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NANOMETRICS INC
Form DEF 14A
August 13, 2007

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

x

Filed by a party other than the Registrant

..

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.

.. Fee computed on table below per Exchange Act Rules 14a-6(i)(1) and 0-11.

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

(2) Aggregate number of securities to which transactions applies:

(3) Per unit price or other underlying value of transaction computed pursuant to Exchange Act Rule 0-11 (Set forth the amount on which the filing fee is calculated and state how it was determined):

(4) Proposed maximum aggregate value of transaction:

(5) Total fee paid:

.. Fee paid previously with preliminary materials.

.. Check box if any part of the fee is offset as provided by Exchange Act Rule 0-11(a)(2) and identify the filing for which the offsetting fee was paid previously. Identify the previous filing by registration statement number, or the Form or Schedule and the date of its filing.

(1) Amount Previously Paid:

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- (2) Form, Schedule or Registration Statement No.:
- (3) Filing Party:
- (4) Date Filed:

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 (the Company), will be held on Friday, September 7, 2007, at 11:00 a.m., local time, at the Company's 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 eight nominees to serve on the Board of Directors to serve in three classes for terms of one, two or three years, as detailed herein.
2. A proposal to ratify the appointment of BDO Seidman, LLP as the Company's independent registered public accounting firm for the fiscal year ending December 29, 2007.

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 Monday, July 9, 2007 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

August 13, 2007

NANOMETRICS INCORPORATED

PROXY STATEMENT

INFORMATION CONCERNING SOLICITATION AND VOTING

General

This proxy statement is being provided to the stockholders of Nanometrics Incorporated (the Company) as part of a solicitation of proxies by the board of directors for use at the 2007 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 August 17, 2007.

Date, Time and Place

The annual meeting will be held on Friday, September 7, 2007 at 11:00 a.m., local time, at the Company's 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 eight directors of the Company to serve in three classes for terms of one, two or three years.
2. A proposal to ratify the appointment of BDO Seidman, LLP as the Company's independent registered public accounting firm for the fiscal year ending December 29, 2007.

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. The Company does 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 eight 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 the Company's independent registered public accounting firm for the fiscal year ending December 29, 2007.

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, July 9, 2007, are entitled to notice of and to vote at the annual meeting. As of the record date, there were 18,651,873 shares of common stock outstanding and entitled to vote at the annual meeting, held by approximately 411 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 eight 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 at the Company's 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 the Company 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 eight 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 the Company's independent registered public accounting firm is not required, but the Company 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 the Company's independent registered public accounting firm for the fiscal year ending December 29, 2007, the audit committee 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, the Company recommends 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 the Company to vote your shares, your shares will be voted:

FOR the election of the eight nominees named in this Proxy Statement to serve as directors on our Board of Directors in the various classes and for the various terms for which they have been nominated; and

FOR the proposal to ratify the appointment of BDO Seidman, LLP as the Company's independent registered public accounting firm for the fiscal year ending December 29, 2007.

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 the Company's corporate secretary a signed notice of revocation;

granting the proxy holders a new, later-dated proxy, which must be signed and delivered to the Company's 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

The Company is soliciting proxies for the annual meeting from its stockholders. The Company will bear the entire cost of soliciting proxies from the stockholders. In addition to the solicitation of proxies by mail, the Company 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. The Company also may use several of its 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. The Company 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 the Investor Relations department of the Company, by mail at 1550 Buckeye Drive, Milpitas, California, 95035 or by telephone at (408) 545-6000, the Company will promptly deliver a copy of its 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 the Company 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 2008 annual meeting of stockholders. For any proposal to be considered for inclusion in the Company's proxy statement and form of proxy for submission to the stockholders at the 2008 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 the Company 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 the company changes the date of its annual meeting to a date more than 30 days from the date of the previous year's annual meeting, then the deadline for receipt of stockholder proposals will be changed to a reasonable time before the Company begins to print and mail its proxy. The submission of a stockholder proposal does not guarantee that it will be included in the Company's 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 the Company's 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 the Company or any of its subsidiaries or (ii) has a material interest adverse to the Company or any of its subsidiaries.

PROPOSAL I**ELECTION OF DIRECTORS**

At the 2007 annual meeting of stockholders, unless otherwise instructed, the proxy holders will vote the proxies received by them for the eight nominees named below, each of whom has been nominated by our Board of Directors and is presently a director of the Company. Each of these nominees was recommended by the Board's nominating and corporate governance committee. 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. The Company is not aware of any nominee who will be unable or will decline to serve as a director.

In accordance with the terms of the Company's 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 2007 annual meeting of stockholders, the Board of Directors is seeking stockholder approval of each of the eight directors, in each of the respective classes, to serve until the expiration of the terms set forth below or until his successor is duly elected and qualified.

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 name of the director nominees, their respective classes, and their respective term expiration dates are set forth below:

Name of Nominee	Nominated for a Term Expiring in:
Joseph F. Dox	2008 (Class I)
William G. Oldham	2008 (Class I)
Stephen Smith	2008 (Class I)
J. Thomas Bentley	2009 (Class II)
Edmond R. Ward	2009 (Class II)
Vincent J. Coates	2010 (Class III)
Bruce C. Rhine	2010 (Class III)
Timothy J. Stultz	2010 (Class III)

THE BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS THAT THE STOCKHOLDERS VOTE FOR THE EIGHT NOMINEES SET FORTH BELOW.

Class I Nominees

Joseph F. Dox, 64, has served as a director since May 2007. Mr. Dox previously served on the board of directors of Accent Optical Technologies, Inc., a supplier of process control and metrology systems to the global semiconductor manufacturing industry which was acquired by Nanometrics in July 2006. He has also served on the Board of Directors of Eagle Test Systems, Inc., a semiconductor equipment testing company. Mr. Dox holds a B.S. in Accounting from Northern Arizona University and an M.B.A. from Santa Clara University.

William G. Oldham, Ph.D., 69, has served as a director since June 2000 and as lead independent director since March 2007. Since 1964, Dr. Oldham has been a faculty member at the University of California at Berkeley and, from 1996 until 2005, served as the Director of the DARPA/SRC Research Network for Advanced Lithography. 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 Smith, Ph.D., 60, 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.

Class II Nominees

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., 68, 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

Vincent J. Coates, 82, founded the Company and has served as Vice-Chairman of the Board and Chairman of the Company's Scientific Advisory Committee since July 2007, Secretary since February 1989 and as Chairman of the Board from January 1975 through 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, 50, has served as Chairman of the Board since July 2007 and as Chief Strategy Officer and as a director since July 2006. In March 2007, Mr. Rhine became Chief Executive Officer, and will hold that position until the start date of his successor, Timothy J. Stultz. From August 2000 to July 2006, Mr. Rhine served as Chairman and Chief Executive Officer of Accent Optical Technologies, Inc. and as Accent Optical'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, 59, will join the Company in August 2007 as President, Chief Executive Officer and a director. 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

Directors who are not also employees of Nanometrics receive an annual retainer fee of \$15,000, plus \$1,500 for each board meeting attended. The audit committee chairman and compensation committee chairman receive 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 receive \$1,500 for special board or committee meetings attended on site and \$500 for telephonic meetings lasting greater than 30 minutes. Directors are also eligible to participate in the Company's Directors' Stock Option Plan whereby each director receives a stock option award of 20,000 options upon appointment to the Board and 2,500 stock options at the beginning of each fiscal quarter thereafter, provided the director has served on the Board for at least six months on each grant date. The following table shows compensation information for Nanometrics' directors for fiscal year 2006.

DIRECTOR COMPENSATION**For Fiscal Year 2006**

Name	Fees Earned or Paid in Cash (\$)	Option Awards (\$)(1)	Option Awards (#)	Total (\$)	Grant Date Fair Value of Option Awards(\$)
Vincent J. Coates(2)					
J. Thomas Bentley	40,500	16,860	10,000	101,269	60,769
William G. Oldham	34,500	16,860	10,000	95,269	60,769
Bruce C. Rhine(2)					
Stephen Smith	30,500	16,860	10,000	91,269	60,769
Edmond R. Ward	38,500	16,860	10,000	99,269	60,769
John D. Heaton(2)					
Norman V. Coates(3)	6,750	16,860	10,000	67,519	60,769

(1) The value reported in this column is the amount we expensed during 2006 for each director's option award calculated in accordance with SFAS No. 123(R).

(2) Compensation is shown in the Summary Compensation Table on page 18.

(3) Norman Coates was a director until March 27, 2006.

The aggregate number of option awards held by each director as of December 30, 2006 was as follows:

Name	Options Outstanding
Vincent J. Coates	0
J. Thomas Bentley	30,000
William G. Oldham	50,000
Bruce C. Rhine	109,942
Stephen Smith	30,000
Edmond R. Ward	50,000
John D. Heaton	722,500
Norman V. Coates	0

Timothy J. Stultz is not included above as he does not join the Board of Directors until August 2007.

Board Meetings and Committees

The board of directors met (or acted by written consent) a total of 17 times during the fiscal year ended December 30, 2006. During the fiscal year ended December 30, 2006, 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 governance committee.

The board of directors has determined that all of its directors meet the independence requirements of the NASDAQ Global Market, with the exceptions of Vincent J. Coates and Bruce C. Rhine. Norman V. Coates, who resigned as a director effective March 27, 2006, was not an independent director for purposes of the requirements of the NASDAQ Global Market.

It is the policy of the Company to encourage its directors to attend its annual meetings absent a valid reason, such as a schedule conflict. With the exception of Vincent J. Coates, none of the directors who served on the board of directors for the entire fiscal year attended the 2006 annual meeting of stockholders.

Audit Committee

The audit committee of the board of directors reviews and monitors the Company's financial reporting as well as its internal and external audits, including among other things, the Company's internal audit and control functions, the results and scope of the annual audit and other services provided by the Company's independent auditors, and the Company's compliance with legal matters that may have a significant impact on the Company's financial reports. In addition, the audit committee has the responsibility to consider and recommend the employment of, and to review fee arrangements with, the Company's independent auditors. The audit committee also monitors transactions between the Company and its officers, directors and employees for any potential conflicts of interest. The audit committee met (or acted by written consent) eight times during the fiscal year ended December 30, 2006.

The members of the audit committee during the fiscal year ended December 30, 2006 were William G. Oldham, Edmond R. Ward and J. Thomas Bentley. Mr. Bentley was appointed by the board of directors to serve as the audit committee financial expert and chairman. In May 2007, the Company's board of directors changed the composition of the audit committee. The audit committee currently consists of J. Thomas Bentley, Joseph F. Dox and Edmond R. Ward. Mr. Bentley continues to serve as the audit committee financial expert and chairman.

Each member of the Company's audit committee is an independent director as that term is defined under the applicable NASDAQ Global Market listing standards. The audit committee has adopted a written charter, which is available on the Company's website at www.nanometrics.com.

Compensation/Stock Option Committee

The compensation/stock option committee reviews and makes recommendations to the board of directors regarding the Company's compensation policy and all forms of compensation to be provided to certain of the executive officers of the Company, including the chief executive officer.

The compensation/stock option committee is responsible for approving the grant of stock options to the Company's employees under the Company's 2000 Employee Stock Option Plan, 2002 Nonstatutory Stock Option Plan and 2005 Equity Incentive Plan.

The members of the compensation/stock option committee serving in the fiscal year ended December 30, 2006 were Edmond R. Ward, J. Thomas Bentley and Stephen Smith. Dr. Ward was appointed as chairman of the compensation/stock option committee by the board of directors. The compensation/stock option committee met (or acted by written consent) six times during fiscal 2006.

The compensation/stock option committee has adopted a written charter, which is available on the Company's website at www.nanometrics.com.

Nominating and Corporate Governance Committee

The Company maintains 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. All members of the nominating committee are independent. The nominating 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 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 the Company 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 30, 2006 were William G. Oldham, Edmond R. Ward and Stephen Smith.

Dr. Oldham was appointed as chairman of the nominating and corporate governance committee by the board of directors. The nominating and corporate governance committee met four times in the fiscal year ended December 30, 2006 and has adopted a written charter, which is available on the Company's website at www.nanometrics.com. In May 2007, the Company's board of directors changed the membership composition of the nominating and governance committee. The nominating and governance committee currently consists of William G. Oldham, Joseph F. Dox and Stephen Smith. Dr. Oldham continues to serve as the nominating and governance committee chairman.

Lead Independent Director

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

Code of Ethics

Nanometrics has adopted a code of business conduct and ethics that applies to all officers and employees. We post our code of business conduct and ethics on our website at www.nanometrics.com. The Company intends to disclose any amendment to the provisions of the code of business conduct and ethics that apply specifically to 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 Global Market's listing requirements; otherwise, we will disclose such waiver by posting such information on our website.

Stockholder Communication Policy

The Company has 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 the Company receives any stockholder communication intended for the full board of directors or any individual director, the Company 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 the Company has 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 30, 2006. 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 the Company specifically incorporates 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 the Company. During the fiscal year ended December 30, 2006, the audit committee met (or acted by written consent) eight times, and the audit committee chairman, as representative of the committee, discussed the interim financial information contained in quarterly earnings announcements with the chief financial officer and independent auditors prior to public release.

The audit committee received from the Company's 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 the Company 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 the Company's financial statements.

Additionally, the audit committee reviewed and discussed the audited financial statements of the Company as of and for the fiscal year ended December 30, 2006 with management and the independent auditors. Management has the responsibility for the preparation of the Company's 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 the Company's audited financial statements as of and for the year ended December 30, 2006 be included in its Annual Report on Form 10-K for the fiscal year ended December 30, 2006 for filing with the Securities and Exchange Commission. The audit committee also recommended the appointment, subject to stockholder approval, of the independent auditors and the board of directors concurred in such recommendation.

Members of the Audit Committee

J. Thomas Bentley, Chairman

Joseph F. Dox

Edmond R. Ward

Audit Fees

The following table summarizes the aggregate fees billed to the Company by BDO Seidman, LLP for fiscal 2006 and 2005.

	Fiscal 2006	Percentage Pre-approved by Audit Committee	Fiscal 2005	Percentage Pre-approved by Audit Committee
Audit fees (1)	\$ 1,903,109	100%	\$ 1,851,356	100%
Audit related fees(2)	162,220	100%	291,514	100%
Tax fees(3)		100%	3,956	100%
All other fees				
Total	\$ 2,065,329		\$ 2,146,826	

(1) Fees for audit services consist of:

Audit of the Company's annual financial statements including management's assessment of internal controls over financial reporting;
Reviews of the Company's quarterly financial statements;
Restatement of annual and quarterly financial statements (fiscal 2005 only); and
Statutory and regulatory audits, consents and other services.

(2) 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). Fees for audit-related services billed in fiscal 2005 consisted of (i) consultations and due diligence related to our withdrawn effort to merge with August Technology Corporation (\$281,891), an amount that was subsequently reimbursed to us by August Technology Corporation) and (ii) consultation concerning financial accounting and reporting standards (\$9,623).

(3) This figure relates to consultation concerning ex-patriot tax issues in fiscal 2005.

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 the audit committee charter, the audit committee must pre-approve all audit and non-audit services, and the related fees, provided to the Company by its 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 30, 2006 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 the Company's independent registered public accounting firm for the fiscal year ending December 29, 2007, the audit committee will consider whether it should select another independent registered public accounting firm.

Vote Required

As a matter of good corporate governance, the Company is 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 July 1, 2007, by each director, by each of the named executive officers, by all directors and executive officers as a group, and by all persons known to Nanometrics to be the beneficial owners of more than 5% of Nanometrics stock. Unless otherwise indicated, the address of each executive officer or director of Nanometrics is 1550 Buckeye Drive, Milpitas, CA 95035. As of the close of business on July 1, 2007, there were 18,625,533 shares of common stock outstanding.

Name of	Amount and Nature of Beneficial Ownership(1) Shares			
	Total		Shares	Percent of
	Shares	Stock Options Exercisable within 60 days	Beneficially Owned	Class
Beneficial Owner				
5% Stockholders:				
Dimensional Fund Advisors LP(2)	1,102,900		1,102,900	5.9%
1299 Ocean Avenue, 11th Floor				
Santa Monica, CA 90401				
Peter M. Joost(3)	1,483,664		1,483,664	8.0%
c/o Joost Enterprises				
555 California Street, Suite 5180				
San Francisco, CA 94104				
Royce and Associates, LLC(4)	1,190,400		1,190,400	6.4%
1414 Avenue of the Americas				
New York, NY 10019				
The TCW Group(5)	1,848,639		1,848,639	9.9%
865 South Figueroa Street				
Los Angeles, CA 90017				
Wasatch Advisors, Inc.(6)	1,070,543		1,070,543	5.8%
150 Social Hall				
Salt Lake City, UT 84111				
Directors and Named Executive Officers:				
Vincent J. Coates(7)	3,498,614		3,498,614	18.8%
Bruce C. Rhine(8)	950,519	46,909	997,428	5.3%
J. Thomas Bentley		19,999	19,999	*
Joseph F. Dox				*
William G. Oldham, Ph.D		29,999	29,999	*
Stephen Smith, Ph.D		19,999	19,999	*
Edmond R. Ward, Ph.D	2,000	29,999	31,999	*
Quentin B. Wright	3,300	38,333	41,633	*
John D. Heaton(9)				*

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Douglas J. McCutcheon(10)	2,292		2,292	*
Roger Ingalls, Jr.(11)	9,000		9,000	*
Timothy J. Stultz				*
All current directors and executive officers as a group (10 persons)	4,505,278	246,222	4,751,500	25.2%

* Less than 1%.

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

(2) According to a 13G/A filed with the SEC on February 9, 2007, Dimension Fund Advisors LP may be deemed to be the beneficial owner of 1,102,900 shares of common stock.

- (3) According to a Schedule 13G/A filed with the SEC on February 12, 2007, Peter M. Joost may be deemed to be the beneficial owner of 1,483,664 shares of common stock.
- (4) According to a Schedule 13G/A filed with the SEC on January 23, 2007, Royce & Associates, LLC may be deemed to be the beneficial owner of 1,190,400 shares of common stock.
- (5) According to a Schedule 13G/A filed with the SEC on February 14, 2007, The TCW Group, Inc., may be deemed to be the beneficial owner of 1,848,639 shares of common stock.
- (6) According to a 13G/A filed with the SEC on February 15, 2007, Wasatch Advisors, Inc. may be deemed to be the beneficial owner of 1,070,543 shares of common stock.
- (7) Includes 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) Includes (i) 2,926 shares held of record by Mr. Rhine, (ii) 12,910 shares held of record by Mr. Rhine and his spouse as joint tenants with rights of survivorship and (iii) 934,683 shares held of record by the Bruce Charles Rhine and Martha Hawn Rhine Family Trust.
- (9) Mr. Heaton resigned from all positions held at the Company effective March 26, 2007.
- (10) Mr. McCutcheon resigned from all positions held at the Company effective April 24, 2007.
- (11) Mr. Ingalls resigned from all positions held at the Company effective August 4, 2006.

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 and the NASDAQ Global Market. Executive officers, directors and greater than ten percent 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 its review of the copies of such forms received by it or written representations from certain reporting persons, Nanometrics believes that during the fiscal year ended December 30, 2006, its executive officers, directors and greater than 10% stockholders complied with all applicable filing requirements.

COMPENSATION DISCUSSION AND ANALYSIS

Overview

The Compensation/Stock Option Committee (the "Compensation Committee") acts on behalf of the board of directors and, by extension, the stockholders of the Company to establish, implement and continually monitor adherence with the Company's compensation philosophy. The Compensation Committee ensures that the total compensation paid to the Company's executive officers is competitive and consistent with the Company's compensation philosophy and the Compensation/Stock Option Committee's charter, a copy of which may be obtained on the Company's website at www.nanometrics.com. The Compensation Committee relies upon Company employees and outside compensation consultants to provide information and recommendations to establish specific compensation packages for executives.

Philosophy and Objectives

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 long-term enhanced stockholder value. The Compensation Committee also recognizes that competitive compensation is critical to the Company's ability to attract and retain superior employees in key positions.

Accordingly, the Compensation Committee's principal objectives are: (1) to develop and approve compensation packages that will attract and retain key executive talent; (2) to reward and motivate these individuals to achieve short-term and long-term corporate objectives that enhance stockholder value; and (3) link executive compensation to the achievement of financial, management or other performance goals; and (4) to support the Company's culture and core values, by promoting equity among the executive team and competitiveness vis-a-vis external opportunities. To that end, the Committee believes executive compensation packages provided by the Company to its executives, including the named executive officers, includes both cash and stock-based compensation and a component of annual compensation is linked to performance of individual executives as well as Company-wide performance.

Role of Executive Officers in Compensation Decisions

The Compensation Committee makes all compensation decisions for the named executive officers and approves recommendations regarding equity awards to all employees.

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). The Compensation Committee decisions are based in part, on these annual performance reviews, including with respect to salary adjustments, annual bonus amounts and annual stock option grants. The Compensation Committee can exercise its discretion in modifying any recommendations of the Chief Executive Officer and has done so in the past.

Setting Executive Compensation

Based on the foregoing objectives, the Compensation Committee has structured the Company's overall executive compensation in order to motivate executives to achieve the business goals set by the Company; to reward the executives for achieving such goals; and to make the Company attractive from a compensation standpoint when compared to its peers. In order to aid the Compensation Committee in obtaining its objectives, the Compensation Committee engaged an outside human resources consulting firm and various other individual human resource consultants to provide it with information and recommendations with respect to compensation matters.

In making compensation decisions, the Compensation Committee analyzes data and suggestions from its consultants, including data on the compensation peer group of publicly-traded and privately-held semiconductor equipment manufacturing companies, as well as the Company's human resources department. This peer group

consists of companies against which the Compensation Committee believes the Company must compete for talent and for stockholder investment. The companies that currently comprise the peer group are various semiconductor equipment and materials industry companies of similar size as follows:

ADE Corporation	LTX Corporation
Advanced Energy Industries, Inc.	Mattson Technology, Inc.
Asyst Technologies, Inc.	Rudolph Technologies, Inc.
Axcelis Technologies, Inc.	Ultra Clean Holdings, Inc.
Cabot Microelectronics Corporation	Ultratech, Inc.
Cohu, Inc.	Veeco Instruments Inc.
Credence Systems Corporation	Zygo Corporation
FEI Company	

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 we rely 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. It does not include deferred compensation benefits or generally available benefits such as 401(k) plans or health care coverage.

Nanometrics' compensation reflects base pay at the 60th to 75th percentile among its peer group and total 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 or her position and/or with Nanometrics, internal consistency regarding pay levels for similar positions or skill levels with the Company, external pressures to attract and retain talent, and market conditions generally. Positioning base pay at the 60th to 75th percentile of peer companies aids Nanometrics in controlling fixed costs. Targeting total compensation at 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 cyclicity. 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.

The Company competes with many larger companies for top executive-level talent. As such, the 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 Committee's process also includes an evaluation of the Company's overall performance as well as the individual performance of its executive officers. That evaluation is taken into account when determining cash bonuses and salary adjustments.

2006 Executive Compensation Components

For the fiscal year ended December 30, 2006, the principal components of compensation for named executive officers were:

Base salary;

Cash bonus;

Stock option grants;

Retirement and other benefits; and

Perquisites and other personal benefits.

Base Salary

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The Company provides named executive officers and other employees with base salary to compensate them for services rendered during the fiscal year. Base salary ranges 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 the Company's 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;

the Company's 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 the Company's 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 the Company's common stock is subject to a variety of factors outside our control.

Cash Bonus

The Compensation Committee also approves cash bonuses awarded to certain executive officers. The Compensation Committee views such bonuses as an integral part of its performance based compensation program. Such bonuses are based on the Company's profits and are determined as a percentage of the officer's salary.

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 the Company's operating profitability as measured on a quarterly basis will be 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: Bruce Rhine, Chairman of the Board, Chief Strategy Officer and Chief Executive Officer 20%; Quentin Wright, acting Chief Financial Officer 20%; Bruce 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 of the Company other than the aforementioned executive officers. No bonus will be paid under this program in a quarter in which the Company incurs a loss.

Stock Option Grants

Grants under Nanometrics' Stock Option Plans enable the Company 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, vary among participants based on their positions within the Company and are granted at the Compensation Committees' 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 the Company's common stock on the date of the grant. The Committee has never granted options with an exercise price that is less than the closing price of the Company's common stock on the grant date.

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 and 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.

Profitability Bonus

On June 8, 2007, the Compensation Committee approved the issuance of nonqualified options to purchase up to an aggregate of 160,000 shares of the Company's common stock under the 2005 Equity Incentive Plan. Under the program, option awards were made to Quentin B. Wright, the Company's Interim Chief Financial Officer, Bruce A. Crawford, the Company's Chief Operating Officer, and other senior-level employees. Messrs. Wright and Crawford were each granted options to purchase up to 25,000 shares. The options vest over time following the Company's attainment of certain performance milestones.

Retirement and Other Benefits

All employees in the United States, including the executive officers, are eligible to participate in the Company's 401(k) plan, medical, dental and vision insurance, employee stock purchase plan, as well as the Company's life and disability insurance policy.

Perquisites and Other Personal Benefits

The Company provides named executive officers with perquisites and other personal benefits that the Company and the Compensation Committee believe are reasonable and consistent with its overall compensation program to better enable the Company to attract and retain employees for key positions. The Compensation Committee periodically reviews the levels of perquisites and other personal benefits provided to named executive officers.

The former 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 the Company, as does Mr. Coates.

Attributed costs of the personal benefits described above for the named executive officers for the fiscal year ended December 30, 2006, are included in column (i) of the Summary Compensation Table on page 18.

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 the Company may not deduct compensation of more than \$1,000,000 that is paid to certain individuals. The Company believes 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.

Accounting for Stock-Based Compensation

Beginning on January 1, 2006, the Company 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 paid by Nanometrics during the past fiscal year to (i) the chief executive officer, (ii) the chief financial officer, and (iii) each of the three most highly compensated executive officers (or such lesser number of executive officers as Nanometrics may have) of Nanometrics not serving as chief executive 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 30, 2006, all of whom are collectively referred to as the Named 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	2006	115,681			115,188		6,250(3)	237,119
Chairman of the Board, Chief Executive Officer and Chief Strategy Officer								
John D. Heaton(4)	2006	375,027	202,215		104,682		57,102(5)	739,026
Former President and Chief Executive Officer and director								
Douglas J. McCutcheon(6)	2006	285,000	119,700					404,700
Former Executive Vice President, Finance and Administration and Chief Financial Officer								
Quentin B. Wright	2006	205,661			13,604			219,265
Interim Chief Financial Officer, Chief Accounting Officer								
Vincent J. Coates	2006	204,800					9,564(7)	214,364
Vice-Chairman of the Board and Secretary								
Roger Ingalls, Jr.(8)	2006	274,975	88,286				111,013(9)	474,274
Former Senior Vice President of Standalone Sales								

- (1) Represents bonuses and/or commissions paid to the Named Officers.
 - (2) Amounts shown do not reflect compensation actually received by the named executive officer. Instead, the amounts shown are the aggregate expense recognized for financial statement reporting purposes in 2006, 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 2006 filed with the SEC on March 15, 2007.
 - (3) Represents payment to Mr. Rhine of \$6,250 for an auto allowance.
 - (4) Mr. Heaton's employment with the Company terminated on March 26, 2007.
 - (5) 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.
 - (6) Mr. McCutcheon's employment with the Company terminated on April 24, 2007.
 - (7) Represents payment to Mr. Coates for golf club membership.
 - (8) Mr. Ingalls' employment with the Company terminated on August 4, 2006.
 - (9) This amount consists of \$111,013 severance paid to Mr. Ingalls following his employment termination.
- Timothy J. Stultz is not included above as he does not join the Company until August 2007.

Stock Options Granted in the Fiscal Year Ended December 30, 2006

The following table sets forth information with respect to stock options granted during the fiscal year ended December 30, 2006 to each of the Named Officers.

GRANTS OF PLAN-BASED AWARDS**For Fiscal Year 2006**

Name	Grant Date	All Other Option Awards: Number of Securities Underlying	Exercise or Base Price of Option Awards (\$/sh)	Grant Date Fair Value of Stock and Option Awards (\$)
Bruce C. Rhine(1)	7/24/2006	13,014	8.89	68,974
	11/30/2006	25,000	8.55	123,500
John D. Heaton(2)	5/24/2006	100,000	10.23	618,520
Douglas J. McCutcheon(3)				
Quentin B. Wright	7/5/2006	15,000	9.87	88,298
Roger Ingalls, Jr.(4)				

- (1) In connection with the acquisition of Accent Optical Technologies, Inc. on July 21, 2006, the Company also assumed 84,942 stock options to purchase Nanometrics common stock.
- (2) Mr. Heaton's employment with the Company terminated on March 26, 2007.
- (3) Mr. McCutcheon's employment with the Company terminated on April 24, 2007.
- (4) Mr. Ingalls' employment with the Company terminated on August 4, 2006.
- Timothy J. Stultz is not included above as he does not join the Company until August 2007.

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 unexercisable stock options held by each of the Named Officers at the end of the fiscal year which ended December 30, 2006.

OUTSTANDING EQUITY AWARDS AT FISCAL 2006 YEAR-END

Name	Number of Securities Underlying Unexercised Options (#)		Option Exercise Price (\$)	Option Expiration Date
	Exercisable	Unexercisable		
Bruce C. Rhine		84,942(1)	15.98	1/25/2016
		7,850(2)	8.89	7/24/2013
		5,164(3)	8.89	7/24/2013
		25,000(4)	8.55	11/30/2013
John D. Heaton	422,500(5)		5.70	6/17/2010
	100,000(5)		7.03	8/19/2010
	66,666(5)	33,334(5)	12.02	5/26/2011

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		100,000(5)	10.23	5/24/2013
Douglas J. McCutcheon	50,000(6)	100,000(6)	12.03	9/14/2012
Quentin B. Wright	16,666(7)	33,334(7)	11.52	4/15/2012
		15,000(8)	9.87	7/5/2013
Roger Ingalls, Jr.				

- (1) Shares vest and become exercisable in three equal annual installments beginning on January 25, 2007.
 - (2) On the date of grant, 4,920 shares were fully vested with the remaining shares vesting at a rate of one forty-eighth per month until fully vested on January 22, 2008.
 - (3) On the date of grant, 1,836 shares were fully vested with the remaining shares vesting at a rate of one forty-eighth per month until fully vested on February 18, 2009.
 - (4) Shares vest and become exercisable in three equal annual installments beginning on November 30, 2007.
 - (5) Pursuant to a settlement agreement and release with Mr. Heaton effective as of July 3, 2007, these options expire immediately prior to the Company's public announcement of its second quarter 2007 earnings.
 - (6) Shares vest and become exercisable in three equal annual installments beginning on September 14, 2006
 - (7) Shares vest and become exercisable in the three equal annual installments beginning on April 15, 2006.
 - (8) Shares vest and become exercisable in the three equal annual installments beginning on July 5, 2007.
- Timothy J. Stultz is not included above as he does not join the Company until August 2007.

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 fiscal year 2006, which ended on December 30, 2006.

OPTION EXERCISES

For Fiscal Year 2006

Name	Option Awards	
	Number of Shares	
	Acquired on Exercise (#)	Value Realized on Exercise \$(1)
Bruce C. Rhine		
John D. Heaton		
Douglas J. McCutcheon		
Quentin B. Wright		
Roger Ingalls, Jr.	31,500	135,135

- (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.
- Timothy J. Stultz is not included above as he does not join the Company until August 2007.

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

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 in the event Mr. Coates is required to resign under certain circumstances, including a change of control.

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, pursuant to his agreement, the Company expects to pay Mr. Heaton his annual salary through March 26, 2008 and to provide twelve (12) months accelerated vesting 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 the Company expects to pay Mr. McCutcheon his annual salary through April 24, 2008.

The table below estimates amounts payable upon a separation as if the individuals were separated on December 30, 2006.

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 (\$)	
John D. Heaton	Severance pay	404,250		808,500
	Variable compensation payment			
	Stock option vesting acceleration	182,655	594,647	
	Health care benefits continuation	15,516		31,032
	Life insurance continuation			
	Total value:	602,421		1,434,179
Vincent J. Coates	Severance pay	1,024,000		1,024,000
	Variable compensation payment			
	Stock option vesting acceleration			
	Health care benefits continuation			
	Life insurance continuation			
	Total value:	1,024,000		1,024,000
Douglas J. McCutcheon	Severance pay	285,000		
	Variable compensation payment			
	Stock option vesting acceleration			
	Health care benefits continuation			
	Life insurance continuation			
	Total value:	285,000		

In July 2007, the Compensation/Stock Option Committee of the Board of Directors of Nanometrics approved an employment agreement with Bruce Crawford, the Company's Chief Operating Officer, which provides for certain severance benefits following a termination without cause, including continued salary payments for six months and twelve months equity award acceleration. The form of employment agreement will be filed with the Commission in an upcoming filing after it has been entered into with Mr. Crawford.

In August 2007, the Company announced the appointment of Timothy J. Stultz as its President and Chief Executive Officer. In connection with his appointment, the Company 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. The executive

severance agreement setting forth the severance benefits in more detail was filed with the Commission on a Current Report on Form 8-K on August 8, 2007.

Compensation/Stock Option Committee Interlocks and Insider Participation

Messrs. Edmond R. Ward, J. Thomas Bentley and Stephen Smith served on the Compensation Committee during fiscal year 2006. No member of such Compensation Committee is or was at any time an officer or employee of Nanometrics or any of its subsidiaries or has any relationships with Nanometrics or its subsidiaries requiring disclosure below under the heading **Certain Relationships and Related Party Transactions**. During fiscal year 2006, none of our executive officers served on the compensation committee or board of any other company whose executive officers serve as a member of our board or compensation committee.

Certain Relationships and Related Party Transactions

Other than as otherwise disclosed above, there were no transactions since the beginning of the Company's last fiscal year, or any currently proposed transaction, in which the Company was or is to be a participant and the amount involved exceeds \$120,000, and in which any related person (as defined in Item 404 of Regulation S-K) has or will have a direct or indirect material interest. The Company's 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 the Company, on the one hand, and an officer, director of 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.

Vincent J. Coates is the father of Norman V. Coates. Norman V. Coates resigned as a director of the Company effective March 27, 2006. There are no other family relationships between any of the director nominees or between any such nominees and any of the executive officers of the Company.

COMPENSATION COMMITTEE REPORT

Compensation/Stock Option Committee Report

The Compensation Committee of the Company 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 that the Compensation Discussion and Analysis be included in this proxy statement.

Members of the Compensation/Stock Option Committee

Edmond R. Ward, Chairman
J. Thomas Bentley
Stephen 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 the Company for the fiscal year ending December 29, 2007.

Representatives of BDO Seidman, LLP are expected to be present at the Company's 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 THE COMPANY'S INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM FOR THE FISCAL YEAR ENDING DECEMBER 29, 2007.

OTHER MATTERS

The Company knows of no other matters to be submitted to 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: August 13, 2007

