

NANOMETRICS INC
Form DEF 14A
May 23, 2008

DEFINITIVE PROXY STATEMENT

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

SCHEDULE 14A

PROXY STATEMENT PURSUANT TO SECTION 14(A) OF THE SECURITIES EXCHANGE ACT OF 1934

Filed by the Registrant

Filed by a Party other than the Registrant

x

..

Check the appropriate box:

.. Preliminary Proxy Statement

x Definitive Proxy Statement

.. **Confidential, for Use of the Commission Only (as permitted by Rule 14a-6(e)(2))**

.. Definitive Additional Materials

.. Soliciting Material Pursuant to §240.14a-12

NANOMETRICS INCORPORATED

(Name of Registrant as Specified in its Charter)

(Name of Person(s) Filing Proxy Statement, if other than the Registrant)

Payment of Filing Fee (Check the appropriate box):

x No fee required.

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(1) Title of each class of securities to which transaction applies:

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NANOMETRICS INCORPORATED

NOTICE OF ANNUAL MEETING OF STOCKHOLDERS

TO THE STOCKHOLDERS OF NANOMETRICS INCORPORATED:

NOTICE IS HEREBY GIVEN that the annual meeting of stockholders of Nanometrics Incorporated, a Delaware corporation ("Nanometrics", the Company, we, us or our), will be held on Thursday, June 26, 2008, at 1:00 p.m., local time, at Nanometrics' principal offices located at 1550 Buckeye Drive, Milpitas, California 95035. At the annual meeting, you will be asked to consider and vote upon the following:

1. A proposal to elect three Class I directors of Nanometrics to each serve for a term of three years and until their successors have been duly elected and qualified.
2. A proposal to ratify the appointment of BDO Seidman, LLP as Nanometrics' independent registered public accounting firm for the fiscal year ending December 27, 2008.
3. Such other business as may properly come before the annual meeting or any postponements or adjournments thereof.

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

Only stockholders of record at the close of business on Wednesday, May 14, 2008 are entitled to notice of and to vote at the annual meeting and any postponements or adjournments thereof.

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

BY ORDER OF THE BOARD OF DIRECTORS,

Bruce C. Rhine
Chairman of the Board of Directors

Milpitas, California

May 23, 2008

NANOMETRICS INCORPORATED

PROXY STATEMENT

INFORMATION CONCERNING SOLICITATION AND VOTING

General

This proxy statement is being provided to the stockholders of Nanometrics Incorporated (Nanometrics , the Company , we , us or our) as part of the solicitation of proxies by our board of directors for use at our 2008 annual meeting of stockholders. This proxy statement provides stockholders with information they need to know to be able to vote or instruct their vote to be cast at the annual meeting. This proxy statement and the enclosed form of proxy are first mailed to stockholders of record on or about May 29, 2008.

Date, Time and Place

The annual meeting will be held on Thursday, June 26, 2008 at 1:00 p.m., local time, at Nanometrics principal offices located at 1550 Buckeye Drive, Milpitas, California 95035.

Purpose; Other Matters

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

1. A proposal to elect three Class I directors of Nanometrics each to serve for a term of three years and until their successors have been duly elected and qualified.
2. A proposal to ratify the appointment of BDO Seidman, LLP as Nanometrics independent registered public accounting firm for the fiscal year ending December 27, 2008.

Stockholders will also be asked to consider and vote upon any other business that may properly come before the annual meeting or any adjournments or postponements of the annual meeting. We do not expect that any matter other than the proposals presented in this proxy statement will be brought before the annual meeting. However, if other matters incident to the conduct of the annual meeting are properly presented at the annual meeting or any adjournment or postponement of the annual meeting, the persons named as proxies will vote in accordance with their best judgment with respect to those matters.

If you vote **AGAINST** any of the proposals, the proxy holders will not be authorized to vote for any adjournments or postponements of the annual meeting, including for the purpose of soliciting additional proxies, unless you so indicate by marking the appropriate box on the proxy card for the annual meeting.

Recommendation of the Board of Directors

The board of directors unanimously recommends that you vote:

FOR the election of the three nominees named in this Proxy Statement to serve as directors on our board of directors.

FOR the proposal to ratify the appointment of BDO Seidman, LLP as Nanometrics independent registered public accounting firm for the fiscal year ending December 27, 2008.

Record Date; Outstanding Shares; Voting Rights

Only holders of record of common stock at the close of business on the record date for the annual meeting, May 14, 2008, are entitled to notice of and to vote at the annual meeting. As of the record date, there were 18,660,949 shares of common stock outstanding and entitled to vote at the annual meeting, held by

approximately 371 holders of record. Each record holder of common stock on the record date is entitled to one vote for each share of common stock held as of the record date with respect to all proposals.

The candidates receiving the three highest vote totals will be elected to the board of directors.

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

Admission to the Annual Meeting

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

Quorum and Vote Required

A quorum of stockholders is necessary to hold a valid annual meeting of stockholders. In order to have a quorum for the transaction of business at the annual meeting, a majority of shares of common stock issued and outstanding and entitled to vote on the record date must be present in person or by proxy at the annual meeting. Shares that are voted FOR, AGAINST, ABSTAIN or WITHHOLD AUTHORITY a matter are treated as being present at the annual meeting for purposes of establishing a quorum.

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

Proposal 1

In the election of directors, the three nominees receiving the highest number of FOR votes will be elected. Abstentions and proxies marked WITHHOLD AUTHORITY will have no effect on the election of directors.

Proposal 2

Approval by the stockholders of the selection of Nanometrics independent registered public accounting firm is not required, but we believe it is desirable as a matter of good corporate governance to submit this matter to the stockholders. If holders of a majority of the shares present in person or by proxy at the meeting and entitled to vote at the annual meeting do not ratify the appointment of BDO Seidman, LLP as our independent registered public accounting firm for the fiscal year ending December 27, 2008, the Audit Committee of the board of directors will consider whether it should select another independent registered public accounting firm.

Voting

General

Stockholders of record as of the record date may vote their shares by attending the annual meeting and voting their shares in person or by completing, signing and dating their respective proxy cards for the annual meeting and mailing them in the postage pre-paid envelope enclosed for that purpose. Stockholders holding shares of common stock in street name, which means that their shares are held of record by a broker, bank, or other nominee, may vote by mail by completing, signing and dating the voting instruction forms for the annual meeting provided by their respective brokers, banks, or other nominees and returning their respective voting instruction forms to the record holders of their shares of common stock. Even if you plan to attend the annual meeting, we recommend that you vote by proxy prior to the annual meeting. You can always change your vote as described below.

Voting by Proxy

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

FOR the election of the three nominees named in this Proxy Statement to serve as Class I directors on our board of directors; and

FOR the proposal to ratify the appointment of BDO Seidman, LLP as Nanometrics independent registered public accounting firm for the fiscal year ending December 27, 2008.

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

Changing Your Vote

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

delivering to our corporate secretary a signed notice of revocation;

granting the proxy holders a new, later-dated proxy, which must be signed and delivered to our corporate secretary in advance of the vote at the annual meeting; or

attending the annual meeting and voting in person.

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

Proxy Solicitation

Nanometrics is soliciting proxies for the annual meeting from our stockholders. We will bear the entire cost of soliciting proxies from the stockholders. In addition to the solicitation of proxies by mail, we will request that brokers, banks and other nominees send proxies and proxy materials to the beneficial owners of common stock held by them and secure their voting instructions, if necessary. We also may use several of our regular employees, who will not be specially compensated, to solicit proxies from stockholders, either personally or by telephone, internet, telegram, facsimile or special delivery letter.

Assistance

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

Householding of Proxy Materials

The Securities and Exchange Commission has adopted rules that permit companies and intermediaries such as brokers to satisfy delivery requirements for proxy statements with respect to two or more stockholders sharing the same address by delivering a single proxy statement addressed to those stockholders. This process, which is commonly referred to as householding, potentially provides extra convenience for stockholders and cost savings for companies. Nanometrics and some brokers household proxy materials, delivering a single proxy

statement to multiple stockholders sharing an address unless contrary instructions have been received from the affected stockholders. Upon written or oral request to our Investor Relations department, by mail at 1550 Buckeye Drive, Milpitas, California, 95035 or by telephone at (408) 545-6000, we will promptly deliver a copy of our proxy statement to a stockholder if that stockholder shares an address with another stockholder to which a single copy of the proxy statement was delivered. A stockholder may notify us as described above if the stockholder wishes to receive a separate copy of the proxy statement in the future or, alternatively, if the stockholder wishes to receive a single copy of the materials instead of multiple copies.

Stockholder Proposals

Stockholders are entitled to present proposals for action at the 2009 annual meeting of stockholders. For any proposal to be considered for inclusion in our proxy statement and form of proxy for submission to the stockholders at the 2009 annual meeting of stockholders, the proposal must comply with the requirements of Rule 14a-8 under the Exchange Act and be submitted in writing by notice delivered or mailed by first-class United States mail, postage prepaid, to Nanometrics Incorporated, 1550 Buckeye Drive, Milpitas, California 95035, Attention: Office of the Secretary. Typically, proposals must be received by us no later than 120 calendar days before the date the proxy statement was released to stockholders in connection with the previous year's annual meeting. If we change the date of our annual meeting to a date more than 30 days from the date of our previous year's annual meeting, then the deadline for receipt of stockholder proposals will be changed to a reasonable time before we begin to print and mail our proxy. The submission of a stockholder proposal does not guarantee that it will be included in our proxy statement. Additionally, stockholder proposals to be considered at the annual meeting outside the processes of Rule 14a-8 (which are not intended to be included in the proxy materials for such annual meeting) must be delivered to or mailed and received at our executive offices at least 45 days before the date that the proxy statement was released to stockholders in connection with the previous year's annual meeting.

Material Proceedings

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

PROPOSAL I

ELECTION OF DIRECTORS

At the 2008 annual meeting of stockholders, unless otherwise instructed, the proxy holders will vote the proxies received by them for the three nominees named below, each of whom has been nominated by our board of directors and is presently a director of Nanometrics. Each of these nominees was recommended by the Nominating and Corporate Governance Committee of the board of directors. In the event that any nominee is unable or declines to serve as a director at the time of the annual meeting, the proxies will be voted for any nominee who shall be designated by the present board of directors to fill the vacancy. We are not aware of any nominee who will be unable or will decline to serve as a director.

In accordance with the terms of our certificate of incorporation and bylaws, the board of directors is divided into three classes, Class I, Class II and Class III, with each class serving a staggered three-year term. At the 2008 annual meeting of stockholders, the board of directors is seeking stockholder approval of three Class I directors to serve until the expiration of the term set forth below or until his successor is duly elected and qualified.

On April 1, 2008, the board of directors elected Howard A. Bain III to the board. On February 26, 2008, Joseph A. Dox notified the board of directors of his decision not to stand for re-election at the Nanometrics 2008 annual meeting of stockholders and the size of the board of directors will be reduced to eight (8) members at that time.

Upon expiration of the term of a class of directors, directors in that class will be elected for three-year terms at the annual meeting of stockholders in the year in which their term expires. The names of the Class I director nominees and their term expiration dates are set forth below:

| Name of Nominee | Nominated for a Term Expiring in: |
|--------------------------|--|
| Howard A. Bain III | 2011 (Class I) |
| William G. Oldham, Ph.D. | 2011 (Class I) |
| Stephen J Smith, Ph.D. | 2011 (Class I) |

Class I Nominees

Howard A. Bain III, 62, has served as a director since April 2008. From November 2001 until November 2004, Mr. Bain served as Senior Vice President and Chief Financial Officer of Portal Software, Inc., a provider of billing solutions for the global communications and media markets. From August 2001 to November 2001, Mr. Bain served as Portal's Vice President and Chief Financial Officer. Mr. Bain currently serves on the board of directors of Learning Tree International Inc., a provider of training and education to managers and information technology professionals working in business and government organizations. Mr. Bain holds a B.S.B.A. in Accounting from California Polytechnic University.

William G. Oldham, Ph.D., 70, has served as a director since June 2000 and as lead independent director since March 2007. Dr. Oldham, now Professor Emeritus, was a faculty member at the University of California at Berkeley from 1964 to 2003. He serves on the board of directors of Cymer, Inc., a supplier of light sources for deep ultraviolet photolithography systems. Dr. Oldham holds B.S., M.S. and Ph.D. degrees from the Carnegie Institute of Technology.

Stephen J Smith, Ph.D., 61, has served as a director since April 2004. Dr. Smith has been a professor in the Department of Molecular and Cellular Physiology at the Stanford University School of Medicine since 1989. Dr. Smith holds a B.A. degree from Reed College and a Ph.D. from the University of Washington.

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

Information Regarding Other Directors Continuing In Office

Set forth below is information regarding each of our continuing directors, including their ages as of May 14, 2008, the periods during which they have served as a director, and certain information as to principal occupations and directorships held by them in corporations whose shares are publicly registered.

Incumbent Class II Directors whose terms expire in 2009

J. Thomas Bentley, 58, has served as a director since April 2004. Mr. Bentley served as a Managing Director at SVB Alliant (formerly Alliant Partners), a mergers and acquisitions firm, since he co-founded the firm in 1990 until October 2005. Mr. Bentley currently serves on the board of directors of Rambus, Inc., a chip interface technology company. Mr. Bentley holds a B.A. degree in Economics from Vanderbilt University and a Masters of Science in Management from the Massachusetts Institute of Technology.

Edmond R. Ward, Ph.D., 69, has served as a director since July 1999. From January 2002 through 2006, Dr. Ward served as Chief Technical Officer of Unity Semiconductor Corporation, a semiconductor design and manufacturing company. From April 1999 through 2006, Dr. Ward was a General Partner of Virtual Founders, a venture capital firm. Dr. Ward holds BSEE and Ph.D. degrees from Purdue University and a MSEE from Stanford University.

Class III Nominees whose terms expire in 2010

Vincent J. Coates, 83, founded Nanometrics and has served as Vice-Chairman of the Board and Chairman of our Scientific Advisory Board since July 2007, Chairman of the Board from January 1975 through July 2007 and as Secretary from February 1989 until July 2007. From January 1975 until April 1998, Mr. Coates served as the Chief Executive Officer and as President from January 1975 through May 1996, except for the period of January 1986 through February 1987 when he served exclusively as Chief Executive Officer. Mr. Coates holds a B.E. in Mechanical Engineering from Yale University.

Bruce C. Rhine, 51, has served as our Chairman of the Board of Directors since July 2007 and as a director since July 2006. From July 2006 to February 2008, Mr. Rhine served as our Chief Strategy Officer. From March 2007 to August 2007, Mr. Rhine served as our Chief Executive Officer. From August 2000 to July 2006, Mr. Rhine served as Chairman and Chief Executive Officer of Accent Optical Technologies, Inc. and as Accent Optical Technologies, Inc.'s President from January 2003 to April 2005 and from August 2000 to September 2001. Mr. Rhine holds a B.S. degree in Chemical Engineering and an M.B.A. in Finance from The Pennsylvania State University

Timothy J. Stultz, Ph.D., 60, has served as President, Chief Executive Officer and a director since August 2007. From June 2003 to August 2007, Dr. Stultz served as the President and Chief Executive Officer and a member of the board of directors of Imago Scientific Instruments Corporation, a supplier of proprietary 3-D atom probe microscopes to the research materials and microelectronics industries. Prior to Imago, Dr. Stultz served as President and Chief Executive Officer for ThauMDx, a developer of diagnostic systems and technologies for the analysis of biomolecules, drugs and chemicals. Dr. Stultz received his B.S., M.S. and Ph.D. in Materials Science and Engineering from Stanford University.

Compensation of Directors

During fiscal year 2007, directors who are not also employees of Nanometrics received an annual retainer fee of \$15,000, plus \$1,500 for each board meeting attended. The Audit Committee chairman and Compensation/Stock Option Committee chairman received an incremental \$8,000 and \$3,000 annual retainer, respectively, for

serving in such capacities and each committee member receives an additional \$2,000 annual retainer. All directors received \$1,500 for special board or committee meetings attended on site and \$500 for telephonic meetings lasting greater than 30 minutes. Non-employee directors were also eligible to participate in our 2000 Director Stock Option Plan whereby each director received a stock option award of 20,000 options upon appointment to the board of directors and 2,500 stock options at the beginning of each fiscal quarter thereafter, provided the director has served on the board of directors for at least six months on each grant date.

On November 29, 2007, upon the recommendation of the Compensation/Stock Option Committee, the board of directors approved a new policy for non-employee directors. Directors who are not also employees of Nanometrics shall receive an annual retainer fee of \$20,000, plus \$1,500 for each board meeting attended. The Nominating and Governance Committee Chairman, Audit Committee Chairman, Compensation/Stock Option Committee Chairman and Lead Independent Director shall receive an incremental \$5,000, \$10,000, \$5,000 and \$5,000 annual retainer, respectively, for serving in such capacities and each committee member shall receive an additional \$2,000 annual retainer. All non-employee directors shall receive \$1,500 for special board or committee meetings attended on site and \$500 for telephonic meetings lasting greater than 30 minutes. Joseph F. Dox has waived the right to receive such board of director annual retainer and meeting attendance fees. Non-employee directors are also eligible to participate in our Directors Stock Option Plan whereby each such director shall receive a stock option award of 20,000 options upon appointment to the board of directors and 2,500 stock options on the second business day of each fiscal quarter thereafter, provided the director has served on the board of directors as a non-employee director for at least six months on each grant date. One-third (1/3) of the shares subject to the option shall vest on the one year anniversary of the vesting commencement date, and an additional one-third (1/3) of the shares subject to the option will vest each year thereafter on the annual anniversary of the vesting commencement date, subject to the director continuing to provide services to Nanometrics through each such date. Each non-employee director shall also receive an award of 2,000 restricted stock units under our 2005 Equity Incentive Plan on the second business day of each fiscal year, provided the director has served on the board of directors as a non-employee director for at least six months on each grant date. One-third (1/3) of the restricted stock units subject to the award shall vest on the later of the one year anniversary of the vesting commencement date and the opening of any applicable company trading window, and an additional one-third (1/3) of the restricted stock units subject to the award will vest each year thereafter on the later of the annual anniversary of the vesting commencement date and the opening of any applicable company trading window, subject to the director continuing to provide services to Nanometrics through each such date.

On January 7, 2008, upon the recommendation of the Compensation/ Stock Option Committee, the board of directors also approved an annual retainer fee for the Chairman of the Board of \$15,000 for serving in such capacity.

The following table shows compensation information for Nanometrics directors for fiscal year 2007.

DIRECTOR COMPENSATION

For Fiscal Year 2007

| Name | Fees Earned or Paid in Cash (\$) | Stock Awards (\$) | Option Awards \$(1) | Option Awards (#) | All Other Compensation \$(2) | Total (\$) |
|-------------------|--|----------------------|------------------------|----------------------|---------------------------------|------------|
| Bruce C. Rhine(3) | \$ | | \$ | | \$ | \$ |
| Vincent J. Coates | \$ 10,043 | | \$ 13,554 | 3,696(4) | \$ 125 | \$ 23,722 |
| J. Thomas Bentley | \$ 46,179 | | \$ 34,159 | 10,000 | \$ 125 | \$ 80,464 |
| Joseph F. Dox | \$ (5) | | \$ 52,310 | 20,000 | \$ (6) | \$ 52,310 |
| William G. Oldham | \$ 32,297 | | \$ 34,159 | 10,000 | \$ 125 | \$ 66,581 |
| Stephen J Smith | \$ 33,000 | | \$ 34,159 | 10,000 | \$ 146 | \$ 67,305 |
| Edmond R. Ward | \$ 41,797 | | \$ 34,159 | 10,000 | \$ 1,867 | \$ 77,823 |

- Amounts shown do not reflect compensation actually received by the named executive officer. Instead, the amounts shown are the aggregate fair value of stock options granted for financial statement reporting purposes in 2007, as determined pursuant to SFAS 123R. The assumptions used to calculate the value of option awards are set forth under Note 1 of the Notes to Consolidated Financial Statements included in Nanometrics Annual Report on Form 10-K for fiscal 2007 filed with the SEC on March 13, 2008.
- Representing health care reimbursement benefit extended to directors and Section 16 Officers.
- Compensation earned in Mr. Rhine's capacity as a named executive officer is shown in the Summary Compensation Table on page 25.
- Representing a discretionary prorated quarterly option grant and discretionary full quarterly option grant to Mr. Coates in connection with his change in status to a non-employee director on August 17, 2007.
- In our sole discretion, we made a charitable donation to an eligible IRS recognized nonprofit organization in the amount of \$22,804 representing the fees Mr. Dox would have received in his capacity as a director for the fiscal year 2007.
- In our sole discretion, a charitable donation in the amount of \$95,000 was made to an eligible IRS recognized nonprofit organization in honor of Mr. Dox.

Howard A. Bain III is not included above as he did not join the board of directors until April 2008.

Board of Directors Meetings and Committees

The board of directors met (or acted by written consent) a total of 18 times during the fiscal year ended December 29, 2007. During the fiscal year ended December 29, 2007, all incumbent directors attended at least 75% of meetings of the board of directors and meetings of committees, if any, upon which such directors served. The standing committees of the board of directors include an Audit Committee, a Compensation/Stock Option Committee and a Nominating and Corporate Governance Committee.

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

It is our policy to encourage our directors to attend our annual meetings absent a valid reason, such as a schedule conflict. With the exception of Bruce C. Rhine, none of the directors who served on the board of directors for the entire fiscal year attended the 2007 annual meeting of stockholders.

Audit Committee

The Audit Committee of the board of directors, which was established in accordance with Section 3(a)(58)(A) of the Exchange Act, reviews and monitors our financial reporting as well as our internal and

external audits, including among other things, our internal audit and control functions, the results and scope of the annual audit and other services provided by our independent auditors, 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 employment of, and to review fee arrangements with, our independent auditors. The Audit Committee also monitors transactions between Nanometrics and our officers, directors and employees for any potential conflicts of interest. The Audit Committee met (or acted by written consent) nine times during the fiscal year ended December 29, 2007.

The members of the Audit Committee during the fiscal year ended December 29, 2007 were William G. Oldham, Edmond R. Ward, J. Thomas Bentley and Joseph F. Dox. In May 2007, Dr. Oldham resigned from the Audit Committee and was replaced by Mr. Dox. In October 2007, Mr. Bentley resigned from his positions as the Audit Committee financial expert and chairman and was replaced by Mr. Dox. In April 2008, the board of directors appointed Howard A. Bain III to the Audit Committee and appointed Mr. Bain to serve as the Audit Committee financial expert and chairman. The Audit Committee currently consists of Howard A. Bain III, J. Thomas Bentley, Joseph F. Dox and Edmond R. Ward, with Mr. Bain serving as the Audit Committee financial expert and chairman. On February 26, 2008, Mr. Dox notified the board of directors of his decision not to stand for re-election to our board of directors and will no longer be a member of Audit Committee when his term as a director expires on the date of this annual meeting of stockholders.

Our board of directors has determined that each member of our Audit Committee is independent within the meaning of the rules of the Securities and Exchange Commission and the Marketplace Rules of NASDAQ. Our board of directors has also determined that each member of the Audit Committee is able to read and understand financial statements. Further, the board of directors has determined that Mr. Bain, Chairman of the Audit Committee, qualifies as an Audit Committee financial expert as that term is used in Item 7(d)(3)(iv) of Schedule 14A under the Exchange Act.

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

Compensation/Stock Option Committee

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

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

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

The members of the Compensation Committee serving in the fiscal year ended December 29, 2007 were Edmond R. Ward, J. Thomas Bentley and Stephen J Smith, each of whom is a non-employee member of our board of directors. Dr. Ward was appointed as chairman of the Compensation Committee by the board of directors. Each member of our Compensation Committee is an outside director as defined in Section 162(m) of the Internal Revenue Code of 1986, as amended, and a non-employee director within the meaning of Rule

16b-3 of the Exchange Act. Our board of directors has determined that each of the directors serving on our Compensation Committee is independent within the meaning of the rules of the Securities and Exchange Commission and the Marketplace Rules of NASDAQ. The Compensation Committee met (or acted by written consent) 13 times during fiscal 2007.

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

Nominating and Corporate Governance Committee

We also maintain a standing Nominating and Corporate Governance Committee that assists the board of directors in identifying and qualifying candidates to join the board of directors and addressing governance issues. Our board of directors has determined that each of the directors serving on our Nominating and Corporate Governance Committee is independent within the meaning of the rules of the Securities and Exchange Commission and the Marketplace Rules of NASDAQ. The Nominating and Corporate Governance Committee utilizes a variety of methods for identifying and evaluating nominees. Its general policy is to assess the appropriate size of the board of directors and whether any vacancies are expected due to retirement or otherwise. In the event those vacancies are anticipated, or otherwise arise, the Nominating and Corporate Governance Committee will consider recommending various potential candidates to fill such vacancies. Candidates may come to the attention of the nominating committee through its current members, stockholders or other persons. The board of directors may consider properly submitted stockholder nominations for candidacy. Nominees may be submitted by stockholders in accordance with the stockholder communication policy described below. Director candidates submitted by stockholders will be considered under the same criteria as candidates recommended by directors or others.

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

The Nominating and Corporate Governance Committee believes that board members should represent a balance of diverse backgrounds and skills, including marketing, finance, manufacturing, engineering, science, and international experience. The members of the Nominating and Corporate Governance Committee during the fiscal year ended December 29, 2007 were William G. Oldham, Edmond R. Ward, Stephen J. Smith and Joseph F. Dox. Dr. Oldham was appointed as chairman of the Nominating and Corporate Governance Committee by the board of directors. In May 2007, Dr. Ward resigned from the Nominating and Corporate Governance Committee and was replaced by Joseph F. Dox. The nominating and governance committee currently consists of William G. Oldham, Joseph F. Dox and Stephen J. Smith. Dr. Oldham continues to serve as the nominating and governance committee chairman. The Nominating and Corporate Governance Committee met seven times in the fiscal year ended December 29, 2007. On February 26, 2008, Mr. Dox notified the board of directors of his decision not to stand for re-election to our board of directors and will no longer be a member of Nominating and Corporate Governance Committee when his term as a director expires on the date of this annual meeting of stockholders.

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

Lead Independent Director

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

Code of Ethics

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

Stockholder Communication Policy

We have established a formal process for stockholders to send communications to the board of directors or to individual directors. The names of all directors are available to stockholders in this proxy statement. Stockholder communications may be submitted in writing by notice delivered or mailed by first-class United States mail, postage prepaid, to Nanometrics Incorporated, 1550 Buckeye Drive, Milpitas, California 95035, Attention: Office of the Secretary. If we receive any stockholder communication intended for the full board of directors or any individual director, we will forward the communication to the full board of directors or the individual director, unless the communication is clearly of a marketing nature or is unduly hostile, threatening, illegal or similarly inappropriate, in which case we have the authority to discard the communications or take appropriate legal action regarding the communication.

Report of the Audit Committee of the Board of Directors

The following is the report of the Audit Committee of the board of directors describing its review of materials and determinations with respect to its auditors and financial statements for the fiscal year ended December 29, 2007. The information contained in this report shall not be deemed to be soliciting material or to be filed with the Securities and Exchange Commission, nor shall such information be incorporated by reference into any future filing under the Securities Act or Exchange Act, except to the extent that we specifically incorporate it by reference into such filing.

In accordance with its written charter adopted by the board of directors, the Audit Committee assists the board of directors in fulfilling its responsibility for oversight of the quality and integrity of the accounting, auditing and financial reporting practices of Nanometrics. During the fiscal year ended December 29, 2007, the Audit Committee met (or acted by written consent) nine times, and the Audit Committee chairman, as representative of the committee, discussed the interim financial information contained in quarterly earnings announcements with the chief financial officer and independent auditors prior to public release.

The Audit Committee received from our independent auditors a formal written statement, consistent with Independence Standards Board Standard No. 1, *Independence Discussions with Audit Committees*, which describes all relationships between the auditors and Nanometrics that, in the auditors' professional opinion, might reasonably be thought to bear on the auditors' independence. The Audit Committee discussed with the auditors these relationships and satisfied itself as to the auditors' independence.

The Audit Committee also discussed and reviewed with the independent auditors all communications required by generally accepted auditing standards, including those described in Statement on Auditing Standards No. 61, as amended, *Communication with Audit Committees* and, with and without management present, discussed and reviewed the results of the independent auditors' examination of our financial statements.

Additionally, the Audit Committee reviewed and discussed the audited financial statements of Nanometrics as of and for the fiscal year ended December 29, 2007 with management and the independent auditors. Management has the responsibility for the preparation of our financial statements and the independent auditors have the responsibility for the examination of those statements.

Based on the foregoing review and discussions with management and the independent auditors, the Audit Committee recommended to the board of directors that our audited financial statements as of and for the year ended December 29, 2007 be included in its Annual Report on Form 10-K, as amended, for the fiscal year ended December 29, 2007 for filing with the Securities and Exchange Commission. The Audit Committee also recommended the appointment, subject to stockholder approval, of the independent registered public accounting firm and the board of directors concurred in such recommendation.

Members of the Audit Committee

Howard A Bain III, Chairman

J. Thomas Bentley

Joseph F. Dox

Edmond R. Ward

Audit Fees

The following table summarizes the aggregate fees that we paid or expect to pay our independent registered public accounting firm, BDO Seidman, LLP for fiscal 2007 and 2006.

| | Fiscal 2007 | Percentage Pre-approved By Audit Committee | Fiscal 2006 | Percentage Pre-approved By Audit Committee |
|-----------------------|---------------------|---|---------------------|---|
| Audit Fees(1) | \$ 1,178,515 | 100% | \$ 1,903,109 | 100% |
| Audit Related Fees(2) | 70,905 | 100% | 162,220 | 100% |
| Tax Fees(3) | 21,000 | 100% | | |
| All Other Fees | | | | |
| Total | \$ 1,270,420 | | \$ 2,065,329 | |

- (1) Fees for audit services consist of:
- Audit of our annual financial statements including management's assessment of internal controls over financial reporting;
 - Reviews of our quarterly financial statements; and
 - Statutory and regulatory audits, consents and other services.
- (2) Fees for audit-related services billed in fiscal 2007 consisted of consultation concerning financial accounting and reporting standards (\$70,905). Fees for audit-related services billed in fiscal 2006 consisted of (i) consultations and due diligence related to our acquisition of Accent Optical Technologies, Inc. (\$144,345) and (ii) consultation concerning financial accounting and reporting standards (\$17,875).
- (3) This figure relates to tax return preparation for certain foreign subsidiaries in fiscal 2007.

In considering the nature of the services provided by the independent registered public accountants, 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 non-audit services, and the related fees, provided to us by our independent auditors, or subsequently approve non-audit services in those circumstances where a subsequent approval is necessary and permissible under the Exchange Act or the rules of the Securities and Exchange Commission. Accordingly, the Audit Committee pre-approved all services and fees provided by BDO Seidman, LLP during the year ended December 29, 2007 and has concluded that the provision of these services is compatible with the accountants' independence.

Matters Not Required to be Submitted to Security Holders

Approval by the stockholders of the selection of the independent registered public accounting firm is not required, but the Audit Committee believes it is desirable as a matter of good corporate governance to submit this matter to the stockholders. If holders of a majority of the shares present in person or by proxy at the meeting and entitled to vote at the annual meeting do not ratify the appointment of BDO Seidman, LLP as Nanometrics' independent registered public accounting firm for the fiscal year ending December 27, 2008, the Audit Committee will consider whether it should select another independent registered public accounting firm.

Vote Required

As a matter of good corporate governance, we are seeking the affirmative vote of the holders of a majority of the shares present in person or by proxy at the meeting and entitled to vote.

SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

The following table sets forth beneficial ownership of Nanometrics common stock as of April 11, 2008, by each director, by each of the executive officers, by all directors and executive officers as a group, and by all persons known to Nanometrics to be the beneficial owners of more than 5% of Nanometrics stock. Unless otherwise indicated, the address of each executive officer or director of Nanometrics is 1550 Buckeye Drive, Milpitas, CA 95035. As of the close of business on April 11, 2008, there were 18,597,303 shares of common stock outstanding.

| Name Of | Amount and Nature Of Beneficial Ownership (1) Shares | | | Percent Of Class |
|--|---|--|--|---------------------|
| | Shares | Stock Options Exercisable Within 60 Days Of 4/11/08 | Total Shares Beneficially Owned | |
| Beneficial Owner Principal Stockholders | | | | |
| Dimensional Fund Advisors LP(2) | 1,256,009 | | 1,256,009 | 6.8% |
| Peter M. Joost(3) | 1,317,395 | | 1,317,395 | 7.1% |
| Royce and Associates, LLC(4) | 1,392,600 | | 1,392,600 | 7.5% |
| The TCW Group, Inc.(5) | 1,883,396 | | 1,883,396 | 10.1% |

| Name Of | Amount and Nature of Beneficial Ownership (1) Shares | | | Percent Of Class |
|---|---|--|--|---------------------|
| | Shares | Stock Options Exercisable Within 60 Days Of 4/11/08 | Total Shares Beneficially Owned | |
| Beneficial Owner Directors And Officers | | | | |
| Bruce C. Rhine(6) | 918,810 | 77,009 | 995,819 | 5.3% |
| Vincent J. Coates(7) | 3,498,614 | | 3,498,614 | 18.8% |
| Howard A. Bain III(8) | 1,000 | | 1,000 | * |
| J. Thomas Bentley | | 28,332 | 28,332 | * |
| Joseph F. Dox(9) | 1,915 | 6,666 | 8,581 | * |
| William G. Oldham, Ph.D. | | 28,332 | 28,332 | * |
| Stephen J Smith, Ph.D. | | 28,332 | 28,332 | * |
| Timothy J. Stultz, Ph.D. | | | | * |
| Edmond R. Ward, Ph.D. | 2,000 | 28,332 | 30,332 | * |
| Gary C. Schaefer | | 13,333 | 13,333 | * |
| Bruce A. Crawford | 49,604 | 74,173 | 123,777 | * |
| John D. Heaton(10) | | | | * |
| Douglas J. McCutcheon(11) | 2,292 | | 2,292 | * |
| Quentin B. Wright(12) | 5,418 | 64,426 | 69,844 | * |
| All named officers and directors as a group (14 persons) | 4,479,653 | 348,935 | 4,828,588 | 25.5% |

* Less than 1%.

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

(2) According to a Schedule 13G/A filed with the SEC on February 6, 2008, Dimensional Fund Advisors LP may be deemed to be the beneficial owner of 1,256,009 shares of common stock. Dimensional Fund Advisors LP (formerly, Dimensional Fund Advisors Inc.) (Dimensional), an investment advisor registered under Section 203 of the Investment Advisors Act of 1940, furnishes investment advice to four investment companies registered under the Investment Company Act of 1940, and serves as investment manager to certain other commingled group trusts and separate accounts. These investment companies, trusts and accounts are the Funds. In its role as investment advisor or manager, Dimensional possesses investment and/or voting power over the securities that are owned by the Funds, and may be deemed to be the beneficial owner of the shares held by the Funds. All of the shares are owned by the Funds. Dimensional disclaims beneficial ownership of such securities. The address of Dimensional is 1299 Ocean Avenue, Santa Monica, CA 90401.

- (3) According to a Schedule 13G/A filed with the SEC on February 7, 2008 and information available to us, Peter M. Joost may be deemed to be the beneficial owner of 1,317,395 shares of common stock which includes 1,052,816 shares of common stock held by JFI II, L.P. (JFI II) and 264,579 shares of common stock held by Peter M. and Lindsay M. Joost, Trustees U/T/A dated April 11, 2002 (the Joost Trust). The sole general partner of JFI II is Joost Enterprises Corporation (JEC). Mr. Joost is the President of, and the Joost Trust holds all of the outstanding shares issued by, JEC. Sole voting and dispositive power for the shares held by JFI II is exercised through JEC. Mr. and Mrs. Joost share voting and dispositive power for the shares held by the Joost Trust. The address of these individuals and entities is c/o Joost Enterprises Corporation, 555 California Street, Suite 5180, San Francisco, California 94104.
- (4) According to a Schedule 13G/A filed with the SEC on January 30, 2008, Royce and Associates, LLC (Royce) may be deemed to be the beneficial owner of 1,392,600 shares of common stock. Various accounts managed by Royce have the right to receive or the power to direct the receipt of dividends from, or the proceeds from the sale of shares of the issuer. The interest of one account, Royce Opportunity Fund an investment company registered under the Investment Company Act of 1940 and managed by Royce, amounted to 1,008,800 shares. The address of Royce is 1414 Avenue of the Americas, New York, NY 10019.
- (5) According to a Schedule 13G/A filed with the SEC on March 10, 2008, The TCW Group, Inc. (TCW), on behalf of itself and its direct and indirect subsidiaries, which collectively constitute The TCW Group, Inc. business unit (the TCW Business Unit), the TCW Business Unit may be deemed to be the beneficial owner of 1,883,396 shares of common stock. The TCW Business Unit is primarily engaged in the provision of investment management services. The ultimate parent company of TCW is Societe Generale, S.A. (SG). The principal business of SG is acting as a holding company for a global financial services group, which includes certain distinct specialized business units that are independently operated, including the TCW Business Unit. SG, for purposes of the federal securities laws, may be deemed ultimately to control TCW and the TCW Business Unit. SG disclaims beneficial ownership of the shares beneficially owned by TCW. TCW disclaims beneficial ownership of the shares beneficially owned by SG and any of SG 's other business units. TCW shares voting power of 603,712 shares and shares dispositive power of 1,883,396 shares. The address for TCW Group is 865 South Figueroa Street, Los Angeles, CA 90017.
- (6) Includes (i) 12,518 shares held of record jointly by Mr. Rhine and his spouse as joint tenants with rights of survivorship and (ii) 906,292 shares held of record by the Bruce Charles Rhine and Martha Hawn Rhine Family Trust.
- (7) Includes (i) 120 shares held of record by Mr. Coates and (ii) 3,498,494 shares of common stock held of record by the Vincent J. Coates Separate Property Trust, U/D/T dated August 7, 1981, for which Mr. Coates acts as trustee.
- (8) Shares held of record by Mr. Bain and his spouse.
- (9) Includes 485 shares held of record by Mr. Dox; (ii) 305 shares held of record by the Alexia Dox Trust (the AD Trust); and (iii) 1,125 shares held of record by the Emilie Dox Trust (the ED Trust). Ira Greenspan is the Trustee of the AD Trust and the ED Trust and has sole voting and investment power over the shares held by the AD Trust and the ED Trust. Mr. Dox disclaims beneficial ownership of the shares held by the AD Trust and the ED Trust.
- (10) Mr. Heaton resigned from all positions held at Nanometrics effective March 26, 2007.
- (11) Mr. McCutcheon resigned from all positions held at Nanometrics effective April 24, 2007.
- (12) Mr. Wright, our Vice President, External Reporting and Strategic Projects, served as interim Chief Financial Officer from April 2007 until November 2007 and as Chief Accounting Officer from April 2005 until November 2007.

Section 16(a) Beneficial Ownership Reporting Compliance

Section 16(a) of the Exchange Act requires our executive officers and directors, and persons who own more than 10% of a registered class of our equity securities, to file reports of ownership and changes in ownership with the Securities and Exchange Commission. Executive officers, directors and greater than 10% stockholders are required by Securities and Exchange Commission regulations to furnish Nanometrics with copies of all Section 16(a) forms that they file. Based solely on our review of the copies of such forms received by it or written representations from certain reporting persons, we believe that during the fiscal year ended December 29, 2007, our executive officers, directors and greater than 10% stockholders complied with all applicable filing requirements, except for a Form 4 filed on behalf of Mr. Coates reporting an open market purchase of shares, a Form 4 filed on behalf of Mr. Crawford reporting the vesting commencement of a performance based option grant and Forms 4 filed on behalf of Messrs. Crawford, Dox and Rhine reporting forfeiture of shares pursuant to an escrow agreement in connection with the acquisition of Accent Optical Technologies, Inc. that were inadvertently filed late by us.

COMPENSATION DISCUSSION AND ANALYSIS

Overview

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

Philosophy and Objectives

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

Accordingly, in 2007, the Compensation Committee continued its efforts to refine the overall executive compensation structure and process consistent with evolving good governance practices. The Compensation Committee's principal objectives are to: (1) develop and approve compensation packages that will attract and retain key executive talent; (2) reward and motivate these individuals to achieve short-term and long-term corporate objectives that enhance stockholder value; (3) link executive compensation to the achievement of financial, management or other performance goals; and (4) support our culture and core values, by promoting equity among the executive team and maintaining the competitiveness of our overall compensation when compared with external opportunities.

Role of Executive Officers in Compensation Decisions

The Compensation Committee makes all compensation decisions for our executive officers, including the named executive officers, and approves recommendations regarding equity awards to all executive officers. The Compensation Committee has delegated its authority to grant stock options to non-executive level employees or consultants to the management Stock Option Committee composed of our Chief Executive Officer and Chief Financial Officer currently Timothy J. Stultz and Gary C. Schaefer, respectively. Each year, the Compensation Committee reviews the total compensation of our named executive officers, including salaries, target bonus award opportunities, target annual long-term incentive award values, perquisites and other benefits (including retirement, health, and welfare benefits), and severance arrangements. The Compensation Committee then sets each executive's compensation target for the current year. Typically, this involves establishing their annual bonus opportunities and granting long-term equity incentive awards. The Compensation Committee's decisions are reviewed and ratified by the board of directors.

The Chief Executive Officer annually reviews the performance of each executive officer (other than the Chief Executive Officer whose performance is reviewed by the board of directors) using the elements described under "2007 Executive Compensation Components" below and makes recommendations about the structure of the overall compensation program and individual compensation arrangements to the Compensation Committee. The Compensation Committee decisions are based in part, on these annual performance reviews, including with respect to salary adjustments, annual bonus amounts, annual stock option grants and annual restricted stock unit

grants. The Chief Executive Officer is generally present at Compensation Committee meetings when compensation, other than his own, is considered and approved; however, the Compensation Committee can exercise its discretion in modifying any recommendations of the Chief Executive Officer and has done so in the past and will continue to do so when appropriate.

Setting Executive Compensation

Based on the foregoing philosophy and objectives, the Compensation Committee has structured our overall executive compensation in order to motivate executives to achieve the business goals set by us; to reward the executives for achieving such goals and to make us attractive from a compensation standpoint when compared to its peers. In order to aid the Compensation Committee in obtaining its objectives, the Compensation Committee consulted with our human resources department to evaluate equity grant information and to make recommendations with respect to compensation matters. The Compensation Committee also analyzes data and suggestions from our human resources department, including benchmarking against the compensation peer group of publicly-traded and privately-held semiconductor equipment manufacturing companies. This peer group consists of companies against which the Compensation Committee believes we must compete for talent and for stockholder investment. In 2007, the companies that comprised our peer group were various semiconductor equipment and materials industry companies of similar size as follows:

Advanced Micro Devices, Inc.
Atmel Corporation
Cymer, Inc.
Mattson Technology, Inc.
Photon Dynamics, Inc.
Therma-Wave, Inc.
Zygo Corporation

Asyst Technologies, Inc.
Cascade Microtech, Inc.
Intevac, Inc.
Novellus Systems, Inc.
Rudolph Technologies, Inc.
Vitesse Semiconductor Corporation

Data on the compensation practices of the above-mentioned peer group generally is gathered through searches of publicly available information, including publicly available databases. Publicly available information does not typically include information regarding target cash compensation, so Nanometrics relies upon compensation surveys to benchmark target cash compensation levels against the above peer group. Peer group data is gathered with respect to base salary, bonus targets and all equity awards, including stock options and restricted stock units. It does not include deferred compensation benefits or generally available benefits such as 401(k) plans or health care coverage.

Using the information from the peer group surveys, the Compensation Committee compares each executive officers' position to similar positions. Where there is no similar position, the Compensation Committee compares the Nanometrics position to a range of positions in the peer group that are the closest matches. The Compensation Committee uses these comparisons in its determinations of preliminary salary recommendations, preliminary bonus award opportunities, and the target long-term equity incentive award value for each executive position. This framework provides a guide for the Compensation Committee's deliberations. The actual total compensation and/or amount of each compensation element for an individual executive officer may be more or less than these comparative figures.

Nanometrics' compensation program generally reflects base pay at the 60th to 75th percentile among its peer group and total target cash compensation at the market's 65th percentile. However, in determining base salary, the Compensation Committee also considers other factors such as job performance, skill set, prior experience, the executive's time in his position and/or with Nanometrics, internal consistency regarding pay levels for similar positions or skill levels with Nanometrics, external pressures to attract and retain talent, and market conditions. Positioning base pay at approximately the 60th to 75th percentile of peer companies aids Nanometrics in controlling fixed costs. Targeting total cash compensation at approximately the 65th percentile, and therefore providing higher incentive compensation opportunity, rewards exceptional goal achievement and allows total compensation to be more competitive as a whole, while taking into account business cyclicality. Base pay and

target cash compensation are analyzed by management to determine variances to our compensation targets using the combination of publicly available information and survey data as described above.

Nanometrics competes with many larger companies for top executive-level talent. As such, the Compensation Committee generally sets compensation for its executive officers within a competitive range of compensation paid to similarly situated executives of the companies comprising the peer group. The Compensation Committee's process also includes an evaluation of our overall performance as well as the individual performance of its executive officers. That evaluation is taken into account when determining cash bonuses, salary adjustments and equity awards.

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

2007 Executive Compensation Components

Nanometrics' approach to total compensation is to create a comprehensive compensation package designed to reward individual performance based on our short-term and long-term performance and how this performance links to Nanometrics' corporate strategy. For the fiscal year ended December 29, 2007, the principal components of compensation for named executive officers were:

Base salary;

Cash bonus;

Stock option grants;

Restricted stock unit awards;

Retirement and other benefits; and

Perquisites and other personal benefits.

Nanometrics has chosen these components because we believe that each supports achievement of one or more of our compensation objectives, and that together they have been and will continue to be effective in this regard. The use and weight of each compensation component is based on a determination by the Compensation Committee of the importance of each compensation objective in supporting our business and talent strategies, as well as the use of these elements for executives at peer companies. This determination varies for each executive officer depending on a number of factors, including but not limited to, scope of his or her responsibilities, leadership skills and values, performance and length of service with Nanometrics.

Base Salary

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

the salaries of executive officers in similar positions at comparably-sized peer companies;

our financial performance over the past year based upon revenues and operating results; and

the individual's performance of the executive officer's duties and areas of responsibility as evaluated by the Chief Executive Officer (except in the case of the Chief Executive Officer whose performance is evaluated by the board of directors).

Salary levels are typically considered annually as part of our performance review process as well as upon a promotion or other change in job responsibility. Stock price performance has not been a factor in determining annual base salary compensation because the price of our common stock is subject to a variety of factors outside of our control.

Salary increases for Nanometrics' named executive officers in 2007 were determined by the Compensation Committee after considering salary data from our peer comparison groups, as well as consideration of the internal pay relationships for our executives based on their relative duties and responsibilities.

Cash Bonus

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

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

The actual bonuses paid to Nanometrics' named executive officers for 2007 were determined by the Compensation Committee based on its subjective evaluation of each executive's performance with input from our then serving Chief Executive Officer, the director of our human resources department and the board of directors. Based on the Chief Executive Officer's evaluation of each executive's performance against goals established for the year, Mr. Rhine and Dr. Stultz submitted proposed bonus recommendations to the Compensation Committee. The Compensation Committee exercised its judgment to adjust these recommendations based on its own evaluation of each executive's performance, the executive's relative contribution to our overall performance and the executive's response to unplanned or unforeseen events.

On May 24, 2007, the Compensation Committee approved an incentive cash award program for the remainder of 2007. Under the terms of the program, a pool of 5% of our operating profitability as measured on a quarterly basis was available to pay cash bonuses to participating individuals. The Compensation Committee also determined the applicable percentage of the bonus pool available for payment of these quarterly bonuses to participating individuals as follows: Bruce C. Rhine, Chairman of the Board of Directors, former Chief Strategy Officer and Chief Executive Officer 20%; Quentin B. Wright, Vice President External Reporting and Strategic Projects and former interim Chief Financial Officer 20%; Bruce A. Crawford, Chief Operating Officer 20%; and the remaining 40% to be distributed at the discretion of the Chief Executive Officer among certain other senior-level employees other than the aforementioned executive officers. No bonus was paid under this program in a quarter in which we incurred a loss.

For fiscal year 2008, the Compensation Committee approved a 2008 Executive Bonus Plan (the 2008 Plan). Under the terms of the 2008 Plan, quarterly bonus payments are based on the quarterly achievement by Nanometrics of certain financial goals based on our annual operating plan and individualized program objectives for certain named executive officers. Subject to the minimum amounts referenced below, no bonus will be paid in a particular quarter under the 2008 Plan if we are not profitable in such quarter, as determined in accordance with generally accepted accounting principals, or GAAP.

The maximum available annual payout under the 2008 Plan to Dr. Stultz is \$420,000, which is based on 150% achievement of target goals in each quarter. At 100% achievement of target goals in each quarter, Dr. Stultz's annualized aggregate bonus payout will be \$200,000. For each of the first and second quarters of 2008, Dr. Stultz's minimum bonus payout will be \$50,000 and for each of the third and fourth quarters of 2008, his minimum bonus payout will be \$25,000. The maximum available annual payout under the 2008 Plan to Mr. Schaefer is \$252,000, which is based on 150% achievement of target goals in each quarter. At 100% achievement of target goals in each quarter, Mr. Schaefer's annualized aggregate bonus payout will be \$120,000. For each of the first and second quarters of 2008, Mr. Schaefer's minimum bonus payout will be \$30,000. The maximum available annualized aggregate payout under the 2008 Plan to Mr. Crawford is \$329,000, which is based on 150% achievement of target goals in each quarter. At 100% achievement of target goals in each quarter, Mr. Crawford's annual payout will be \$156,500.

Stock Option Grants

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

Grants under Nanometrics' Stock Option Plans enable us to:

enhance the link between the creation of stockholder value and long-term executive incentive compensation;

provide an opportunity for increased equity ownership by executives; and

maintain competitive levels of total compensation.

Stock option award levels are determined based on market data and on our guidelines. Option awards vary among participants based on their positions within Nanometrics and are granted at the Compensation Committee's regularly scheduled and special meetings throughout the year. Management recommends that the Compensation Committee approve grants to newly hired or promoted executives, at the first meeting following their hire or promotion. Management recommends to the Compensation Committee that newly hired executive officers who are eligible to receive options are awarded such options at the next regularly scheduled Compensation Committee meeting following their hire date, unless the Compensation Committee has acted previously to approve their grants.

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

The majority of the options granted by the Compensation Committee vest at a rate of 33 1/3% per year over the first three years of the seven-year option term. Vesting ceases upon termination of employment and, except in the case of death (subject to a one year limitation), disability or retirement, the vested stock options may generally be exercised for 90 days following the date of termination. Prior to the exercise of an option, the holder has no rights as a stockholder with respect to the shares subject to such option, including voting rights and the right to receive dividends or dividend equivalents.

Restricted Stock Unit Grants

In 2007, the Compensation Committee began awarding restricted stock units or RSUs to our named executive officers. Similar to stock options, the Compensation Committee believes that RSUs, which increase in value as the market price of our common stock increases, create the proper incentive for the executive officers to

work towards the goal of creating stockholder value. RSUs also provide retention value even if our stock price does not increase or declines, and subjects executive officers to the same downside risk experienced by stockholders. In addition, the Compensation Committee believes that RSUs will be used increasingly by other companies and we will need to offer such incentives to remain competitive in attracting and retaining executive talent.

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

Profitability Bonus

In June 2007, the Compensation Committee also approved the issuance of non-qualified options to purchase up to an aggregate of 160,000 shares of our common stock under our 2005 Equity Incentive Plan. Under the program, option awards were made to Quentin B. Wright, our former Interim Chief Financial Officer, Bruce A. Crawford, our Chief Operating Officer, and other senior-level employees. Messrs. Wright and Crawford were each granted an option to purchase up to 25,000 shares. Each option grant vests in accordance with the following schedule: 25% of the shares subject to an option began vesting in accordance with the two-year time-based vesting described below upon the attainment of one of the four performance milestones. For each performance milestone that was not attained, 25% of the shares subject to an option did not vest and were forfeited immediately upon the determination that the performance milestone had not been attained. The first, second and third performance milestones were the determination by our Chief Financial Officer that we had attained quarterly operating profitability during the second fiscal quarter of 2007, the third fiscal quarter of 2007 and the fourth fiscal quarter of 2007, respectively. The fourth performance milestone was the determination by our Chief Financial Officer that we had attained quarterly operating profitability during each of the second, third and fourth fiscal quarters of 2007. Our Chief Financial Officer determined that the first and second milestones were attained, but the third and fourth were not, so a maximum of 50% of the shares subject to the option vest in accordance with the two-year time-based vesting described below and the remainder did not vest and were forfeited immediately. Upon attainment of the first and second performance milestones, 25% of the shares subject to an option began to vest ratably monthly over a two-year period beginning on the date of the determination by our Chief Financial Officer that the performance milestone was attained and subject, in each case, to the optionee's continued employment with Nanometrics on each relevant vesting date.

Retirement Benefits and Generally Available Benefits Programs

All employees in the United States, including the named executive officers, are eligible to participate in our 401(k) plan, as amended and restated in August 2007, medical, dental and vision insurance, employee stock purchase plan, as well as our life and disability insurance policy.

In fiscal 2007, all Section 16 officers and non-employee directors were also eligible to participate in an Exec-U-Care Reimbursement Plan to supplement our basic health plan by reimbursing expenses not covered under the underlying plan.

Nanometrics' 401(k) Plan and other generally available benefits programs allow us to remain competitive for employee talent, and we believe that the availability of these benefits programs generally enhances employee productivity and loyalty to Nanometrics. The main objectives of Nanometrics' benefits programs are to give employees access to quality healthcare, financial protection from unforeseen events, assistance in achieving retirement financial goals, enhanced health and productivity, and support global workforce mobility, in full compliance with applicable legal requirements. These generally available benefits typically do not specifically factor into decisions regarding an individual named executive officer's total compensation or equity award package.

Perquisites and Other Personal Benefits

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

The former President and Chief Executive Officer, Mr. Heaton was provided use of a company automobile and participation in the plans and programs described above. In addition, Mr. Heaton had access to a golf club membership sponsored by Nanometrics, as did Mr. Coates. Since May 2007, we do not provide or reimburse for country club memberships for any named executive officers.

Our Chairman of the Board of Directors and former Chief Executive Officer, Mr. Rhine, was provided limited use of private air transportation with a cost to us of approximately \$99,010. The board of directors initially approved this perquisite in March 2007 as an incentive to recruit Mr. Rhine to serve as our Chief Executive Officer by providing transportation from his home in Bend, Oregon to our executive offices in Milpitas, California. In August 2007, in connection with Mr. Rhine's transitioning to and support of Dr. Stultz as the Chief Executive Officer, the board of directors approved the continuation of this perquisite to provide an efficient way to minimize travel time commitments, allowing more productive use of Mr. Rhine's time, which, in turn, allows greater focus on Nanometrics-related activities.

Attributed costs of the personal benefits described above for the named executive officers for the fiscal year ended December 29, 2007, are included in the Summary Compensation Table on page 25.

Chief Executive Officer Benefits and Perquisites

The board of directors determined that in addition to the benefits and perquisites detailed above, in order to attract Dr. Stultz to Nanometrics, relocation benefits, an automobile allowance and reimbursement for select expenses associated with his initial employment were appropriate and reasonable. As part of his employment, Dr. Stultz relocated his family from Verona, Wisconsin to the San Francisco Bay area in the proximity of the Nanometrics headquarters in Milpitas, California. As part of the relocation benefits, the board of directors approved a living allowance of \$8,000 per month for up to 12 months, reimbursements for two house hunting trips, shipment of personal goods and storage of relocated personal goods in the San Francisco Bay Area for six months, and an automobile allowance of \$1,200 per month or the use of a company-leased car of equivalent value. Dr. Stultz was also granted a one-time lump sum cash signing bonus payment of \$100,000, less applicable withholdings, upon completion of one month of service with Nanometrics. We believe that these additional relocation benefits were a key incentive for Dr. Stultz to join us and also provide an efficient way to minimize travel time commitments and help mitigate business continuity risk.

Change in Control Severance Benefits

The Compensation Committee considers maintaining a stable and effective management team to be essential to protecting and enhancing the best interests of Nanometrics and its stockholders. Accordingly, the Compensation Committee decided to take appropriate steps to encourage the continued attention, dedication and continuity of members of our management to their assigned duties without the distraction that may arise from the possibility of termination of employment without cause or in connection with a change in control. As a result, we have entered into agreements with certain named executive officers which provide severance payments and benefits upon a termination of employment, including following a change in control of Nanometrics, as described in greater detail below in the section headed Employment Contracts and Termination of Employment and Change-in-Control Arrangements.

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

Tax and Accounting Implications

Deductibility of Executive Compensation

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

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

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

Accounting for Stock-Based Compensation

Beginning on January 1, 2006, we began accounting for stock-based payments in accordance with the requirements of FASB Statement 123(R).

Compensation of Executive Officers

The following table sets forth the compensation that we paid during the past three fiscal years to (i) our Chief Executive Officer, (ii) our Chief Financial Officer, and (iii) each of our three most highly compensated executive officers (or such lesser number of executive officers as we may have) not serving as Chief Executive Officer or Chief Financial Officer; and (iv) up to an additional two individuals that would have been included under item (iii) but for the fact that the individuals were not serving as executive officers as of December 29, 2007, all of whom are collectively referred to as the named executive officers.

SUMMARY COMPENSATION TABLE

| Name and Principal Position | Year | Salary (\$) | Bonus \$(1) | Stock Award (\$) | Option Awards (\$)(2) | Non-Equity Incentive Plan Compensation (\$) | All Other Compensation (\$) | Total (\$) |
|-------------------------------------|------|----------------|----------------|------------------------|-----------------------------|--|-----------------------------------|--------------|
| Bruce C. Rhine(3) | 2007 | \$ 279,008 | \$ 22,150 | | | | \$ 113,051(4) | \$ 414,209 |
| Chairman of the Board of | 2006 | \$ 115,681 | | | \$ 192,474 | | \$ 6,250(5) | \$ 314,405 |
| | 2005 | | | | | | | |
| Directors, former Chief Executive | | | | | | | | |
| Officer and former Chief Strategy | | | | | | | | |
| Officer | | | | | | | | |
| Timothy J. Stultz | 2007 | \$ 123,250 | \$ 168,681 | \$ 367,500 | \$ 771,240 | | \$ 54,815(6) | \$ 1,485,486 |
| President, Chief Executive Officer | 2006 | | | | | | | |
| | 2005 | | | | | | | |
| and director | | | | | | | | |
| Gary C. Schaefer | 2007 | \$ 137,307 | \$ 23,946 | \$ 187,800 | \$ 370,930 | | | \$ 719,983 |
| Chief Financial Officer and Vice | 2006 | | | | | | | |
| | 2005 | | | | | | | |
| President of Finance and | | | | | | | | |
| Administration | | | | | | | | |
| Bruce A. Crawford(3) | 2007 | \$ 302,462 | \$ 16,613 | \$ 136,000 | \$ 40,214 | | \$ 18,560(7) | \$ 513,849 |
| Chief Operating Officer | 2006 | \$ 94,769 | | | \$ 664,519 | | \$ 30,984(8) | \$ 790,272 |
| | 2005 | | | | | | | |
| John D. Heaton(9) | 2007 | \$ 93,288 | | | \$ 12,327 | | \$ 589,102(10) | \$ 694,717 |
| Former President and Chief | 2006 | \$ 375,027 | \$ 202,125 | | \$ 618,520 | | \$ 57,102(11) | \$ 1,252,774 |
| | 2005 | \$ 364,400 | \$ 51,360 | | | | \$ 26,000(12) | \$ 441,760 |
| Executive Officer | | | | | | | | |
| Douglas J. McCutcheon(13) | 2007 | \$ 95,365 | | | | | \$ 205,491(14) | \$ 300,856 |
| Former Executive Vice President, | 2006 | \$ 285,000 | \$ 119,700 | | | | | \$ 404,700 |
| | 2005 | \$ 80,019 | \$ 25,000 | | \$ 1,014,645 | | | \$ 1,119,664 |
| Finance and Administration and | | | | | | | | |
| Chief Financial Officer | | | | | | | | |
| Quentin B. Wright | 2007 | \$ 251,482 | \$ 16,613 | | \$ 40,214 | | \$ 1,043(15) | \$ 309,352 |
| Vice President External Reporting | 2006 | \$ 205,661 | | | \$ 88,350 | | | \$ 294,011 |
| | 2005 | \$ 142,191 | \$ 9,477 | | \$ 314,370 | | \$ 41,400(16) | \$ 507,438 |
| and Strategic Projects, former | | | | | | | | |
| interim Chief Financial Officer and | | | | | | | | |
| Chief Accounting Officer | | | | | | | | |
| Vincent J. Coates | 2007 | \$ 130,769 | | | \$ 13,554 | | \$ 3,200(5) | \$ 147,523 |
| Vice-Chairman of the Board, | 2006 | \$ 204,800 | | | | | | \$ 204,800 |
| | 2005 | \$ 204,800 | | | | | | \$ 204,800 |
| former Chairman of the Board of | | | | | | | | |
| Directors and Secretary | | | | | | | | |

(1) Representing bonuses and/or commissions paid to the named executive officers.

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- (2) Amounts shown do not reflect compensation actually received by the named executive officer. Instead, the amounts shown are the aggregate fair value of stock options granted for financial statement reporting purposes, as determined pursuant to SFAS 123R. The assumptions used to calculate the value of option awards are set forth under Note 3 of the Notes to Consolidated Financial Statements included in Nanometrics' Annual Report on Form 10-K for the fiscal year ended December 29, 2007 filed with the SEC on March 13, 2008.
- (3) Employment with Nanometrics commenced on July 21, 2006 with our acquisition of Accent Optical Technologies, Inc.
- (4) Representing payment to Mr. Rhine of \$13,750 for an auto allowance, \$290 of health care reimbursement benefit extended to directors and Section 16 Officers and \$99,010 to reimburse Mr. Rhine for limited use of private air transportation from his home in Bend, Oregon to our executive offices in Milpitas, California during his service as Chief Executive Officer and in support of Dr. Stultz's transition as incoming Chief Executive Officer.
- (5) Amount is comprised of a car allowance.

- (6) Amount is comprised of \$32,000 for relocation benefits and living allowance, \$17,470 for reimbursement of relocation expenses, \$5,200 for a car allowance and \$145 of health care reimbursement benefit extended to directors and Section 16 Officers.
- (7) Represents payments to Mr. Crawford of \$2,490 of health care reimbursement benefit extended to directors and Section 16 Officers and approximately \$16,070 to reimburse Mr. Crawford for transportation and accommodation expenses related to travel from his home in Bend, Oregon to our executive offices in Milpitas, California.
- (8) Amount represents gains on the exercise of stock options.
- (9) Mr. Heaton's employment with Nanometrics terminated on March 26, 2007.
- (10) This amount consists of \$295,414 for severance paid following his employment termination, \$252,674 for gains on the exercise of stock options, \$36,781 for accrued vacation following his employment termination, \$4,233 for use of a company car.
- (11) This amount consists of \$36,715, \$12,887 and \$7,500, respectively, for accrued vacation, use of a company car and a golf club membership to Mr. Heaton.
- (12) Represents payments to Mr. Heaton of \$21,200 and \$4,800, respectively, for accrued vacation time and a car allowance.
- (13) Mr. McCutcheon's employment with Nanometrics terminated on April 24, 2007.
- (14) This amount consists of \$189,635 for severance paid following his employment termination and \$15,856 for accrued vacation following his employment termination.
- (15) Represents payment to Mr. Wright of health care reimbursement benefit extended to directors and Section 16 Officers.
- (16) This amount consists of consulting fees paid to Mr. Wright prior to his employment.

Stock Options Granted in the Fiscal Year Ended December 29, 2007

The following table sets forth information with respect to stock options granted during the fiscal year ended December 29, 2007 to each of the named executive officers.

GRANTS OF PLAN-BASED AWARDS**For Fiscal Year 2007**

| Name | Grant Date | Estimated Possible Payouts Under Non-Equity Incentive Plan Awards(1) | | | Estimated Possible Payouts Under Equity Incentive Plan Awards | | | All Other Stock Awards: Number Of Shares Or Units (#) | All Other Option Awards: Number Of Securities Underlying Awards (#) | Exercise or Base Price Of Option Awards (\$/sh) | Grant Date Fair Value Of Stock And Options Awards (\$) |
|-----------------------|--------------|--|-------------|--------------|---|------------|-------------|---|---|---|--|
| | | Threshold (\$) | Target (\$) | Maximum (\$) | Threshold (#) | Target (#) | Maximum (#) | | | | |
| Bruce C. Rhine | | | | | | | | | | | |
| Timothy J. Stultz | 8/29/2007 | \$ 68,681 | \$ 105,988 | | (2) | | 50,000 | | | | \$ 367,500 |
| | 8/29/2007 | | | | | | | 200,000 | \$ 7.35 | | \$ 771,240 |
| Gary C. Schaefer | 11/5/2007 | \$ 20,000 | \$ 20,000 | \$ 20,000 | | | 20,000 | | | | \$ 187,800 |
| | 5/24/2007 | | | | | | | 40,000 | \$ 6.12 | | \$ 131,480 |
| | 11/5/2007 | | | | | | | 50,000 | \$ 9.39 | | \$ 239,450 |
| Bruce A. Crawford | 7/10/2007 | | | | | | 20,000 | | | | \$ 136,000 |
| | 6/8/2007 | | | | | | | 6,250 | \$ 6.25 | \$ 20,107 | |
| | 6/8/2007 | | | | | | | 6,250 | \$ 6.25 | \$ 20,107 | |
| John D. Heaton | 3/26/2007(3) | | | | | | | 33,334 | \$ 12.02 | \$ 37 | |
| | 3/26/2007(3) | | | | | | | 33,333 | \$ 10.23 | \$ 507 | |
| | 6/25/2007(4) | | | | | | | 100,000 | \$ 7.03 | \$ 11,770 | |
| | 6/25/2007(4) | | | | | | | 33,333 | \$ 10.23 | \$ 3 | |
| | 6/25/2007(4) | | | | | | | 100,000 | \$ 12.02 | \$ 10 | |
| Douglas J. McCutcheon | | | | | | | | | | | |
| Quentin B. Wright | 6/8/2007 | | | | | | | 6,250 | \$ 6.25 | \$ 20,107 | |
| | 6/8/2007 | | | | | | | 6,250 | \$ 6.25 | \$ 20,107 | |
| Vincent J. Coates | 11/29/2007 | | | | | | | 2,500 | \$ 9.07 | \$ 9,304 | |
| | 11/29/2007 | | | | | | | 1,196 | \$ 9.58 | \$ 4,250 | |

- (1) Actual bonuses received by these named executive officers for fiscal year 2007 are reported in the Summary Compensation Table under the column entitled Bonus.
- (2) No maximum dollar amount was set in connection with Dr. Stultz's non-equity variable compensation for fiscal year 2007.
- (3) In connection with Mr. Heaton's employment agreement, we agreed to provide for twelve months of accelerated vesting on options granted to Mr. Heaton on May 26, 2004 and May 24, 2006.
- (4) In connection with our entry into a Separation and Release Agreement with Mr. Heaton on June 25, 2007, we agreed to provide an extended deadline to exercise options originally granted to Mr. Heaton on May 26, 2004, August 19, 2003 and May 24, 2006.

Aggregated Option Exercises in Last Fiscal Year and Fiscal Year-End Option Values

The following table sets forth the number of shares covered by both exercisable and un-exercisable stock options held by each of the named executive officers at the end of the fiscal year which ended December 29, 2007.

OUTSTANDING EQUITY AWARDS AT FISCAL 2007 YEAR-END

| Name | Option Awards | | | | Stock Awards | |
|----------------|---|---------------|----------------------------|------------------------|---|--|
| | Number Of Securities Underlying Unexercised Options (#) | | Option Exercise Price (\$) | Option Expiration Date | Number Of Shares Or Units Or Stock That Have Not Vested (#) | Market Value Of Shares Or Units Of Stock That Have Not Vested (\$) |
| Bruce C. Rhine | Exercisable | Unexercisable | | | | |
| | 8,333 | 16,667 | \$ 8.55 | 11/30/2013 | | |
| | 7,666 | 164 | \$ 8.89 | 07/24/2013 | | |
| | 3,661 | 1,503 | \$ 8.89 | 07/24/2013 | | |
| | 28,314 | 56,628 | \$ 15.98 | 01/25/2013 | | |

| | | | | | | |
|-------------------|--|---------|---------|------------|--------|------------|
| Timothy J. Stultz | | 200,000 | \$ 7.35 | 08/29/2010 | 50,000 | \$ 482,500 |
|-------------------|--|---------|---------|------------|--------|------------|

| Name | Option Awards | | | | Stock Awards | |
|-------------------|---|---------------|----------------------------|------------------------|---|--|
| | Number of Securities Underlying Unexercised Options (#) | | Option Exercise Price (\$) | Option Expiration Date | Number of Shares or Units or Stock That Have Not Vested (#) | Market Value of Shares or Units of Stock That Have Not Vested (\$) |
| Gary C. Schaefer | Exercisable | Unexercisable | | | | |
| | | 50,000 | \$ 9.39 | 05/24/2014 | 20,000 | \$ 193,000 |
| | | 40,000 | \$ 6.12 | 11/05/2014 | | |
| Bruce A. Crawford | 1,041 | 5,209 | \$ 6.25 | 06/08/2014 | 20,000 | \$ 193,000 |
| | 260 | 5,990 | \$ 6.25 | 06/08/2014 | | |
| | 1,621 | 3,243 | \$ 8.55 | 11/30/2013 | | |
| | 4,651 | 100 | \$ 8.89 | 07/24/2013 | | |
| | 33,333 | 66,667 | \$ 8.89 | 07/24/2013 | | |
| | 2,066 | | \$ 8.89 | 07/24/2014 | | |
| | 3,296 | 1,352 | \$ 8.89 | 07/24/2013 | | |
| | 6,969 | 3,360 | \$ 8.89 | 07/24/2013 | | |
| | 5,508 | 11,017 | \$ 15.98 | 01/25/2013 | | |
| | 3,098 | | \$ 7.27 | 05/08/2010 | | |
| | 2,065 | | \$ 7.27 | 12/13/2008 | | |

John D. Heaton

Douglas J. McCutcheon

| | | | | | | |
|-------------------|--------|--------|----------|------------|--|--|
| Quentin B. Wright | 1,041 | 5,209 | \$ 6.25 | 06/08/2014 | | |
| | 260 | 5,990 | \$ 6.25 | 06/08/2014 | | |
| | 5,000 | 10,000 | \$ 9.87 | 07/05/2013 | | |
| | 33,333 | 16,667 | \$ 11.52 | 04/15/2012 | | |

| | | | | | | |
|-------------------|--|----------|---------|------------|--|--|
| Vincent J. Coates | | 1,196(1) | \$ 9.07 | 11/29/2012 | | |
| | | 2,500(1) | \$ 9.58 | 11/29/2012 | | |

- (1) The options granted to Mr. Coates were in his capacity as a non-employee director.

OPTION EXERCISES AND STOCK VESTED

The following table shows all stock options exercised and value realized upon exercise, and all stock awards vested and value realized upon vesting, by the named executive officers during the fiscal year ended on December 29, 2007.

OPTION EXERCISES AND STOCK VESTED

For Fiscal Year 2007

| 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 (\$) |
| Bruce C. Rhine | | | | |
| Timothy J. Stultz | | | | |
| Gary C. Schaefer | | | | |
| Bruce A. Crawford | | | | |
| John D. Heaton | 20,000 | \$ 3,800 | | |
| | 20,000 | \$ 4,200 | | |
| | 38,519 | \$ 26,193 | | |
| | 17,000 | \$ 9,350 | | |
| | 6,400 | \$ 4,480 | | |
| | 20,000 | \$ 13,200 | | |
| | 600 | \$ 402 | | |
| | 50,000 | \$ 27,500 | | |
| | 5,000 | \$ 3,150 | | |
| | 100,000 | \$ 69,000 | | |
| | 42,626 | \$ 20,887 | | |
| | 700 | \$ 336 | | |
| | 7,342 | \$ 3,157 | | |
| | 5,016 | \$ 1,956 | | |
| | 1,838 | \$ 864 | | |
| | 10,000 | \$ 5,500 | | |
| | 8,759 | \$ 4,817 | | |
| | 16,200 | \$ 8,586 | | |
| | 1,900 | \$ 760 | | |
| | 20,500 | \$ 10,660 | | |
| | 50,100 | \$ 24,549 | | |
| | 13,300 | \$ 7,049 | | |
| | 6,700 | \$ 2,278 | | |
| Douglas J. McCutcheon | | | | |
| Quentin B. Wright | | | | |
| Vincent J. Coates | | | | |

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

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

As part of Nanometrics' hiring efforts, we sometimes enter into employment agreements and severance agreements with our named executive officers that provide for certain severance benefits, including but not limited to, continuation of salary, continuation of bonus plan participation, continuation of health care benefits

and acceleration of equity. The Compensation Committee decided, in its judgment, that these types of agreements are often needed to recruit executive officers to join Nanometrics and to mitigate the risks associated with leaving former employers and assuming the challenges of new executive positions.

Pursuant to the terms of an agreement between Nanometrics and Vincent J. Coates dated May 1, 1985, as amended and restated in August 1996 and April 1998, Nanometrics is obligated to continue to pay Mr. Coates his salary and benefits for five years from the date of his resignation as Chairman of the Board of Directors in the event Mr. Coates is required to resign under certain circumstances, including a change of control. Mr. Coates voluntarily resigned his position as Chairman of the Board of Directors on July 26, 2007 and no payments shall be required pursuant to this agreement.

In October 2006, Nanometrics entered into an agreement with John D. Heaton pursuant to which Nanometrics agreed to pay Mr. Heaton his annual salary of \$404,250 for a period of twelve (12) months from the date that he is required or requested for any reason not involving good cause, including a change of control, to involuntarily relinquish his positions with Nanometrics as President, Chief Executive Officer and director, provided that Mr. Heaton executes a separation agreement and general release, refrains from disparagement of Nanometrics, and continues to comply with the terms of a certain confidential information agreement. Mr. Heaton's employment with Nanometrics terminated on March 26, 2007, and, on June 25, 2007, we entered into a Separation Agreement and Release with Mr. Heaton pursuant to which we paid Mr. Heaton his annual salary, less applicable withholdings, through March 26, 2008 and provided twelve (12) months accelerated vesting and an extended deadline to exercise with respect to his outstanding, unvested equity awards.

In September 2005, Douglas J. McCutcheon became Executive Vice President, Finance and Administration and Chief Financial Officer of Nanometrics. In connection with Mr. McCutcheon's employment agreement, Nanometrics agreed to pay Mr. McCutcheon twelve (12) months of continued salary at his then-effective annual rate if Nanometrics terminates him for any reason other than for good cause, provided that Mr. McCutcheon executes a general release. Mr. McCutcheon's employment with Nanometrics terminated on April 24, 2007 and we paid Mr. McCutcheon his annual salary through April 24, 2008.

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

In August 2007, we announced the appointment of Timothy J. Stultz, Ph.D. as our President, Chief Executive Officer and a director. In connection with his appointment, we offered Dr. Stultz a compensation package including certain severance benefits consisting of continued salary payments and equity award acceleration for termination without cause or for good reason, including in connection with a change in control. Specifically, Nanometrics agrees to pay Dr. Stultz (i) his annual salary, including bonuses earned or accrued, and reimbursements for his premium payments under the Consolidated Omnibus Budget Reconciliation Act (COBRA) for twelve (12) months from the date of separation in the event that Dr. Stultz's employment with Nanometrics is terminated by us without cause or Dr. Stultz resigns for good reason within his first twelve months of employment with Nanometrics; (ii) his annual salary, including bonuses earned or accrued, and reimbursements for his premium payments under COBRA for nine months from the date of separation in the event that Dr. Stultz's employment with Nanometrics is terminated by us without cause or Dr. Stultz resigns for good reason during the period beginning one year and one day after Dr. Stultz's hire date until two years from Dr. Stultz's hire date; (iii) his annual salary, including bonuses earned or accrued, and reimbursements for his premium payments under COBRA for six months from the date of separation in the event that Dr. Stultz's employment with Nanometrics is terminated by us without cause or Dr. Stultz resigns for good reason during the period beginning two years and one day from Dr. Stultz's hire date or thereafter; and (iv) his annual salary, including bonuses earned or accrued, and reimbursements for his premium payments under COBRA for twelve (12) months and 100% acceleration of all equity awards, from the date of separation in the event that Dr. Stultz's

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employment with Nanometrics is terminated by us without cause or Dr. Stultz resigns for good reason with twelve months following a change of control, provided that Dr. Stultz executes a general release.

In November 2007, Gary C. Schaefer became Chief Financial Officer and Executive Vice President of Finance and Administration of Nanometrics. In January 2008, the Compensation Committee approved an employment agreement with Mr. Schaefer, which provides for certain severance benefits following a termination without cause, including twelve months continuing salary, performance bonus plan participation, reimbursements for his premium payments under COBRA and Exec-U-Care, and 100% acceleration of all equity awards, provided that Mr. Schaefer executes a general release.

The table below estimates amounts payable upon a separation as if the individuals were separated on December 29, 2007.

| Name | Benefit | Not In Connection With A Change Of Control | | In Connection With A Change Of Control Termination Without Cause, For Good Reason Or Due To Disability or Death (\$) |
|-----------------------|--------------------------------------|---|-------------------|--|
| | | Due To Disability or Termination Without Cause (\$) | Due To Death (\$) | |
| Timothy J. Stultz | Severance pay | \$ 377,000 | | \$ 377,000 |
| | Variable compensation payment | | | |
| | Stock option vesting acceleration | | | 1,013,100 |
| | Health care benefits continuation | 13,097 | | 13,097 |
| | Life insurance continuation | | | |
| | Total value: | \$ 390,097 | | \$ 1,403,197 |
| Gary C. Schaefer | Severance pay | \$ 300,000 | | \$ 300,000 |
| | Variable compensation payment | 60,000(1) | | 60,000 |
| | Stock option vesting acceleration | 409,340 | | 409,340 |
| | Health care benefits continuation | 13,940 | | 13,940 |
| | Life insurance continuation | | | |
| | Total value: | \$ 783,280 | | \$ 783,280 |
| Bruce A. Crawford | Severance pay | \$ 156,750 | | \$ 156,750 |
| | Variable compensation payment | | | |
| | Stock option vesting acceleration | 290,034 | | 290,034 |
| | Health care benefits continuation | 18,029 | | 18,029 |
| | Life insurance continuation | | | |
| | Total value: | \$ 464,813 | | \$ 464,813 |
| John D. Heaton | Severance pay(2) | \$ 108,836 | | |
| | Variable compensation payment | | | |
| | Stock option vesting acceleration | | | |
| | Health care benefits continuation(2) | 3,901 | | |
| | Life insurance continuation | | | |
| | Total | \$ 112,737 | | |
| Douglas J. McCutcheon | Severance pay(2) | \$ 95,365 | | |
| | Variable compensation payment | | | |
| | Stock option vesting acceleration | | | |
| | Health care benefits continuation | | | |
| | Life insurance continuation | | | |

Total \$ 95,365

- (1) Mr. Schaefer is due a bonus equal to 40% of base salary if we meet our annual operating plan with \$60,000 minimum due. The maximum payment to Mr. Schaefer would be \$120,000.
- (2) Amount represents the remaining amount due under the employment contract.

Compensation Committee Interlocks and Insider Participation

Messrs. Edmond R. Ward, J. Thomas Bentley and Stephen J Smith served on the Compensation Committee during fiscal year 2007. No member of such Compensation Committee is or was at any time an officer or employee of Nanometrics or any of its subsidiaries. During fiscal year 2007, none of our executive officers served on the Compensation Committee or board of directors of any other company whose executive officers serve as a member of our board of directors or Compensation Committee.

Related Party Transaction Policy

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

COMPENSATION COMMITTEE REPORT

Compensation Committee Report

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

Members of the Compensation Committee

Edmond R. Ward, Chairman
J. Thomas Bentley
Stephen J Smith

PROPOSAL 2

RATIFICATION OF APPOINTMENT OF

INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Audit Committee of the board of directors has appointed BDO Seidman, LLP, independent registered public accounting firm, to audit the consolidated financial statements of Nanometrics for the fiscal year ending December 27, 2008.

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

THE BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS THAT STOCKHOLDERS VOTE FOR THE RATIFICATION OF THE APPOINTMENT OF BDO SEIDMAN, LLP AS NANOMETRICS INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM FOR THE FISCAL YEAR ENDING DECEMBER 27, 2008.

OTHER MATTERS

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

THE BOARD OF DIRECTORS

Dated: May 23, 2008

