,500
	2/24/2015 ⁽²⁾					6,000	\$150,360
	5/19/2014 ⁽²⁾					2,000	\$50,120
	5/20/2013 ⁽³⁾	—	625	\$14.34	5/20/2013		
Rollin Kocher	5/27/2016 ⁽²⁾					12,987	\$325,454
	5/29/2015 ⁽²⁾					4,760	\$119,286
	5/20/2013 ⁽³⁾	—	938	\$14.34	5/20/2013		

(1) The closing market price of Nanometrics common stock on December 30, 2016, the last trading day of our 2016 fiscal year, was \$25.06 per share.

(2) Restricted stock units vest annually over three years on each anniversary of the grant date.

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

(4) Restricted stock units vest annually over three years on each anniversary of Mr. Andreson's hire date.

(5) Performance stock units vest annually, subject to stock performance metrics, over three years on each anniversary of February 24, 2015.

(6) Performance stock units vest annually, subject to stock performance metrics, over three years on each anniversary of February 22, 2016.

Option Exercises and Stock Vested

The following table provides, on an aggregate basis, the value realized upon the exercise of stock options and vesting of stock awards, by the named executive officers during the 2016 fiscal year that ended December 31, 2016.

Option Exercises and Stock Vested For Fiscal 2016

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 (\$) ⁽²⁾
Timothy J. Stultz, Ph.D.	45,834	\$853,429	75,000	\$1,068,483
Jeffrey Andreson	—	—	16,667	\$345,668
Janet Taylor	—	—	6,667	139,274
S. Mark Borowicz, Ph.D.	6,875	\$129,368	9,666	\$142,037
Rollin Kocher	14,062	\$287,869	5,713	\$92,606

(1) The value realized on exercise is calculated by multiplying the number of shares shown in the table by the excess of the market value of the shares on the vesting date and the exercise price.

(2) The value realized on vesting is calculated by multiplying the number of shares shown in the table by the market value of the shares on the vesting date.

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

In September 2014, Nanometrics entered into an employment agreement with Mr. Jeffrey Andreson setting forth his then-effective salary, bonus and equity grants, and severance benefits; Mr. Andreson's current compensation is discussed above, and his current severance benefits are discussed below.

Nanometrics entered into severance benefits and change in control severance benefits agreements (the "Severance Agreements") with each of Dr. Timothy Stultz, Jeffrey Andreson, and Dr. S. Mark Borowicz in May 2015, with Janet Taylor in July 2015, and with Rollin Kocher in November 2016. The general severance benefits will become payable under the Severance Agreements in the event of the executive officer's termination without cause or resignation for good reason which occurs other than on or within 12 months following a qualifying change in control event. With respect to Dr. Stultz, Mr. Andreson and Ms. Taylor, the general severance benefits consist of 12 months of base salary continuation and COBRA premium benefits, and with respect to Mr. Stultz an additional lump sum payment of 100% of his annual target bonus. With respect to Dr. Borowicz and Mr. Kocher, the general severance benefits consist of six months of base salary continuation and COBRA premium benefits.

The change in control severance benefits will become payable under the severance agreements in the event that (i) a qualifying change in control event occurs and (ii) the executive's termination without cause or resignation for good reason occurs within the period commencing on and ending 12 months following the qualifying change in control event. With respect to Dr. Stultz, the change in control severance benefits consist of (i) a lump sum payment of 18 months' base salary and 100% of his annual target bonus, (ii) 18 months of COBRA premium benefits, and (iii) full acceleration of the vesting and exercisability of all then outstanding equity awards will generally apply. With respect to Mr. Andreson, Ms. Taylor, Dr. Borowicz and Mr. Kocher, the change in control severance benefits consist of (i) a lump sum payment of 12 months' base salary and 100% of the annual target bonus, (ii) 12 months of COBRA premium benefits, and (iii) full acceleration of the vesting and exercisability of all then outstanding equity awards will generally apply.

For purposes of the severance agreements, a qualifying change of control event generally includes any of the following events: (i) an acquisition by any person, entity or group of the beneficial ownership of securities of Nanometrics representing more than fifty percent of the total voting power of Nanometrics' then outstanding securities; (ii) a change in a majority of the members constituting the Board within a two year period that is not approved by a majority of the incumbent Board members, (iii) a merger or consolidation involving Nanometrics and, immediately after the consummation of such transaction, the stockholders of Nanometrics immediately prior thereto do not own, directly or indirectly, outstanding voting securities representing more than fifty percent of the combined outstanding voting power of the surviving or resulting entity; and (iv) a sale, lease or other disposition of all or substantially all of the assets of Nanometrics.

Payment of general severance benefits or change in control severance benefits, as applicable, is in all cases conditioned upon the executive officer providing a timely and effective release of claims against Nanometrics and the executive officer's ongoing compliance with the non-competition, non-solicitation and other requirements set forth in the severance agreements.

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

Termination of Employment and Change-in-Control Potential Payouts

The table below estimates amounts payable upon a separation as if the individuals were separated on December 31, 2016, which was the last day of our 2016 fiscal year.

		Not in Connection with Change in Control	In Connection with Change in Control
		Termination Without Cause/Good Reason (\$)	Termination Without Cause For Good Reason or Due to Disability or Death (\$)
Timothy J. Stultz, Ph.D.	Severance pay	\$ 500,000	\$ 750,000
	Equity vesting acceleration ⁽¹⁾	—	3,250,537
	Bonus	500,000	500,000
	Health care benefits continuation	34,304	51,456
		<u>\$ 1,034,304</u>	<u>\$ 4,551,993</u>
Jeffrey Andreson	Severance pay ⁽²⁾	\$ 340,000	\$ 340,000
	Equity vesting acceleration ⁽¹⁾	—	1,177,795
	Bonus	—	204,000
	Health care benefits continuation	25,362	25,362
		<u>\$ 365,362</u>	<u>\$ 1,747,157</u>
Janet Taylor	Severance pay	\$ 276,000	\$ 276,000
	Equity vesting acceleration ⁽¹⁾	—	584,725
	Bonus	—	124,200
	Health care benefits continuation	22,935	22,935
		<u>\$ 298,935</u>	<u>\$ 1,007,860</u>
S. Mark Borowicz, Ph.D.	Severance pay	\$ 152,500	\$ 305,000
	Equity vesting acceleration ⁽¹⁾	—	833,680
	Bonus	—	183,000
	Health care benefits continuation	21,558	43,116
		<u>\$ 174,058</u>	<u>\$ 1,364,796</u>
Rollin Kocher	Severance pay	\$ 135,945	\$ 271,889
	Equity vesting acceleration ⁽¹⁾	—	454,795
	Bonus	—	81,567
	Health care benefits continuation	21,558	43,116
		<u>\$ 157,502</u>	<u>\$ 851,367</u>

- (1) Represents the estimated potential incremental value of additional stock options and restricted stock units that would have vested for our named executive officers as of December 31, 2016. For stock options, the value is based on the difference between the aggregate exercise price of all accelerated options and the aggregate market value of the underlying shares as of December 31, 2016, calculated based on the closing market price of our stock on December 30, 2016, the last trading day of our fiscal year \$25.06 per share. Accelerated restricted stock unit award value is calculated by multiplying the number of accelerated shares by the closing price of our stock on December 30, 2016, \$25.06 per share.

COMPENSATION COMMITTEE REPORT¹

The Compensation Committee has reviewed and discussed with management the Compensation Discussion and Analysis contained in this Proxy Statement. Based on this review and discussion, the Compensation Committee has recommended to the Board of Directors that the Compensation Discussion and Analysis be included in this Proxy Statement and incorporated into Nanometrics Incorporated's Annual Report on Form 10-K for the fiscal year ended December 31, 2016.

The Compensation Committee

Edward J. Brown Jr., Chairman

J. Thomas Bentley

Christine A. Tsingos

¹ The material in this report is not "soliciting material," is furnished to, but not deemed "filed" with, the Securities and Exchange Commission and is not deemed to be incorporated by reference in any filing of the company under the Securities Act or the Exchange Act, other than the company's Annual Report on Form 10 K, where it shall be deemed to be "furnished," whether made before or after the date hereof and irrespective of any general incorporation language in any such filing.

COMPENSATION OF DIRECTORS

During the 2016 fiscal year, non-employee directors received an annual retainer fee of \$50,000. In addition, the Chairman of the Board, Audit Committee Chairman, Compensation Committee Chairman and Nominating and Governance Committee Chairman received an incremental \$30,000, \$20,000, \$20,000 and \$10,000 annual retainer, respectively, for serving in such capacities. Committee members, other than the chairpersons, received an incremental \$10,000 annual retainer for service on the Audit or Compensation Committee and an incremental \$7,500 annual retainer for service on the Nominating and Governance Committee. All retainer fees are paid annually, as of the date of our annual stockholders meeting, and in advance of the provision of services to which the retainer relates.

Non-employee directors are also eligible to participate in our 2005 Equity Incentive Plan, and in fiscal year 2016, each such director received equity incentives, issued in restricted stock units, valued at \$100,000. We calculated the value of such equity incentives using the 30-day average of the closing market price of our stock on the NASDAQ Stock Market as of the date of our annual stockholders meeting. These awards vest on the earlier of the first anniversary date of the grant or the date of the next annual meeting of stockholders.

Any new non-employee director will be eligible to receive restricted stock units valued at \$100,000 pro-rated to reflect the amount of time served before the next annual meeting of stockholders.

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

2016 Director Compensation

The following table sets forth information regarding the compensation for each of our non-employee directors for the 2016 fiscal year that ended December 31, 2016. Nanometrics' non-employee director compensation program for the 2016 fiscal year comprised: (a) cash compensation, consisting of annual retainer fees, additional fees for chairing Board committees, and additional fees for serving as a committee member; and (b) equity compensation, consisting of restricted stock units. Each of these components is detailed below.

Director Compensation Table For Fiscal Year 2016

	Fees Earned or Paid in Cash (\$)	Stock Awards \$(^{(1),(2)})	All Other Compensation \$(⁽³⁾)	Total (\$)
Bruce C. Rhine ⁽⁴⁾	\$ 100,000	\$ 100,000	\$ 864	\$ 200,864
J. Thomas Bentley ⁽⁵⁾	\$ 70,000	\$ 100,000	\$ 24,188	\$ 194,188
Edward Brown Jr. ⁽⁶⁾	\$ 77,500	\$ 100,000	\$ —	\$ 177,500
Mr. Christopher Seams ⁽⁷⁾	\$ 67,500	\$ 100,000	\$ —	\$ 167,500
Ms. Christine Tsingos ⁽⁸⁾	\$ 80,000	\$ 100,000	\$ —	\$ 180,000

- (1) Amounts shown do not reflect compensation actually received by the named director. Instead, the amounts shown are the aggregate grant date fair value calculated for financial statement reporting purposes, as determined pursuant to Accounting Standards Codification ("ASC") Topic 718, but excluding the effect of any estimated forfeitures. The assumptions used to calculate the value of awards are set forth under Note 13 of the Notes to Consolidated Financial Statements included in Nanometrics' Annual Report on Form 10-K for fiscal 2015 filed with the SEC on March 3, 2017.
- (2) On May 24, 2016, each non-employee director received a restricted stock unit award in the amount of 6,493 shares of common stock. All RSUs vest one year from the first anniversary date of said award or the next annual meeting, if earlier. The fair market value for these RSUs was \$15.40 per share on the date of the grant.
- (3) Representing health care reimbursements extended to Directors.
- (4) At December 31, 2016, Mr. Rhine had 6,988 outstanding options to purchase shares of common stock and 6,493 unvested restricted stock units.
- (5) At December 31, 2016, Mr. Bentley had 6,988 outstanding options to purchase shares of common stock and 6,493 unvested restricted stock units.
- (6) At December 31, 2016, Mr. Brown had 6,493 unvested restricted stock units.
- (7) At December 31, 2016, Mr. Seams had 6,493 unvested restricted stock units.
- (8) At December 31, 2016, Ms. Tsingos had 6,493 unvested restricted stock units.

COMPENSATION COMMITTEE INTERLOCKS AND INSIDER PARTICIPATION

During the 2016 fiscal year, the Compensation Committee consisted of Edward J. Brown Jr. (Chair), J. Thomas Bentley and Christine A. Tsingos. None of Nanometrics' executive officers serves as a member of the board of directors or compensation committee of any entity that has one or more executive officers serving as a member of Nanometrics' Board or Compensation Committee.

PROPOSAL 2:
ADVISORY (NON-BINDING) VOTE ON EXECUTIVE COMPENSATION

At the 2011 Annual Meeting of Stockholders, the stockholders indicated their preference that Nanometrics solicit a non-binding advisory vote on the compensation of the named executive officers, commonly referred to as a “say-on-pay” vote, every year. The Board of Directors adopted a policy that is consistent with that preference. In accordance with this policy, this year we are again requesting our stockholders to approve an advisory resolution on Nanometrics’ executive compensation as reported in this Proxy Statement, and as required by Section 14A(a)(1) of the Exchange Act. This vote is not intended to address any specific item of compensation, but the overall compensation of our named executive officers and the philosophy, policies and practices described in this Proxy Statement.

As described more fully in the Compensation Discussion and Analysis section and other compensation-related disclosures in the proxy statement, consistent with its compensation philosophy and pay-for-performance principles, Nanometrics’ executive compensation program has been designed to provide competitive compensation packages that enable Nanometrics to attract and retain talented executives, motivate executive officers to achieve Nanometrics’ short- and long-term business strategies and objectives, and align the interests of executives with those of stockholders, and are consistent with current market practices and good corporate governance principles.

We encourage you to read the Compensation Discussion and Analysis, compensation tables and related narrative discussion in this Proxy Statement.

The Compensation Committee and the Board of Directors believe that the policies and procedures articulated in the “Compensation Discussion and Analysis” are effective in achieving our goals and that the compensation of our named executive officers reported in this Proxy Statement has contributed to our recent and long-term success.

In accordance with Section 14A(a)(1) of the Exchange Act, as a matter of good corporate governance, and in accordance with the policy adopted by the Board of Directors to provide an annual “say-on-pay” advisory vote, we are asking stockholders to approve the following advisory resolution at the annual meeting:

RESOLVED, that the stockholders of Nanometrics approve, on an advisory basis, the compensation of Nanometrics’ named executive officers disclosed in the Compensation Discussion and Analysis, the Summary Compensation Table and the related compensation tables, notes and narratives in the Proxy Statement for Nanometrics’ 2017 Annual Meeting of Stockholders.

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

THE BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS THAT STOCKHOLDERS VOTE “FOR” THE ADVISORY RESOLUTION APPROVING THE COMPANY’S EXECUTIVE COMPENSATION.

**PROPOSAL 3:
ADVISORY (NON-BINDING) VOTE ON FREQUENCY OF ADVISORY VOTES ON
EXECUTIVE COMPENSATION**

Pursuant to Section 14A of the Exchange Act, we are requesting stockholders to vote on whether future advisory votes on executive compensation of the nature reflected in Proposal No. 2 above, commonly referred to as a “say-on-pay” vote, should occur every year, every two years or every three years. At the 2011 Annual Meeting of Stockholders, the stockholders indicated their preference that Nanometrics solicit a “say-on-pay” vote every year. The Board of Directors adopted a policy that is consistent with that preference. However, pursuant to Section 14A of the Exchange Act, we are required to resolicit a stockholder advisory vote on whether our stockholders would prefer future “say-on-pay” votes to occur every year, every two years or every three years.

After careful consideration, our Board of Directors has determined that holding an advisory vote on executive compensation every year is the most appropriate policy for Nanometrics at this time, and recommends that stockholders vote for future advisory votes on executive compensation to occur every year. While our executive compensation programs are designed to promote a long-term correlation between pay and performance, the Board of Directors recognizes that executive compensation disclosures are made annually. Holding an annual advisory vote on executive compensation provides us with more direct and immediate feedback on our compensation disclosures. However, stockholders should note that because the advisory vote on executive compensation occurs well after the beginning of the compensation year, and because the different elements of our executive compensation programs are designed to operate in an integrated manner and to complement one another, in many cases it may not be appropriate or feasible to change our executive compensation programs in consideration of any one year’s advisory vote on executive compensation by the time of the following year’s annual meeting of stockholders. We believe that an annual advisory vote on executive compensation is consistent with our philosophy on good corporate governance practices and our executive compensation philosophy, policies and practices.

This advisory vote on the frequency of future advisory votes on executive compensation is non-binding on the Board of Directors. Stockholders will be able to specify one of four choices for this proposal on the proxy card: one year, two years, three years, or abstain. Stockholders are not voting to approve or disapprove the Board of Directors’ recommendation. Although non-binding, our Board of Directors and the Compensation Committee will carefully review and consider the voting results. Notwithstanding the Board of Directors’ recommendation and the outcome of the stockholder vote, the Board of Directors may, in the future, decide to conduct advisory votes on a less frequent basis and may vary its practice based on factors such as discussions with stockholders and the adoption of material changes to compensation programs.

**THE BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS THAT STOCKHOLDERS VOTE TO APPROVE
THE FUTURE ADVISORY VOTES ON EXECUTIVE COMPENSATION EVERY YEAR**

PROPOSAL 4:
APPROVAL OF THE NANOMETRICS 2017 EXECUTIVE PERFORMANCE BONUS PLAN

The Board of Directors is requesting that the stockholders approve the material terms of our 2017 Executive Performance Bonus Plan (the “2017 Plan”), which was established by our Compensation Committee to motivate our senior executives to achieve corporate objectives by providing a competitive bonus for achieving performance goals established by the Compensation Committee. Our 2017 Plan, if approved by our stockholders, will apply to incentives awarded to our covered executives for fiscal 2018 and future years.

Stockholder approval is not generally required for the Company to enact and maintain a bonus plan for our executives. However, under Section 162(m) of the Internal Revenue Code, the annual compensation paid to our Chief Executive Officer and to each of our other three most highly compensated executive officers, other than our chief financial officer, will not be deductible to the extent it exceeds \$1,000,000 unless the conditions of Section 162(m) are met. These conditions include stockholder approval of the material terms of the 2017 Plan, including the performance criteria that the Compensation Committee may use to establish performance goals applicable to bonus awards under the 2017 Plan.

A copy of our 2017 Plan is attached to this proxy statement as **Appendix A** and is incorporated herein by reference. The following description of this Plan is a summary of certain important provisions and does not purport to be a complete description of this Plan. Please see **Appendix A** for more detailed information.

THE BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS THAT THE STOCKHOLDERS VOTE “FOR” THE APPROVAL OF OUR 2017 PLAN

Description of the 2017 Plan

Administration. Our 2017 Plan will be administered by the Compensation Committee. Among other things, the Compensation Committee will have the authority to select participants in the 2017 Plan from among our executive officers and to determine the performance goals, award amounts and other terms and conditions of awards under the 2017 Plan. The Compensation Committee also will have the authority to establish and amend rules and regulations relating to the administration of the 2017 Plan. All decisions made by the Compensation Committee in connection with the 2017 Plan will be made in the Compensation Committee’s sole discretion and will be final and conclusive.

Eligibility. Our executive officers are eligible to participate in the 2017 Plan. The Compensation Committee has the sole authority to designate participants in the 2017 Plan.

Terms of Awards. Awards under the 2017 Plan will be payable upon the achievement during each performance period designated by the Compensation Committee of performance goals established by the Compensation Committee. At the beginning of each performance period, the Compensation Committee will establish the performance goals for each award and the target amount of the award that will be earned based on performance compared to the goals. After the end of the performance period, the Compensation Committee will certify the extent to which the performance goals are achieved and determine the amount of the award that is payable; provided that the Compensation Committee will have the discretion to determine that the actual amount paid with respect to an award will be less than (but not greater than) the payout calculated for awards made under the 2017 Plan. The maximum payout for awards made under the 2017 Plan to any participant in any one calendar year is \$6,000,000.

Performance Criteria. Pursuant to the terms of the 2017 Plan, the Compensation Committee will establish in writing one or more objective performance goals based on the attainment of specified levels of one of or any combination of the following “performance criteria” for the Company as a whole or any business unit of the Company, as reported or calculated by the Company: cash flows; operating cash flow; free cash flow; cash flow return on capital; working capital; earnings per share; net earnings; book value per share; operating income (including or excluding taxes, depreciation, amortization, extraordinary items, restructuring charges or other expenses); pre-tax profit; earnings before interest, taxes and depreciation; earnings before interest, taxes, depreciation and amortization; revenue; margins including gross margin or specific product margins; return on stockholder equity or average stockholder’s equity; return on assets; return on net assets; debt; debt reduction; debt levels; expenditures; debt plus equity; market or economic value added; stock price appreciation; expenses; cost control; strategic initiatives; market share; return on invested capital; improvements in capital structure; customer satisfaction; employee satisfaction; customer satisfaction; services performance; cash management; or asset management metrics; and, only to the extent that an award is not intended to comply with Section 162(m), other measures of performance selected by the Compensation Committee.

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

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

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

Award Amounts. The Compensation Committee will determine within the timeframe specified in the 2017 Plan the amount of the awards that will be paid to each plan participant if the specified performance goals are met and the method by which such amounts will be calculated.

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

Term of the 2017 Plan. The 2017 Plan shall first apply with respect to the 2018 plan year should our stockholders approve the 2017 Plan and will continue until the date as of which the Compensation Committee terminates the 2017 Plan.

Amendment and Termination. The Compensation Committee may amend, modify suspend or terminate the 2017 Plan, in whole or in part, at any time and in any respect, including the adoption of amendments deemed necessary. However, in no event may any such amendment, modification, suspension or termination result in an increase in the amount of compensation payable as identified for the performance period or cause compensation that is, or may become, payable under the 2017 Plan to fail to qualify as deductible “performance-based compensation” within the meaning of Section 162(m) of the Internal Revenue Code.

New Plan Benefits

All Awards under the 2017 Plan, as amended, are made at the discretion of the Compensation Committee. Therefore, the benefits and amounts that will be received or allocated under the 2017 Plan, as amended, are not determinable at this time.

THE BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS THAT STOCKHOLDERS VOTE “FOR” THE APPROVAL OF THE NANOMETRIC INCORPORATED 2017 EXECUTIVE PERFORMANCE BONUS PLAN

PROPOSAL 5:
APPROVAL OF THE NANOMETRICS AMENDED AND RESTATED EQUITY INCENTIVE PLAN

The Board of Directors is requesting that the stockholders approve our 2005 Equity Incentive Plan, as amended. The 2005 Equity Incentive Plan was originally approved by our stockholders on August 26, 2005. On April 13, 2009, our Board of Directors approved the amendment and restatement of the 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, which was approved by the stockholders on May 27, 2009. On February 23, 2011, our Board of Directors approved the amendment of the 2005 Equity Incentive Plan to increase the shares of Nanometrics' common stock authorized for issuance under the 2005 Equity Incentive Plan by 2,000,000, which was subsequently approved by the stockholders on May 26, 2011. On April 5, 2013, our Board of Directors approved the amendment of the 2005 Equity Incentive Plan to increase the shares of Nanometrics' common stock authorized for issuance under the 2005 Equity Incentive Plan by 2,600,000, which was subsequently approved by the stockholders on May 23, 2013.

The proposed amendment of the 2005 Equity Incentive Plan includes the following material changes:

- increases the aggregate number of shares of Nanometrics' common stock authorized for issuance under the 2005 Equity Incentive Plan by 1,000,000 (from 7,292,594 shares to a total of 8,292,594 shares);
- provides for an annual limit on director compensation of \$500,000, as described in more detail below;
- for purposes of Section 162(m) of the Internal Revenue Code (i) confirms the applicable award limits for purposes of compliance with Section 162(m), (ii) confirms the performance criteria upon which performance goals may be based with respect to performance awards under the 2005 Equity Incentive Plan, and (iii) confirms the means of adjustment when calculating the attainment of performance goals for performance awards granted under the 2005 Equity Incentive Plan; and
- extends the term of the 2005 Equity Incentive Plan through 2027.

We believe that the 2005 Equity Incentive Plan provides a valuable opportunity for employees to acquire an ownership interest in Nanometrics 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 authorized share increase will ensure that a sufficient reserve of common stock remains available under the 2005 Equity Incentive Plan to allow us to continue to provide equity incentives to our key employees on a competitive level determined appropriate by our Compensation Committee. The 2005 Equity Incentive Plan, as amended, will also allow us to utilize a broad array of equity incentives and performance cash incentives to secure and retain the services of our employees, consultants and directors, and to provide long term incentives that align the interests of our employees, consultants and directors with the interests of our stockholders.

After carefully forecasting our anticipated growth, hiring plans and retention needs and considering our historical grant and forfeitures rates, we anticipate that the 1,000,000 shares we seek to add to the 2005 Equity Incentive Plan, combined with the 1,334,581 shares currently available for grant under the 2005 Equity Incentive Plan, will be sufficient to attract and retain employees for the next one to two years. However, a change in business conditions or our strategy could alter this projection.

Our Compensation Committee reviewed the average volume of equity awards granted over the past three years and the resulting burn rate. Burn rate generally demonstrates how quickly a company uses available shares. The table below provides our average aggregate three-year burn rate, calculated as the adjusted number of shares granted as a percent of weighted average shares outstanding (consistent with ISS methodology and full value shares converted on a 2.5-for-1 basis tied to our 3-year historical volatility rate). Our 5.2% three-year average adjusted gross burn rate is less than the Institutional Shareholder Services 2017 benchmark of 7.66% for Russell 3000 Semiconductors & Semiconductor Equipment industry companies. We believe that our recent annual burn rates, and our burn rate as compared to the ISS benchmark rate for 2017, demonstrate our commitment to sound equity compensation grant practices.

Fiscal Year	Options Granted	RSUs Granted	PSUs Earned	Unadjusted Gross Burn Rate	ISS Adjusted Gross Burn Rate (RSUs/PSUs at 2.5-for-1)
2016	0	476,667	13,333	2.00%	5.00%
2015	0	506,459	0	2.10%	5.30%
2014	74,300	473,600	0	2.30%	5.30%
Three-Year Average				2.10%	5.20%

As of December 31, 2016, options to purchase 440,545 shares with a weighted average exercise price of \$15.06 and a weighted average remaining term of 2.12 years, and full value awards covering 927,285 shares, were outstanding under all of our equity plans. The 1,367,830 shares subject to outstanding awards (commonly referred to as the “overhang”) represent approximately 5.5% of our outstanding shares as of December 31, 2016. Our total overhang as of December 31, 2016, which includes the 1,000,000 shares being reserved for grant pursuant to this Amendment and the 1,334,581 shares currently available for grant under the 2005 Equity Incentive Plan, is 10.8%. This total overhang is below the 25th percentile of our peer group as of December 31, 2016 and we believe the increase we are requesting would not result in excessive overhang for our stockholders.

As of March 27, 2017, the closing price of our common stock as reported on the NASDAQ Global Market was \$29.82 per share, and a total of 25,226,960 shares of our common stock were outstanding.

In addition, the 2005 Equity Incentive Plan includes the following features demonstrating good corporate governance:

- Repricing or exchange of underwater options is prohibited without stockholder approval under the 2005 Equity Incentive Plan.
- The 2005 Equity Incentive Plan does not require automatic acceleration on a change in control, and allows the Board to provide for the continuation of outstanding awards.
- The 2005 Equity Incentive Plan does not contain a liberal change in control definition.
- The 2005 Equity Incentive Plan provides that the exercise price of stock options will be no less than the fair market value of our shares of common stock on the date of grant.
- The 2005 Equity Incentive Plan does not provide for tax gross ups.
- As noted above, the amended 2005 Equity Incentive Plan contains an annual limit on director compensation (both cash and equity-based) to reflect our commitment to current best practices in corporate governance

Approval of the amended 2005 Equity Incentive Plan by our stockholders will also constitute approval of the terms and conditions set forth therein that will permit us to grant stock options and performance awards under the 2005 Equity Incentive Plan that may qualify as “performance-based compensation” within the meaning of Section 162(m) of the Internal Revenue Code. Section 162(m) of the Internal Revenue Code denies a deduction to any publicly held corporation and its affiliates for certain compensation paid to “covered employees” in a taxable year to the extent that compensation to a covered employee exceeds \$1 million. However, some kinds of compensation, including qualified “performance-based compensation,” are not subject to this deduction limitation. We believe it is in the best interests of Nanometrics and our stockholders to preserve the ability to grant “performance-based compensation” under Section 162(m) of the Code. For the grant of awards under a plan to qualify as “performance-based compensation” under Section 162(m) of the Code, among other things, the plan must (i) describe the employees eligible to receive such awards, (ii) provide a per-person limit on the number of shares subject to stock options and performance stock awards granted to any employee under the plan in any year, and (iii) include one or more pre-established business criteria upon which the performance goals for performance awards may be granted (or become vested or exercisable). These terms must be approved by the stockholders and, accordingly, our stockholders are requested to approve the 2005 Equity Incentive Plan, as amended, which includes terms regarding eligibility for awards, per-person limits on awards and the business criteria for performance awards granted under the 2005 Equity Incentive Plan (as described in the summary below).

The 2005 Equity Incentive Plan, as amended, is attached to this proxy statement as Appendix B and is incorporated herein by reference. The following description of the 2005 Equity Incentive Plan, as amended, is a summary of certain important provisions and does not purport to be a complete description of the 2005 Equity Incentive Plan. Please see Appendix B for more detailed information. If this Proposal 5 is approved by our stockholders, the 2005 Equity Incentive Plan, as amended, will become effective upon the date of the 2017 Annual Meeting. In the event that our stockholders do not approve this Proposal 5, the 2005 Equity Incentive Plan, as amended, will not become effective and the 2005 Equity Incentive Plan will continue in its current form.

Description of the 2005 Equity Incentive Plan, as Amended

A total of 1,200,000 shares of common stock were initially authorized for issuance under the 2005 Equity Incentive Plan, plus an annual increase to be added on the first day of our fiscal year for three years (beginning in 2006 and ending after the 2008 increase), equal to the least of (i) 3% of our outstanding common stock on that date or (ii) an amount determined by the board of directors. In 2011 the Board of Directors adopted, and the stockholders approved, the amendment of the 2005 Equity Incentive Plan to increase the shares of common stock authorized for issuance under the 2005 Equity Incentive Plan by 2,000,000 shares. In 2013 the Board of Directors adopted and the stockholders approved, the amendment of the 2005 Equity Incentive Plan to increase the shares of common stock authorized for issuance under the Equity Incentive Plan by 2,600,000 shares. As a result of these increases and the amendment to add an additional 1,000,000 shares for which we are seeking

shareholder approval, a total of 8,292,594 shares of common stock would be authorized. The number of Incentive Stock Options that may be granted under the Plan is 8,292,594 Incentive Stock Options.

The (i) maximum number of shares subject to awards granted under the 2005 Equity Incentive Plan or otherwise during any one calendar year (beginning with the 2018 calendar year) to any non-employee director, taken together with the (ii) cash fees paid to such non-employee director during such calendar year, and in both cases for service on the Board or any committee thereof, will not exceed \$500,000 in total value (calculating the value of any such awards based on the grant date fair value of such awards for financial reporting purposes).

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 Nanometrics and any parent or subsidiary, (2) consultants who provide services to Nanometrics and any parent or subsidiary, and (3) directors of Nanometrics. The 2005 Equity Incentive Plan also is designed to provide additional incentive to these services providers, to promote the success of our 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 is the compensation/stock option committee, which consists 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 Nanometrics 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.

If an Award is cancelled, expires, or is forfeited or repurchased by Nanometrics for any reason without having been fully exercised or vested, the unvested, cancelled, forfeited or repurchased number of shares of our common stock (“Shares”) generally will be returned to the available pool of Shares authorized 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 1.7 Shares for every one Share subject thereto. Shares actually issued under the 2005 Equity Incentive Plan or withheld to pay the exercise price of a stock option or stock appreciation right or to satisfy tax withholding obligations with respect to a stock option or stock appreciation right will not be returned to the 2005 Equity Incentive Plan and will not be available for future issuance under the 2005 Equity Incentive Plan. Shares withheld to pay the exercise price of a Full Value Award or to satisfy tax withholding obligations with respect to a Full Value Award will be returned to the 2005 Equity Incentive Plan and will be available for future issuance under the 2005 Equity Incentive Plan. Also, if we experience 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 Nanometrics, or other change in the corporate structure of Nanometrics 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 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 March 27, 2017, Nanometrics has 504 employees and consultants 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 Nanometrics, to more favorable tax treatment than nonstatutory stock options). The Administrator will determine the number of Shares covered by each option, but during any fiscal year of Nanometrics, no participant may be granted options and stock appreciation rights together covering more than 500,000 Shares (250,000 Shares in a participant's first fiscal year of service with Nanometrics).

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 Nanometrics 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 seven 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 Nanometrics or any of parent or subsidiary of Nanometrics).

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 Nanometrics' 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. Nanometrics' 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 Nanometrics (250,000 Shares in a participant's first fiscal year of service with Nanometrics).

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 laws 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 Nanometrics, no participant may be granted more than 250,000 Shares in the aggregate of restricted stock, performance shares or restricted stock units (125,000 Shares in a participant's first fiscal year of service with Nanometrics).

Unless the Administrator determines otherwise, Shares of restricted stock will be held by Nanometrics 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 Nanometrics.

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 Nanometrics, no participant may be granted more than 250,000 Shares in the aggregate subject to restricted stock units, performance shares or restricted stock (125,000 Shares in a participant's first fiscal year of service with Nanometrics).

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 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) of the Internal Revenue Code, 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. An Award agreement may provide that all unearned restricted stock units may be cancelled and will be forfeited to Nanometrics on the date set forth in the Award agreement.

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) of the Internal Revenue Code, 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 conditions typically will be based principally or solely on achievement of performance milestones but may include a service based component. 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 Nanometrics, no participant may be granted more than 250,000 Shares in the aggregate subject to performance shares, restricted stock units, or restricted stock (125,000 Shares in a participant's first fiscal year of service with Nanometrics).

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

Performance Goals

Under Section 162(m) of the Internal Revenue 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 \$1,000,000. However, we are able to preserve the deductibility of compensation in excess of \$1,000,000 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) of the Internal Revenue Code. 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 Nanometrics as a whole or a business unit of Nanometrics, 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 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, (ii) the effect of any changes in accounting principles affecting Nanometrics or a business units' reported results or (iii) the effects of items that are "unusual" in nature or occur "infrequently" as determined under generally accepted accounting principles.

Merger or Change in Control

In the event of a merger or "change in control" of Nanometrics, 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.

Amendment and Termination of the Plan

The Board of Directors 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 of Directors, the 2005 Equity Incentive Plan will continue in effect until ten (10) years following this 2017 amendment by the stockholders.

Federal Tax Aspects

The following paragraphs are a summary of the general federal income tax consequences to U.S. taxpayers and Nanometrics 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 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.

Restricted Stock Units. A participant receiving a restricted stock unit structured to conform to the requirements of Section 409A of the Internal Revenue Code, or an exception from Section 409A of the Internal Revenue Code, will have taxable income at the time the restricted stock unit is settled and the cash or the shares of Nanometrics' common stock is delivered equal to the excess, if any, of the cash or the fair market value of the shares of Nanometrics' common stock received over any amount paid by the participant in exchange for the cash or shares of Nanometrics' common stock.

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 Nanometrics.

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. Nanometrics 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) of the Internal Revenue Code, thereby permitting Nanometrics 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 Nanometrics from taking a tax deduction for such amounts.

New Plan Benefits

All Awards under the 2005 Equity Incentive Plan, as amended, 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, as amended, 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 “2016 Grants of Plan-Based Awards” table. Grants made to our non-employee directors in the last fiscal year are described in “Director Compensation For Fiscal Year 2016.” Also, refer to “Compensation of Directors” for information regarding grants to directors.

2005 Equity Incentive Plan Benefits

The following table shows, for each of the named executive officers and the various groups indicated, the number of stock options underlying shares of Nanometrics common stock that have been granted (even if not currently outstanding) under the 2005 Equity Incentive Plan since its approval by the stockholders in 2005 and through March 27, 2017.

2005 Equity Incentive Plan, as Amended

Name and position	Number of shares subject to grant (#)
Chief Executive Officer	480,000
Chief Financial Officer	-
General Counsel	-
All Current Executive Officers as a Group	505,000
All Current Non-Executive Directors as a Group	41,146
All Current Employees as a Group (including all current non-executive officers)	807,840
Nominee for Director	
Bruce C. Rhine	27,080
J. Thomas Bentley	14,066
Edward Brown Jr.	-
Christine A. Tsingos	-
Christopher A. Seams	-
Robert Deuster	-
Timothy J. Stultz	480,000
Each Associate of any Director, Executive Officer or Nominee	-
Each Other Current 5% Holder or Future 5% Recipient	-

THE BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS THAT STOCKHOLDERS VOTE “FOR” THE APPROVAL OF THE AMENDED AND RESTATED NANOMETRIC INCORPORATED 2005 EQUITY INCENTIVE PLAN.

PROPOSAL 6:
RATIFICATION OF APPOINTMENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Audit Committee of the Board of Directors has appointed PricewaterhouseCoopers LLP as our independent registered public accounting firm to audit the consolidated financial statements of Nanometrics for the fiscal year ending December 30, 2017.

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 the holders of a majority of the shares present in person or by proxy at the meeting and entitled to vote on the matter at the annual meeting do not ratify the appointment of PricewaterhouseCoopers LLP as Nanometrics' independent registered public accounting firm for the fiscal year ending December 30, 2017, the Audit Committee will consider whether it should select another independent registered public accounting firm. Representatives of PricewaterhouseCoopers LLP are expected to attend the annual meeting and will have an opportunity to make a statement and respond to appropriate questions from stockholders.

Audit Fees

The following table summarizes the aggregate fees that we paid or expect to pay our independent registered public accounting firm, PricewaterhouseCoopers LLP, for the 2016 and 2015 fiscal years.

	<u>Fiscal 2016</u>	<u>Fiscal 2015</u>
Audit Fees ⁽¹⁾	\$ 1,041,858	\$ 993,000
Tax Fees ⁽²⁾	9,441	17,900
All Other Fees ⁽³⁾	1,800	1,800
Total	<u>\$ 1,053,099</u>	<u>\$ 1,012,700</u>

- (1) Fees to PricewaterhouseCoopers LLP in 2016 and 2015 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) These fees comprised tax services for UK tax filings.
- (3) Paid to PricewaterhouseCoopers LLP for accounting research and database tool.

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

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. The policy generally pre-approves specified services in the defined categories of audit services, audit-related services and tax services up to specified amounts. Pre-approval may also be given as part of the Audit Committee's approval of the scope of the engagement of the independent auditor or on an individual, explicit, case-by-case basis before the independent auditor is engaged to provide each service. The pre-approval of services may be delegated to one or more of the Audit Committee's members. Accordingly, the Audit Committee pre-approved all services and fees provided by PricewaterhouseCoopers LLP, during the year ended December 31, 2016, and has concluded that the provision of these services is compatible with the accountants' independence.

THE BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS THAT STOCKHOLDERS VOTE "FOR" THE RATIFICATION OF THE APPOINTMENT OF PRICEWATERHOUSECOOPERS LLP, AS NANOMETRICS' INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM FOR THE FISCAL YEAR ENDING DECEMBER 30, 2017.

EQUITY COMPENSATION PLAN INFORMATION

The following table gives information about the common stock that may be issued under all of our existing equity compensation plans as of December 31, 2016.

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 ⁽¹⁾	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in first column)
Equity Compensation plans approved by security holders	431,135	\$ 15.15	1,334,581
Equity compensation plans not approved by security holders ⁽²⁾	9,410	\$ 10.45	-
Total	440,545	\$ 15.06	1,334,581

(1) The weighted average exercise price does not take into account the shares subject to outstanding restricted stock units and performance stock units, which have no exercise price.

(2) Represents the 2002 Non-Statutory Stock Plan, which was adopted without the approval of security holders. This Plan provides for the grant of non-statutory stock options to employees and service providers at grant prices equal to the fair market value on the date of grant, with an expiration date not to exceed 10 years from the grant date.

HOUSEHOLDING OF PROXY MATERIALS

The SEC has adopted rules that permit companies and intermediaries (e.g., brokers) to satisfy the delivery requirements for Notices of Internet Availability of Proxy Materials or other Annual Meeting materials with respect to two or more stockholders sharing the same address by delivering a single Notice of Internet Availability of Proxy Materials or other Annual Meeting materials addressed to those stockholders. This process, which is commonly referred to as “householding,” potentially means extra convenience for stockholders and cost savings for companies.

This year, a number of brokers with account holders who are Nanometrics stockholders will be “householding” Nanometrics’ proxy materials. A single Notice of Internet Availability of Proxy Materials will be delivered to multiple stockholders sharing an address unless contrary instructions have been received from the affected stockholders. Once you have received notice from your broker that they will be “householding” communications to your address, “householding” will continue until you are notified otherwise or until you revoke your consent. If, at any time, you no longer wish to participate in “householding” and would prefer to receive a separate Notice of Internet Availability of Proxy Materials, please notify your broker or Nanometrics. Direct your written request to Investor Relations Department, Nanometrics Incorporated, 1550 Buckeye Drive, Milpitas, California 95035 or contact Investor Relations at 408-545-6000. Stockholders who currently receive multiple copies of the Notice of Internet Availability of Proxy Materials at their addresses and would like to request “householding” of their communications should contact their brokers.

OTHER MATTERS

The Board of Directors knows of no other matters that will be presented for consideration at the Annual Meeting. If any other matters are properly brought before the meeting, it is the intention of the persons named in the accompanying proxy to vote on such matters in accordance with their best judgment.

BY ORDER OF THE BOARD OF DIRECTORS

/s/ Bruce C. Rhine

Bruce C. Rhine

Chairman of the Board of Directors

Milpitas, California
April 3, 2017

A copy of Nanometrics' Annual Report to the Securities and Exchange Commission on Form 10-K for the fiscal year ended December 31, 2016, is available without charge upon written request to: Investor Relations Department, Nanometrics, Incorporated, 1550 Buckeye Drive, Milpitas, California 95035.

APPENDIX A

NANOMETRICS INCORPORATED 2017 EXECUTIVE PERFORMANCE BONUS PLAN

General

The 2017 Executive Performance Bonus Plan (the “**Plan**”) is intended to motivate senior executives to achieve short-term and long-term corporate objectives relating to the performance of Nanometrics or one of our business units, and to reward them when those objectives are achieved, thereby tying pay to performance. Awards are intended to qualify as deductible “performance-based compensation” within the meaning of Section 162(m) of the Internal Revenue Code.

Administration

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

Eligibility

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

Terms of Awards

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

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

After the end of the performance period, the Plan Administrator will certify in writing the extent to which the performance goals were achieved during the performance period and determine the amount of the award that is payable. The Plan Administrator will have the discretion to determine that the actual amount paid with respect to an award will be equal to or less than (but not greater than) the applicable calculated payout. The maximum payout for awards made under this Plan to any participant in any one calendar year is \$6,000,000.

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

Performance Criteria

Pursuant to the terms of this Plan, the Plan Administrator will establish in writing one or more objective performance goals based on the attainment of specified levels of one of or any combination of the following “performance criteria” for the Company as a whole or any business unit of the Company, as reported or calculated by the Company: cash flows: operating cash flow; free cash flow or cash flow return on capital; working capital; earnings per share; net earnings; book value per share; operating income (including or excluding taxes, depreciation, amortization, extraordinary items, restructuring charges or other expenses); pre-tax profit; earnings before interest, taxes and depreciation; earnings before interest, taxes, depreciation and amortization; revenue; margins including gross margin or specific product margins; return on stockholder equity or average stockholder’s equity; return on assets; return on net assets; debt; debt reduction; debt levels; expenditures; debt plus equity; market or economic value added; stock price appreciation; expenses; cost control; strategic initiatives; market share; return on invested capital; improvements in capital structure; customer satisfaction; employee satisfaction; services performance; cash management or asset management metrics; and, only to the extent that an award is not intended to comply with Section 162(m) of the Code, other measures of performance selected by the Plan Administrator.

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

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

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

Program Payments

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

Term of the Plan

The Plan shall first apply with respect to the 2018 plan year should our stockholders approve the Plan and will continue until the date as of which the Plan Administrator terminates the Plan.

Amendment and Termination

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

Section 409A of the Internal Revenue Code

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

Unfunded Obligation

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

APPENDIX B

NANOMETRICS INCORPORATED 2005 EQUITY INCENTIVE PLAN

AS AMENDED AND RESTATED AS OF _____, 2017

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 (or any successor provision thereto) 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; (ii) the effect of any changes in accounting principles affecting the Company’s or a business units’ reported results; or (iii) the effects of items that are “unusual” in nature or occur “infrequently” as determined under

generally accepted accounting principles. 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, as amended and restated as of _____, 2017.
- (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 be issued under the Plan is 8,292,594 Shares. The number of Incentive Stock Options that may be granted under the Plan is 8,292,594 Incentive Stock Options. 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 (**“Full Value Awards”**) shall be counted against the numerical limits of this Section 3 as one and seven-tenths (1.7) Shares for every one Share subject thereto. To the extent that a Share that was subject to a Full Value Award is recycled back into the Plan under the next paragraph of this Section 3, the Plan shall be credited with one and seven-tenths (1.7) 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, the full number of Shares subject to each SAR, including any Shares withheld to pay the exercise price or satisfy tax withholding obligations shall cease to be available under the Plan regardless of the number of shares actually delivered. 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 on Options and SARs shall not become available for future grant or sale under the Plan. Shares used to satisfy tax withholding obligations on Full Value Awards will again become available for issuance 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.
- (d) **Limitation on Grants to Non-Employee Directors.** The (i) maximum number of Shares subject to Awards granted under the Plan or otherwise during any one calendar year (beginning with the 2018 calendar year) to any non-employee Director, taken together with the (ii) cash fees paid by the Company to such non-employee Director during such calendar year, and in both cases for service on the Board or any committee thereof, will not exceed \$500,000 in total value (calculating the value of any such Awards based on the grant date fair value of such Awards for financial reporting purposes).
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(b) 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 and shall be seven (7) 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) such other consideration and method of payment for the issuance of Shares to the extent permitted by Applicable Laws; or
- (8) 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. Unless terminated sooner by the Board, the Plan shall automatically terminate on the day before _____, 2027.
- (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.

FORM 10-K

FOR THE FISCAL YEAR ENDED DECEMBER 31, 2016

NANOMETRICS INCORPORATED

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

FORM 10-K

(Mark One)

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

For the fiscal year ended December 31, 2016

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: 000-13470

NANOMETRICS INCORPORATED

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of incorporation or organization)

94-2276314
(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:

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

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

None

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

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

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

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

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

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

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

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

As of June 24, 2016, 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 Select Market, was approximately \$498.8 million. Shares of common stock held by each officer and director and by each person who owned 5% or more of the outstanding common stock have been excluded because such persons may be deemed to be "affiliates" as that term is defined under the rules and regulations of the Exchange Act. This determination of affiliate status is not necessarily a conclusive determination for any other purpose.

The number of shares of the Registrant's common stock outstanding as of February 24, 2017 was 25,160,223.

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 2016 Annual Meeting of Stockholders to be filed pursuant to Regulation 14A. The Proxy Statement will be filed within 120 days of Registrant's fiscal year ended December 31, 2016.

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NANOMETRICS INCORPORATED
FORM 10-K
FOR THE FISCAL YEAR ENDED DECEMBER 31, 2016
TABLE OF CONTENTS

PART I

ITEM 1.	BUSINESS	1
ITEM 1A.	RISK FACTORS	7
ITEM 1B.	UNRESOLVED STAFF COMMENTS	18
ITEM 2.	PROPERTIES.....	18
ITEM 3.	LEGAL PROCEEDINGS.....	18
ITEM 4.	MINE SAFETY DISCLOSURES	18

PART II

ITEM 5.	MARKET FOR REGISTRANT’S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES.....	19
ITEM 6.	SELECTED FINANCIAL DATA	21
ITEM 7.	MANAGEMENT’S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS	21
ITEM 7A.	QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK	31
ITEM 8.	FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA	33
ITEM 9.	CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE	65
ITEM 9A.	CONTROLS AND PROCEDURES.....	65
ITEM 9B.	OTHER INFORMATION	66

PART III

ITEM 10.	DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE.....	67
ITEM 11.	EXECUTIVE COMPENSATION.....	67
ITEM 12.	SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS	67
ITEM 13.	CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS AND DIRECTOR INDEPENDENCE.....	68
ITEM 14.	PRINCIPAL ACCOUNTING FEES AND SERVICES	68

PART IV

ITEM 15.	EXHIBITS, FINANCIAL STATEMENT SCHEDULES	69
ITEM 16.	FORM 10-K SUMMARY	69

SIGNATURES	70
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CAUTIONARY INFORMATION REGARDING FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K for the year ended December 31, 2016, or “Form 10-K,” contains forward-looking statements concerning our business, operations, and financial performance and condition as well as our plans, objectives, and expectations for business operations and financial performance and condition. Any statements contained herein that are not of historical facts may be deemed to be forward-looking statements. You can identify these statements by words such as “anticipate,” “believe,” “could,” “estimate,” “expect,” “intend,” “may,” “plan,” “should,” “will,” “would,” and other similar expressions that are predictions of or indicate future events and future trends. These forward-looking statements are based on current expectations, estimates, forecasts, and projections about our business and the industry in which we operate and management's beliefs and assumptions and are not guarantees of future performance or development and involve known and unknown risks, uncertainties, and other factors that are in some cases beyond our control. As a result, any or all of our forward-looking statements in this Form 10-K may turn out to be inaccurate. Factors that could materially affect our business operations and financial performance and condition include, but are not limited to, those risks and uncertainties described herein under “Item 1A - Risk Factors.” You are urged to consider these factors carefully in evaluating the forward-looking statements and are cautioned not to place undue reliance on the forward-looking statements. The forward-looking statements are based on information available to us as of the filing date of this Form 10-K. Unless required by law, we do not intend to publicly update or revise any forward-looking statements to reflect new information or future events or otherwise. You should, however, review the factors and risks we describe in the reports we will file from time to time with the Securities and Exchange Commission, or SEC, after the date of this Form 10-K.

PART I

ITEM 1. BUSINESS

Overview

Nanometrics Incorporated and its subsidiaries (“Nanometrics”, the “Company”, or “we”) is a leading provider of advanced, high-performance process control metrology and inspection systems used primarily in the fabrication of semiconductors and other solid-state devices, including sensors, optoelectronic devices, high-brightness LEDs, discretes, and data storage components. Our automated and integrated metrology systems measure critical dimensions, device structures, topography and various thin film properties, including three-dimensional features and film thickness, as well as optical, electrical and material properties. Our process control solutions are deployed throughout the fabrication process, from front-end-of-line substrate manufacturing, to high-volume production of semiconductors and other devices, to advanced three-dimensional wafer-level packaging applications. Our systems enable advanced process control for device manufacturers, providing improved device yield at reduced manufacturing cycle time, supporting the accelerated product life cycles in the semiconductor and other device markets.

We were incorporated in California in 1975, and reincorporated in Delaware in 2006. We have been publicly traded since 1984 (NASDAQ: NANO). We have an extensive installed base of thousands of systems in the majority of advanced semiconductor device production factories worldwide. Our major customers include Samsung Electronics Co. Ltd., Intel Corporation, SK Hynix Semiconductor, Inc., Micron Technology, Inc., Taiwan Semiconductor Manufacturing Company Limited and Toshiba Corporation.

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

Industry Background

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

Demand for our products continues to be driven by our customers' desire for higher overall chip performance, including improvements in power efficiency, logic processing capability, data storage volume and manufacturing yield. To achieve these goals, our customers have increased their use of more complex materials and processing methods in their manufacturing flow. The majority of our chip customers manufacture devices in production runs defined by the smallest printed feature and the associated circuit manufacturing methods, known as a technology node, which are measured in nanometers ("nm"), or one-billionth of a meter. Current volume production is running at the 1Xnm nodes across foundry, logic, and memory, with customers ramping 1Y or 10nm node and developing next generation 7 nm and below devices. In some cases, our customers are implementing new materials and methods in high volume manufacturing, including materials and device architectures to reduce power consumption including high dielectric constant (or high-k) materials, FinFET or tri-gate transistors, stacked memory devices including 3D-NAND, and additional system on chip solutions. To shrink features, new methods including multiple patterning lithography have been deployed. We believe the use of these new materials and methods has increased

demand for our products. Next-generation devices with features smaller than 10nm are beginning to ramp production, which in turn likely will require new advancements in metrology and inspection capabilities. DRAM memory makers have shifted to 1X node production with development for subsequently smaller node devices currently underway (where X, Y and Z represent successively smaller geometries). Non-volatile memory makers of NAND and NOR devices have ramped 1X and 1Y node devices into high volume manufacturing with work extending into 1Z node development and production as well as simultaneously developing and ramping stacked or 3D non-volatile memory structures. Current 3D-NAND devices are built around a stack of 24-48 layer pairs, and are expected to migrate to 64-96 layer pairs in the next generation of devices. Foundry and logic manufacturers are in volume production of both 16nm and 22nm node devices, ramping volume production of 10nm node devices and in advanced development of 7nm devices.

Our Business

We offer a diverse line of process control products and technologies to address the manufacturing requirements of the semiconductor (and other solid state device) manufacturing industry. Our metrology systems measure and characterize the physical dimensions, material composition, optical and electrical characteristics and other critical parameters of solid state devices, from initial wafer substrate manufacturing through final packaging.

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

- Introduced new products, applications, and upgrades in every core product line and primary market served;
- Diversified our product line and strengthened our position with our top customers securing tool of record positions of one or more products in each of the top seven customers (as defined by capital expenditures for wafer fab equipment); and
- Continued development of new measurement and inspection technologies for advanced fabrication processes.

Nanometrics Products

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

Automated Systems

Our automated systems primarily consist of fully automated metrology systems that are employed in semiconductor production environments. The Atlas® III, Atlas II+, and Atlas XP/Atlas XP+ represent our line of high-performance metrology systems providing optical critical dimension (“OCD®”), thin film metrology and wafer stress for transistor and interconnect metrology applications. The OCD technology is supported by our NanoCD® suite of solutions including our NanoDiffraction® software and NanoGen™ scalable computing engine that enables visualization, modeling, and analysis of complex structures. The UniFire™ system measures multiple parameters at any given process step in the advanced packaging process flow for critical dimension, overlay, and topography applications and has recently added inspection capabilities for both front-end of line patterned wafer and advanced packaging related applications.

Integrated Systems

Our integrated metrology (“IM”) systems are installed directly onto wafer processing equipment to provide near real-time measurements for improved process control and maximum throughput. Our IM systems are sold directly to end user customers. The IMPULSE® and IMPULSE+ represent our latest metrology platform for OCD and thin film metrology, and have been successfully qualified on numerous independent Wafer Fabrication Equipment Suppliers’ platforms. Our NanoCD suite of solutions is sold in conjunction with our IMPULSE systems. Our Trajectory® system provides in-line measurement of layers in thin film thickness and composition in semiconductor applications and is qualified in production with major device makers.

Materials Characterization

Our materials characterization products include systems that are used to monitor the physical, optical, electrical and material characteristics of discrete electronic industry, opto-electronic, HB-LED (high brightness LEDs), solar PV (solar photovoltaics), compound semiconductor, strained silicon and silicon-on-insulator (“SOI”) devices, including composition, crystal structure, layer thickness, dopant concentration, contamination and electron mobility.

The RPMBlue™ is our photoluminescence mapping system designed specifically for the HB-LED market, and is complemented by the RPMBlue-FS, enabling a breadth of research and development configurability. We sell Fourier-Transform Infrared (“FTIR”) automated and manual systems in the QS2200/3300 and QS1200 respectively. The NanoSpec® line, including the NanoSpec II, supports thin film measurement across all applications in both low volume production and research applications.

Our process control systems can be categorized as follows:

System	Market	Applications
Automated Systems		
Atlas III, Atlas II+/Atlas XP/Atlas XP+	Semiconductor	Film Thickness, Film Stress, CD
UniFire	Semiconductor	Film Thickness, Overlay, CD, and Advanced Packaging Applications, Inspection
OCD Analysis		
NanoDiffract	Semiconductor	OCD
NanoGen	Semiconductor	OCD
Integrated Systems		
IMPULSE/IMPULSE+	Semiconductor	Film Thickness, CD
Trajectory	Semiconductor, Solar PV	Film Thickness, Composition
Materials Characterization Systems		
ECVPro	Compound Semiconductor, Solar PV, HB-LED	Electrical Properties
HL5500	Compound Semiconductor, Solar PV, HB-LED	Electrical Properties
QS1200	Substrate Semiconductor, Solar PV	Substrate Properties, Film Composition and Thickness
QS2200/3300	Substrate Semiconductor	Substrate Properties, Film Composition
NanoSpec II	Semiconductor	Film Thickness (Tabletop)
RPMBlue	HB-LED	Epitaxial Layer Properties
Stratus	Semiconductor	Substrate Properties, Film Composition and Thickness (Tabletop)

See Note 16 of our consolidated financial statements in Item 8, "Financial Statements and Supplementary Data," for revenues by product type, which information is incorporated by reference here.

Customers

We sell our metrology and inspection systems worldwide to semiconductor manufacturers, and producers of solid state devices. The majority of our systems are sold to customers located in Asia and the United States.

The following customers accounted for 10% or more of our total net revenues:

	2016	2015	2014
Micron Technology, Inc.	20.3%	15.8%	10.4%
Intel Corporation	18.0%	***	12.6%
SK Hynix	15.3%	10.7%	12.2%
Taiwan Semiconductor Manufacturing Company Limited	10.0%	19.4%	***
Samsung Electronics Co. Ltd.	***	13.2%	26.9%
Toshiba Corporation	***	10.2%	***

*** The customer accounted for less than 10% of total net revenues during the period.

Sales and Marketing

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

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

	2016	2015	2014
United States	14%	20%	22%
China	20%	9%	17%
South Korea	20%	16%	25%
Singapore	17%	9%	5%
Japan	12%	17%	9%
Taiwan	12%	25%	12%
All other countries	5%	4%	10%

See Note 16 of our consolidated financial statements in Item 8, "Financial Statements and Supplementary Data," for segment and geographical financial information, including revenues and long-lived assets by geographic region, and our consolidated financial statements for net revenue information, which is incorporated by reference here.

Customer Service and Support

We believe that customer service and technical support for our systems are important factors that distinguish us from our competitors and are essential to building and maintaining close, long-term relationships with our customers. We provide a standard one-year warranty on parts and labor for most of our products. We provide system support to our customers through factory technical support and globally deployed field service personnel. The factory technical support operations provide customers with telephonic technical support access, direct training programs, operating manuals and other technical support information to enable effective use of our metrology and measurement instruments and systems. We have field service operations based in various locations throughout the United States, South Korea, Taiwan, China, Japan, Singapore, Israel, France, Italy, and Germany.

Service revenues, including sales of replacement parts, represented 16%, 22%, and 20% of total net revenues in 2016, 2015 and 2014, respectively.

Backlog

As of December 31, 2016 and December 26, 2015, our backlog was \$28.5 million and \$32.1 million, respectively. Backlog includes orders received and booked, both shipped and not yet recognized in revenue, and not shipped, for products, services and upgrades where written customer requests have been received and we expect to ship and/or recognize revenue within 12 months. Orders are subject to cancellation or delay by the customer subject to possible penalties. However, historically, order cancellations have not been significant. Because orders presently in backlog could be cancelled or rescheduled and some orders can be received and shipped within the same quarter, we do not believe that current backlog is an accurate indication of our future revenues or financial performance.

Competition

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

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

In automated systems for the semiconductor industry, our principal competitors are KLA-Tencor Corporation ("KLA-Tencor") and Nova Measuring Instruments Ltd. ("Nova") for thin film and critical dimension metrology, and Bruker Corp. and other suppliers for advanced packaging. Our primary competitor in integrated systems is Nova. The opto-electronics and discrete device are addressed primarily by our material characterization systems, are served by numerous competitors and no single competitor or group of competitors has established a majority position.

Manufacturing

Our manufacturing operations are in Milpitas, California and at various contract manufacturers around the world. It is our strategy to outsource all assemblies that do not contain elements that we believe lead to a direct competitive advantage. The majority of our automated and integrated products are currently manufactured at our Milpitas facility. We also use contract manufacturers in other locations in the United States, China, Israel and Japan. We currently do not expect our manufacturing operations to require additional major investments in capital equipment.

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

Research and Development

We continue to invest in research and development (“R&D”) to provide our customers with products that add value to their manufacturing processes and that provide a better and differentiated solution than our competitors, so that our products stay in the forefront of current and future market demands. Whether it is for an advancement of current technology, yield and manufacturing improvement, enabling new end device technology, or the development of a new application in our core or emerging markets, we are committed to product excellence and longevity.

In our automated markets, our R&D efforts resulted in the successful product launch of the Atlas III product in the marketplace, our flagship product for OCD. The Atlas III product provides enhanced OCD capability with a significantly lower cost of ownership model. In our integrated markets, the IMPULSE system has been further developed for inline lithography track configuration to extend our tool of record position for lithography OCD. The IMPULSE+ system, which incorporates performance and productivity enhancements to the IMPULSE was introduced in 2015 and has been qualified across numerous OEM platforms.

Our research and development expenses for fiscal 2016, 2015 and 2014 were \$31.4 million, \$32.7 million and \$33.8 million, respectively.

Patents and Intellectual Property

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

As of December 31, 2016, we had 212 patents, including foreign patents, with expiration dates ranging from 2016-2035. We believe that our success will depend to a great degree upon innovation, technological expertise and our ability to adapt our products to new technology. While we attempt to establish our intellectual property rights through patents and trademarks and protect intellectual property rights through non-disclosure agreements, we may not be able to fully protect our technology, and competitors may be able to develop similar technology independently. Others may obtain patents and assert them against us. In addition, the laws of certain foreign countries may not protect our intellectual property to the same extent as do the laws of the United States. From time to time we receive communications from third parties asserting that our metrology systems may contain design features that the third parties claim may infringe upon their proprietary rights.

Employees

At December 31, 2016, we employed 532 persons worldwide with sales, applications and service support in key geographic areas aligned with our customer locations. None of our employees are represented by a union and we have never experienced a work stoppage as a result of union actions. We consider our employee relations to be good. 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, retain and motivate highly skilled scientific, technical and managerial personnel, who are in great demand in our industry.

Environmental Matters

Our operations are subject to various federal, state and local environmental protection regulations governing the use, storage, handling and disposal of hazardous materials, chemicals, and certain waste products. We believe that compliance with federal, state and local environmental protection regulations will not have a material adverse effect on our capital expenditures, earnings and competitive and financial position.

In the event that we fail to comply with such laws and regulations, we could be liable for damages, penalties and fines. We further discuss the impact of environmental regulation under “Risk Factors- *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.*” in Item 1A.

Executive Officers of the Registrant

The names of our executive officers and their ages, titles and biographies as of February 24, 2017, are set forth below:

Name	Age	Position
Timothy J. Stultz, Ph.D.	69	President, Chief Executive Officer and Director
Jeffrey Andreson	55	Chief Financial Officer
S. Mark Borowicz, Ph.D.	44	Executive Vice President, Business Operations
Rollin Kocher	51	Sr. Vice President, Commercial Operations
Kevin Heidrich	46	Sr. Vice President, Strategic Marketing and Business Development
Janet Taylor	59	General Counsel

Dr. Timothy J. Stultz has served as President, Chief Executive Officer and director of Nanometrics Incorporated since August 2007. Dr. Stultz has more than 30 years of executive management experience. Prior to joining Nanometrics, Dr. Stultz was 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; President and Chief Executive Officer for ThauMDx, a developer of diagnostic systems for the healthcare industry; and Vice President and General Manager of Veeco Instruments' Metrology and Instrumentation Business. Dr. Stultz received his B.S., M.S. and Ph.D. in Materials Science and Engineering from Stanford University.

Jeffrey Andreson joined Nanometrics as Chief Financial Officer in September 2014. Prior to Nanometrics, Mr. Andreson served at Intevac Corporation from August 2007 to September 2014 most recently as Executive Vice President, Finance and Administration, Chief Financial Officer, Treasurer and Secretary from August 2007 and in this role, was responsible for finance, information services and legal. From June to August 2007, Mr. Andreson served as Executive Vice President, Finance at Intevac. Prior to joining Intevac, Mr. Andreson served 12 years with Applied Materials in various controllership positions within the company most recently as Managing Director and Controller of the \$2 billion Applied Materials' Global Services product group. Mr. Andreson joined Applied Materials in 1995 and held a number of senior financial positions, including: Managing Director, Global Financial Planning and Analysis; Controller, Metron Subsidiary; Controller, North American Sales and Service; and Controller, Volume Manufacturing. From 1989 through 1995, Mr. Andreson held various roles at Measurex Corporation. Mr. Andreson holds an MBA from Santa Clara University and a B.S. degree in finance from San Jose State University.

Dr. S. Mark Borowicz joined Nanometrics as Senior Vice President, Product & Field Operations Group in March 2013. In September 2016, Dr. Borowicz was promoted to Executive Vice President, Business Operations. Prior to Nanometrics, Dr. Borowicz held senior management positions in business development and product marketing at KLA-Tencor, Inc. from 2000 to 2013, where he was responsible for sales and product management for inspection and metrology businesses. Dr. Borowicz has seven patents in the field of electron beam technologies. Dr. Borowicz holds a B.S. in Mechanical Engineering from West Virginia University and a Ph.D. in Materials Engineering from Auburn University.

Rollin Kocher joined Nanometrics in March 2013 as Vice President of Worldwide Sales and Service. In September 2016, Mr. Kocher was promoted to Senior Vice President, Commercial Operations. Prior to joining Nanometrics, Mr. Kocher held several senior management positions over 17 years at KLA-Tencor, including Global Sales for Films and Scatterometry, Sales for Taiwan, North America and Europe, and Sr. Director of Sales for the Samsung Business Unit. His last position at KLA-Tencor was General Manager of the Samsung Business Unit, and in that capacity, was responsible for Sales, Marketing, Applications, and Service. Mr. Kocher holds a B.S. degree in Electrical Engineering Technology from the University of North Texas.

Kevin Heidrich, Sr. Vice President, Strategic Marketing and Business Development, joined Nanometrics in 2006. Mr. Heidrich has participated in many functions, expanding his scope to include new product development, corporate marketing, product marketing and business development. Mr. Heidrich is now responsible for both corporate strategy and marketing, as Nanometrics expands its overall solution space within process control metrology. Prior to Nanometrics, Mr. Heidrich spent a decade at Intel Corporation in a variety of roles including process research and development at Intel's Technology Development facility. Mr. Heidrich received B.S. and M.S. degrees from the Colorado School of Mines in Chemical Engineering.

Janet Taylor joined Nanometrics as General Counsel in July 2015. Ms. Taylor served as Senior Vice President, General Counsel and Company Secretary of STATS ChipPAC Ltd., from June 2005 to June 2015, where she was responsible for all legal matters, including corporate governance, intellectual property, litigation and securities compliance. Prior to joining STATS ChipPAC Ltd, Ms. Taylor was engaged in transactional practices at international law firms in New York, Singapore and London. Ms. Taylor was admitted to the Bar in New York in 1990 and in Singapore in 2010. Ms. Taylor holds a J.D. from the Harvard Law School and a B.A. in History from the University of Texas at Austin.

ITEM 1A. RISK FACTORS

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

The Global economic conditions and the cyclical nature of the semiconductor industry can reduce demand for our products which in turn may cause us to operate unprofitably and may cause reductions in available cash, and may negatively impact our financial performance.

Global economic conditions, the gradual recovery of the global economy and the cyclical nature of the semiconductor industry have impacted and could impact future customer demand for our products and our financial performance. Demand for our products is largely dependent on our customers' capital spending on semiconductor equipment, which depends, in large part, on consumer spending, required manufacturing capacity, and customer access to capital. Economic uncertainty, unemployment, higher interest rates, higher tax rates, fluctuations in foreign currency exchange rates, and other economic factors may lead to a decrease in consumer spending and may cause certain customers to cancel existing orders or delay placing orders. If we are unable to timely and appropriately adapt to changes resulting from difficult economic conditions, it may cause volatility in our operating results, business, and financial condition, and results of operations may be adversely affected.

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

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

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

Historically, a significant portion of our net revenues in each quarter and each year has been derived from sales to relatively few customers, and we expect this trend to continue. In fiscal year 2016, four customers represented 20%, 18%, 15% and 10%, respectively, or collectively 63%, of our total net revenues. There are only a limited number of large companies operating in the semiconductor manufacturing industry and our market is characterized by continued consolidation in the customer base. Accordingly, we expect that we will continue to depend on a small number of large customers for a significant portion of our net 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 net revenues could decline significantly. In addition, because there are a limited number of customers, customers may seek concessions related to price, terms and conditions and intellectual property. Any of these changes could negatively impact our financial performance and results of operations.

We rely on a limited number of outside suppliers and subcontractors to supply certain components and subassemblies, and on a single or a limited group of outside suppliers for certain materials for our products, which could result in a potential inability to obtain an adequate supply of required components due to the suppliers' failure or inability to provide such components in a timely manner, or at all, and reduced control over pricing and timely delivery of components and materials, any of which could adversely affect our results of operations.

Our manufacturing activities consist of integrating, assembling and testing components and subassemblies. We rely on a limited number of outside suppliers and subcontractors to manufacture certain components and subassemblies. We order one of the most critical components of our technology, the spectroscopic ellipsometer component incorporated into our advanced measurement systems, from external suppliers.

We procure some of our other critical systems' components, subassemblies and services from single suppliers or a limited group of outside suppliers in order to ensure overall quality and timeliness of delivery. Many of these components and subassemblies have significant production lead times. To date, we have been able to obtain adequate supplies of components and subassemblies for our systems in a timely manner. However, disruption or termination of certain of these sources could have a significant adverse impact on our ability to manufacture our systems. In addition, our failure to timely use components in our manufacturing processes due to delays or cancellation of orders may lead to write-downs of inventory. A disruption in supply or inventory window would, in turn, have a material adverse effect on our business, financial condition and results of operations. Our reliance on a sole supplier or a limited group of suppliers and our reliance on subcontractors involve several risks, including:

- a potential inability to obtain an adequate supply of required components due to the suppliers' failure or inability to provide such components in a timely manner, or at all; and
- reduced control over pricing and timely delivery of components.

Although the timeliness, yield and quality of deliveries to date from our subcontractors have been acceptable, manufacture of certain of these components and subassemblies is an extremely complex process, and long lead times are required. Any inability to obtain adequate deliveries or any other circumstance that would require us to seek alternative sources of supply or to manufacture such components internally could delay our ability to ship our products, which could damage relationships with current and prospective customers and have a material adverse effect on our business, financial condition and results of operations.

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

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

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 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.

Our integrated metrology systems are integrated onto systems sold independently by Wafer Fabrication Equipment Suppliers, and a decrease in sales by these suppliers, or the development of competing systems by these suppliers, could harm our business.

We believe that sales of integrated metrology systems will continue to be an important source of our net revenues. Sales of our integrated metrology systems depend upon the ability of a small number of Wafer Fabrication Equipment Suppliers to

sell semiconductor manufacturing equipment products that are compatible with our metrology systems as components. If these suppliers, such as Applied Materials, Inc., Lam Research Corporation and Tokyo Electron, are unable to sell such products, if they choose to focus their attention on products that do not integrate our systems, or if they choose to develop competing systems, our business could suffer.

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

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

If we do not manage our supply chain effectively, our operating results may be adversely affected.

We need to continually evaluate our global supply chains and assess opportunities to reduce costs. We must also enhance quality, speed and flexibility to meet changing demand for our products and product mix and uncertain market conditions. Our success also depends in part on refining our cost structure and supply chains so that we have flexibility and are able to protect and improve profitability. To improve our margins on a product, we will need to establish high volume supply agreements with our vendors. We cannot be certain that we will be able to timely negotiate vendor supply agreements on improved terms and conditions, or at all. Failure to achieve the desired level of cost reductions could adversely affect our financial results. Despite our efforts to control costs and increase efficiency in our facilities, changes in demand could still cause us to realize lower operating margins and profitability.

If we choose to acquire new and complementary businesses, or 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. If we do identify suitable transactions in the future, we may not be able to complete them on commercially acceptable terms, or at all. We also face intense competition for acquisitions from other acquirers in our industry. These competing acquirers may have significantly greater financial and other resources than us, which may prevent us from successfully pursuing a transaction.

Potential risks associated with acquisitions could include, among other things:

- our inability to realize the benefits or cost savings that we expect to realize as a result of the acquisition;
- diversion of management's attention;
- our inability to successfully integrate our businesses with the business of the acquired company;
- motivating, recruiting and retaining executives and key employees; conforming standards, controls, procedures and policies, business cultures and compensation structures among our company and the acquired company;
- consolidating and streamlining sales, marketing and corporate operations;
- potential exposure to unknown liabilities of acquired companies;
- loss of key employees and customers of the acquired business; and
- managing tax costs or inefficiencies associated with integrating our operations following completion of the acquisitions.

If an acquisition is not successfully completed or integrated into our existing operations, our business, financial condition and results of operations could be adversely impacted.

In addition, to finance any acquisitions we may be required to raise additional funds through public or private equity or debt financings; however:

- to obtain such financing we may be forced to obtain financing on terms that are not favorable to us and, in the case of equity or convertible debt financing, the financing may result in dilution to our stockholders; or
- such financing may not be available to us at all, which could prevent us from entering into or completing the acquisition.

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

We believe our continued ability to recruit, hire, retain and motivate highly-skilled engineering, operations, sales, administrative and managerial personnel is key to our future success. Competition for these employees is intense, particularly with respect to attracting and retaining qualified technical and senior management personnel. We do not have employment agreements with key members of our technical staff and our senior management team. Further, we do not have key person life insurance on any of our executives and these individuals or other key employees may leave us. We have experienced turnover in our senior management team in the past. Our business may be harmed if we are unable to recruit, retain and effectively integrate our senior management into our business operations and our ability to implement our strategy could be compromised.

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

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

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

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

Net average selling prices of our products may decrease over time, which could have a material adverse effect on our revenues and profitability.

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

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

The semiconductor industry is generally subject to frequent litigation regarding patents and other intellectual property rights. Our commercial success depends, in part, on our ability to avoid infringing or misappropriating patents or other proprietary rights owned by third parties. From time to time we may receive communications from third parties asserting that our metrology systems may contain design features which are claimed to infringe on their proprietary rights. Our new or current products may infringe valid intellectual property rights, but even if our products do not infringe, we may be required to expend significant sums of money to defend against infringement claims, or to actively protect our intellectual property rights

through litigation. In the event that a claim is made and there is an adverse result of any intellectual property rights litigation, we could be required to pay substantial damages for infringement, expend significant resources to develop non-infringing technology, incur material liability for royalty payments or fees to obtain licenses to the technology covered by the litigation, or be subjected to an injunction, which could prevent us from selling our products and materially and adversely affect our net revenues and results of operations. We cannot be sure that we will be successful in any such non-infringing development or that any such license would be available on commercially reasonable terms, if at all. Any claims relating to the infringement of third-party proprietary rights, even if not meritorious, could result in costly litigation, lost sales or damaged customer relationships, and diversion of management's attention and resources.

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

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

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

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

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

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 2016, 2015, and 2014, 86%, 80% and 78%, 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 these countries. If we fail to adequately protect our intellectual property in these countries, it would be easier for our competitors to sell competing products and our business would suffer.

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

Variations in the length of our sales and product acceptance 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 and acceptance periods. During the sales cycles, we commit substantial resources to our sales efforts in advance of receiving any revenue, and we may never receive any revenue from a customer despite our sales efforts.

If we do complete a sale, customers often purchase only one of our systems and then evaluate its performance for a lengthy period of time before purchasing additional systems. The purchases are generally made through purchase orders rather than through long-term contracts. The number of additional products that a customer purchases, if any, depends on many factors, including a customer's capacity requirements, and/or shifting to more and advanced manufacturing processes that require more or different products to control. If they change their rate of capacity or have technological change, we cannot compensate for this fluctuation in demand by adjusting the price of our products. The period between a customer's initial purchase and any subsequent purchases and acceptance 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 can be priced from \$900,000 to \$2,100,000 per system, and our integrated metrology systems can be priced up 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.

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

We have invested substantial time and resources into the development of new products, services and technologies. However, we cannot accurately predict the future level of acceptance of our products and services by our customers. As a result, we may not be able to generate anticipated revenue from sales of these products and services, or future new products, services and improvements.

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

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

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

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

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

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

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

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

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

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

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

We may outsource select manufacturing activities to third-party service providers, which decreases our control over the performance of these functions and quality of our products.

We may outsource product manufacturing to third-party service providers. Outsourcing reduces our control over the performance of the outsourced functions. Dependence on outsourcing may also adversely affect our ability to bring new products to market. If we do not effectively manage our outsourcing strategy or if third party service providers do not perform as anticipated, we may experience operational difficulties, increased costs, manufacturing interruptions or inefficiencies in the operation of our supply chain, any or all of which could delay our delivery of products to our customers, and materially and adversely affect our business, financial condition, and results of operations.

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 “Note 1. Nature of Business, Basis of Presentation and Significant Accounting Policies” in Part II, Item 8, Note 1 of our consolidated financial statements. These methods, estimates and judgments are, by their nature, subject to substantial risks, uncertainties and assumptions, and factors may arise over time that leads us to change our methods, estimates and judgments. Changes in these methods, estimates and judgments could significantly affect our results of operations. In particular, our operating results have been affected by changes in our valuation allowance against our deferred tax assets, the calculation of share-based compensation expense and by the testing and potential impairment of long-lived assets such as goodwill and other intangible assets. For example, during the year ended December 31, 2016, we recorded a \$27.4 million release of valuation allowance against our U.S, certain state and certain foreign deferred tax assets as we determined, based upon an evaluation of all available objectively verifiable evidence, including but not limited to our operations, current earnings and anticipated future earnings that a release is required. The valuation allowance release had a significant impact to our

operating results. The process of evaluating the valuation allowance is highly subjective and requires significant judgment, and our results of operations could vary significantly from estimates. To the extent that we believe it is more likely that we will not realize our deferred tax assets, our financial statements will reflect another significant change to our tax provision and operating results.

Changes in our effective income tax rate could affect our results of operations.

Fluctuations in our effective tax rate may affect operating results. Our effective tax rate is subject to fluctuation based on a variety of factors, such as:

- the jurisdictions in which our profits are determined to be earned and taxed;
- changes to tax laws, regulations and interpretations;
- our ability to obtain approval and the timing of receipt of approval from the Internal Revenue Service of tax elections;
- changes in the valuation of our deferred tax assets and liabilities;
- increases in expenses not deductible for tax purposes, including write-offs of acquired in-process research and development and impairment of goodwill in connection with acquisitions and
- changes in available tax credits.

Any material increase in our effective tax rate would adversely affect our operating results.

We may incur impairments to goodwill or long-lived assets.

We review our long-lived assets, including goodwill and other intangible assets, for impairment annually or more frequently when events or changes in circumstances indicate that the carrying amount of these assets may not be recoverable or it becomes more likely than not that the fair value is reduced below the carrying value of the reporting unit. Our valuation methodology for assessing impairment requires management to make judgments and assumptions based on historical experience and to rely heavily on projections of future operating performance.

If our network security measures are breached and unauthorized access is obtained to a customer's data, to our data, or to our information technology systems, we may incur significant legal and financial exposure and liabilities.

As part of our business, we store our data and certain data about our customers in our information technology system. While our system is designed with access security, if a third party gains unauthorized access to our data, including any data regarding our customers, the security breach could expose us to a risk of loss of this information, loss of business, litigation and possible liability. These security measures may be breached as a result of third-party action, including intentional misconduct by computer hackers, employee error, malfeasance or otherwise. Additionally, third parties may attempt to fraudulently induce employees or customers into disclosing sensitive information such as user names, passwords or other information to gain access to our customers' data or our data, including our intellectual property and other confidential business information, or our information technology systems. Because the techniques used to obtain unauthorized access, or to sabotage systems, change frequently and generally are not recognized until launched against a target, we may be unable to anticipate these techniques or to implement adequate preventative measures. Any security breach could result in a loss of confidence by our customers, damage our reputation, disrupt our business, lead to legal liability and negatively impact our future sales.

Our investment portfolio may suffer losses from changes in market interest rates and changes in market conditions, which could materially and adversely affect our financial condition and liquidity.

Our investment portfolio is primarily comprised of commercial paper, corporate debt securities, debt securities issued by U.S. governmental agencies and municipal debt securities. These investments are subject to general credit, liquidity, and market and interest rate risks. Substantially all of these securities are subject to interest rate and credit risk and will decline in value if interest rates increase or one or more of the issuers' credit ratings is reduced. As a result of any of the foregoing, we may experience a reduction in value or loss of liquidity of our investments, which may have a negative adverse effect on our results of operations, liquidity and financial condition. We follow an established investment policy and set of guidelines to monitor, manage and limit our exposure to interest rate and credit risk. The policy sets forth credit quality standards and limits our exposure to any one issuer, as well as our maximum exposure to various asset classes.

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

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

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

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

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

A majority of our sales and operations are outside of the United States. As a result, we are subject to regulatory, geopolitical and other risks associated with doing business in foreign countries. We anticipate that international sales will continue to account for a significant portion of our revenues. International sales and operations carry inherent risks such as:

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

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

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

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

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 of our company by limiting our ability to engage in a business combination with 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;
- limit who may call special meetings of stockholders; and
- prohibit stockholder action by written consent, requiring all actions to be taken at a meeting of the stockholders.

We are exposed to various risks related to legal proceedings that could result in substantial costs and disruption to normal business operations.

From time to time, and in the future, we may be, involved in legal proceedings or claims that involve breach of contract, product liability, employment, possible infringement of patents and intellectual property rights of third parties or by third parties. It is difficult to predict the outcome of litigation matters, and there can be no assurance that we will prevail in any litigation. Adverse determinations in such litigation could result in loss of our property rights, subject us to significant liabilities, any of which could significantly and adversely affect our business, financial condition and results of operations.

We have identified a material weakness in internal control over financial reporting, which if not remedied, could adversely affect our business and results of operations.

Pursuant to Section 404 of the Sarbanes-Oxley Act of 2002, our management is required to perform evaluations of our internal control over financial reporting and our independent auditors are required to publicly attest to the effectiveness of our internal control over financial reporting. As described under “Item 9A - Controls and Procedures,” our management identified an internal control weakness surrounding our inventory accounts, and has concluded that the deficiency constitutes a material weakness in our internal control over financial reporting, and as result, internal control over financial reporting was not effective as of December 31, 2016. During our evaluation of internal controls over our cycle counting procedures, we determined that we did not design and maintain an effective control over the existence of inventories subject to the cycle count program. Specifically, the control was not effectively designed and maintained to verify all inventories that should be subject to the cycle count program were included and were counted at the frequency levels required under the Company’s policies. This control deficiency did not result in a material adjustment to the inventory and cost accounts and disclosures for the year ended December 31, 2016

To ensure existence of the Company’s inventory balances as recorded at December 31, 2016, we conducted a full physical inventory for the stocking locations subject to the cycle count program which resulted in an immaterial adjustment. The material weakness in the design and effectiveness of the control over the existence of inventories is in the process of being remediated. Our goal is to remediate this material weakness by the end of 2017, subject to there being sufficient opportunities to conclude, through testing, that the enhanced control is designed and operating effectively.

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

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

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

Compliance with federal securities laws, rules and regulations, as well as NASDAQ requirements, is becoming increasingly complex, and the significant attention and expense we must devote to those areas may have an adverse impact on our business.

Federal securities laws, rules and regulations, as well as NASDAQ rules and regulations, require companies to maintain extensive corporate governance measures, impose comprehensive reporting and disclosure requirements, set strict independence and financial expertise standards for audit and other committee members and impose civil and criminal penalties for companies and their chief executive officers, chief financial officers and directors for securities law violations. These laws, rules and regulations have increased, and in the future, are expected to continue to increase, the scope, complexity and cost of our corporate governance, reporting and disclosure practices, which could harm our results of operations and divert management's attention from business operations.

We may be exposed to liabilities under the FCPA and other anti-corruption laws, and any determination that we violated these laws could have a material adverse effect on our business.

We are subject to the Foreign Corrupt Practice Act of 1977 ("FCPA"), and other laws that prohibit improper payments or offers of payments to foreign governments and their officials and political parties by U.S. persons and issuers as defined by the statute, for the purpose of obtaining or retaining business. Also, similar worldwide anti-bribery laws, such as the U.K. Bribery Act and Chinese anti-corruption laws, generally prohibit companies and their intermediaries from making improper payments to non-U.S. officials for the purpose of obtaining or retaining business. Some of our distribution partners are located in parts of the world that have experienced governmental corruption to some degree and, in certain circumstances, strict compliance with anti-bribery laws may conflict with local customs and practices. Although we have implemented policies and procedures to discourage these practices by our employees, our existing safeguards and any future improvements may prove to be less than effective, and our employees, consultants, sales agents or distributors may engage in conduct for which we might be held responsible. Violations of the FCPA or international anti-corruption laws may result in severe criminal or civil sanctions, and we may be subject to other liabilities, which could negatively affect our business, operating results and financial condition. In addition, the U.S. government may seek to hold us liable for successor liability FCPA violations committed by companies in which we invest or that we acquire. We cannot assure you that our internal control policies and procedures will protect us from reckless or negligent acts committed by our employees, distributors, partners, consultants or agents.

Regulations related to conflict minerals could adversely impact our business.

The Dodd-Frank Wall Street Reform and Consumer Protection Act contains provisions to improve transparency and accountability concerning the supply of tin, tantalum, tungsten and gold, known as conflict minerals, originating from the Democratic Republic of Congo, or DRC, and adjoining countries. As a result, in August 2012 the United States Securities and Exchange Commission, or SEC, adopted annual disclosure and reporting requirements for public companies that use conflict minerals mined from the DRC and adjoining countries in their products. We have determined that we use at least one of these conflict minerals in the manufacture of our products, although we have not yet determined the source of the minerals that we use. These new disclosure requirements require us to use diligent efforts to determine which conflict minerals we use and the source of those conflict minerals, and disclose the results of our findings. There have been and will continue to be costs associated with complying with these disclosure requirements, including those costs incurred in conducting diligent efforts to determine which conflict minerals we use and the sources of conflict minerals used in our products. Further, the implementation of these rules could adversely affect the sourcing, supply and pricing of materials used in our products. As there may be only a limited number of suppliers offering conflict free minerals, we cannot be sure that we will be able to obtain necessary conflict free conflict minerals in sufficient quantities or at competitive prices. In addition, we may face reputational challenges if we determine that our products contain minerals not determined to be conflict free or if we are unable to sufficiently verify the origins for all conflict minerals used in our products through the procedures we implement. If we determine it is necessary to redesign our products to not use conflict minerals, we would incur costs associated with doing so.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

At December 31, 2016, our owned or leased facilities included those described below:

Type	Location	Square Footage	Use
Owned	Milpitas, California	135,692	Corporate headquarters, manufacturing and corporate housing
Leased	Taiwan	22,167	Sales and service
Leased	South Korea	21,337	Sales, service and corporate housing
Leased	United States	19,551	Engineering, sales and service
Leased	Japan	16,628	Sales, service and corporate housing
Leased	China	9,046	Sales and service
Leased	Singapore	4,532	Sales and service
Leased	France	828	Sales and service

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

ITEM 3. LEGAL PROCEEDINGS

Not Applicable.

ITEM 4. MINE SAFETY DISCLOSURES

Not Applicable.

PART II

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

Market Information for Common Stock

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

Fiscal Year 2016	High	Low
First quarter	\$ 15.86	\$ 12.63
Second quarter	\$ 20.62	\$ 13.82
Third quarter	\$ 22.66	\$ 19.65
Fourth quarter	\$ 25.83	\$ 19.65
Fiscal Year 2015		
First quarter	\$ 18.60	\$ 15.32
Second quarter	\$ 17.09	\$ 14.46
Third quarter	\$ 16.30	\$ 12.33
Fourth quarter	\$ 15.91	\$ 12.12

Stockholders

On February 24, 2017, there were approximately 149 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.

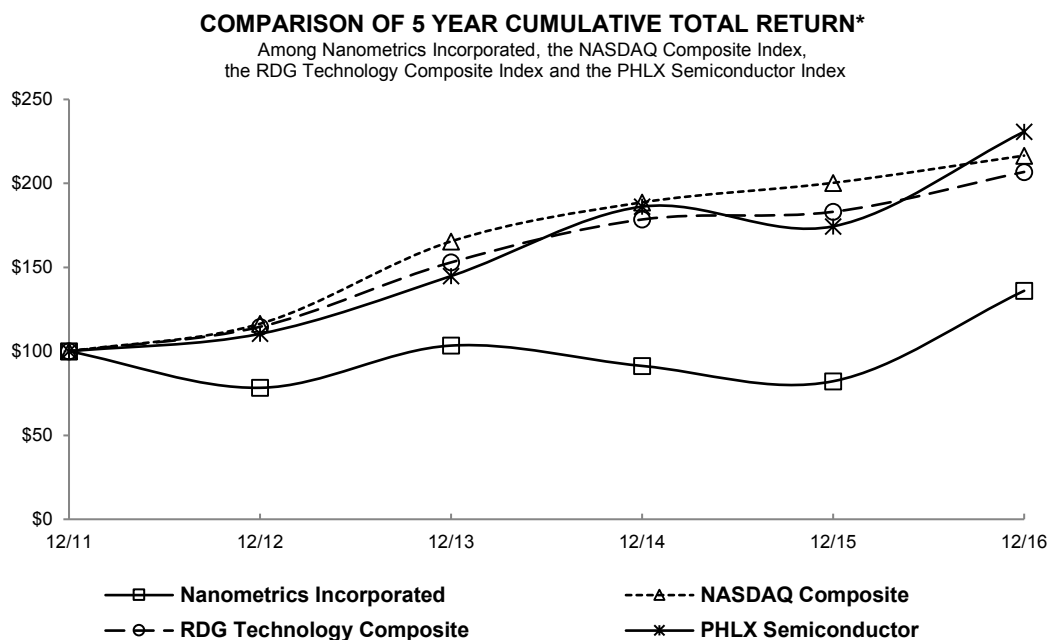
Dividend Policy

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, expansion of our business and repurchase of shares and do not anticipate paying any cash dividends in the foreseeable future.

Stock Performance Graph

The following graph presentation compares cumulative five-year stockholder returns on an indexed basis, assuming a \$100 initial investment and reinvestment of dividends, of (a) Nanometrics Incorporated, (b) a broad-based equity market index and (c) an industry-specific index. The broad-based equity market index used is the NASDAQ Composite Index and the industry-specific index used is the PHLX Semiconductor Index. The RDG Technology Composite Index was used in prior fiscal years' Form 10-K reports as the industry-specific index; however, the Company believes the PHLX Semiconductor index is a better indicator of how the Company compares to the overall Semiconductor industry.

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.



*\$100 invested on 12/31/11 in stock or index, including reinvestment of dividends. Fiscal year ending December 31.

	12/11	12/12	12/13	12/14	12/15	12/16
Nanometrics Incorporated	100.00	78.28	103.42	91.31	82.19	136.05
NASDAQ Composite	100.00	116.41	165.47	188.69	200.32	216.54
RDG Technology Composite	100.00	114.61	152.95	178.50	183.08	206.81
PHLX Semiconductor	100.00	110.42	144.83	186.15	174.42	230.82

Recent Sales of Unregistered Securities

None.

ITEM 6. SELECTED FINANCIAL DATA

The selected consolidated financial data set forth below is not necessarily indicative of results of future operations and should not be relied upon as an indicator of our future performance. This data should be read in conjunction with “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and the consolidated financial statements and related notes included elsewhere in this Annual Report on Form 10-K. Our fiscal years 2016, 2015, 2014, 2013 and 2012, as referred to below, refer to our fiscal years ended December 31, 2016, December 26, 2015, December 27, 2014, December 28, 2013 and December 29, 2012, respectively.

	Fiscal Year				
	2016 ⁽²⁾	2015	2014 ⁽¹⁾	2013	2012
	(in thousands, except per share data)				
Consolidated Statement of Operations Data:					
Total net revenues	\$ 221,129	\$ 187,367	\$ 166,443	\$ 144,307	\$ 182,881
Gross profit	\$ 114,124	\$ 89,667	\$ 75,822	\$ 62,676	\$ 83,928
Income (loss) from operations	\$ 29,095	\$ 4,973	\$ (11,653)	\$ (21,709)	\$ 5,478
Net income (loss)	\$ 44,035	\$ 2,905	\$ (31,118)	\$ (14,146)	\$ 4,465
Basic net income (loss) per share	\$ 1.79	\$ 0.12	\$ (1.30)	\$ (0.61)	\$ 0.19
Diluted net income (loss) per share	\$ 1.75	\$ 0.12	\$ (1.30)	\$ (0.61)	\$ 0.19

⁽¹⁾ Our net loss included a non-cash valuation allowance of \$21.1 million on certain U.S. deferred tax assets.

⁽²⁾ Our net income included a release of non-cash valuation allowance of \$27.4 million against a significant portion of our U.S. and foreign deferred tax assets.

	Fiscal Year Ended				
	2016	2015	2014	2013	2012
	(in thousands)				
Consolidated Balance Sheet Data:					
Cash, cash equivalents and marketable securities	\$ 129,961	\$ 83,085	\$ 83,962	\$ 92,862	\$ 109,908
Working capital	\$ 174,353	\$ 132,903	\$ 119,797	\$ 141,797	\$ 158,587
Total assets	\$ 287,830	\$ 235,540	\$ 223,236	\$ 262,834	\$ 259,454
Long-term liabilities including current portion of debt obligation	\$ 2,030	\$ 3,001	\$ 5,497	\$ 6,504	\$ 13,884
Total stockholders' equity	\$ 243,774	\$ 187,328	\$ 179,537	\$ 207,373	\$ 215,771

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. Please see “Cautionary Information Regarding Forward-Looking Statements” at the beginning of this Form 10-K for additional information you should consider regarding forward-looking statements.

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

Principal factors that impact our revenue growth include capital expenditures by manufacturers of semiconductors to increase capacity and to enable their development of new technologies, and our ability to improve market share. The increasing complexity of the manufacturing processes for semiconductors is an important factor in the demand for our innovative metrology systems. Our strategy is to continue to innovate organically as well as to evaluate strategic acquisitions 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 2016, we derived 84% of our total net revenues from product sales and 16% of our total net revenues from services.

Important Themes and Significant Trends

The semiconductor equipment industry is characterized by new manufacturing processes (node) coming to market every two to three years. At every new node, in the semiconductor industry our customers drive the need for metrology as a major component of device manufacturing. These trends include:

- **Proliferation of Optical Critical Dimension Metrology across Fabrication Processes.** Device dimensions must be carefully controlled during each step of processing. These patterned structures are measured at many subsequent production stops including Chemical Mechanical Polishing, Etch, and Thin Film processing, all driving broader OCD adoption. Our proprietary OCD systems can provide the critical process control of these circuit dimensions that is necessary for successful manufacturing of these state-of-the-art devices. Nanometrics OCD technology is broadly adopted across NAND, DRAM, and logic semiconductor manufacturing processes.
- **Proliferation of 3D Transistor Architectures.** Our end customers continue to improve device density and performance by scaling front-end-of-line transistor architectures. Many of these designs, including FinFET transistors, have buried features and high aspect ratio stacked features that enable improved performance and density. The advanced designs require additional process control to manage the complex shapes and materials properties, driving additional applications of our systems.
- **Proliferation of High-Density 3D-NAND.** Our end customers have migrated to multi (many) layered high aspect ratio 3D-NAND devices. Many stacks of NAND cells are formed in parallel. These 3D-NAND architecture enables cost effective density scaling, removing the burden of density from lithography to deposition and etch processes. These devices require additional process control of deposition stacks, planarization processes, and critical high aspect ratio etch processes. Nanometrics thin films and OCD technologies are adopted across the 3D-NAND process including the periphery CMOS processing, NAND cell formation, and Interconnect of the devices.
- **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 new materials and processing methods with single atom/sub nanometer control over these processes.
- **Need for Improved Process Control to Drive Process Efficiencies.** Competitive forces influencing semiconductor device manufacturers, such as price-cutting, shorter product life cycles and time to market, place pressure on manufacturers to rapidly achieve production efficiency. Device manufacturers are using our integrated and automated systems throughout the fabrication process to ensure that manufacturing processes scale rapidly, are accurate and can be repeated on a consistent basis.

Critical Accounting Policies

The preparation of our financial statements conforms 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 ongoing basis, management evaluates its estimates including those related to bad debts, inventory valuations, warranty obligations, impairment and income taxes. Management bases its estimates and judgments on historical experience and on various other factors that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from management's estimates. We believe that the application of the following accounting policies requires significant judgments and estimates on the part of management. For a summary of all of our accounting policies, including those discussed below, see Note 1 to our consolidated financial statements.

Revenue Recognition - We recognize revenue when persuasive evidence of an arrangement exists, delivery has occurred or services have been rendered, the seller's price is fixed or determinable, and collectability is reasonably assured. We derive revenue from the sale of process control metrology and inspection systems and related upgrades ("product revenue") as well as spare part sales, billable services and service contracts (together "service revenue"). Upgrades are system software and hardware performance upgrades that extend the features and functionality of a product. Beginning in the first quarter of 2016, we include upgrades in product revenue, which consists of sales of complete, advance process control metrology and inspection systems (the "system(s)"). This change was due to the types of upgrades currently being sold, which are primarily system software and hardware performance upgrades to extend the features and functionality of a product. Previously, upgrades consisted of a group of parts and/or software that change the existing configuration of the products.

Nanometrics' systems consist of hardware and software components that function together to deliver the essential functionality of the system. Arrangements for sales of systems often include defined customer-specified acceptance criteria.

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

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

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

The majority of other upgrades are sold based on published specifications. For simple upgrades that do not require major configuration, revenue is recognized at the time title and risk of loss transfer to the customer, which is usually upon shipment. For complex and extensive upgrades, specific acceptance or prior acceptance for a similar upgrade is required in order to recognize revenue.

We recognize revenue related to spare parts upon shipment. We recognize revenue related to billable services when the services are completed. Service contracts may be purchased by the customer during or after the warranty period and we recognize revenue ratably over the service contract period.

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

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

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

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

deteriorate, resulting in their inability to make payments, we would assess the necessity of recording additional allowances. This would result in additional general and administrative expenses being recorded for the period in which such determination was made

Inventories – Inventories are stated at the lower of cost, which approximates actual cost on a first-in, first-out basis, or market. We have established inventory reserves when conditions exist that suggest that our inventory may be in excess of anticipated demand or is obsolete based upon our assumptions about future demand for our products and market conditions. Once a reserve has been established, it is maintained until the part to which it relates is sold or is otherwise disposed of. Therefore, a sale of reserved inventory has a higher gross profit margin. We regularly evaluate our ability to realize the value of our inventory based on a combination of factors including the following: historical usage rates, forecasted sales of usage, product end-of-life dates, estimated current and future market values and new product introductions. Inventory includes evaluation tools placed at customer sites. For demonstration inventory, we also consider the age of the inventory and potential cost to refurbish the inventory prior to sale. We amortize demonstration inventory over its useful life and the amortization expense is included in total inventory write down on our statements of cash flows. 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, which would adversely affect gross margin and net income.

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

Goodwill and Intangible Assets - Intangible assets with finite lives are amortized over their useful lives and are subject to an impairment assessment, as well as an evaluation of the appropriateness of their estimated useful lives, whenever events or changes in circumstances indicate that the carrying amount(s) may not be recoverable. Goodwill and indefinite lived assets are not amortized but tested annually for impairment. The goodwill impairment assessment involves three tests, Step 0, Step 1 and Step 2. The Step 0 test involves performing an initial qualitative assessment to determine whether it is more likely than not that the asset is impaired and thus whether it is necessary to proceed to Step 1 and calculate the fair value of the reporting unit. We may proceed directly to the Step 1 test without performing the Step 0 test. The Step 1 test involves measuring the recoverability of goodwill at the reporting unit level by comparing the reporting unit's carrying amount, including goodwill, to the fair value of the reporting unit.

We perform a Step 0 assessment of the goodwill during the fourth quarter of each fiscal year, or whenever events or circumstances occur which indicate that an impairment may have occurred. As part of this assessment, we consider the trading value of our stock, the industry trends, and our sales forecast and products plans to determine if it is more likely than not that the fair value is higher than the carrying values of our reporting unit. If, after assessing the qualitative factors, we determine that it is not likely that the fair value of a reporting unit is less than its carrying value, then performing the two-step impairment test is unnecessary. However, if we conclude otherwise, then we are required to perform the Step 1 of the two-step goodwill impairment test. The Step 1 test requires a comparison of the fair value of our reporting unit to its net book value. If the fair value of the reporting unit is greater than its net book value, then no impairment is deemed to have occurred. If the fair value is less, then the Step 2 must be performed to determine the amount, if any, of actual impairment.

The process of evaluating the potential impairment of goodwill is highly subjective and requires significant judgment. In estimating the fair value of goodwill at the reporting unit level, we make estimates and judgments about future revenues and cash flows for the reporting unit. To determine the fair value, our review process includes the income method and is based on a discounted future cash flow approach that uses estimates including the following for the reporting unit: estimated revenue, market segment growth rates and market share assumptions; estimated costs; and appropriate discount rates based on the particular reporting unit's weighted average cost of capital. Our estimates of market segment growth, our market segment share and costs are based on historical data, various internal estimates and certain external sources, and are based on assumptions that are consistent with the plans and estimates we are using to manage the underlying businesses. Our business consists of both established and emerging technologies and our forecasts for emerging technologies are based upon internal estimates and external sources rather than historical information. We also consider our market capitalization on the dates of our impairment tests in determining the fair value of the respective businesses. As part of this assessment, we consider the trading value of our

stock and our implied value, as compared to our net assets, as well as the valuation of our acquired businesses. If the carrying amount of the reporting unit exceeds its fair value as determined by these assessments, goodwill is considered impaired, and the Step 2 test is performed to measure the amount of impairment loss. As part of the Step 2 test to determine the amount of goodwill impairment, if any, we allocate the fair value of the reporting unit to all of its assets and liabilities as if the reporting unit had been acquired in a business combination and the fair value of the reporting unit was the price paid to acquire the reporting unit. The excess of the fair value of the reporting unit over the amount assigned to its assets and liabilities is the implied fair value of goodwill. When impairment is deemed to have occurred, we will recognize an impairment charge to reduce the carrying amount of our goodwill to its implied fair value.

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

Recent Accounting Pronouncements

See Note 2 of our consolidated financial statements for a description of recent accounting pronouncements, including the respective dates of adoption and effects on our results of operations and financial condition.

Upgrade Revenue and Related Cost

As discussed above, beginning the first quarter of 2016, we now include revenues associated with upgrade sales under Products Revenues, and the related costs in Cost of Products Revenue. This change was due to the types of upgrades currently being sold, which are primarily system software and hardware performance upgrades to extend the features and functionality of a product. Previously, upgrades consisted of a group of parts and/or software that change the existing configuration of a product. For the twelve months ended December 31, 2016, we included \$11.0 million related to upgrade sales and \$2.4 million of costs, in Products Revenues and Cost of Products Revenues, respectively. For the twelve months ended December 26, 2015, we included \$7.9 million related to upgrade sales, and \$3.0 million of costs, in Service Revenues and Costs of Service Revenues, respectively. In our discussion below comparing revenues and gross margin in 2016 to 2015, we compare as if upgrade sales and related costs have been included in Product Revenue and Cost of Revenues in 2015 to give a more meaningful comparison

Results of Operations

Total net revenues

Our net revenues comprised the following (in thousands, except percentages):

	Fiscal Year		Change	
	2016	2015		
Automated systems	\$ 127,378	\$ 102,386	\$ 24,992	24.4 %
Integrated systems	43,846	31,579	12,267	38.8 %
Materials characterization systems	13,842	12,980	862	6.6 %
Total product revenue	185,066	146,945	38,121	25.9 %
Service	36,063	40,422	(4,359)	(10.8) %
Total net revenues	<u>\$ 221,129</u>	<u>\$ 187,367</u>	<u>\$ 33,762</u>	18.0 %

	Fiscal Year		Change	
	2015	2014		
Automated systems	\$ 102,386	\$ 108,768	\$ (6,382)	(5.9) %
Integrated systems	31,579	15,334	16,245	105.9 %
Materials characterization systems	12,980	9,487	3,493	36.8 %
Total product revenue	146,945	133,589	13,356	10.0 %
Service	40,422	32,854	7,568	23.0 %
Total net revenues	<u>\$ 187,367</u>	<u>\$ 166,443</u>	<u>\$ 20,924</u>	12.6 %

In 2016, total net revenues increased by \$33.8 million from 2015. During 2016, we included upgrade sales of \$11.0 million, in Product Revenues. For the twelve months ended December 26, 2015, Product Revenues do not include \$7.9 million related to upgrade sales, which we included in Service Revenues. For the twelve months ended December 31, 2016, had upgrade sales been included in Product Revenue in 2015, Product Revenues would have increased by \$30.2 million. The increase was primarily attributable to an industry-wide improvement in 3D-NAND-related semiconductor capital spending. Approximately \$17.8 million of the increase related to Automated systems sales and \$11.7 million of the increase related to our sales of Integrated Systems (principally *IMPULSE*), primarily with 3D-NAND-related customers. Materials Characterization also accounted for \$0.7 million of the increased systems sales. Service revenue decreased by \$4.4 million in 2016. For the twelve months ended December 31, 2016, had upgrade sales been excluded in Service Revenue in 2015, Service Revenue would have increased by \$3.5 million principally due to an increase of \$3.9 million in sales of spares and services revenue, offset by \$0.4 million decline in extended warranty sales.

In 2015, total net revenues increased by \$20.9 million from 2014, principally due to an industry-wide improvement in 3D-NAND-related semiconductor capital spending and from an increase in foundry penetration. Approximately \$16.2 million of the increase in product revenues was attributable to sales of our Integrated Systems (principally *IMPULSE*®), primarily with 3D-NAND-related customers. Materials Characterization accounted for \$3.5 million of the increase and was partially offset by Automated systems sales which decreased by \$6.4 million. Service revenue increased by \$7.6 million in 2015 principally due to an increase in upgrade revenue as a result of higher demand for upgrades of installed tools. Upgrades tend to fluctuate based on availability of new functionality from upgrades and customer production cycles, which determine when customers purchase available upgrades.

With a significant portion of the world's semiconductor manufacturing capacity located in Asia, a substantial portion of our revenues continue to be generated in that region. Although sales to customers within individual countries of that region will vary from time to time, we expect that a substantial portion of our revenues will continue to be generated in Asia.

Gross margin

Our gross margin breakdown was as follows:

	Fiscal Year		
	2016	2015	2014
Products	53.1 %	46.7 %	46.5 %
Service	44.1 %	51.9 %	41.9 %

The calculation of product gross margin includes cost of products, amortization of intangibles and in 2016, related upgrades. The gross margin on product revenue increased to 53.1% in 2016 from 46.7% in 2015. Had upgrade sales and related cost been included in Product Revenue and Cost of Revenues in 2015, Product Gross Margin for 2015 would have been 47.5%. The increase in 2016 of 5.6 percentage points was due to a change in product mix, improved installation and warranty related costs and reduced amortization of intangibles as a result of full amortization of the intangible asset. The gross margin of our services business decreased to 44.1% from 51.9% in 2015, reflecting a decrease of 7.8 percentage points. Had upgrade sales and related cost been excluded from Service Revenues and Cost of Service Revenues, Service Gross Margin for 2015 would have been 49.5%, a decrease of 5.4 percentage points, due to the mix of services provided during the year in comparison to the prior year period, and lower labor utilization of service personnel.

The gross margin on product revenue increased to 46.7% in 2015 from 46.5% in 2014. The increase was due primarily to improved factory overhead absorption, lower amortization of intangibles and a 10% increase in product revenue during 2015, offset by higher installation and warranty costs. The gross margin of our services business increased to 51.9% from 41.9% in 2014, reflecting an increase of 10 percentage points, due principally to an increase in upgrade revenues, which typically have higher margins than core service revenue.

Operating expenses

Our operating expenses comprise the following categories (in thousands, except percentages):

	Fiscal Year		Change	
	2016	2015		
Research and development	\$ 31,443	\$ 32,701	\$ (1,258)	(3.8)%
Selling	30,181	28,055	2,126	7.6%
General and administrative	23,381	22,444	937	4.2%
Amortization of intangible assets	24	114	(90)	(78.9)%
Restructuring charge	—	1,380	(1,380)	(100.0)%
Total operating expenses	<u>\$ 85,029</u>	<u>\$ 84,694</u>	<u>\$ 335</u>	0.4%

	Fiscal Year		Change	
	2015	2014		
Research and development	\$ 32,701	\$ 33,776	\$ (1,075)	(3.2)%
Selling	28,055	27,033	1,022	3.8%
General and administrative	22,444	23,980	(1,536)	(6.4)%
Amortization of intangible assets	114	420	(306)	(72.9)%
Restructuring charge	1,380	2,266	(886)	(39.1)%
Total operating expenses	<u>\$ 84,694</u>	<u>\$ 87,475</u>	<u>\$ (2,781)</u>	<u>(3.2)%</u>

Research and development

Research and development costs decreased by \$1.3 million or 3.8% in 2016 compared to 2015 related primarily due to lower spending for material expenses and related costs associated with research and development investments for our next generation systems.

Research and development costs decreased by \$1.1 million or 3.2% in 2015 compared to 2014 related primarily to a decrease in spending for non-recurring engineering projects, including product design and prototype development, along with related material spending and expenses associated with R&D investments for our next generation Automated and Integrated systems, partially offset by increases in variable compensation costs.

Selling

Selling expenses increased by \$2.1 million or 7.6% in fiscal year 2016 compared to fiscal year 2015. The increase is due to higher variable compensation, commission expense, and sales related costs, which is consistent with higher revenues in 2016 compared to 2015. In addition, during fiscal year 2016, there was a decrease in utilization of our sales application personnel for installation and warranty, which is included in cost of net revenues.

Selling expenses increased by \$1.0 million or 3.8% in fiscal year 2015 compared to fiscal year 2014. The increase is primarily due to an increase in commissions and amortization of demonstration tools, offset in part by a decrease in travel and related expenses.

General and administrative

General and administrative expenses increased by \$0.9 million or 4.2% in fiscal year 2016 compared to 2015. The increase was primarily due to higher variable compensation costs.

In fiscal year 2015 compared to 2014, general and administrative expenses decreased by \$1.5 million primarily due to lower headcount and a decrease in consulting expenditures.

Amortization of intangible assets

Amortization of intangible assets included in operating expenses in fiscal year 2016 decreased slightly compared to 2015, as a result of the reduction in amortization due to intangible assets that became fully amortized in 2016.

In fiscal year 2015 compared to 2014, amortization of intangible assets included in operating expenses decreased compared to 2014 due to intangible assets that became fully amortized in 2014.

Restructuring charge

There were no restructuring charges recorded in 2016 fiscal year.

We recorded a restructuring charge of \$1.4 million in 2015 as a result of our decision to maximize operating effectiveness. This amount includes charges primarily related to employee severance and related costs. As of December 26, 2015, we had completed and settled in full all cash payments related to employee severance.

Other income (expense), net

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

	Fiscal Year		Change	
	2016	2015		
Interest income	\$ 35	\$ 71	\$ (36)	(50.7)%
Interest expense	(285)	(289)	4	(1.4)%
Interest income (expense), net	<u>\$ (250)</u>	<u>\$ (218)</u>	<u>\$ (32)</u>	14.7 %
Net gains on investments	520	220	300	136.4 %
Other gains (losses), net	(230)	593	(823)	(138.8)%
Other income (loss), net	<u>\$ 290</u>	<u>\$ 813</u>	<u>\$ (523)</u>	(64.3)%
Total other income (expense), net	<u>\$ 40</u>	<u>\$ 595</u>	<u>\$ (555)</u>	(93.3)%

	Fiscal Year		Change	
	2015	2014		
Interest income	\$ 71	\$ 47	\$ 24	51.1 %
Interest expense	(289)	(389)	100	(25.7)%
Interest income (expense), net	<u>\$ (218)</u>	<u>\$ (342)</u>	<u>\$ 124</u>	(36.3)%
Net gains on investments	220	179	41	22.9 %
Other gains, net	593	195	398	204.1 %
Other income, net	<u>813</u>	<u>374</u>	<u>439</u>	117.4 %
Total other income, net	<u>\$ 595</u>	<u>\$ 32</u>	<u>\$ 563</u>	1759.4 %

Interest income received in fiscal year 2016 compared with fiscal year 2015 decreased minimally as the average balances of our cash and cash equivalents remained relatively flat. Interest expense in 2016 compared with fiscal year 2015 remained relatively flat.

Net gains on investments increased in 2016 as compared with fiscal year 2015, due to an increase in our investment portfolio balance and higher investment yields. The decrease in other income gains and losses in 2016 compared with fiscal 2015, was primarily driven by unfavorable impact of fluctuations of foreign exchange in 2016.

Interest income received in fiscal year 2015 compared with fiscal year 2014 increased minimally as the average balances of cash and cash equivalents balances remained relatively flat. Interest expense was lower in 2015 than in the prior year due primarily to payments made to Zygo to decrease the outstanding liability related to acquisition of certain assets from Zygo.

Net gains on investments increased minimally in 2015 from 2014, driven by slightly improved yields on our investment portfolio. The increase in other income gains and losses in 2015 compared with fiscal 2014 was primarily attributable to favorable impact of fluctuations of foreign exchange in 2015.

Provision for (benefit from) income taxes

We recorded an income tax benefit of \$14.9 million in 2016, and income tax expense of \$2.7 and \$19.5 million in 2015 and 2014, respectively. The decrease in the tax provision for 2016 from 2015 was primarily related to the releasing of a valuation allowance against a significant portion of our U.S. deferred tax assets for the year ended 2016. The increase in the tax provision for 2015 from 2014 was primarily related to the recording of the same valuation allowance for the year ended 2014.

Our benefit for income taxes for 2016 of \$14.9 million reflects an effective tax rate of negative 51.1%. This rate differs from the Federal statutory rate of 35.0% primarily due to the release of a valuation allowance against a significant portion of our U.S. deferred tax assets which represented a \$23.9 million benefit, as well as foreign income taxed at lower rates, and tax credits generated in the current year, offset by equity compensation expenses for which no current tax deduction is available. Our provision for income taxes for 2015 of \$2.7 million reflects an effective tax rate of 47.8 %. This rate differs from the Federal statutory rate of 35.0% primarily due to losses incurred in foreign jurisdictions where no benefit is currently recorded, as well as equity compensation expenses for which no current tax deduction is available. Our provision for income taxes for 2014 of \$19.5 million reflects an effective tax rate of negative 167.8%. This rate differs from the Federal statutory rate of 35.0% primarily due to the recording of a valuation allowance against our U.S. deferred tax assets which represented a \$23.9 million provision, as well as equity compensation expenses for which no current tax deduction is available, offset by foreign income being taxed at lower rates.

We maintain valuation allowances when it is likely that all or a portion of a deferred tax asset will not be realized. Changes in valuation allowances from period to period are included in our income tax provision in the period of change. In determining whether a valuation allowance is warranted, we take into account such factors as prior earnings history, expected future earnings, unsettled circumstances that, if unfavorably resolved, would adversely affect utilization of a deferred tax asset, carry-back and carry-forward periods, and tax strategies that could potentially enhance the likelihood of realization of a deferred tax asset. As such, in 2016, we released a valuation allowance against a significant portion of our U.S. deferred tax asset of \$23.9 million. We also released \$3.5 million of valuation allowance against our deferred tax assets in Israel and United Kingdom, both of which have no impact to our effective tax rate. We currently maintain a valuation allowance against our deferred tax assets in California, Germany, Switzerland, and Singapore.

Liquidity and Capital Resources

Our principal sources of liquidity are cash and cash equivalents, and marketable securities and cash flow generated from our operations. Our liquidity is affected by many factors, including those that relate to our specific operations and those that relate to the uncertainties of global and regional economies and the sectors of the semiconductor industry which we operate in. Although our cash requirements will fluctuate based on the timing and extent of these factors, we believe our existing cash, cash equivalents and marketable securities, combined with cash currently projected to be generated from our operations, will be sufficient to meet our liquidity needs through at least the next twelve months.

The following table presents selected financial information and statistics as of and for the years ended December 31, 2016, December 26, 2015 and December 27, 2014 (in millions):

	December 31, 2016	December 26, 2015	December 27, 2014
Cash, cash equivalents and marketable securities	\$ 130.0	\$ 83.1	\$ 84.0
Working capital	\$ 174.4	\$ 132.9	\$ 119.6
Cash provided by (used in) operating activities	\$ 45.7	\$ 1.6	\$ (0.6)
Cash provided by (used in) investing activities	\$ (42.1)	\$ 2.0	\$ (8.1)
Cash provided by (used in) financing activities	\$ 5.3	\$ 0.2	\$ (0.7)

During 2016, cash provided by operating activities was a result of \$44.0 million of net income plus the net effect of non-cash adjustments to net income and net change in operating assets and liabilities of \$1.7 million. The increase in cash from operating activities in fiscal 2016 compared to fiscal 2015 was primarily due to improved working capital, higher revenue levels and higher net income. Cash used in investing activities of \$42.1 million during 2016, consisted primarily of \$82.9 million net purchases of marketable securities and cash used to acquire property, plant and equipment of \$4.0 million, partially offset by cash provided by maturities of marketable securities of \$38.8 million and cash received from sales of marketable securities of \$6.0 million. Cash provided by financing activities of \$5.3 million during 2016 consisted primarily of \$8.4 million in proceeds from issuance of common stock from the employee stock purchase program and the exercise of stock options, partially offset by cash paid for taxes on net issuance of stock awards of \$1.8 million, \$1.0 million of excess tax benefit from equity awards and royalty payments to Zygo of \$0.3 million.

During 2015, cash provided by operating activities was a result of \$2.9 million of net income, non-cash adjustments to net income of \$19.4 million and a decrease in net change in operating assets and liabilities of \$20.7 million. Increase in cash from operating activities in fiscal 2015 compared to fiscal 2014 was primarily due to improved working capital and increase in sales. Cash provided by investing activities of \$2.0 million during 2015, consisted primarily of cash provided by maturities of marketable securities, net of purchases of \$0.4 million, and cash received from sales of marketable securities of \$3.4 million, partially offset by cash used to acquire property, plant and equipment of \$1.8 million. Cash provided by financing activities of \$0.2 million during 2015 consisted primarily of \$4.0 million in proceeds from issuance of common stock from the employee stock purchase program and the exercise of stock options, partially offset by cash used to repurchase common stock of \$1.7 million, royalty and other payments to Zygo of \$0.9 million, and cash paid for taxes on net issuance of stock awards of \$1.2 million.

During 2014, cash used in operating activities of \$0.6 million was a result of \$31.1 million of net losses, non-cash adjustments to net income of \$37.8 million and a decrease in net change in operating assets and liabilities of \$7.3 million. Cash used in investing activities of \$8.1 million during 2014 consisted primarily of cash used for purchases of marketable securities, net of maturities, of \$2.3 million; and cash used to acquire property, plant and equipment of \$5.8 million. Cash used in financing activities of \$0.7 million during 2014 consisted primarily of cash used to repurchase common stock of \$5.3 million, royalty and other payments to Zygo of \$0.6 million, and cash paid for taxes on net issuance of stock awards of \$0.7 million, partially offset by \$6.0 million in proceeds from issuance of common stock from the employee stock purchase program and the exercise of stock options.

We have evaluated and will continue to evaluate the acquisitions of products, technologies or businesses that are complementary to our business. These activities may result in product and business investments, which may affect our cash position and working capital balances. Some of these activities might require significant cash outlays.

We earn a portion of our operating income outside the United States, which is deemed to be indefinitely reinvested in foreign jurisdictions. As a result, \$9.2 million of our cash is held by foreign subsidiaries, a portion of which, would have to be repatriated to the United States. We currently do not intend nor foresee a need to repatriate these funds. We believe our existing balances of cash, cash equivalents and marketable securities will be sufficient to satisfy our working capital needs, capital asset purchases, outstanding commitments and other liquidity requirements associated with our existing operations over the next twelve months.

If we should require more capital in the United States than is generated by our domestic operations, for example to fund significant discretionary activities such as business acquisitions and share repurchases, we could elect to repatriate future earnings from foreign jurisdictions or raise capital in the United States through debt or equity issuances. These alternatives could result in higher effective tax rates, increased interest expense, or dilution of our earnings.

Debt and Repurchases of Common Stock

Line of Credit – Our revolving line of credit facility with Comerica expired on May 30, 2016 and was not renewed. The revolving line of credit agreement included 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 reduced the total line of credit available. The revolving line of credit was collateralized by a blanket lien on all of our domestic assets excluding intellectual property and real estate. The minimum borrowing interest rate was 3.00% per annum. Borrowing was limited to the lesser of (a) \$12.0 million plus the borrowing base, or (b) \$20.0 million.

Repurchases of Common Stock - In May 29, 2012, our Board of Directors approved a stock repurchase program to repurchase up to \$20.0 million of our common stock. Stock repurchases under the programs may be made through open market and privately negotiated transactions, at times and in such amounts as management deems appropriate. The timing and actual number of shares repurchased is dependent on a variety of factors including price, corporate and regulatory requirements and other market conditions.

There were no shares repurchased during fiscal year 2016.

Shares repurchased and retired for fiscal year 2015 and 2014 of the applicable repurchase programs, with the associated cost of repurchase and amount available for repurchase are as follows (in thousands, except number of shares and weighted average price per share):

	Fiscal Year 2015	Fiscal Year 2014
Number of shares of common stock repurchased	111,050	362,633
Weighted average price per share	\$ 15.49	\$ 14.74
Total cost of repurchase	\$ 1,721	\$ 5,344
Amount available for repurchase at end of period	\$ 4,397	\$ 6,118

\$4.4 million remained available for the future repurchase of our common stock under the 2012 program.

Business Partnership –On June 17, 2009, we announced a strategic business partnership with Zygo whereby we purchased inventory and certain other assets from Zygo, and the two companies entered into a supply agreement. We made payments to Zygo over a period of time, as acquired inventory was sold and other aspects of the supply agreement were executed. We made royalty and sustaining engineering payments of \$0.3 million and \$0.9 million to Zygo in fiscal years 2016 and 2015, respectively.

On December 8, 2016, we amended our supplier agreement with Zygo, of which, we are released from any existing and future contingent liability related to the supply agreement.

Off-Balance Sheet Arrangements

We had no off-balance sheet arrangements or obligations as of December 31, 2016 and December 26, 2015, respectively.

Contractual Obligations

The following table summarizes our contractual cash obligations as of December 31, 2016, and the effect of such obligations.

	Total	Payments due by period			
		Less than 1 year	1-3 years	4-5 years	More than 5 years
Purchase commitments - inventory ⁽¹⁾	\$ 30,592	\$ 30,592	\$ —	\$ —	\$ —
Other long-term liabilities	353	1	—	—	352
Operating lease obligations	3,886	1,562	1,944	380	—
Total	<u>\$ 34,831</u>	<u>\$ 32,155</u>	<u>\$ 1,944</u>	<u>\$ 380</u>	<u>\$ 352</u>

⁽¹⁾ We maintain certain open inventory purchase agreements with our suppliers to ensure a smooth and continuous supply availability for key components. Our liability under these purchase commitments is generally restricted to a forecasted time-horizon as mutually agreed upon between the parties. This forecasted time-horizon can vary among different suppliers. We estimate our open inventory purchase commitment as of December 31, 2016 was approximately \$30.6 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.

Excluded from the contractual obligation table above are \$3.7 million of future payments related to uncertain tax positions because we cannot reliably estimate the timing of the settlements with the respective tax authorities.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

We are exposed to financial market risks related to foreign currency exchange rates and interest rates.

Foreign Currency Risk

A substantial part of our business consists of sales made to customers outside the United States: 86%, 80%, and 78% of sales in 2016, 2015, and 2014, respectively; and 18%, 22%, and 16% of net revenues in 2016, 2015, and 2014, respectively, were denominated in currencies other than the U.S. dollar. Additionally, portions of our costs of net revenues and our operating expenses are incurred by our international operations and denominated in local currencies.

Our exposure to foreign currency exchange rate fluctuations arises in part from intercompany balances in which costs are charged between our U.S. headquarters and our foreign subsidiaries. On our consolidated balance sheet these intercompany balances are eliminated and thus no consolidated balances are associated with these intercompany balances; however, since each foreign entity's functional currency is generally its respective local currency, there is exposure to foreign exchange risk on a consolidated basis. Intercompany balances are denominated primarily in U.S. dollars and, to a lesser extent, other local currencies. The net intercompany balance, exposed to foreign currency risk, at December 31, 2016 was approximately \$11.5 million. A hypothetical change of 10% in the relative value of the US dollar versus local functional currencies could result in an increase or decrease of approximately \$1.2 million in transaction gains or losses which would be included in our statement of operations.

For 2016, 2015 and 2014, foreign currency transactions resulted in a loss of \$0.4 million, a gain of \$0.5 million and a gain of \$0.1 million, respectively.

In order to manage the level of exposure to the risk of foreign currency exchange rate fluctuations, we enter into foreign currency forward exchange contracts to protect against currency exchange risks associated with existing assets and liabilities. A foreign currency forward exchange contract acts as a hedge by increasing in value when underlying assets decrease in value or underlying liabilities increase in value due to changes in foreign exchange rates. Conversely, a foreign currency forward exchange contract decreases in value when underlying assets increase in value or underlying liabilities decrease in value due to changes in foreign exchange rates. These forward contracts are not designated as accounting hedges, so the unrealized gains and losses are recognized in other income, net, in advance of the actual foreign currency cash flows with the fair value of these forward contracts being recorded as accrued liabilities or other current assets.

We do not use forward contracts for trading purposes. Our forward contracts generally have maturities of 30 days or less. We enter into foreign currency forward exchange contracts based on estimated future asset and liability exposures, and the effectiveness of our hedging program depends on our ability to estimate these future asset and liability exposures. Recognized gains and losses with respect to our current hedging activities will ultimately depend on how accurately we are able to match the amount of foreign currency forward exchange contracts with actual underlying asset and liability exposures.

The following table provides information about our foreign currency forward exchange contracts as of December 31, 2016 and December 26, 2015. The information is provided in United States dollar equivalent amounts. The table presents the notional amounts, at contract exchange rates, and the weighted average contractual foreign currency exchange rates expressed as units of the foreign currency per United States dollar, which in some cases may not be the market convention for quoting a particular currency. All of the 2016 and 2015 forward contracts mature during January 2017 and January 2016, respectively.

	As of December 31, 2016		As of December 26, 2015	
	Notional Principal (in millions)	Contract Price	Notional Principal (in millions)	Contract Price
Forward Contracts				
Korean won	\$ 2.6	1,202.79	\$ 7.0	1,174.00
European Union euro	2.8	0.96	4.1	1.10
Israeli shekel	1.4	3.84	2.1	3.88
Singapore dollar	1.3	1.45	2.7	1.41
Chinese yuan	2.1	6.99	1.4	6.52
Japanese yen	1.0	116.31	13.2	121.27
Taiwanese dollar	1.8	32.21	—	—
British pound	0.9	0.81	—	—
Total	\$ 13.9		\$ 30.5	
Estimated Fair Value	\$ 13.9		\$ 30.4	

We actively monitor our foreign currency risks, but there is no guarantee that our foreign currency hedging activities will substantially offset the impact of fluctuations in currency exchange rates on our results of operations, cash flows and financial position.

Interest Rate Risk

Our exposure to market risk resulting from changes in interest rates relates primarily to our investment portfolio. At December 31, 2016, and December 26, 2015, we held \$82.9 million and \$44.9 million, respectively, in marketable securities. The fair value of our marketable securities could be adversely impacted due to a rise in interest rates, but we do not believe such impact would be material. Securities with longer maturities are subject to a greater interest rate risk than those with shorter maturities and as of December 31, 2016 and December 26, 2015, the average duration of our portfolio was less than six and nine months, respectively. We do not hold securities for trading purposes.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

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

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

	<u>Page</u>
Financial Statements:	
Report of Independent Registered Public Accounting Firm	34
Consolidated Balance Sheets	35
Consolidated Statements of Operations	36
Consolidated Statements of Comprehensive Income (Loss).....	37
Consolidated Statements of Stockholders' Equity.....	38
Consolidated Statements of Cash Flows	39
Notes to Consolidated Financial Statements.....	40
Supplementary Data:	
Selected Quarterly Financial Results (Unaudited).....	64

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of
Nanometrics Incorporated

In our opinion, the accompanying consolidated balance sheets and the related consolidated statements of operations, of comprehensive income (loss), of stockholders' equity, and of cash flows present fairly, in all material respects, the financial position of Nanometrics Incorporated and its subsidiaries at December 31, 2016 and December 26, 2015, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2016, in conformity with accounting principles generally accepted in the United States of America. In addition, in our opinion, the financial statement schedule listed in the index appearing under Item 15(a)(2) presents fairly, in all material respects, the information set forth therein when read in conjunction with the related consolidated financial statements. Also in our opinion, the Company did not maintain, in all material respects, effective internal control over financial reporting as of December 31, 2016, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) because a material weakness in internal control over financial reporting related to the existence of inventories subject to the cycle count program existed as of that date. A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of the annual or interim financial statements will not be prevented or detected on a timely basis. The material weakness referred to above is described in the Report of Management on Internal Control over Financial Reporting appearing under Item 9A. We considered this material weakness in determining the nature, timing, and extent of audit tests applied in our audit of the 2016 consolidated financial statements, and our opinion regarding the effectiveness of the Company's internal control over financial reporting does not affect our opinion on those consolidated financial statements. The Company's management is responsible for these financial statements and financial statement schedule, for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in management's report referred to above. Our responsibility is to express opinions on these financial statements, on the financial statement schedule, and on the Company's internal control over financial reporting based on our integrated audits. We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement and whether effective internal control over financial reporting was maintained in all material respects. Our audits of the financial statements included examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

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

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

/s/PricewaterhouseCoopers LLP
San Jose, California
March 2, 2017

NANOMETRICS INCORPORATED
CONSOLIDATED BALANCE SHEETS
(In thousands except share and per share amounts)

	December 31, 2016	December 26, 2015
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 47,062	\$ 38,154
Marketable securities	82,899	44,931
Accounts receivable, net of allowances of \$73 and \$150, respectively	39,457	37,832
Inventories	38,837	47,749
Inventories-delivered systems	2,457	2,856
Prepaid expenses and other	5,667	6,592
Total current assets	216,379	178,114
Property, plant and equipment, net	44,226	44,493
Goodwill	8,940	9,415
Intangible assets, net	412	1,867
Deferred income tax assets	17,399	1,118
Other assets	474	533
Total assets	<u>\$ 287,830</u>	<u>\$ 235,540</u>
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	\$ 11,342	\$ 11,675
Accrued payroll and related expenses	12,656	10,097
Deferred revenue	9,168	12,790
Other current liabilities	8,047	8,878
Income taxes payable	813	1,771
Total current liabilities	42,026	45,211
Deferred revenue	816	827
Income taxes payable	841	775
Deferred tax liability	20	521
Other long-term liabilities	353	878
Total liabilities	44,056	48,212
Commitments and contingencies (Note 11)		
Stockholders' equity:		
Preferred stock, \$0.001 par value; 3,000,000 shares authorized; no shares issued or outstanding	—	—
Common stock, \$0.001 par value, 47,000,000 shares authorized: 25,070,889 and 24,224,286, respectively, issued and outstanding	25	24
Additional paid-in capital	271,969	258,715
Accumulated deficit	(22,174)	(66,209)
Accumulated other comprehensive income	(6,046)	(5,202)
Total stockholders' equity	243,774	187,328
Total liabilities and stockholders' equity	<u>\$ 287,830</u>	<u>\$ 235,540</u>

See Notes to Consolidated Financial Statements

NANOMETRICS INCORPORATED
CONSOLIDATED STATEMENTS OF OPERATIONS
(In thousands except per share amounts)

	Years Ended		
	December 31, 2016	December 26, 2015	December 27, 2014
Net revenues:			
Products	\$ 185,066	\$ 146,945	\$ 133,589
Service	36,063	40,422	32,854
Total net revenues	<u>221,129</u>	<u>187,367</u>	<u>166,443</u>
Costs of net revenues:			
Cost of products	85,391	76,224	68,812
Cost of service	20,160	19,450	19,086
Amortization of intangible assets	1,454	2,026	2,723
Total costs of net revenues	<u>107,005</u>	<u>97,700</u>	<u>90,621</u>
Gross profit	<u>114,124</u>	<u>89,667</u>	<u>75,822</u>
Operating expenses:			
Research and development	31,443	32,701	33,776
Selling	30,181	28,055	27,033
General and administrative	23,381	22,444	23,980
Amortization of intangible assets	24	114	420
Restructuring charge	—	1,380	2,266
Total operating expenses	<u>85,029</u>	<u>84,694</u>	<u>87,475</u>
Income (loss) from operations	<u>29,095</u>	<u>4,973</u>	<u>(11,653)</u>
Other (income) expense:			
Interest income	35	71	47
Interest expense	(285)	(289)	(389)
Other income (expense), net	290	813	374
Total other income (expense), net	<u>40</u>	<u>595</u>	<u>32</u>
Income (loss) before income taxes	29,135	5,568	(11,621)
Provision for (benefit from) income taxes	(14,900)	2,663	19,497
Net income (loss)	<u>\$ 44,035</u>	<u>\$ 2,905</u>	<u>\$ (31,118)</u>
Net income (loss) per share:			
Basic	<u>\$ 1.79</u>	<u>\$ 0.12</u>	<u>\$ (1.30)</u>
Diluted	<u>\$ 1.75</u>	<u>\$ 0.12</u>	<u>\$ (1.30)</u>
Weighted average shares used in per share calculation:			
Basic	<u>24,655</u>	<u>24,059</u>	<u>23,958</u>
Diluted	<u>25,153</u>	<u>24,375</u>	<u>23,958</u>

See Notes to Consolidated Financial Statements

NANOMETRICS INCORPORATED
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)
(In thousands)

	Year Ended		
	December 31, 2016	December 26, 2015	December 27, 2014
Net income (loss)	\$ 44,035	\$ 2,905	\$ (31,118)
Other comprehensive income (loss):			
Change in foreign currency translation adjustment	(869)	(2,344)	(3,239)
Employee benefit plan adjustment	(17)	(76)	(106)
Net change on unrealized gains (losses) on available-for-sale investments	42	(13)	(36)
Other comprehensive loss	(844)	(2,433)	(3,381)
Comprehensive income (loss)	<u>\$ 43,191</u>	<u>\$ 472</u>	<u>\$ (34,499)</u>

See Notes to Consolidated Financial Statements

NANOMETRICS INCORPORATED
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(In thousands, except share amounts)

	Common Stock		Additional Paid-In Capital	Accumulated Deficit	Accumulated Other Comprehensive Income	Total Stockholders' Equity
	Shares	Amount				
Balance as of December 28, 2013	23,537,275	\$ 24	\$ 244,733	\$ (37,996)	\$ 612	\$ 207,373
Net loss				(31,118)	—	(31,118)
Employee benefit plan adjustment	—	—	—	—	(106)	(106)
Foreign currency translation adjustments	—	—	—	—	(3,239)	(3,239)
Unrealized gain on investments, net of tax	—	—	—	—	(36)	(36)
Issuance of common stock under stock-based compensation plans	639,087	—	5,255	—	—	5,255
Stock-based compensation expense	—	—	6,752	—	—	6,752
Repurchases and retirement of common stock under share repurchase plans	(362,633)	—	(5,344)	—	—	(5,344)
Balance as of December 27, 2014	23,813,729	24	251,396	(69,114)	(2,769)	179,537
Net income	—	—	—	2,905	—	2,905
Employee benefit plan adjustment	—	—	—	—	(76)	(76)
Foreign currency translation adjustments	—	—	—	—	(2,344)	(2,344)
Unrealized gain on investments, net of tax	—	—	—	—	(13)	(13)
Issuance of common stock under stock-based compensation plans	521,607	—	2,792	—	—	2,792
Stock-based compensation expense	—	—	6,248	—	—	6,248
Repurchases and retirement of common stock under share repurchase plans	(111,050)	—	(1,721)	—	—	(1,721)
Balance as of December 26, 2015	24,224,286	24	258,715	(66,209)	(5,202)	187,328
Net income	—	—	—	44,035	—	44,035
Employee benefit plan adjustment	—	—	—	—	(17)	(17)
Foreign currency translation adjustments	—	—	—	—	(869)	(869)
Unrealized gain on investments, net of tax	—	—	—	—	42	42
Issuance of common stock under stock-based compensation plans	846,603	1	6,624	—	—	6,625
Stock-based compensation expense	—	—	7,666	—	—	7,666
Excess tax benefit related to stock options	—	—	(1,036)	—	—	(1,036)
Balance as of December 31, 2016	25,070,889	\$ 25	\$ 271,969	\$ (22,174)	\$ (6,046)	\$ 243,774

See Notes to Consolidated Financial Statements

NANOMETRICS INCORPORATED
CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands)

	Years Ended		
	December 31, 2016	December 26, 2015	December 27, 2014
Cash flows from operating activities:			
Net income (loss)	\$ 44,035	\$ 2,905	\$ (31,118)
Reconciliation of net income (loss) to net cash provided by (used in) operating activities:			
Depreciation and amortization	8,295	9,075	9,767
Stock-based compensation	7,666	6,248	6,752
Excess tax benefit from equity awards	1,036	—	—
Disposal of fixed assets	478	1,121	249
Inventory write-down	2,110	2,645	2,897
Deferred income taxes	(16,783)	345	17,915
Changes in fair value of contingent payments to Zygo Corporation	(1,175)	(56)	201
Changes in assets and liabilities:			
Accounts receivable	(2,707)	(12,610)	3,861
Inventories	4,526	(16,431)	(7,173)
Inventories-delivered systems	399	(943)	4,988
Prepaid expenses and other	905	3,271	2,303
Accounts payable, accrued and other liabilities	2,462	4,167	1,790
Deferred revenue	(3,634)	1,006	(12,855)
Income taxes payable	(1,928)	828	(212)
Net cash provided by (used in) operating activities	45,685	1,571	(635)
Cash flows from investing activities:			
Sales of marketable securities	5,955	3,383	—
Maturities of marketable securities	38,775	41,863	38,839
Purchases of marketable securities	(82,864)	(41,449)	(41,100)
Purchases of property, plant and equipment	(3,999)	(1,846)	(5,792)
Net cash provided by (used in) investing activities	(42,133)	1,951	(8,053)
Cash flows from financing activities:			
Payments to Zygo Corporation related to acquisition	(315)	(851)	(587)
Proceeds from sale of shares under employee stock option plans and purchase plan	8,447	3,974	5,958
Excess tax benefit from equity awards	(1,036)	—	—
Taxes paid on net issuance of stock awards	(1,822)	(1,182)	(702)
Repurchases of common stock under share repurchase plans	—	(1,721)	(5,344)
Net cash provided by (used in) financing activities	5,274	220	(675)
Effect of exchange rate changes on cash and cash equivalents	82	(264)	(726)
Net increase (decrease) in cash and cash equivalents	8,908	3,478	(10,089)
Cash and cash equivalents, beginning of period	38,154	34,676	44,765
Cash and cash equivalents, end of period	\$ 47,062	\$ 38,154	\$ 34,676
Supplemental disclosure of cash flow information:			
Cash paid (refund) for income taxes, net	\$ 3,767	\$ (826)	\$ 861
Supplemental disclosure of non-cash investing activities:			
Transfer of inventory to property, plant and equipment, net	\$ 2,345	\$ 1,469	\$ 3,275

See Notes to Consolidated Financial Statements

NANOMETRICS INCORPORATED
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Note 1. Nature of Business, Basis of Presentation and Significant Accounting Policies

Description of Business – Nanometrics Incorporated (“Nanometrics” or the “Company”) and its wholly-owned subsidiaries design, manufacture, market, sell and support optical critical dimension ("OCD"), thin film and overlay dimension metrology and inspection systems used primarily in the manufacturing of semiconductors, solar photovoltaics (“solar PV”) and high-brightness LEDs (“HB-LED”), as well as by customers in the silicon wafer and data storage industries. Nanometrics' metrology systems precisely measure a wide range of film types deposited on substrates during manufacturing to control manufacturing processes and increase production yields in the fabrication of integrated circuits. The Company's OCD 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 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 overlay metrology systems are used to measure the overlay accuracy of successive layers of semiconductor patterns on wafers in the photolithography process. Nanometrics' inspection systems are used to find defects on patterned and unpatterned wafers at nearly every stage of the semiconductor production flow. The corporate headquarters of Nanometrics is located in Milpitas, California.

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

Fiscal Year – On October 17, 2014, the Board of Directors of the Company approved a change in the Company's fiscal year from a fiscal year ending on the Saturday closest to December 31 to a 52/53 week fiscal year ending on the last Saturday of the calendar year. For fiscal year ended December 31, 2016, the period presented consisted of a 53-week year. For fiscal years ended December 26, 2015 and December 27, 2014 the periods presented consisted of a 52-week year.

Upgrade Revenue and Related Cost - Beginning the first quarter of 2016, revenues associated with upgrade sales are now included under Products Revenues, and the related costs in Cost of Products Revenue. This change was due to the types of upgrades currently being sold, which are primarily system software and hardware performance upgrades to extend the features and functionality of a product. Previously upgrades consisted of a group of parts and/or software that change the existing configuration of a product. For the twelve months ended December 31, 2016, \$11.0 million related to upgrade sales and \$2.4 million of costs, are included in Products Revenues and Cost of Products Revenues. For the year ended December 26, 2015, \$7.9 million related to upgrade sales, and \$3.0 million of costs, are included in Service Revenues and Costs of Service Revenues, respectively, in the accompanying Condensed Consolidated Statement of Operations.

Use of Estimates – The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America ("U.S. GAAP") requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reported period. Actual results could differ materially from those estimates. Estimates are used for, but not limited to, revenue recognition, the provision for doubtful accounts, the provision for excess, obsolete, or slow moving inventories, valuation of intangible and long-lived assets, warranty accruals, 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, as well as remeasurement of assets and liabilities denominated in a currency other than the functional currency are reflected in “Other income (expense)” in the consolidated statements of operations in the period incurred, and consists of a \$0.4 million loss, a \$0.5 million gain and a \$0.1 million gain for the years ended December 31, 2016, December 26, 2015, and December 27, 2014, respectively.

Revenue Recognition – The Company derives revenue from the sale of process control metrology and inspection systems and related upgrades (“product revenue”) as well as spare part sales, billable service and service contracts (together “service revenue”). Upgrades are system software and hardware performance upgrades that extend the features and functionality of a product. As discussed above, commencing in the first quarter of 2016, upgrades are included in product revenue, which consists of sales of complete, advanced process control metrology and inspection systems (the “system(s)”). Nanometrics' systems consist of hardware and software components that function together to deliver the essential functionality of the system. Arrangements for sales of systems and upgrades often include defined customer-specified acceptance criteria.

NANOMETRICS INCORPORATED
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

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

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

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

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

The majority of other upgrades are sold based on published specifications. For simple upgrades that do not require major configuration, revenue is recognized at the time title and risk of loss transfer to the customer, which is usually upon shipment. For complex and extensive upgrades, specific acceptance or prior acceptance for a similar upgrade is required in order to recognize revenue.

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

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

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

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

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

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

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

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

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

Cash, Cash Equivalents and Marketable Securities – The Company considers all highly liquid investments with original maturities of three months or less, when purchased, to be cash equivalents. Marketable securities are classified as “available-for-sale” and are reported at fair value with unrealized gains and losses reported in stockholders' equity as a component of other comprehensive income. The cost of securities sold is based on the specific identification method. The Company classifies its investments as current based on the nature of the investment and their availability for use in current operations. The Company reviews its investment portfolio quarterly to determine if any securities may be other-than-temporarily impaired due to increased credit risk, changes in industry or sector of a certain instrument or ratings downgrades.

Fair Value of Financial Instruments – Financial instruments include cash and cash equivalents, accounts receivable and accounts payable. 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.

Derivatives – The Company enters into foreign currency forward exchange contracts to protect against currency exchange risks associated with existing assets and liabilities. A foreign currency forward exchange contract acts as a hedge by increasing in value when underlying assets decrease in value or underlying liabilities increase in value due to changes in foreign exchange rates. Conversely, a foreign currency forward exchange contract decreases in value when underlying assets increase in value or underlying liabilities decrease in value due to changes in foreign exchange rates. These forward contracts are not designated as accounting hedges, so the unrealized gains and losses are recognized in other income, net, in advance of the actual foreign currency cash flows with the fair value of these forward contracts being recorded as accrued liabilities or other current assets. The Company does not use forward contracts for trading purposes.

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

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

Inventories – Inventories are stated at the lower of 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. Once a reserve has been established, it is maintained until the part to which it relates is sold or is otherwise disposed of. The Company regularly evaluates its ability to realize the value of inventory based on a combination of factors including the following: historical usage rates, forecasted sales of usage, product end-of-life dates, estimated current and future market values and new product introductions. For demonstration inventory, the Company also considers the age of the inventory and potential cost to refurbish the inventory prior to sale. Demonstration inventory is amortized over its useful life and the amortization expense is included in total inventory write down on the statements of cash flows. When recorded, reserves are intended to reduce the carrying value of the Company's inventory to its net realizable value. If actual demand for the Company's products deteriorates, or market conditions are less favorable than those that the Company projects, additional reserves may be required.

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

Property, Plant and Equipment – Property, plant and equipment are stated at cost. Depreciation and amortization 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
Software	3-7 years

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

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

Long-Lived Assets – The Company evaluates its long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. When the sum of the undiscounted future net cash flows expected to result from the use of the asset and its eventual disposition is less than its carrying amount, impairment may exist. To determine the amount of impairment, the Company compares the fair value of the asset to its carrying value. If the carrying value of the asset exceeds its fair value, an impairment loss equal to the difference is recognized. See Note 7, "Goodwill and Intangible Assets" for further details.

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

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

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 it in estimating the warranty accrual. The warranty accrual represents the best estimate of the amount necessary to settle future and existing claims on products sold as of the balance sheet date. The Company periodically assesses the adequacy of its recorded warranty reserve and adjusts the amounts in accordance with changes in these factors.

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

Advertising Costs – The Company expenses advertising costs as incurred. Advertising costs were \$0.2 million in 2016, \$0.3 million in 2015, and \$0.2 million in 2014.

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

Net Income (Loss) 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 per share reflects the potential dilution from outstanding dilutive stock options (using the treasury stock method) restricted stock units subject to vesting and shares issuable under the employee stock purchase plan. In applying the treasury stock method 0.5 million and 0.3 million stock option shares for fiscal year 2016 and 2015, respectively, were included in the calculation of diluted shares. During fiscal 2014, the Company incurred a net loss, therefore, diluted net loss per share excludes 0.4 million shares that were anti-dilutive.

Certain Significant Risks and Uncertainties – Financial instruments that potentially subject us to a concentration of credit risk consist of cash, cash equivalents, marketable securities, and accounts receivable. The Company's cash and cash equivalents are primarily invested in deposit accounts and money market accounts with large financial institutions. At times, these deposits and securities may exceed federally insured limits; however, the Company has not experienced any losses on such accounts. The Company invests its cash not required for use in operations in high credit quality securities based on the Company's investment policy. The Company's investment policy provides guidelines and limits regarding credit quality, investment concentration, investment type, and maturity that the Company believes will provide liquidity while reducing risk of loss of capital. Investments are of a short-term nature and include investments in commercial paper, corporate debt securities, U.S. Treasury, U.S. Government, and U.S. Agency debt.

The Company sells its products primarily to end users in the United States, Asia and Europe and, generally, does not require its customers to provide collateral or other security to support accounts receivable. Management performs ongoing credit evaluations of its customers' financial condition and maintains an allowance for estimated potential bad debt losses. The Company's customer base is highly concentrated and historically, a relatively small number of customers have accounted for a significant portion of its revenues. Aggregate revenue from the Company's top five largest customers in 2016, 2015 and 2014 consisted of 73%, 69% and 72%, respectively, of its total net revenues. The Company participates in a dynamic high technology industry and believes that changes in any of the following areas could have a material adverse effect on its future financial position, results of operations or cash flows: advances and trends in new technologies and industry standards; competitive pressures in the form of new products or price reductions on current products; changes in product mix; changes in the overall demand for products offered; changes in third-party manufacturers; changes in key suppliers; changes in certain

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

strategic relationships or customer relationships; litigation or claims against the Company based on intellectual property, patent, product, regulatory or other factors; fluctuations in foreign currency exchange rates; risk associated with changes in domestic and international economic and/or political regulations; availability of necessary components or sub-assemblies; disruption of manufacturing facilities; and its ability to attract and retain employees necessary to support its growth.

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

Note 2. Recent Accounting Pronouncements

Recently Issued Accounting Pronouncements

In January 2017, the Financial Accounting Standards Board (the "FASB") issued an accounting standard update which simplifies the subsequent measurement of goodwill and removes step 2 from the goodwill impairment test. Instead, an entity should record an impairment charge based on excess of a reporting unit's carrying amount over its fair value. The standard is effective for public companies for fiscal years beginning after December 15, 2019. Early adoption is permitted for interim or annual goodwill impairment tests performed on testing dates after January 1, 2017. The Company is currently evaluating the effect of this update on its consolidated financial condition and results of operations.

In October 2016, the FASB issued an accounting standard update which requires the recognition of the income tax consequences of an intra-entity transfer of an asset, other than inventory, when the transfer occurs. This standard will be effective for annual reporting periods beginning after December 15, 2017, including interim reporting period within those annual periods. Early adoption is permitted. This standard update is required to be adopted using the modified retrospective approach, with a cumulative catch-up adjustment to retained earnings in the period of adoption. The Company is currently evaluating the impact of adopting this standard on its consolidated financial condition and results of operations.

In August 2016, the FASB issued an accounting standard which addresses eight specific cash flow classification issues. This update is effective for public companies for fiscal years beginning after December 15, 2017 and interim periods within those fiscal years. Early adoption is permitted, including in an interim period. If early adopted in an interim period, any adjustments should be reflected as of the beginning of the fiscal year that includes that interim period, and all the amendments must be adopted in the same period. The standard is to be applied through a retrospective transition method to each period presented. If it is impracticable to apply retrospectively for some of the issues, the amendments for those issues would be applied prospectively as of the earliest date practicable. The Company is currently evaluating the impact of adopting this update on its consolidated statements of cash flows.

In June 2016, the FASB issued an accounting standard which requires measurement and timely recognition of expected credit losses for financial assets. The update is effective for fiscal years beginning after December 15, 2019, including interim periods within those fiscal years. Early adoption is permitted as of the fiscal years beginning after December 15, 2018, including interim periods within those fiscal years. The standard is to be applied through a cumulative-effect adjustment to retained earnings as of the beginning of the first reporting period in which the guidance is effective. The Company is currently evaluating the effect of this update on its consolidated financial condition and results of operations.

In March 2016, the FASB issued an accounting standards update that simplifies several aspects of the accounting for share-based payment award transactions, including income tax consequences, classification of awards as equity or liability, and classification on the statement of cash flows. The standard is effective for public companies for annual reporting periods beginning after December 16, 2016, and interim periods within those annual periods. Early adoption is permitted. Upon adoption, the Company will continue to estimate forfeitures expected to occur to determine the amount of compensation cost to be recognized in each period. The standard requires excess tax benefits and tax deficiencies to be recorded in the income statement when the awards vest or are settled rather than paid-in capital increasing volatility in results of operations. The Company will apply the presentation requirements for the cash flows related to excess tax benefits. The cash flows related to employee taxes paid for withheld shares will be presented as a financing activity as required under the new guidance. Finally, the standard eliminates the requirement to delay the recognition of excess tax benefits until it reduces current taxes payable. The Company is unable to estimate the impact of adoption as it is dependent upon future stock option exercises which cannot be predicted. However, the Company is expecting the adoption of the standard to have an impact on net income, basic and diluted earnings per share, deferred tax assets, net cash from operations, and the effective tax rate.

NANOMETRICS INCORPORATED
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

In February 2016, the FASB issued an accounting standards update which requires lessees to record a right-of-use asset and a corresponding lease liability on the balance sheet (with the exception of short-term leases). For lessees, leases will continue to be classified as either operating or financing in the income statement. The standard is effective for public companies for annual reporting periods beginning after December 15, 2018, including interim periods within those fiscal years. Early adoption is permitted. This standard is required to be applied with a modified retrospective transition approach. The Company generally does not finance purchases of equipment or other capital, but does lease some equipment and facilities. The Company is currently evaluating the impact of this standard on its consolidated financial statements and related disclosures but anticipates the majority of its existing operating lease commitments will be recognized as operating lease liabilities and right-of-use assets.

In November 2015, the Financial Accounting Standards Board ("FASB") issued an accounting standards update that amends existing guidance to require that deferred income tax liabilities and assets be classified as noncurrent in a classified balance sheet, and eliminates the prior guidance which required an entity to separate deferred tax liabilities and assets into a current amount and a noncurrent amount in a classified balance sheet. As permitted, the Company early-adopted this standard in fiscal year 2015 on a prospective basis. No prior periods were retrospectively adjusted.

In July 2015, the FASB issued an accounting standards update which simplifies the measurement of inventory by requiring inventory to be measured at the lower of cost and net realizable value. The new standard applies only to inventories for which cost is determined by methods other than last-in-first-out and the retail inventory method. It is effective for public companies for annual reporting periods beginning after December 15, 2016, and interim periods within those fiscal years. The Company does not expect the application of this standard to have a material impact on our consolidated financial statements.

In May 2014, the FASB issued an accounting standards update which requires an entity to recognize the amount of revenue to which it expects to be entitled for the transfer of promised goods or services to customers. The updated standard will replace most existing revenue recognition guidance in U.S. GAAP when it becomes effective and permits the use of either the retrospective or cumulative effect transition method. In August 2015, the FASB deferred for one year the effective date of the new revenue standard, with early adoption permitted but not earlier than the original effective date. Consequently, the new standard will be effective for the Company on December 31, 2017 and the Company does not plan to adopt early. The Company has not yet selected a transition method and is currently evaluating the effect that the updated standard will have on its consolidated financial statements and related disclosures.

While the Company continues to assess the impact of the new standard, the Company believes the most likely impact will be to the accounting for arrangements that include incentives or services bundled with volume purchases. Under current U.S. GAAP, the revenue attributable to these incentives is recognized when the incentives performance conditions are met. While the Company currently expects revenue related to these arrangements to remain unchanged, the nature of the performance obligations may change the timing of the revenue recognition. The Company is currently evaluating the impact of the new standard on these arrangements and will continue to monitor industry activities and other guidance provided by the accounting profession and regulators and adjust our approach and implementation plans as required.

Note 3. Fair Value Measurements and Disclosures

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

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

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

Level 3 — Unobservable inputs that are supported by little or no market activity and are significant to the fair value of the assets or liabilities. Such unobservable inputs include an estimated discount rate used in the Company's discounted present value analysis of future cash flows, which reflects the Company's estimate of debt with similar terms in the current credit markets. As there is currently minimal activity in such markets, the actual rate could be materially different.

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

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

The following tables present the Company's assets and liabilities measured at estimated fair value on a recurring basis, excluding accrued interest components, categorized in accordance with the fair value hierarchy (in thousands), as of the following dates:

	December 31, 2016				December 26, 2015			
	Fair Value Measurements Using Input Types			Total	Fair Value Measurements Using Input Types			Total
	Level 1	Level 2	Level 3		Level 1	Level 2	Level 3	
<u>Assets:</u>								
<u>Cash equivalents:</u>								
Money market funds	\$ 959	\$ —	\$ —	\$ 959	\$ 590	\$ —	\$ —	\$ 590
Commercial paper and corporate debt securities	—	2,499	—	2,499	—	4,568	—	4,568
Total cash equivalents	\$ 959	\$ 2,499	\$ —	\$ 3,458	\$ 590	\$ 4,568	\$ —	\$ 5,158
<u>Marketable securities:</u>								
U.S. Treasury, U.S. Government and U.S. Government agency debt securities	—	17,072	—	17,072	4,401	20,164	—	24,565
Certificate of deposits	—	23,019	—	23,019	—	—	—	—
Commercial paper	—	22,402	—	22,402	—	1,884	—	1,884
Municipal securities and corporate debt securities	—	14,943	—	14,943	—	18,482	—	18,482
Asset backed securities	—	5,463	—	5,463	—	—	—	—
Total marketable securities	\$ —	\$ 82,899	\$ —	\$ 82,899	\$ 4,401	\$ 40,530	\$ —	\$ 44,931
Total ⁽¹⁾	\$ 959	\$ 85,398	\$ —	\$ 86,357	\$ 4,991	\$ 45,098	\$ —	\$ 50,089

Liabilities:

Contingent consideration payable	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ 1,490	\$ 1,490
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⁽¹⁾ Excludes \$43.6 million and \$33.0 million held in operating accounts as of December 31, 2016 and December 26, 2015, respectively.

The fair values of the marketable securities that are classified as Level 1 in the table above were derived from quoted market prices for identical assets or liabilities in active markets that the Company has the ability to access. The fair value of marketable securities that are classified as Level 2 in the table above were derived from non-binding market consensus prices that were corroborated by observable market data, quoted market prices for similar instruments, or pricing models, such as discounted cash flow techniques with all significant inputs derived from or corroborated by observable market data. There were no transfers of instruments between Level 1, Level 2 and Level 3 during the financial periods presented.

NANOMETRICS INCORPORATED
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

<u>Changes in Level 3 liabilities</u>	<u>(in thousands)</u>
Fair value at December 27, 2014	\$ 2,397
Payments made to Zygo Corporation	(851)
Change in fair value included in earnings	(56)
Fair value at December 26, 2015	1,490
Payments made to Zygo Corporation	(315)
Change in fair value included in earnings	(1,175)
Fair value at December 31, 2016	<u>\$ —</u>

As of December 31, 2016, the Company settled its liabilities of \$1.2 million from Zygo Corporation, a wholly-owned subsidiary of AMETEK, Inc. (“Zygo”). Under the settlement agreement with Zygo, the company is released from any existing and future contingent liability related to the supply agreement.

As of December 26, 2015, the Company had liabilities of \$1.5 million resulting from the acquisition of certain assets from Zygo which are measured at fair value on a recurring basis. Of the \$1.5 million of Zygo liability at December 26, 2015, \$0.9 million was a current liability and \$0.6 million was a long-term liability. The fair values of these liabilities were determined using Level 3 inputs using a discounted cash flow model incorporating assumptions that market participants would use in their estimates of fair value. Some of these assumptions included estimates for discount rate, and timing and the amount of cash flows.

Derivatives

The Company uses foreign currency forward contracts to mitigate variability in gains and losses generated from the re-measurement of certain monetary assets and liabilities denominated in foreign currencies. These derivatives are carried at fair value with changes recorded in other income (expense), net in the consolidated statements of operations. Changes in the fair value of these derivatives are largely offset by re-measurement of the underlying assets and liabilities. The derivatives have maturities of approximately 30 days.

The loss on settlement of forward foreign currency contracts included in the fiscal year ended December 31, 2016 and December 26, 2015, were \$1.7 million and \$0.3 million, respectively, and these balances are included in other income (expense), net, in the consolidated statements of operations.

The following table summarizes the Company’s outstanding derivative instruments on a gross basis:

	<u>As of December 31, 2016</u> <u>Notional Principal</u> <u>(in millions)</u>	<u>As of December 26, 2015</u> <u>Notional Principal</u> <u>(in millions)</u>
Undesignated Hedges:		
Forward Foreign Currency Contracts	<u>\$ 13.9</u>	<u>\$ 30.5</u>

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

Note 4. Cash and Investments

The following table presents cash, cash equivalents, and available-for-sale investments as of the following dates (in thousands):

	December 31, 2016			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Market Value
Cash	\$ 43,604	\$ —	\$ —	\$ 43,604
Cash equivalents:				
Money market funds	959	—	—	959
Commercial paper and corporate debt securities	2,499	—	—	2,499
Marketable securities:				
U.S. Treasury securities	5,667	—	—	5,667
U.S. Government agency securities	11,412	—	(7)	11,405
Certificates of deposits	23,000	19	—	23,019
Commercial paper	22,402	—	—	22,402
Corporate debt securities	14,194	—	(6)	14,188
Municipal securities	756	—	(1)	755
Asset-backed securities	5,466	—	(3)	5,463
Total cash, cash equivalents, and marketable securities	<u>\$ 129,959</u>	<u>\$ 19</u>	<u>\$ (17)</u>	<u>\$ 129,961</u>

	December 26, 2015			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Market Value
Cash	\$ 32,996	\$ —	\$ —	\$ 32,996
Cash equivalents:				
Money market funds	590	—	—	590
Commercial paper and corporate debt securities	4,568	—	—	4,568
Marketable securities:				
U.S. Treasury securities	4,411	—	(10)	4,401
U.S. Government agency securities	20,193	1	(29)	20,165
Commercial paper	1,884	—	—	1,884
Corporate debt securities	14,759	—	(23)	14,736
Municipal securities	3,747	1	(3)	3,745
Total cash, cash equivalents, and marketable securities	<u>\$ 83,148</u>	<u>\$ 2</u>	<u>\$ (65)</u>	<u>\$ 83,085</u>

Available-for-sale marketable securities, readily convertible to cash, with maturity dates of 90 days or less are classified as cash equivalents, while those with maturity dates greater than 90 days are classified as marketable securities within short-term assets. All marketable securities as of December 31, 2016 and December 26, 2015, were available-for-sale and reported at fair value based on the estimated or quoted market prices as of the balance sheet date. Gross realized gain and losses on sale of securities are recorded in other income, net, in our statement of operations. Net realized gains and losses for fiscal 2016, 2015, and 2014 was \$0.5 million, \$0.2 million and \$0.2 million, respectively.

Unrealized gains or losses, net of tax effect, are recorded in accumulated other comprehensive income (loss) within stockholders' equity. Both the gross unrealized gains and gross unrealized losses for the fiscal years ended December 31, 2016, and December 26, 2015 were insignificant and no marketable securities had other than temporary impairment. All marketable securities as of December 31, 2016 and December 26, 2015, had maturity dates of less than two years.

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

Note 5. 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 sheets as the criteria for sale treatment had been met. After a transfer of financial assets, an entity stops recognizing the financial assets when 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 0.77% to 1.68% based on the anticipated length of time between the date the sale is consummated and the expected collection date of the receivables sold. The Company sold \$31.5 million and \$15.7 million of receivables during fiscal years ended December 31, 2016 and December 26, 2015, respectively. There were no material gains or losses on the sale of such receivables. There were no amounts due from such third party financial institutions at December 31, 2016 and December 26, 2015.

Note 6. Financial Statement Components

The following tables provide details of selected financial statement components as of the following dates (in thousands):

	At	
	December 31, 2016	December 26, 2015
Inventories:		
Raw materials and sub-assemblies	\$ 23,506	\$ 26,784
Work in process	10,347	12,862
Finished goods	4,984	8,103
Inventories	38,837	47,749
Inventories-delivered systems	2,457	2,856
Total inventories	<u>\$ 41,294</u>	<u>\$ 50,605</u>
Property, plant and equipment, net: ⁽¹⁾		
Land	\$ 15,568	\$ 15,569
Building and improvements	20,532	20,158
Machinery and equipment	35,659	32,995
Furniture and fixtures	2,282	2,266
Software	9,756	8,245
Capital in progress	2,748	1,328
Total property, plant and equipment, gross	86,545	80,561
Accumulated depreciation and amortization	(42,319)	(36,068)
Total property, plant and equipment, net	<u>\$ 44,226</u>	<u>\$ 44,493</u>

(1) Total depreciation and amortization expense for the years ended December 31, 2016, December 26, 2015 and December 27, 2014 was \$6.8 million, \$6.9 million, and \$6.6 million, respectively.

Other Current Liabilities:

Accrued warranty	\$ 3,838	\$ 4,504
Accrued taxes	290	646
Customer deposits	581	290
Retrofit liability	432	—
Fair value of current portion of contingent payments to Zygo Corporation related to acquisition	—	945
Accrued professional services	424	481
Accrued royalties	1,233	437
Other	1,249	1,575
Total other current liabilities	<u>\$ 8,047</u>	<u>\$ 8,878</u>

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

Components of Accumulated Other Comprehensive Income (Loss)

	Years Ended			
	Foreign Currency Translations	Defined Benefit Pension Plans	Unrealized Income (Loss) on Investment	Accumulated Other Comprehensive Income
Balance as of December 27, 2014	\$ (2,604)	\$ (134)	\$ (31)	\$ (2,769)
Current period change	(2,344)	(76)	(13)	(2,433)
Balance as of December 26, 2015	(4,948)	(210)	(44)	(5,202)
Current period change	(869)	(17)	42	(844)
Balance as of December 31, 2016	<u>\$ (5,817)</u>	<u>\$ (227)</u>	<u>\$ (2)</u>	<u>\$ (6,046)</u>

The items above, except for unrealized income (loss) on investment, did not impact the Company's income tax provision. The amounts reclassified from each component of accumulated other comprehensive income into income statement line items were insignificant.

Note 7. Goodwill and Intangible Assets

The following table summarizes the activity in the Company's goodwill during the years ended December 31, 2016 and December 26, 2015, respectively (in thousands):

	Amounts
Balance as of December 28, 2014	\$ 10,494
Foreign currency movements	(1,079)
Balance as of December 26, 2015	9,415
Foreign currency movements	(475)
Balance as of December 31, 2016	<u>\$ 8,940</u>

There were no business acquisitions made by the Company during fiscal years 2016, 2015 and 2014.

Goodwill Impairment and Long-lived Asset Impairment

The Company's impairment review process is completed during the fourth quarter of each year, or whenever events or circumstances occur that indicate that an impairment may have occurred. The goodwill impairment assessment involves three tests, Step 0, Step 1 and Step 2. The Company performs a Step 0 test, which involves an initial qualitative assessment to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying value. If, after assessing the qualitative factors, the Company determines that it is more likely than not that the fair value of a reporting unit is less than its carrying value, then performing the two-step impairment test is necessary. Otherwise, no further testing is necessary.

The Company completed its annual goodwill impairment assessment during the fourth quarter of 2016 by first performing a Step 0 qualitative assessment. As part of this assessment, the Company considered the trading value of the Company's stock, the industry trends, and the Company's sales forecast and products plans. The Company concluded that it was more likely than not that the fair value was more than the carrying values of the Company's reporting unit and therefore did not proceed to the Step 1 goodwill impairment test.

The process of evaluating the potential impairment of long-lived assets is highly subjective and requires significant judgment. In estimating the fair value of these assets, the Company made estimates and judgments about future revenues and cash flows. The Company's forecasts were based on assumptions that are consistent with the plans and estimates the Company is using to manage its business. Changes in these estimates could change the Company's conclusion regarding impairment of the long-lived assets and potentially result in future impairment charges for all or a portion of their balance at December 31, 2016. The Company did not record any impairment charges related to goodwill in fiscal year 2016.

The Company assesses if there have been triggers that may require it to evaluate the reasonableness of the remaining estimated useful lives of its intangible assets. No such triggers were identified during fiscal year 2016.

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

Finite-lived intangible assets are recorded at cost, less accumulated amortization. Finite-lived intangible assets as of December 31, 2016 and December 26, 2015 consisted of the following (in thousands):

	December 31, 2016		
	Adjusted cost	Accumulated amortization	Net carrying amount
Developed technology	\$ 15,726	\$ (15,380)	\$ 346
Customer relationships	9,322	(9,322)	—
Brand names	1,927	(1,927)	—
Patented technology	2,252	(2,186)	66
Trademark	80	(80)	—
Total	<u>\$ 29,307</u>	<u>\$ (28,895)</u>	<u>\$ 412</u>

	December 26, 2015		
	Adjusted cost	Accumulated amortization	Net carrying amount
Developed technology	\$ 16,098	\$ (14,387)	\$ 1,711
Customer relationships	9,364	(9,364)	—
Brand names	1,927	(1,903)	24
Patented technology	2,252	(2,120)	132
Trademark	80	(80)	—
Total	<u>\$ 29,721</u>	<u>\$ (27,854)</u>	<u>\$ 1,867</u>

The amortization of finite-lived intangibles is computed using the straight-line method. Estimated lives of finite-lived intangibles range from two to ten years. Total amortization expense for the fiscal years ended December 31, 2016, December 26, 2015 and December 27, 2014, was \$1.5 million, \$2.1 million and \$3.1 million, respectively.

There were no impairment charges related to intangible assets recorded during the year ended December 31, 2016.

The estimated future amortization expense of finite intangible assets as of December 31, 2016, is as follows (in thousands):

Fiscal Years	Amounts
2017	206
2018	140
2019	66
Thereafter	—
Total future amortization expense	<u>\$ 412</u>

Note 8. Warranties

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

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

Components of the warranty accrual, which were included in the accompanying consolidated balance sheets with other current liabilities, were as follows (in thousands):

	Years Ended	
	December 31, 2016	December 26, 2015
Balance as of beginning of period	\$ 4,504	\$ 2,953
Accruals for warranties issued during period	4,509	8,332
Settlements during the period	(5,175)	(6,781)
Balance as of end of period	<u>\$ 3,838</u>	<u>\$ 4,504</u>

Note 9. Restructuring

The Company recorded a restructuring charge of approximately \$2.3 million in 2014 as a result of its decision to consolidate and reorganize certain aspects of its operations, primarily in the U.K. This amount included charges primarily related to employee severance, other expenses (primarily vendor contract termination costs) and early termination costs of a facility lease.

The Company recorded a restructuring charge of approximately \$1.4 million in 2015 as a result of its decision to maximize operating effectiveness. This amount includes charges primarily related to employee severance and related costs.

As of December 31, 2016, the Company had completed and settled in full all cash payments related to these charges.

The table below summarizes the components of the Company's restructuring reserves for the years ended December 31, 2016 and December 26, 2015, and December 27, 2014 (in thousands):

	Employee severance and benefits	Facility termination costs	Other	Total
Balance as of December 28, 2013	\$ —	\$ —	\$ —	\$ —
Charges	1,163	784	319	2,266
Cash Payments	(780)	(201)	(288)	(1,269)
Balance as of December 27, 2014	\$ 383	\$ 583	\$ 31	\$ 997
Charges	1,369	—	11	1,380
Cash Payments	(1,752)	(334)	(35)	(2,121)
Balance as of December 26, 2015	\$ —	\$ 249	\$ 7	\$ 256
Charges	—	—	—	—
Cash Payments	—	(249)	(7)	(256)
Balance as of December 31, 2016	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>

Note 10. Line of Credit and Debt Obligations

Line of Credit – The Company's revolving line of credit facility of up to \$12.0 million expired on May 30, 2016 and was not renewed.

Note 11. Commitments and Contingencies

Intellectual Property Indemnification Obligations – The Company will, from time to time, in the normal course of business, agree to indemnify certain customers, vendors or others against third party claims that Nanometrics' products, when used for their intended purpose(s), or the Company's intellectual property, infringe the intellectual property rights of such third parties or other claims made against parties with whom it enters into contractual relationships. 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 that the estimated fair value of these agreements is immaterial. Accordingly, no liabilities have been recorded for these obligations in the accompanying consolidated balance sheets as of December 31, 2016 and December 26, 2015.

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

The Company maintains certain open inventory purchase agreements with its suppliers to ensure a smooth and continuous supply availability for key components. The Company's liability under these purchase commitments is generally restricted to a forecasted time-horizon as mutually agreed upon between the parties. This forecasted time-horizon can vary among different suppliers. The Company estimates its open inventory purchase commitment as of December 31, 2016 was approximately \$30.6 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.

The Company leases facilities and certain equipment under non-cancelable operating leases. Rent expense, which is recorded on a straight-line basis over the term of the respective lease, for 2016, 2015 and 2014 was approximately \$1.8 million, \$1.7 million and \$2.0 million, respectively. Future minimum lease payments under its operating leases are as follows (in thousands):

	<u>Operating Leases</u>
2017	\$ 1,562
2018	1,189
2019	755
2020	301
2021	79
Thereafter	—
Total	<u>\$ 3,886</u>

On June 17, 2009, the Company announced a strategic business partnership with Zygo Corporation ("Zygo") whereby it has purchased inventory and certain other assets from Zygo, and the two companies entered into a supply agreement. The Company made payments to Zygo over a period of time as acquired inventory was sold and other aspects of the supply agreement were executed. The Company made royalty and sustaining engineering payments of \$0.3 million and \$0.9 million to Zygo in fiscal years 2016 and 2015, respectively.

On December 8, 2016, the Company amended its agreement with Zygo, of which, the Company is released from any existing and future contingent liabilities to Zygo.

Note 12. Net Income (Loss) Per Share

The Company presents both basic and diluted net income (loss) per share on the face of its consolidated statements of operations. Basic net income (loss) per share excludes the effect of potentially dilutive shares and is computed by dividing net income (loss) by the weighted-average number of shares of common stock outstanding for the period. Diluted net income per share is computed using the weighted-average number of shares of common stock outstanding for the period plus the effect to all potentially dilutive common shares outstanding during the period, including contingently issuable shares and certain stock options, calculated using the treasury stock method. A reconciliation of the share denominator of the basic and diluted net income (loss) per share computations is as follows (in thousands):

	<u>Years Ended</u>		
	<u>December 31, 2016</u>	<u>December 26, 2015</u>	<u>December 27, 2014</u>
Weighted average common shares outstanding used in basic net income (loss) per share calculation	24,655	24,059	23,958
Potential dilutive common stock equivalents, using treasury stock method	498	316	—
Weighted average shares used in diluted net income (loss) per share calculation	<u>25,153</u>	<u>24,375</u>	<u>23,958</u>

For the year ended December 31, 2016, December 26, 2015, and December 27, 2014, the Company had securities outstanding which could potentially dilute basic earnings per share in the future. For the years ended December 31, 2016 and December 26, 2015, weighted average common share equivalents consisting of stock options and restricted stock units included in the calculation of diluted net income per share were 0.5 million and 0.3 million shares, respectively. For the year ended December 27, 2014 potential dilutive common stock equivalents of 0.4 million shares were anti-dilutive and therefore were excluded from the calculation due to the net loss position.

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

Note 13. Stockholders' Equity and Stock-Based Compensation

Stockholders' Equity

Preferred and Common Stock

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

Stock Repurchase

On May 29, 2012, the Company's Board of Directors approved a program to repurchase up to \$20.0 million of its common stock, referred to as the 2012 program. Stock repurchases under this program may be made through open market and privately negotiated transactions, at times and in such amounts as management deems appropriate. The timing and actual number of shares repurchased is dependent on a variety of factors including price, corporate and regulatory requirements and other market conditions.

There were no shares repurchased and retired during fiscal year 2016.

Shares repurchased and retired for fiscal year 2015 and 2014 of the applicable repurchase programs, with the associated cost of repurchase and amount available for repurchase at the end of the respective periods are as follows (in thousands, except number of shares and weighted average price per share):

	Fiscal Year 2015	Fiscal Year 2014
Number of shares of common stock repurchased	111,050	362,633
Weighted average price per share	\$ 15.49	\$ 14.74
Total cost of repurchase	\$ 1,721	\$ 5,344
Amount available for repurchase at end of period	\$ 4,397	\$ 6,118

\$4.4 million remained available for the future repurchase of our common stock under the 2012 program.

Stock Option Plans

The Nanometrics option plans are as follows:

Plan Name	Participants	Shares Authorized
2005 Equity Incentive Plan	Employees, consultants and directors	7,292,594
2002 Non-statutory Stock Option Plan	Employees and consultants	1,200,000
2000 Employee Stock Option Plan	Employees and consultants	2,450,000
2000 Director Stock Option Plan	Non-employee directors	250,000
Accent Optical Technologies, Inc. Stock Incentive Plan	Employees and consultants	205,003

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 statutory limitation. At the end of the fiscal year ended December 31, 2016, the Company had 0.1 million shares remaining for issuance under the ESPP. Shares purchased under the ESPP were 212,619 shares, 125,504 shares and 122,112 shares in 2016, 2015 and 2014 at a weighted average price of \$14.29, \$13.98 and \$13.76, respectively.

Stock-based Compensation

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

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

Valuation and Expense Information

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

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

	Fiscal Year 2016	Fiscal Year 2015	Fiscal Year 2014
Stock Options:			
Expected life	—	—	4.6 years
Volatility	—	—	54.9 %
Risk free interest rate	—	—	1.54 %
Dividends	—	—	—
Employee Stock Purchase Plan:			
Expected life	0.5 years	0.5 years	0.5 years
Volatility	38.7 %	36.9 %	31.2 %
Risk free interest rate	0.44 %	0.12 %	0.54 %
Dividends	—	—	—

Stock Options and Restricted Stock Units ("RSUs")

On May 24, 2013, the Company approved further amendments to the 2005 Equity Incentive Plan including: increasing the number of shares of common stock authorized by 2.6 million shares, changing the multiplier ratio from 2:1 to 1.7:1 against the plan for each award, other than a stock option or stock appreciation right, and providing the maximum term of stock options to be seven years. All other terms remained the same.

Stock Options

The weighted average fair value per share of the stock options awarded in fiscal year 2014 was \$8.13. No stock options were granted in fiscal years 2015 and 2016. A summary of activity of stock options is as follows:

	Number of Shares Outstanding (Options)	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term (Years)	Aggregate Intrinsic Value (in Thousands)
Options				
Outstanding at December 27, 2014	1,382,993	\$ 13.92	3.41	\$ 4,108
Exercised	(229,510)	9.65		
Cancelled/Forfeited	(94,012)	16.67		
Outstanding at December 26, 2015	1,059,471	14.61	2.47	\$ 1,920
Exercised	(442,339)	13.66		
Cancelled/Forfeited	(176,587)	15.83		
Outstanding at December 31, 2016	440,545	15.06	2.12	\$ 4,405
Exercisable at December 31, 2016	407,920	\$ 14.94	2.00	\$ 4,129

The aggregate intrinsic value in the above table represents the total pretax intrinsic value, based on the Company's closing stock price of \$25.06 as of December 31, 2016, 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 2016, 2015 and 2014 was \$2.7 million, \$1.6 million and \$3.0 million, respectively. The fair value of options vested during 2016, 2015 and 2014 was \$0.7 million, \$1.5 million and \$3.2 million, respectively.

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

The following table summarizes ranges of outstanding and exercisable options as of December 31, 2016.

Exercise Prices	Options Outstanding			Options Exercisable	
	Number Outstanding	Weighted Average Remaining Contractual Life (Years)	Weighted Average Exercise Price	Number Exercisable	Weighted Average Exercise Price
\$9.5-\$10.46	17,400	0.32	\$ 10.05	17,400	\$ 10.05
\$11.37-\$11.37	114,166	0.88	11.37	114,166	11.37
\$12.98-\$15.33	45,691	3.01	14.36	38,954	14.34
\$15.35-\$15.74	44,437	2.58	15.65	40,586	15.65
\$15.85-\$15.85	60,000	3.19	15.85	56,250	15.85
\$15.97-\$17.33	57,166	2.30	16.89	48,527	16.85
\$17.7-\$18.27	36,935	2.34	18.12	33,267	18.15
\$18.51-\$18.51	13,750	4.13	18.51	8,333	18.51
\$18.79-\$18.79	1,000	4.23	18.79	437	18.79
\$19.03-\$19.03	50,000	2.13	\$ 19.03	50,000	\$ 19.03
\$9.5-\$19.03	<u>440,545</u>			<u>407,920</u>	

As of December 31, 2016, the total unrecognized compensation costs related to unvested stock options was \$0.2 million and is expected to be recognized as an expense over a weighted average remaining amortization period of 0.65 years.

Restricted Stock Units (“RSUs”)

Each RSU counts against the Company’s “2005 Equity Incentive Plan” at a ratio of one and seven tenths shares for each unit granted but represents an amount equal to the fair value of one share of the Company’s common stock. The Company granted 476,667 and 506,459 RSUs during the years ended December 31, 2016 and December 26, 2015, respectively, to key employees with vesting periods up to three years.

A summary of activity for RSUs is as follows:

Summary of activity for RSUs	Number of RSUs	Weighted Average Fair Value
Outstanding RSUs as of December 27, 2014	563,337	\$ 17.90
Granted	506,459	15.62
Released	(237,520)	16.59
Cancelled	(119,033)	16.59
Outstanding RSUs as of December 26, 2015	713,243	15.99
Granted	476,667	17.45
Released	(315,872)	16.05
Cancelled	(54,253)	16.29
Outstanding RSUs as of December 31, 2016	<u>819,785</u>	\$ 16.79

As of December 31, 2016, the total unrecognized compensation costs related to RSU's was \$8.0 million and is expected to be recognized as an expense over a weighted average remaining amortization period of 1.77 years.

Market-Based Performance Stock Units (“PSUs”)

In addition to granting RSUs that vest on the passage of time only, the Company granted PSUs to an executive. The PSUs will vest in three equal tranches over one, two, three years based on the relative performance of the Company’s stock during those periods, compared to a peer group over the same period. If target stock price performance is achieved, 66.7% of the shares of the Company’s stock subject to the PSUs will vest, and up to a maximum of 100% of the shares subject to the PSUs will vest if the maximum stock price performance is achieved for each tranche.

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

A summary of activity for PSUs is as follows:

Summary of activity for PSUs	Number of PSUs	Weighted Average Fair Value
Outstanding PSUs as of December 27, 2014	—	—
Granted	60,000	\$ 12.23
Outstanding PSUs as of December 26, 2015	60,000	12.23
Granted	67,500	8.52
Released	(13,333)	12.03
Cancelled	(6,667)	12.03
Outstanding PSUs as of December 31, 2016	107,500	\$ 9.94

Valuation of PSUs

On the date of grant, the Company estimated the fair value of PSUs using a Monte Carlo simulation model. The assumptions for the valuation of PSUs are summarized as follows:

	2016 Award	2015 Award
Grant Date Fair Value Per Share	\$ 8.52	\$ 12.23
Weighted-average assumptions/inputs:		
Expected Dividend	—	—
Range of risk-free interest rates	0.92%	0.25% - 1.1%
Range of expected volatilities for peer group	22% - 93%	23% - 65%

The number of RSUs granted during fiscal year 2016 was 476,667, which counted as 810,334 shares, and PSUs granted during fiscal year 2016 was 67,500, which counted as 114,750 against the 2005 Equity Incentive Plan. The number of RSUs cancelled during fiscal year 2016 was 54,253, which counted as 92,230 shares and PSUs cancelled during fiscal year 2016 was 6,667, which counted as 11,334, against the 2005 Equity Incentive Plan. Each RSU represents an amount equal to the fair value of one share of the Company's common stock.

A summary of activity under the Company's stock option plans including options, RSUs and PSUs during fiscal year 2016, 2015 and 2014 and shares available for grant as of the respective period end dates, is as follows:

	Fiscal Year 2016	Fiscal Year 2015	Fiscal Year 2014
Shares available for grant at beginning of fiscal year	1,916,589	2,464,082	2,937,001
Options - granted	—	—	(74,300)
Options - cancelled	176,587	94,012	191,061
Options - expired plan shares	(116,192)	(1,800)	(17,491)
RSUs - granted	(810,334)	(860,980)	(805,120)
RSUs - cancelled	92,230	202,356	167,404
RSUs - shares issued to satisfy tax withholding obligations	179,117	120,919	65,527
PSUs - granted	(114,750)	(102,000)	—
PSUs - cancelled	11,334	—	—
Shares available for grant at end of fiscal year	1,334,581	1,916,589	2,464,082

Stock-based Compensation Expense

Stock-based compensation expense recognized during the period is based on the value of the portion of share-based payment awards that is ultimately expected to vest during the period. As stock-based compensation expense recognized in the consolidated statement of operations for the years ended December 31, 2016, December 26, 2015 and December 27, 2014 is based on awards expected to vest, it has been reduced for estimated forfeitures. ASC 740 requires forfeitures to be estimated at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differ from those estimates. The Company's estimated forfeiture rates are based on historical forfeiture experience, which the Company believes is the best available information to estimate the future forfeiture rate. Tax benefits resulting from tax deductions in excess of the compensation cost recognized for those options are required to be separately classified in the consolidated statements of cash flows. The Company recognized \$1.0 million of excess tax benefit in fiscal year 2016, and none in both fiscal years 2015 and 2014, respectively.

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

Stock-based compensation expense for all share-based payment awards made to the Company's employees and directors pursuant to the employee stock option and employee stock purchase plans by function were as follows (in thousands):

	Fiscal Year 2016	Fiscal Year 2015	Fiscal Year 2014
Cost of products	\$ 403	\$ 274	\$ 268
Cost of service	509	309	287
Research and development	1,408	1,036	1,245
Selling	2,046	1,881	1,642
General and administrative	3,300	2,748	3,243
Restructuring	—	—	67
Total stock-based compensation expense related to employee stock options and employee stock purchases	<u>\$ 7,666</u>	<u>\$ 6,248</u>	<u>\$ 6,752</u>

Note 14. Defined Benefit Pension Plan

Nanometrics sponsors a statutory government mandated defined benefit pension plan (the "Benefit Plan") in Taiwan for its local employees. The fair value of plan assets was \$0.2 million for each of the fiscal years ended 2016, 2015 and 2014, respectively; and the net funding deficiency of the Benefit Plan was \$0.4 million, \$0.3 million, and \$0.3 million for the fiscal years ended December 31, 2016, December 26, 2015, and December 27, 2014, respectively. Based on the nature and limited extent of the pension plan, we determined this pension plan was not material for separate disclosure.

Note 15. Income Taxes

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

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

	Years Ended		
	December 31, 2016	December 26, 2015	December 27, 2014
Domestic	\$ 25,372	\$ 178	\$ (15,691)
Foreign	3,763	5,390	4,070
Income (loss) before income taxes	<u>\$ 29,135</u>	<u>\$ 5,568</u>	<u>\$ (11,621)</u>

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

	Years Ended		
	December 31, 2016	December 26, 2015	December 27, 2014
Current:			
Federal	\$ 697	\$ 148	\$ 358
State	85	3	(151)
Foreign	2,111	2,266	1,327
	<u>2,893</u>	<u>2,417</u>	<u>1,534</u>
Deferred:			
Federal	(16,641)	190	17,368
State	(320)	3	550
Foreign	(832)	53	45
	<u>(17,793)</u>	<u>246</u>	<u>17,963</u>
Provision (benefit) for income taxes	<u>\$ (14,900)</u>	<u>\$ 2,663</u>	<u>\$ 19,497</u>

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

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

	At	
	December 31, 2016	December 26, 2015
Deferred tax assets:		
Reserves and accruals	\$ 11,043	\$ 13,712
Deferred revenue	349	1,154
Shared based compensation	2,590	3,856
Tax credit carry-forwards	10,112	8,658
Net operating losses	8,434	13,218
Depreciation & amortization	(2,898)	366
Other	(1,252)	94
Total deferred tax assets	28,378	41,058
Less: Valuation allowance	(10,980)	(36,786)
Total deferred tax assets net of valuation allowance	17,398	4,272
Deferred tax liabilities:		
Depreciation & amortization	(6)	(2,537)
Other	(14)	(1,137)
Total deferred tax liabilities	(20)	(3,674)
Net deferred tax assets	\$ 17,378	\$ 598

As of December 31, 2016, the Company had net operating loss carryforwards of \$26.7 million in California and \$31.8 million in foreign countries, which begin to expire in 2018. A total of \$3.1 million of the California net operating loss carryforward and \$1.3 million of the foreign net operating loss carryforward are related to excess tax benefits as a result of stock option exercises, and therefore will be recorded in additional paid-in capital in the period that they become realized. During the year ended December 31, 2016, the Company realized \$0.2 million of excess tax benefits as a result of stock option exercises, therefore, \$0.1 million was recorded to additional paid-in capital.

As of December 31, 2016, the Company had available carryforward Federal and California R&D tax credits of \$8.6 million and \$7.8 million, respectively. Federal R&D tax credit carryforwards begin to expire in 2026. State R&D tax credits carryforward indefinitely. A total of \$0.2 million of the state R&D tax credits are related to excess tax benefits as a result of stock option exercises, and therefore will be recorded to additional paid-in-capital in the period that they become realized.

During the years ended December 31, 2016 and December 26, 2015, the change in valuation allowances was \$(25.8) million and \$1.6 million, respectively. The valuation allowance decrease in 2016 was primarily related to the release of a valuation allowance against a significant portion of the Company's U.S. deferred tax assets, as well as valuation allowance release against a portion of our foreign deferred tax assets. The realization of deferred tax assets is primarily dependent on the Company generating sufficient U.S. and foreign taxable income in future fiscal years. The Company regularly assesses the need for a valuation allowance against its deferred tax assets. In making that assessment, the Company considers both positive and negative evidence related to the likelihood of realization of the deferred tax assets to determine, based on the weight of available evidence, whether it is more-likely-than-not that some or all of the deferred tax assets will not be realized. For the year ended December 31, 2016, the Company possessed enough positive evidence to determine that it was more-likely-than-not that the Company would utilize a significant portion of its deferred tax assets. Therefore, the Company released \$27.4 million of valuation allowance. The Company continues to maintain valuation allowances against its California and certain foreign deferred tax assets as a result of uncertainties regarding the realization of the asset due to cumulative losses and uncertainty of future taxable income. The Company will continue to assess the realizability of the deferred tax assets in each of the applicable jurisdictions and maintain the valuation allowances until sufficient positive evidence exists to support a reversal. In the event the Company determines that the deferred tax assets are realizable, an adjustment to the valuation allowances will be reflected in the tax provision for the period such determination is made.

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

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

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

	Years Ended		
	December 31, 2016	December 26, 2015	December 27, 2014
Income taxes computed at U.S. statutory rate	\$ 10,197	\$ 1,949	\$ (4,067)
State income taxes	223	28	(109)
Foreign tax rate differential	3,502	342	777
Change in valuation allowance	(25,738)	1,648	23,894
Non-deductible Equity Compensation	380	311	242
Tax credits	(3,191)	(1,834)	(2,187)
Domestic production activities deduction	(354)	—	—
Liabilities for uncertain tax positions	67	74	118
Other, net	14	145	829
Provision (benefit) for income taxes	<u>\$ (14,900)</u>	<u>\$ 2,663</u>	<u>\$ 19,497</u>

Certain amounts of the income tax rate reconciliation for the years ended December 27, 2014, were reclassified to other components within the reconciliation to be consistent with classification used for the year ended December 26, 2015 and the year ended December 31, 2016. There was no impact to the total provision (benefit) for income taxes based on these reclassifications.

As of December 31, 2016, approximately \$3.7 million of undistributed earnings from non-U.S. operations held by the Company's foreign subsidiaries are designated as indefinitely reinvested outside the U.S. Accordingly, no additional U.S. income taxes or additional foreign withholding taxes have been provided thereon. The amount of unrecognized deferred tax liability related to these earnings would be immaterial.

The Company recognizes tax liabilities for uncertain tax positions and adjusts these liabilities when its judgment changes as a result of the evaluation of new information not previously available. Due to the complexity of some of these uncertainties, the ultimate resolution may result in a payment that is materially different from the Company's current estimate of the tax liabilities. These differences will be reflected as increases or decreases to income tax expense in the period in which they are determined.

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

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

	Rollforward Table (at Gross): As of		
	December 31, 2016	December 26, 2015	December 27, 2014
Unrecognized tax benefits - beginning of the period	\$ 6,961	\$ 6,442	\$ 4,436
Gross increases-tax positions in prior period	23	127	655
Gross decreases-tax positions in prior period	(1,193)	(306)	(123)
Gross increases-current-period tax positions	686	698	1,541
Lapse of statute of limitations	—	—	(67)
Unrecognized tax benefits - end of the period	<u>\$ 6,477</u>	<u>\$ 6,961</u>	<u>\$ 6,442</u>

The unrecognized tax benefit at December 31, 2016 was \$6.5 million, of which \$3.7 million would impact the effective tax rate if recognized. The Company accrues interest and penalties related to unrecognized tax benefits in its provision for income taxes. The total amount of penalties and interest were not material as of December 31, 2016, December 26, 2015 and December 27, 2014. The Company does not expect a material change in its unrecognized tax benefits within the next 12 months.

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

The Company is subject to taxation in the U.S. and various states including California, and foreign jurisdictions including Korea, Japan, Taiwan, and China. Due to tax attribute carry-forwards, the Company is subject to examination for tax years 2003 forward for U.S. tax purposes. The Company was also subject to examination in various states for tax years 2002 forward. The Company is subject to examination for tax years 2007 forward for various foreign jurisdictions.

Note 16. Segment, Geographic, Product and Significant Customer Information

The Company has one operating segment, which is the sale, design, manufacture, marketing and support of thin film and optical critical dimension systems. The Chief Executive Officer has been identified as the Chief Operating Decision Maker (“CODM”) because he has the final authority over resource allocation decisions and performance assessment. The CODM does not receive discrete financial information about individual components of the Company’s business. For the years ended December 31, 2016, December 26, 2015, and December 27, 2014, the Company recorded revenue from customers primarily in the United States, Asia and Europe. The following tables summarize total net revenues and long-lived assets (excluding intangible assets) attributed to significant countries (in thousands):

	Years Ended		
	December 31, 2016	December 26, 2015	December 27, 2014
Total net revenues ⁽¹⁾:			
South Korea	\$ 44,735	\$ 30,572	\$ 41,381
China	43,460	17,373	28,702
Singapore	37,096	17,395	7,905
United States	29,887	36,720	36,123
Taiwan	27,189	46,715	19,790
Japan	26,604	31,140	15,185
Other	12,158	7,452	17,357
Total net revenues	\$ 221,129	\$ 187,367	\$ 166,443

⁽¹⁾ Net revenues are attributed to countries based on the customer's deployment and service locations of systems.

	December 31, 2016	December 26, 2015
Long-lived tangible assets:		
United States	\$ 42,688	\$ 42,581
Taiwan	818	1,056
South Korea	554	697
Japan	57	59
All Other	109	100
Total long-lived tangible assets	\$ 44,226	\$ 44,493

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

	Years Ended		
	December 31, 2016	December 26, 2015	December 27, 2014
Automated Systems	\$ 127,378	\$ 102,386	\$ 108,768
Integrated Systems	43,846	31,579	15,334
Materials Characterization Systems	13,842	12,980	9,487
Total product revenues	\$ 185,066	\$ 146,945	\$ 133,589

NANOMETRICS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

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

	Years Ended		
	December 31, 2016	December 26, 2015	December 27, 2014
Taiwan Semiconductor Manufacturing Company Limited	20.1 %	25.6 %	20.2 %
Samsung Electronics Co. Ltd.	14.3 %	***	10.0 %
Micron Technology, Inc.	11.8 %	***	23.7 %
Intel Corporation	11.1 %	***	***
Toshiba Corporation	10.2 %	27.1 %	***
GLOBALFOUNDRIES	***	***	10.2 %

*** The customer accounted for less than 10% of total accounts receivable, net, as of that period end.

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

	Years Ended		
	December 31, 2016	December 26, 2015	December 27, 2014
Micron Technology, Inc.	20.3 %	15.8 %	10.4 %
Intel Corporation	18.0 %	***	12.6 %
SK Hynix	15.3 %	10.7 %	12.2 %
Taiwan Semiconductor Manufacturing Company Limited	10.0 %	19.4 %	***
Samsung Electronics Co. Ltd.	***	13.2 %	26.9 %
Toshiba Corporation	***	10.2 %	***

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

SUPPLEMENTAL FINANCIAL INFORMATION

Selected Quarterly Financial Results (Unaudited)

The following table sets forth selected consolidated quarterly results of operations for the years ended December 31, 2016 and December 26, 2015 (in thousands, except per share amounts):

	Quarters Ended			
	December 31, 2016	September 24, 2016	June 25, 2016	March 26, 2016
Total net revenues	\$ 59,159	\$ 58,714	\$ 55,767	\$ 47,489
Gross profit	\$ 30,804	\$ 30,404	\$ 28,425	\$ 24,491
Income from operations	\$ 8,963	\$ 9,066	\$ 7,336	\$ 3,730
Net income ⁽¹⁾	\$ 26,654	\$ 7,883	\$ 6,031	\$ 3,467
Net income per share:				
Basic	\$ 1.07	\$ 0.32	\$ 0.25	\$ 0.14
Diluted	\$ 1.04	\$ 0.31	\$ 0.24	\$ 0.14
Shares used in per share computations:				
Basic	24,949	24,826	24,524	24,308
Diluted	25,514	25,282	24,927	24,597

	Quarters Ended			
	December 26, 2015	September 26, 2015	June 27, 2015	March 28, 2015
Total net revenues	\$ 42,684	\$ 45,678	\$ 48,629	\$ 50,376
Gross profit	\$ 20,805	\$ 22,219	\$ 23,264	\$ 23,379
Income (loss) from operations	\$ (1,041)	\$ 1,264	\$ 2,509	\$ 2,241
Net income (loss)	\$ (1,813)	\$ 818	\$ 1,344	\$ 2,556
Net income (loss) per share:				
Basic	\$ (0.07)	\$ 0.03	\$ 0.06	\$ 0.11
Diluted	\$ (0.07)	\$ 0.03	\$ 0.06	\$ 0.11
Shares used in per share computations:				
Basic	24,203	24,145	24,020	23,866
Diluted	24,203	24,352	24,285	24,257

⁽¹⁾ Net Income included a release of non-cash valuation allowance of \$27.4 million against a significant portion of the Company's U.S. and foreign

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

None.

ITEM 9A. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures that are designed to ensure that information required to be disclosed in our reports that we file or submit under the Securities Exchange Act of 1934, as amended, is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to management, including our Chief Executive Officer ("CEO") and Chief Financial Officer ("CFO"), as appropriate, to allow timely decisions regarding required disclosure. Our management, with participation of our CEO and CFO, has evaluated the effectiveness of our disclosure controls and procedures as of December 31, 2016, the end of the period covered by this Annual Report on Form 10-K.

Based on the evaluation of our disclosure controls and procedures, our CEO and CFO have concluded that as of the end of the period covered by this report, our disclosure controls and procedures were not effective as a result of the material weakness in our internal control over financial reporting discussed below.

Notwithstanding the identified material weakness, management, including our CEO and CFO, believes the consolidated financial statements included in this Annual Report on Form 10-K fairly represent in all material respects our financial condition, results of operations and cash flows at and for the periods presented in accordance with U.S. GAAP.

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 Securities Exchange Act of 1934, as amended. Our internal control over financial reporting was designed to provide reasonable, not absolute, assurance regarding the reliability 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 company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

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

Under the supervision and with the participation of our management, including our CEO and CFO, we assessed the effectiveness of our internal control over financial reporting as of December 31, 2016. In making this assessment, we used the criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO").

Based on our assessment, which was conducted according to the COSO criteria, we have concluded that there was a material weakness related to the existence of inventories subject to our cycle counting program, as described in more detail below, as of December 31, 2016. Due to this material weakness, management concluded that the Company's internal control over financial reporting was not effective as of December 31, 2016.

A material weakness is a deficiency, or a combination of deficiencies, in internal control 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.

Management identified the following material weakness in the Company's internal control over financial reporting as of December 31, 2016:

The Company did not design and maintain an effective control over the existence of inventories subject to the cycle count program. Specifically, the control was not effectively designed and maintained to verify all inventories that should be subject to the cycle count program were included and were counted at the frequency levels required under the Company's policies. This control deficiency did not result in a material adjustment to the inventory and cost accounts and disclosures for the year ended December 31, 2016. However, this control deficiency could result in misstatements of the aforementioned accounts and disclosures that would result in a material misstatement to the annual or interim consolidated financial statements that would not be prevented or detected. Accordingly, our management has determined that this control deficiency constitutes a material weakness.

The effectiveness of our internal control over financial reporting as of December 31, 2016 has been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, as stated in their report which appears under Item 8.

Changes in Internal Control over Financial Reporting

No change in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Securities Exchange Act of 1934, as amended) occurred during the fourth quarter ended December 31, 2016, that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Remediation Plan

Although the Company has begun implementing a number of remediation initiatives to improve the Company's internal control over financial reporting in fiscal 2017, there can be no assurance that the Company will eliminate the aforementioned material weakness in fiscal 2017. A summary of the remediation plans is provided below.

The Company is evaluating the material weakness and developing a plan of remediation to strengthen our overall controls over accounting for the existence of inventories subject to our cycle count program. To ensure existence of the Company's inventory balances as recorded at December 31, 2016, the Company conducted a full physical inventory for the stocking locations subject to the cycle count program which resulted in an immaterial adjustment. Additionally, we have updated the Company's part master with the correct cycle-count frequency requirements.

To address the material weakness, the following remedial actions have been or will be taken:

- Implementation of additional quarterly reporting and monitoring controls over additions to or changes to the Company's item master records
- Design of an automated methodology for determining and assigning the frequency levels each item should be counted

Our goal is to remediate this material weakness by the end of 2017, subject to there being sufficient opportunities to conclude, through testing, that the enhanced control is designed and operating effectively.

ITEM 9B. OTHER INFORMATION

None.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information required by this Item is incorporated by reference to our Proxy Statement for our 2017 Annual Meeting of Stockholders (the "Proxy Statement") to be filed with the SEC not later than 120 days after the end of our fiscal year ended December 31, 2016, specifically:

- Information regarding our directors and any persons nominated to become a director, as well as with respect to some other required board matters, is set forth under Proposal 1 entitled "Election of Directors" and under "Corporate Governance."
- Information regarding our audit committee and our designated "audit committee financial expert" is set forth under the caption "Corporate Governance."
- Information on our code of business conduct and ethics for directors, officers and employees is set forth under the caption "Code of Ethics" under "Corporate Governance."
- Information regarding Section 16(a) beneficial ownership reporting compliance is set forth under the caption "Section 16(a) Beneficial Ownership Reporting Compliance."
- Information regarding procedures by which stockholders may recommend nominees to our board of directors is set forth under the caption "Nominating and Governance Committee" under "Corporate Governance."

Information regarding our executive officers is set forth at the end of Item 1, Part 1 of this Annual Report on Form 10-K under the caption "Executive Officers of the Registrant."

ITEM 11. EXECUTIVE COMPENSATION

Information regarding compensation of our named executive officers is set forth under the caption "Executive Compensation" in the Proxy Statement, which information is incorporated herein by reference.

Information regarding compensation of our directors is set forth under the caption "Compensation of Directors" in the Proxy Statement, which information is incorporated herein by reference.

Information regarding compensation committee interlocks is set forth under the caption "Compensation Committee Interlocks and Insider Participation" in the Proxy Statement, which information is incorporated herein by reference.

The Compensation Committee Report is set forth under the caption "Compensation Committee Report" in the Proxy Statement, which report is incorporated herein by reference.

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

Information regarding security ownership of certain beneficial owners, directors and executive officers is set forth under the caption "Security Ownership of Certain Beneficial Owners and Management" in the Proxy Statement, which information is incorporated herein by reference.

Equity Compensation Plan Information

The following table gives information about the common stock that may be issued under all of our existing equity compensation plans as of December 31, 2016.

Plan category	Number of securities to be issued upon exercise of outstanding options, warrants and rights	Weighted-average exercise price of outstanding options	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in first column)
Equity compensation plans approved by security holders	431,135	\$ 15.15	1,334,581
Equity compensation plans not approved by security holders ⁽¹⁾	9,410	\$ 10.45	—
Total	<u>440,545</u>	<u>\$ 15.06</u>	<u>1,334,581</u>

⁽¹⁾ Represents the 2002 Non-Statutory Stock Plan, which was adopted without the approval of security holders. This Plan provides for the grant of non-statutory stock options to employees and service providers at grant prices equal to the fair market value on the date of grant, with an expiration date not to exceed 10 years from the grant date.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS AND DIRECTOR INDEPENDENCE

Information regarding certain relationships and related transactions is set forth under the caption "Related Person Transaction Policy" under the caption "Corporate Governance" in the Proxy Statement, which information is incorporated herein by reference.

Information regarding director independence is set forth under the caption "Board of Directors Meetings and Committees" under "Corporate Governance" in the Proxy Statement, which information is incorporated herein by reference.

ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES

Information regarding principal auditor fees and services is set forth under the proposal entitled "Ratification of Appointment of Independent Registered Public Accounting Firm" in the Proxy Statement, which information is incorporated herein by reference.

PART IV

ITEM 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULES

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

(1) **Consolidated Financial Statements.**

See Index to Consolidated Financial Statements in Item 8 on page 33 of this Annual Report on Form 10-K.

(2) **Consolidated Financial Statement Schedule.**

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

<u>Schedule</u>	<u>Page</u>
II - Valuation and Qualifying Accounts as of and for the years ended December 31, 2016, December 26, 2015 and December 27, 2014.....	73

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

(3) **Exhibits.**

See Exhibit Index following the signature page of this Annual Report on Form 10-K, which is incorporated by reference here.

ITEM 16. FORM 10-K SUMMARY

None.

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 2, 2017

NANOMETRICS INCORPORATED

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

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

Signature	Title	Date
/S/ TIMOTHY J. STULTZ Timothy J. Stultz	President, Chief Executive Officer and Director (Principal Executive Officer)	March 2, 2017
/S/ JEFFREY ANDRESON Jeffrey Andreson	Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	March 2, 2017
/S/ BRUCE C. RHINE Bruce C. Rhine	Chairman of the Board of Directors	March 2, 2017
/S/ J. THOMAS BENTLEY J. Thomas Bentley	Director	March 2, 2017
/S/ EDWARD J. BROWN JR. Edward J. Brown Jr.	Director	March 2, 2017
/S/ CHRISTOPHER A. SEAMS Christopher A. Seams	Director	March 2, 2017
/S/ CHRISTINE TSINGOS Christine Tsingos	Director	March 2, 2017

EXHIBIT INDEX

Exhibit No.	Description
3.(i)	Certificate of Incorporation
3.1 ⁽¹⁾	Certificate of Incorporation of the Registrant
3.(ii)	Bylaws
3.2 ⁽²⁾	Bylaws of the Registrant
4	Instruments Defining the Rights of Security Holders, Including Indentures
4.1 ⁽³⁾	Form of Common Stock Certificate
10	Material Contracts
	Management Contracts, Compensatory Plans, Contracts or Arrangements
10.1 ⁽⁴⁾	Form of Indemnification Agreement between the Registrant and each of its directors and executive officers
10.2 ⁽⁵⁾	Registrant's 2000 Employee Stock Option Plan and form of Stock Option Agreement
10.3 ⁽⁶⁾	Registrant's 2000 Director Stock Option Plan and form of Stock Option Agreement
10.4 ⁽⁷⁾	Registrant's 2002 Non-statutory Stock Option Plan and form of Stock Option Agreement
10.5 ⁽⁸⁾	Registrant's Amended and Restated 2003 Employee Stock Purchase Plan
10.6 ⁽⁹⁾	Form of Subscription Agreement Under the Registrant's Amended and Restated 2003 Employee Stock Purchase Plan
10.7 ⁽¹⁷⁾	Registrant's Amended and Restated 2005 Equity Incentive Plan
10.8 ⁽⁶⁾	Registrant's Amended and Restated 2005 Equity Incentive Plan forms of Stock Option and Restricted Stock Unit Agreements
10.9 ⁽¹⁰⁾	Executive Performance Bonus Plan
10.10 ⁽¹¹⁾	Form of Offer Letter to Timothy J. Stultz
10.11 ⁽¹²⁾	Amended and Restated Executive Severance Agreement between the Registrant and Timothy J. Stultz, dated February 23, 2010
10.12 ⁽¹⁸⁾	Employment Agreement between Registrant and Jeffrey Andreson, dated September 22, 2014
10.13 ⁽²²⁾	Compensation Arrangements with Named Executive Officers
10.14 ⁽²³⁾	Form of Performance-Based Restricted Stock Unit Agreement
10.15 ⁽²⁴⁾	General Severance Benefits and Change in Control Severance Benefits Agreement between Registrant and Timothy J. Stultz, Ph.D., dated May 19, 2015
10.16 ⁽²⁴⁾	General Severance Benefits and Change in Control Severance Benefits Agreement between Registrant and Jeffrey Andreson, dated May 19, 2015
10.17 ⁽²⁴⁾	General Severance Benefits and Change in Control Severance Benefits Agreement between Registrant and S. Mark Borowicz, dated May 19, 2015
10.18 ⁽²⁴⁾	General Severance Benefits and Change in Control Severance Benefits Agreement between Registrant and Kevin Heidrich, dated May 19, 2015
10.19 ⁽²⁵⁾	Form of Indemnification Agreement between the Registrant and each of its directors and executive officers
10.20 ⁽²⁶⁾	General Severance Benefits and Change in Control Severance Benefits Agreement between Registrant and Janet Taylor, date August 27, 2015
10.21 ⁽²⁶⁾	Compensation Arrangement With Non-Employee Directors
10.22	General Severance Benefits and Change in Control Severance Benefits Agreement between Registrant and Rollin Kocher, dated November 10, 2016
	All Other Material Contracts
10.23 ⁽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.
10.24 ⁽¹³⁾	First Amendment to the Loan and Security Agreement dated September 14, 2007
10.25 ⁽¹³⁾	Second Amendment to the Loan and Security Agreement dated May 11, 2009, with an effective date of April 29, 2009
10.26 ⁽¹⁴⁾	Third Amendment to the Loan and Security Agreement dated June 15, 2009
10.27 ⁽¹⁵⁾	Fourth Amendment to the Loan and Security Agreement dated April 13, 2010
10.28 ⁽¹⁴⁾	Asset Transfer Agreement by and between Zygo Corporation and the Registrant, dated June 17, 2009
10.29 ⁽¹⁴⁾	Supply Agreement by and between Zygo Corporation and the Registrant dated June 17, 2009
10.30 ⁽¹⁶⁾	Fifth Amendment to the Loan and Security Agreement dated April 23, 2012
10.31 ⁽¹⁹⁾	Compensation of Non-Employee Directors
10.32 ⁽²⁰⁾	Extension to the Loan and Security Agreement dated April 30, 2014
10.33 ⁽²¹⁾	Sixth Amendment to the Loan and Security Agreement by and between the Registrant and Comerica Bank dated May 30, 2014
21	Subsidiaries
21.1	Subsidiaries of the Registrant
23	Consents of Experts and Counsel
23.1	Consent of PricewaterhouseCoopers LLP Independent Registered Public Accounting Firm

Exhibit No.	Description
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 Jeffrey Andreson, 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 Jeffrey Andreson, principal financial officer and principal accounting officer of the Registrant pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	XBRL Taxonomy Extension Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document

- (1) Incorporated by reference to Exhibit 3.1 filed with the Registrant's Current Report on Form 8-K (File No. 000-13470) filed on October 5, 2006.
- (2) Incorporated by reference to Exhibit 3.1 filed with the Registrant's Current Report on Form 8-K (File No. 000-13470) filed on April 12, 2012.
- (3) Incorporated by reference to Exhibit 4.1 filed with the Registrant's Quarterly Report on Form 10-Q (File No. 000-13470) filed on November 9, 2006.
- (4) Incorporated by reference to Exhibit 10.1 filed with the Registrant's Current Report on Form 8-K (File No. 000-13470) filed on February 20, 2013.
- (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 the like-described exhibit filed with the Registrant's Annual Report on Form 10-K (File No. 000-13470) filed on March 13, 2008.
- (7) Incorporated by reference to the like-described exhibit filed with the Registrant's Quarterly Report on Form 10-Q (File No. 000-13470) filed on May 10, 2007.
- (8) Incorporated by reference to Appendix 1 filed with the Registrant's definitive proxy statement on Schedule 14A (File No. 000-13470) filed on April 4, 2016.
- (9) Incorporated by reference to Exhibit 4.1 filed with the Registrant's Registration Statement on Form S-8 (File No. 333-108474) filed on September 3, 2003.
- (10) Incorporated by reference to Exhibit 10.1 filed with the Registrant's Quarterly Report on Form 10-Q (File No. 000-13470) filed on May 11, 2011.
- (11) Incorporated by reference to Exhibit 10.1 filed with the Registrant's Current Report on Form 8-K (File No. 000-13470) filed on August 8, 2007.
- (12) Incorporated by reference to Exhibit 10.25 filed with the Registrant's Annual Report on Form 10-K (File No. 000-13470) filed on March 26, 2010.
- (13) Incorporated by reference to the like-described exhibit filed with the Registrant's Quarterly Report on Form 10-Q (File No. 000-13470) filed on May 12, 2009.
- (14) Incorporated by reference to the like-described exhibit filed with the Registrant's Quarterly Report on Form 10-Q (File No. 000-13470) filed on August 11, 2009.
- (15) Incorporated by reference to Exhibit 99.1 filed with the Registrant's Current Report on Form 8-K (File No. 000-13470) filed on April 19, 2010.
- (16) Incorporated by reference to Exhibit 10.1 filed with the Registrant's Quarterly Report on Form 10-Q (File No. 000-13470) filed on May 9, 2012.
- (17) Incorporated by reference to Appendix A filed with the Registrant's definitive proxy statement on Schedule 14A (File No. 000-13470) filed on April 10, 2013.
- (18) Incorporated by reference to Exhibit 10.1 filed with the Registrant's Quarterly Report on Form 10-Q (File No. 000-13470) filed on October 31, 2014.
- (19) Incorporated by reference to Exhibit 10.3 filed with the Registrant's Quarterly Report on Form 10-Q (File No. 000-13470) filed on July 28, 2016.
- (20) Incorporated by reference to Exhibit 10.1 filed with the Registrant's Quarterly Report on Form 10-Q (File No. 000-13470) filed on August 1, 2014.
- (21) Incorporated by reference to Exhibit 99.1 filed with the Registrant's Current Report on Form 8-K (File No. 000-13470) filed on June 4, 2014.
- (22) Incorporated by reference to the disclosure in Item 5.02 of the Registrant's Current Report on Form 8-K (File No. 000-13470) filed on February 26, 2016.
- (23) Incorporated by reference to Exhibit 99.1 filed with the Registrant's Current Report on Form 8-K (File No. 000-13470) filed on March 24, 2015.
- (24) Incorporated by reference to the like-described exhibit filed with the Registrant's Current Report on Form 8-K (File No. 000-13470) filed on May 22, 2015.
- (25) Incorporated by reference to Exhibit 10.1 filed with the Registrant's Current Report on Form 8-K (File No. 000-13470) filed on February 20, 2013.
- (26) Incorporated by reference to the like-described exhibit filed with the Registrant's Quarterly Report on Form 10-Q (File No. 000-13470) filed on October 30, 2015.

* Furnished herewith.

SCHEDULE II

NANOMETRICS INCORPORATED VALUATION AND QUALIFYING ACCOUNTS

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

Year Ended	Balance at beginning of period	Additions to Allowance	Charges Utilized/ Write-offs	Balance at end of period
December 31, 2016	\$ 150	\$ —	\$ (77)	\$ 73
December 26, 2015	\$ 253	\$ 10	\$ (113)	\$ 150
December 27, 2014	\$ 293	\$ —	\$ (40)	\$ 253

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

Year Ended	Balance at beginning of period	Additions to Allowance	Charges Utilized/ Write-offs	Balance at end of period
December 31, 2016	\$ 36,786	\$ 1,643	\$ (27,449)	\$ 10,980
December 26, 2015	\$ 35,835	\$ 951	\$ —	\$ 36,786
December 27, 2014	\$ 11,665	\$ 24,170	\$ —	\$ 35,835

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