



**NOTICE OF ANNUAL MEETING OF STOCKHOLDERS
to Be Held May 13, 2014**

The 2014 annual meeting of the stockholders of Axcelis Technologies, Inc., a Delaware corporation, will be held at the offices of Edwards Wildman Palmer LLP, 111 Huntington Avenue, Boston, Massachusetts, at 10:30 a.m. on Tuesday, May 13, 2014 for the following purposes:

1. To elect as directors the nine nominees named in the attached proxy statement to serve until the 2015 annual meeting of stockholders.
2. To ratify the appointment of our independent registered public accounting firm to audit our financial statements for the year ending December 31, 2014.
3. To amend the 2012 Equity Incentive Plan to increase the shares reserved for issuance thereunder.
4. To cast a non-binding advisory vote on the compensation of our named executive officers.
5. To transact such other business as may properly come before the meeting or any adjournment thereof.

Only stockholders of record at the close of business on March 17, 2014 will be entitled to vote at the annual meeting or at any adjournment. **It is important that your shares be represented at the meeting. Therefore, whether or not you plan to attend the meeting, please complete your proxy card and return it in the enclosed envelope, which requires no postage if mailed in the United States. If you attend the meeting and wish to vote in person, your proxy will not be used.**

By order of the Board of Directors,

A handwritten signature in black ink, appearing to read "Lynnette Fallon", is written over a horizontal line.

Lynnette C. Fallon,
Secretary

Dated: March 25, 2014

Directions to the offices of Edwards Wildman Palmer LLP at 111 Huntington Avenue, Boston, Massachusetts, can be found at www.edwardswildman.com, under the Offices/Boston tab.

Stockholders should bring identification and, after checking in with the Security Desk in the building lobby, present themselves at the office's main reception on the 20th floor.

PROXY STATEMENT

TABLE OF CONTENTS

GENERAL INFORMATION ABOUT VOTING	3
SHARE OWNERSHIP OF 5% STOCKHOLDERS	6
SHARE OWNERSHIP OF DIRECTORS AND EXECUTIVE OFFICERS	7
PROPOSAL 1: ELECTION OF DIRECTORS	8
COMPENSATION OF DIRECTORS	13
CORPORATE GOVERNANCE	14
Board of Directors Leadership Structure and Risk Oversight	14
Board of Directors Independence and Meetings	16
Compensation Committee	16
Nominating and Governance Committee	17
Audit Committee	19
2013 Audit Committee Report	19
Code of Ethics	20
Policies Regarding Ownership and Transactions in Axcelis Securities by Directors and Officers	21
Certain Relationships and Related Transactions	21
PROPOSAL 2: RATIFICATION OF THE APPOINTMENT OF OUR INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM	22
PROPOSAL 3: APPROVAL OF AMENDMENT TO 2012 EQUITY INCENTIVE PLAN	23
PROPOSAL 4: ADVISORY VOTE REGARDING EXECUTIVE COMPENSATION	33
EXECUTIVE COMPENSATION	34
2013 Compensation Discussion and Analysis	34
2013 Compensation Committee Report	40
2013 Summary Compensation Table	41
Grants of Plan Based Awards in Fiscal 2013	42
Outstanding Equity Awards at Fiscal 2013 Year End	43
Option Exercises and Stock Vested During Fiscal 2013	44
Payments on Termination or Change in Control	44
OTHER MATTERS	47
Stockholder Communications to the Directors	47
Compensation Committee Interlocks and Insider Participation	47
Section 16(a) Beneficial Ownership Reporting Compliance	47
Deadlines for Stockholder Proposals	48

GENERAL INFORMATION ABOUT VOTING

The Board of Directors of Axcelis Technologies, Inc. (“Axcelis” or the “Company”) is soliciting your proxy for use at the 2014 annual meeting of stockholders to be held on Tuesday, May 13, 2014 and at any adjournment of the meeting. This proxy statement and the accompanying proxy card are first being sent or given to stockholders of Axcelis on or about March 25, 2014. The meeting will be held at the offices of Edwards Wildman Palmer LLP, 111 Huntington Avenue, Boston, Massachusetts. Directions to these offices can be found at www.edwardswildman.com, under the Offices/Boston tab. Stockholders should bring identification and, after checking in with the Security Desk in the building lobby, present themselves at the office’s main reception on the 20th floor.

Important Notice Regarding the Availability of Proxy Materials for the Stockholder Meeting to Be Held on May 13, 2014: This Proxy Statement and our Annual Report to Stockholders are available on our website at: www.axcelis.com/proxy.html.

Who can vote. You may vote your shares of Axcelis common stock at the annual meeting if you were a stockholder of record at the close of business on March 17, 2014. On that date, there were 110,943,823 shares of common stock outstanding. You are entitled to one vote for each share of common stock that you held on the record date.

How to vote your shares. You may vote either by proxy or by attending the meeting and voting in person. To vote by proxy, either (A) complete, sign, date and mail your proxy card or voting instruction form or (B) follow the instructions on the card or form for voting online or by telephone. If your shares are held by a nominee (e.g., a bank or broker), you must request a legal proxy from your nominee as proof of ownership in order to vote in person at the meeting.

The proxies named in the proxy card will vote your shares as you have instructed. If you sign and return the proxy card without indicating how your votes should be cast, the proxies will vote your shares in favor of each proposal, as recommended by our Board of Directors. Even if you plan to attend the meeting, please vote by mail, telephone or online to ensure that your shares are represented at the meeting. If you attend the meeting, you can still revoke your proxy by voting in person. If your shares are held in a brokerage or bank account, you must make arrangements with your broker or bank to vote your shares in person.

Proposals to be considered at the annual meeting. The principal business expected to be transacted at the meeting, as more fully described below, will be the re-election of seven directors whose current terms end in 2014 and the election of two new directors, the ratification of the selection of independent auditors of the Company, the approval of an amendment to the 2012 Equity Incentive Plan, and an advisory vote on executive compensation.

Quorum. A quorum of stockholders is required to transact business at the meeting. A majority of the outstanding shares of common stock entitled to vote, represented at the meeting in person or by proxy, constitutes a quorum for the transaction of business.

Number of votes required. The votes required to approve the proposals that are scheduled to be presented at the meeting are as follows:

Proposal	Required Vote
Election of nine nominees as directors.	Each nominee must receive a plurality of the votes cast.
Ratification of the appointment of our independent registered public accounting firm (our “independent auditors”) to audit our financial statements for 2014.	This non-binding proposal will be considered approved if more votes are cast in favor than against.
Approval of the amendment to the 2012 Equity Incentive Plan.	The amendment will be considered approved if more votes are cast in favor than against.
Approval of the compensation of our named executive officers as described under “Executive Compensation” in this proxy statement.	This non-binding proposal will be considered approved if more votes are cast in favor than against.

Abstentions. Abstaining from voting for a nominee in the election of directors or on any of the other proposals will reduce the number of votes cast as well as the number of votes in favor so will have no impact on the results of voting.

Broker non-votes. A broker non-vote occurs when a broker cannot vote a customer’s shares registered in the broker’s name because the customer did not send the broker instructions on how to vote on the matter and the broker is barred by law or stock exchange regulations from exercising its discretionary voting authority in the particular matter. Brokers will have voting discretion for shares registered in their own name on the proposal to ratify the appointment of our independent auditors, but not in the election of directors or the other proposals. Broker non-votes will not be included in the votes cast, so will have no impact on the results of voting with respect to the election of directors and the other proposals.

Discretionary voting by proxies on other matters. Aside from the proposals for the election of directors, the ratification of our selection of auditors, the approval of an amendment to the 2012 Equity Incentive Plan, and the advisory vote on executive compensation, we do not know of any other proposals that may be presented at the 2014 annual meeting. If another matter is properly presented for consideration at the meeting, the persons named in the accompanying proxy card will exercise their discretion in voting on the matter.

How you may revoke your proxy. You may revoke the authority granted by your executed proxy card at any time before we exercise it by filing with our Corporate Secretary, Lynnette C. Fallon, a written revocation or a duly executed proxy card bearing a later date, or by voting in person at the meeting. If your shares are held in a brokerage account, you must make arrangements with your broker or bank to revoke your proxy.

Expenses of solicitation. We will bear all costs of soliciting proxies. We will upon request reimburse brokers, custodians and fiduciaries for out-of-pocket expenses incurred in forwarding proxy solicitation materials to the beneficial owners of stock held in their names. In addition to solicitations by mail, our directors, officers and employees may solicit proxies from stockholders in person or by other means of communication, including telephone, facsimile and e-mail, without additional remuneration. We may retain a proxy solicitation firm to assist in the solicitation of proxies. We will bear all reasonable fees and expenses if such a firm is retained.

Householding of Annual Meeting Materials. Some banks, brokers and other nominee record holders may be “householding” our proxy statements and annual reports. This means that only one

copy of our proxy statement and annual report to stockholders may have been sent to multiple stockholders in your household. We will promptly deliver a separate copy of either document to you if you call or write us at the following address or telephone number: Axcelis Technologies, Inc., 108 Cherry Hill Drive, Beverly, Massachusetts 01915, Attn: Corporate Secretary, telephone: (978) 787-4000. If you want to receive separate copies of the proxy statement or annual report to stockholders in the future, or if you are receiving multiple copies and would like to receive only one copy per household, you should contact your bank, broker, or other nominee record holder, or you may contact us at the above address and telephone number. Our annual report is also available on our website at www.axcelis.com.

SHARE OWNERSHIP OF 5% STOCKHOLDERS

The following table shows the amount of our common stock beneficially owned as of December 31, 2013 by persons known by us to own more than 5% of our common stock.

<u>Beneficial Owner(1)</u>	<u>Shares Owned</u>	<u>Percent of Class</u>
Donald Smith & Co., Inc.(2) 152 West 57th Street, New York, NY 10019	10,849,200	9.9%
BlackRock, Inc.(3) 40 East 52 nd Street, New York, NY 10022	7,440,478	6.8%

- (1) Unless otherwise noted, the number of shares beneficially owned by each person listed includes any shares over which a person has sole or shared voting or investment power. The percentage ownership of each person listed in the table was calculated using the total number of shares outstanding on December 31, 2013 (110,001,812 shares).
- (2) Based on a Schedule 13G filed with the Securities and Exchange Commission in February 2014 reporting on ownership as of December 31, 2013, which states that such shares are owned by advisory clients of Donald Smith & Co., Inc. According to the Schedule 13G, Donald Smith & Co., Inc. has sole voting power over 7,645,353 of such shares and the sole power to dispose of all of such shares. According to the Schedule 13G, Donald Smith Value Fund, L.P., Donald Smith Long/Short Equities Fund, L.P. and Velin Mezinev each have sole dispositive power over all the shares reported in the table and sole voting power over 287,600, 36,647, and 21,800 of such shares, respectively.
- (3) Based on a Schedule 13G/A filed with the Securities and Exchange Commission in January 2014 reporting on ownership as of December 31, 2013. This filing states that BlackRock, Inc. is a holding company whose investment management subsidiaries acquired the shares reported.

SHARE OWNERSHIP OF DIRECTORS AND EXECUTIVE OFFICERS

The following table shows the amount of our common stock beneficially owned as of March 17, 2014 by our directors, the executive officers named in the *Summary Compensation Table* below, and all of our current executive officers and directors as a group.

<u>Beneficial Owner(1)</u>	<u>Shares Owned</u>	<u>Shares Subject to Exercisable Rights to Acquire as of May 16, 2014</u>	<u>Total Shares Beneficially Owned</u>	<u>Percent of Class</u>
<i>Non-Executive Directors</i>				
R. John Fletcher	94,185	235,000	329,185	*
Stephen R. Hardis	672,068	185,000	857,068	*
William C. Jennings	92,185	235,000	327,185	*
Joseph P. Keithley	40,000	120,000	160,000	*
Patrick H. Nettles	63,685	235,000	298,685	*
H. Brian Thompson(2)	124,185	235,000	359,185	*
<i>Named Executive Officers (Current)</i>				
Mary G. Puma(3)	416,224	1,075,000	1,491,224	1.33%
Kevin J. Brewer	81,546	505,000	586,546	*
William Bintz	74,719	447,000	521,719	*
John E. Aldeborgh	—	50,000	50,000	*
Lynnette C. Fallon	101,287	516,250	617,537	*
<i>All current Executive Officers and Directors as a Group (12 persons)(4)</i>				
	1,777,682	3,917,000	5,694,682	4.96%
<i>Former Executive Officer</i>				
Jay Zager(5)	—	150,000	150,000	*

* Indicates less than 1%.

- (1) Unless otherwise noted, the number of shares beneficially owned by each person listed includes any shares over which the person has sole or shared voting or investment power. The shares shown in the table also include shares that the persons named in this table have the right to acquire on or before May 16, 2014 (60 days after March 17, 2014) by exercising a stock option or other right. Unless otherwise noted, each person has sole investment and voting power (or shares that power with his or her spouse) over the shares listed in the table. The percentage ownership of each person listed in the table was calculated using the total number of shares outstanding on March 17, 2014 (110,943,823 shares), plus any shares that person could acquire upon the exercise of any options or other rights on or before May 16, 2014. None of the shares owned or rights to acquire shares are held in a margin account or subject to a pledge.
- (2) Mr. Thompson's ownership includes 20,000 shares held indirectly.
- (3) Ms. Puma's ownership includes 20,000 shares owned by her husband.
- (4) Includes shares and exercisable options held by the directors and current named executive officers and one other executive officer holding 17,598 shares as of March 17, 2014 (including 7,500 held by the officer's spouse) and 78,750 exercisable options as of May 16, 2014.
- (5) Mr. Zager retired as an employee and officer of the Company in August 2013.

PROPOSAL 1: ELECTION OF DIRECTORS

Our Board of Directors has fixed the number of directors at nine effective as of the 2014 annual meeting. The number of directors is subject to increase or decrease by action of the Board. At the 2014 annual meeting, all seven of the current directors have been nominated for re-election, and two new directors have been nominated for election. Each director and nominee will, if elected, hold office for a term of one year until our annual meeting in 2015 and until their successors are elected and qualified. Each of the Board's nominees has consented to serve if elected. However, if any nominee is unable to serve, proxies will be voted for any other candidate nominated by the Board. The Board recommends a vote FOR each of the nine nominees.

The following table contains biographical information about the nominees for election.

<u>Name and Age</u>	<u>Business Experience and Other Directorships</u>	<u>Director Since</u>
R. John Fletcher Age: 68	Mr. Fletcher is Chief Executive Officer of Fletcher Spaght, Inc., a strategy consulting organization, which he founded in 1983, and Managing Director of Fletcher Spaght Ventures, a venture capital fund. Prior to founding Fletcher Spaght, Inc., Mr. Fletcher was a Manager at the Boston Consulting Group. Mr. Fletcher is also a director of The Spectranetics Corporation. During the past five years, he was also a director of AutoImmune, Inc., Panacos, Inc. and Marina Biotech, Inc.	2003
Stephen R. Hardis Age: 78	Mr. Hardis was the Company's Chairman of the Board until May 2006 and currently serves as Lead Director. He was Chairman and Chief Executive Officer of Eaton Corporation, a global industrial manufacturer, until July 2000. Mr. Hardis became Eaton's Chairman in January 1996 and its Chief Executive Officer in September 1995. Prior to that, he served as Eaton's Vice Chairman from 1986 and its Executive Vice President—Finance and Administration from 1979. Mr. Hardis is a director of Lexmark International Group, Inc., and Progressive Corporation, and during the past five years, he was also a director of Marsh & McLennan Companies, Inc., American Greetings Corporation, Nordson Corporation, and Steris Corporation.	2000
William C. Jennings Age: 74	Mr. Jennings is a retired partner of PricewaterhouseCoopers LLP, a global accounting and advisory firm, where he led the risk management and internal control consulting practice from 1992 until his retirement in 1999. Before that, Mr. Jennings served as a Senior Audit Partner at Coopers & Lybrand, as a Senior Executive Vice President at Shearson Lehman Brothers, responsible for quality assurance, internal audit and compliance, and as an Executive Vice President and Chief Financial Officer of Bankers Trust. Since retiring from PricewaterhouseCoopers, Mr. Jennings has provided independent consulting services to a number of companies. He is a director of Silgan Holdings Inc., and The Spectranetics Corporation.	2003

Name and Age	Business Experience and Other Directorships	Director Since
Joseph P. Keithley Age: 65	Mr. Keithley is Non-Executive Chairman of the Board of Nordson Corporation, a position he has held since February 2010. Nordson Corporation manufactures precision dispensing equipment for applying industrial liquid and powder coatings, adhesives, and sealants. Mr. Keithley has served as Chairman of the Board of Keithley Instruments, Inc., a provider of measurement solutions to the semiconductor, fiber optics, telecommunications and electronics industries from 1991 to December 2010. He also served as Keithley Instruments, Inc.'s Chief Executive Officer from November 1993 to December 2010 and as President from May 1994 to December 2010. Mr. Keithley also currently serves as a director of Materion, Inc., an integrated producer of high performance specialty engineered materials used in a variety of electrical, electronic, thermal and structural applications.	2011
Patrick H. Nettles Age: 70	Mr. Nettles has served as Executive Chairman of the Board of Directors of CIENA Corporation, a manufacturer of optical networking equipment, since May 2001. Prior to that, Mr. Nettles served as Chairman of the Board of Directors and Chief Executive Officer of CIENA from October 2000, as its President, Chief Executive Officer and Director from April 1994, and as its Director and Chief Executive Officer from February 1994. Mr. Nettles is a director of Progressive Corporation.	2001
Mary G. Puma Age: 56	Ms. Puma is Axcelis' Chairman (since May 2005), Chief Executive Officer (since January 2002) and President (since May 2000). Prior to becoming Chief Executive Officer, Ms. Puma served as Chief Operating Officer from May 2000. In 1998, she became General Manager and Vice President of the Company's predecessor, the Implant Systems Division of Eaton Corporation, a global diversified industrial manufacturer. In May 1996, she joined Eaton as General Manager of the Commercial Controls Division. Prior to joining Eaton, Ms. Puma spent 15 years in various marketing and general management positions for General Electric Company. Ms. Puma is also a director of Nordson Corporation and of Semiconductor Equipment and Materials International (SEMI), a trade association.	2000

Name and Age	Business Experience and Other Directorships	Director Since
<p>H. Brian Thompson</p> <p>Age: 74</p>	<p>Mr. Thompson is the Executive Chairman of GTT, a cloud networking service provider offering Tier 1 IP and Ethernet/network solutions to multinational enterprises. Mr. Thompson continues to head his own private equity investment and advisory firm, Universal Telecommunications, Inc. From December 2002 to June 2007, Mr. Thompson was Chairman of Comsat International and served as Chairman and Chief Executive Officer of Global TeleSystems Group, Inc. from March 1999 through September of 2000. Mr. Thompson was Chairman and CEO of LCI International from 1991 until its merger with Qwest Communications International Inc. in June 1998. He became Vice Chairman of the board for Qwest until his resignation in December 1998. He previously served as Executive Vice President of MCI Communications Corporation from 1981 to 1990, and prior to MCI, was a management consultant with the Washington, DC offices of McKinsey & Company for nine years, where he specialized in the management of telecommunications. He currently serves as a member of the board of directors of Pendrell Corporation, Penske Automotive Group, and Sonus Networks, Inc.</p>	2002
<p>Arthur L. George, Jr.</p> <p>Age: 52</p>	<p>Mr. George has had a 30 year career at Texas Instruments, one of the world's largest semiconductor companies and a highly innovative, high performing global leader in analog, embedded processing and wireless technologies. Mr. George's career began in 1984 as a test engineer in TI's Logic Operations, and he currently serves as Senior Vice President and Manager of TI's Analog Engineering Operations, a position he has held since 2011. Mr. George has overall responsibility for the business unit's strategy and operations, including product definition and product development. Beginning in 2006, Mr. George served as Senior Vice President and General Manager of TI's High Performance Analog business unit. During his career at TI, Mr. George was asked to lead the integration of several acquisitions, including Burr-Brown, a manufacturer of high performance signal chain products, and Chipcon, a leader in low-power radio frequency technology. Mr. George also serves on the Board of Directors of Nordson Corporation, a manufacturer of precision dispensing equipment for applying industrial liquid and powder coatings, adhesives, and sealants.</p>	New nominee

Name and Age	Business Experience and Other Directorships	Director Since
Barbara J. Lundberg Age: 61	Ms. Lundberg served as CEO/Vice Chairman of the Supervisory Board of Tele-Fonika Kable, the third largest cable manufacturer in Europe from May 2012 through November 2013. Before that, Ms. Lundberg worked for many years as a consultant, primarily with Kolaja & Partners, now part of Alvarez & Marsal. Between 1999 and 2001, Ms. Lundberg was CEO of Elektrim S.A., a multi-industry conglomerate and one of the largest public companies in Poland. Between 1990 and 1999, Ms. Lundberg was Executive Vice President of the Polish American Enterprise Fund and Enterprise Investors, raising and investing the first private equity funds in Poland. Ms. Lundberg began her career in the US as a venture capitalist and investment banker, primarily working with technology and emerging growth businesses. While a private equity fund manager, Ms. Lundberg served on the boards of portfolio companies, and also served as a director of several Elektrim S.A. subsidiaries and Tele-Fonika Kable.	New nominee

Experience, Qualifications Attributes of the Nominees

The specific experience, qualifications, attributes or skills of the nominees that led to the conclusion that each of these individuals should serve as a director of the Company, in light of our business and structure, are:

- Mr. Fletcher’s work experience gives him extensive experience in strategic planning, especially in the area of market analysis for technology-based businesses, which has been beneficial to the Board’s understanding of the Company’s business opportunities. Mr. Fletcher’s work also provides him with insight into capital formation matters which may be beneficial in the future. Mr. Fletcher has served on the Compensation Committee since May 2006 and on the Audit Committee since April 2004. The Board highly values his contributions in these roles.
- Mr. Hardis’ work experience as a chief executive officer and chief financial officer of a global capital equipment business gives him the skills to provide leadership and guidance to management and the other Board members with respect to financial and operational matters affecting Axcelis. In addition, Mr. Hardis’ experience on other public company boards of directors has exposed him to broad experience in corporate governance matters that has benefited our board. Finally, Mr. Hardis’ experience with our business when it was owned by Eaton Corporation has provided our Board with a historical context in which to address issues relating to our business and products. Mr. Hardis has served as Lead Director since May 2006 (prior to which he was Chairman beginning in 2000), and has also served on both the Compensation Committee and Nominating and Governance Committee since those committees were formed in 2000 and 2002, respectively. The Board highly values his contributions in these roles.
- Mr. Jennings’ work experience in accounting, risk management and internal controls gives him the skills needed to lead the Board’s Audit Committee. His role as a senior executive at two financial institutions also gives him the skills to provide leadership and guidance to management and the other Board members in respect to the financial and operational matters affecting Axcelis. Mr. Jennings has served as chairman of the Board’s Audit Committee since April 2004 and as a board member since June 2003. The Board has benefited from his strong leadership on the Audit Committee.

- Mr. Keithley brings extensive, broad-based international business and executive management and leadership experience from his leadership roles at Keithley Instruments, Inc. to his role as a member of our Board of Directors. Among other things, Mr. Keithley draws upon his extensive knowledge in the global semiconductor and electronics industries garnered while leading Keithley Instruments, Inc. Mr. Keithley also has extensive public company board and governance experience. Mr. Keithley has served as a member of the Audit Committee since joining the Board in 2011 and the Board has benefited from his continuing service on that committee. In addition, Mr. Keithley serves as a member of an Ad Hoc Technology Committee.
- Mr. Nettles' work experience as a chief executive officer and chief financial officer of a global capital equipment business gives him the skills to provide leadership and guidance to management and the other Board members in respect to the financial and operational matters affecting Axcelis. Mr. Nettles has also had meaningful experience in corporate transactions, especially in the area of mergers and acquisitions, which has been helpful to management and the other Board members in recent years and may be beneficial in the future. Mr. Nettles has served as Chairman of the Board's Nominating and Governance Committee since its formation in 2002 and the Board has benefited from his strong leadership in that area. Mr. Nettles also served as a member of the Audit Committee during a portion of 2011 and 2012. In addition, Mr. Nettles serves as Chairman of the Ad Hoc Technology Committee. The Board highly values his contributions in these roles.
- Ms. Puma's long experience in our industry, as well as her role as Axcelis' chief executive officer and president allow her to provide essential insight into the Company's past and current business operations which is critical to the Board's decision-making in all financial and operational matters affecting Axcelis. Ms. Puma's strong leadership during challenging periods of the Company's history, notably her oversight of a complete revitalization of the Company's product lines while implementing substantial cost reductions, have been highly valued by the Board.
- Mr. Thompson's work experience leading a number of companies in the telecom industry gives him the skills to provide leadership and guidance to management and the other Board members in respect to the financial and operational matters affecting Axcelis. Mr. Thompson has also had significant experience in corporate transactions, especially in the capital markets, which has been helpful to management and the other Board members in recent years and may be beneficial in the future. Mr. Thompson has served as chairman of the Board's Compensation Committee since October 2002 and the Board has benefited from his strong leadership in that area. Mr. Thompson joined the Nominating and Governance Committee in 2012.
- Mr. George would bring to the Board significant executive general management experience as well as extensive operational and new product development experiences in high technology markets. Mr. George's experience with Texas Instruments' high performance analog products used in a wide range of industrial products gives him insight into the semiconductor and semiconductor capital equipment industries and affords the Board a unique perspective in identifying strategic opportunities and tactical risks attendant to the semiconductor electronics market.
- Ms. Lundberg's deep familiarity with the issues confronting growing technology-based equipment companies is an asset. In particular, Axcelis would benefit from Ms. Lundberg's management experience in maintaining tight cash and working capital management while conducting global supply chain and manufacturing operations. In her time at Elektrim, Ms. Lundberg led the divestiture of several businesses and acquired a complementary business line. Her experience with M&A could assist Axcelis in the future. In addition, we value her extensive background in financing transactions for technology-based companies, which includes both common stock and convertible bond offerings.

COMPENSATION OF DIRECTORS

The Nominating and Governance Committee has responsibility under its charter to review and recommend non-employee director compensation for adoption by the full Board. All equity grants to non-employee directors have been made either (A) under automatic granting language in the 2000 Stock Plan or (B) by the Compensation Committee on the recommendation of the Nominating and Governance Committee or full Board under the 2000 Stock Plan or the 2012 Equity Incentive Plan.

2013 Director Fees. Cash retainers and meeting fees for our non-employee directors, which have not changed since 2007, are as follows:

Retainers (paid in quarterly installments)

Lead Director	\$50,000
Board Member (not Lead Director)	\$30,000
Audit Committee Chair	\$15,000
Compensation Committee Chair	\$10,000
Nominating and Governance Committee Chair	\$7,500

Meeting Fees (paid quarterly following meetings)

In Person Board Meetings	\$2,000 per meeting
Telephone Board Meetings	\$1,000 per meeting
In Person or Telephone Committee Meetings	\$1,000 per meeting, only to committee members

Non-employee directors also receive reimbursement of out-of-pocket expenses incurred in attending Board and committee meetings. Non-employee directors do not receive any Company-paid perquisites.

The Board of Directors may, from time to time, form ad hoc committee(s) (such as the Ad Hoc Technology Committee formed in November 2011) in addition to the Audit, Compensation and Nominating and Governance Committees and fix compensation for service on such ad hoc committees.

2013 Equity Awards. On June 10, 2013, the Compensation Committee approved the issuance under the 2012 Equity Incentive Plan of non-qualified stock options exercisable for 40,000 shares of common stock to each of the non-employee directors, effective July 15, 2013. These option grants became fully exercisable on January 12, 2014 (181 days after the date of grant) as each director remained in service on that date. Long term ownership of equity awards by directors is encouraged through the Company’s director stock ownership guidelines in effect during 2013, which provide that non-employee directors should own at least the lesser of (i) a value equal to at least three times the amount of the annual base retainer paid to outside directors for service on the Board (which was \$30,000 in 2013), excluding additional committee retainers, if any, or (ii) 20,000 shares of Axcelis common stock. This level was set to create meaningful investments by directors in shares of the Company, so that their interest in the value of the Company’s stock was not limited to stock price appreciation via options without a downside. Directors are also subject to the Company’s Policies and Practices Relating to Axcelis Securities, which are discussed below under “*Corporate Governance—Policies regarding Ownership and Transactions in Axcelis Securities by Directors and Officers.*”

Director Compensation during Fiscal 2013

The chart below shows compensation for all non-employee directors who served the Company during 2013:

Name	Fees earned or paid in cash (\$)	Stock awards (\$)(1)	Option awards (\$)(2)(3)	Total (\$)
R. John Fletcher	\$52,000	\$—	\$40,462	\$ 92,462
Stephen R. Hardis	\$70,000	\$—	\$40,462	\$110,462
William C. Jennings	\$62,000	\$—	\$40,462	\$102,462
Joseph P. Keithley	\$51,000	\$—	\$40,462	\$ 91,462
Patrick H. Nettles	\$64,000	\$—	\$40,462	\$104,462
H. Brian Thompson	\$59,000	\$—	\$40,462	\$ 99,462

- (1) The non-employee directors did not receive any restricted stock grants in 2013.
- (2) The amount shown represents the grant date fair value of the 40,000 options received by the director in 2013, determined in accordance with FASB ASC Topic 718, using the assumptions described in the Stock Award Plans and Stock-Based Compensation Note to the Company's Financial Statements included in the Form 10-K filed with the Securities and Exchange Commission for 2013.
- (3) As of December 31, 2013, the non-employee directors in office held the following total stock options, all of which (except the 2013 grants discussed above) were fully vested and had exercise prices ranging from \$0.44 to \$11.91:

	Aggregate # of shares subject to outstanding options	Lowest exercise price	Highest exercise price
R. John Fletcher	235,000	\$0.44	\$11.91
Stephen R. Hardis	185,000	\$0.93	\$11.91
William C. Jennings	235,000	\$0.44	\$11.91
Joseph P. Keithley	120,000	\$0.93	\$ 1.99
Patrick H. Nettles	235,000	\$0.44	\$11.91
H. Brian Thompson	235,000	\$0.44	\$11.91

CORPORATE GOVERNANCE

Board of Directors Leadership Structure

Our Governance Policies provide that, if the Chairman of the Board is the Chief Executive Officer, the independent directors shall elect a Lead Director. The Board believes that having a Lead Director allows the Chief Executive Officer to focus principally on managing the Company, enhances Board administration and communications between the independent directors, and allows for consistent Board leadership during any Chief Executive Officer transition. Accordingly, when Mary G. Puma became Chairman of the Board of Directors in May 2005 in addition to her role as Chief Executive Officer, Stephen R. Hardis was appointed by the Board as Lead Director. The responsibilities of the Lead Director include:

- Setting the Board's agenda in collaboration with the CEO;
- Acting as a regular communication channel between the board and CEO;
- Organizing and presiding over executive sessions to review the Company's performance and management effectiveness;
- Conducting exit interviews with resigning senior managers to determine whether their departures reflect problems with the CEO or other company issues;

- Coordinating the activities of the independent directors;
- With the Chairman of the Nominating and Governance Committee, addressing any actions arising from the annual Board self-evaluation, coordinating the assessment of the committee structure, organization, and charters, and evaluating the need for any changes; and
- With the Chairman of the Compensation Committee, coordinating the performance evaluation of the Chairman and CEO.

The Board designates the Lead Director annually after each annual meeting of stockholders. Our Board has determined that this leadership structure is appropriate for our business because the title of Chairman is commonly recognized by our customers as being the top management position. Giving Ms. Puma that title ensures that she is recognized by all third parties as our most senior manager. In practice, the role of the Lead Director as described above and in our Governance Policies encompasses all of the management oversight and Board leadership functions typically held by a non-executive Chairman. The Company provides an appropriately substantial retainer to compensate the outside director assuming the Lead Director role for the director's time, effort and focus.

Risk Oversight

Axcelis' business involves many unavoidable operational and financial risks which management and our Board seek to mitigate through careful planning and execution. Our risks include:

- The highly competitive nature of the semiconductor equipment industry, which may limit the rate and level of acceptance of our current products by customers;
- We may be unable to continually invest in product improvement and new product development to meet customer expectations for both technological and cost factors;
- We may be unable to maintain an adequate global infrastructure to support our customers;
- The cyclical nature of the semiconductor industry and its overall condition in a particular period;
- We may be unable to access sufficient capital to meet fluctuating capital requirements; and
- The uncertainties of global economies, including the availability of credit.

A more extensive list of risk factors associated with our business can be found in the Company's 2013 Annual Report on Form 10-K filed with the Securities and Exchange Commission and in the Annual Report to Stockholders which accompanies this proxy statement.

The Board of Directors has two primary methods of overseeing risk. The first method is through its Enterprise Risk Management ("ERM") process, which allows for full Board oversight of the most significant risks facing the Company. The second is through the functioning of the Board committees.

The goal of the ERM process is to provide an ongoing effort, effected at all levels of the Company across all corporate functions, to identify, assess and monitor risk, and to agree on mitigating action. At each quarterly in-person Board meeting, senior management provides a report on specific risks within identified core areas, commenting on the trend and the status of the risk at the time of the report. The Audit Committee will periodically review the ERM process to ensure that it is robust and functioning effectively.

In addition to the ERM process, each committee of the Board oversees specific areas of risk relevant to the committee through direct interactions with the Chief Executive Officer and the heads of corporate functions. For instance, the Audit Committee oversees risk relating to financial reporting through its interactions with the Chief Financial Officer and Corporate Controller. The Ad Hoc Technology Committee formed in November 2011 is overseeing risk in the Company's technology and product development initiatives. This Committee, currently comprised of Messrs. Nettles and Keithley,

met four times during 2013. A committee may address risks directly with management or, where appropriate, may elevate a risk for consideration by the full Board.

The separate ERM process and Board committee approach to risk management leverages the Board's leadership structure to ensure that risk is overseen by the Board both company-wide and through specific areas of competency.

In order to ensure that longer term risks are also considered by the Board in a timely and consistent matter, the full Board dedicates one in-person meeting each year to review and approve a strategic plan and to review and approve a profit plan. These plans are used to manage the business throughout the year. In addition, one Board meeting each year is focused on longer term technology development to ensure that emerging market trends are identified and understood and that their implications for Axcelis' products are appropriately addressed. Finally, the Board dedicates an in-person meeting each year to an executive talent review, which includes a review and discussion of succession planning for key management positions.

Board of Directors Independence and Meetings

The Board of Directors has determined that all directors who served on the Board during 2013, other than Ms. Puma, are or were independent under the criteria established by Nasdaq, and that the members of the Audit Committee also meet the additional independence requirements of the Securities and Exchange Commission. None of the directors, to the Company's knowledge, had any business, financial, family or other type of relationship with the Company or its management (other than as a director and stockholder of the Company), except for any relationships that the Board considered to be immaterial under the Nasdaq independence standards. In determining that each such director is independent, the Board considers whether Axcelis purchases and sells products and services from and to companies (or their affiliates) at which directors are or have been employed as officers or serve as directors. The Board also determined that the members of the Audit and Compensation Committees meet additional independence requirements under SEC rules, Internal Revenue Code rules and additional Nasdaq rules.

Our Board of Directors held eight meetings during 2013. Independent directors have regularly scheduled executive sessions at which only independent directors are present. The average rate of attendance at Board meetings, and of those committees of which a director is a member, was 99%. The lowest rate of attendance for any one director was 95%. All Board members whose terms continue after the annual meeting of stockholders are expected to attend the annual meeting of stockholders, subject to special circumstances. All Board members then in office attended the annual meeting in 2013. The Board also acted twice by written consent in 2013.

Our Board has standing Audit, Compensation and Nominating and Governance Committees.

Compensation Committee

During 2013, the Compensation Committee was composed of Mr. Thompson (Chairman), Mr. Hardis and Mr. Fletcher. The Compensation Committee holds four regularly scheduled meetings per year and occasionally calls special meetings or acts by written consent to address particular matters. In 2013, the Compensation Committee met six times, and acted twice by written consent. The Compensation Committee operates under a written charter, a copy of which is available on our website at www.axcelis.com.

The Compensation Committee establishes the compensation philosophy for Axcelis and has all the authority of the Board of Directors to act or exercise corporate powers with respect to the compensation of the executive officers and the administration of Axcelis' equity compensation plans.

The Compensation Committee is responsible to ensure that an annual review of executive officer performance and succession planning is presented to the Board.

The Compensation Committee meets in the first quarter of each year to establish the goals and targets applicable to the executives' annual incentive compensation for the coming year, as well as to determine the results for the year just ended. In 2013, annual equity compensation decisions for executive officers were made on June 10, 2013 with the grants effective on July 15, 2013. Other compensation decisions are made throughout the year, as circumstances warrant and as described in detail in "2013 Compensation Discussion and Analysis" below. The Committee may delegate its authority under the 2012 Equity Incentive Plan to the extent permitted by applicable law, including delegating to executive officers the authority to make awards other than to directors or executive officers.

To support its decision-making processes, from time to time, the Compensation Committee accesses the advice of an independent compensation consultant with respect to the structure and competitiveness of the Company's executive compensation programs, as well as the programs' consistency with the Company's executive compensation philosophy. The Committee has the sole authority to hire and fire all outside compensation consultants providing information and advice to the Committee. The Company did not engage any compensation consultants in 2013. In past years, the Compensation Committee's compensation consultant was Pearl Meyer & Partners, which firm has not provided any other services to the Company. Under its charter, the Compensation Committee must assess and consider the independence of any retained advisor under the criteria set forth in the Nasdaq listing standards.

At the request of the Committee, the Chief Executive Officer will make specific proposals to the Committee regarding compensation for executive officers. Management will often work with the Committee's outside consultant to ensure that the consultant has access to the appropriate information to enable the consultant to complete its analyses for the Committee. Management ensures that the consultant's invoices are paid from Company funds. The Chief Executive Officer, the Chief Financial Officer and the Executive Vice President HR/Legal usually participate in Compensation Committee meetings to present and discuss the material. After such a discussion, executives other than the Chief Executive Officer will leave the meeting, allowing the Compensation Committee time to meet alone with Ms. Puma, after which she leaves the Committee in executive session. All decisions on executive compensation are made by the Compensation Committee in executive session without Ms. Puma.

For a discussion on the Compensation Committee's actions during 2013, see "2013 Compensation Discussion and Analysis" below.

Nominating and Governance Committee

During 2013, the Nominating and Governance Committee was composed of Mr. Nettles (Chairman), Mr. Hardis and Mr. Thompson. The Nominating and Governance Committee is responsible for identifying and nominating candidates for membership on the Board of Directors, making recommendations to the Board on non-employee director compensation and establishing governance policies for the Board and management. The Committee operates under a written charter and governance policies, copies of which are available on our website at www.axcelis.com. The Committee held four meetings in 2013. The Committee has the sole authority to hire and fire all outside consultants providing information and advice to the Committee.

Under a process established by the Nominating and Governance Committee, the Board of Directors undertakes an annual self-evaluation of Board size, function and management interaction. In addition, each Board member completes an annual self and peer performance review.

When necessary, the Nominating and Governance Committee seeks new nominees for election to the Board through a variety of channels, including the engagement of director search firms and less formal recommendations through business and personal contacts. Director search firms engaged by the Company are paid a retainer fee to identify and screen candidates meeting specifications established by the Committee for a particular Board nominee search. Such specifications will change from one search to another based on the Committee's determination of the needs of Board composition at the time a particular search is initiated.

The Nominating and Governance Committee will evaluate any candidate recommended for nomination as a director, whether proposed by a stockholder or identified through the Committee's own search processes, about whom it is provided appropriate information. In evaluating a candidate, the Committee must, at a minimum, determine that the candidate is capable of discharging his or her fiduciary duties to the stockholders of the Company. The Committee will determine whether the particular nomination would be consistent with Axcelis' governance policies. These policies provide in part that all new candidates for election to the Board and all Board members eligible for nomination for re-election to the Board shall be evaluated on the following criteria:

- (a) such candidate or Board member's current level of, and on-going commitment to, education regarding the responsibilities of a member of a board of directors under standards established by the Nominating and Governance Committee;
- (b) the adequacy of such candidate or Board member's time available to commit to responsibilities as a member of the Board;
- (c) the existence of any financial relationship with the Company other than that arising as an employee of the Company, as a Board member and/or as a stockholder; and
- (d) in the case of re-election, such member's compliance with our Director Stock Ownership Guidelines.

If a candidate is presented to the Nominating and Governance Committee at a time when it has established specifications for a particular Board search, the Committee will consider whether the candidate satisfies the established specifications. More generally, the Committee will consider a candidate's skills, character, leadership experience, business experience and judgment, and familiarity with relevant industry, national and international issues in light of the backgrounds, skills and characteristics of the current Board and the needs of the Company's business. The Nominating and Governance Committee will consider a nominee's national origin or ethnicity if it contributes to Board diversity that is beneficial to the Company for business reasons. Given the portion of the Company's revenues derived from Asian customers, Board members with insight into Asian business or markets are highly valued. Finally, the Committee must consider whether a nominee (in conjunction with the existing Board members) will assist the Company in meeting the requirements of applicable law, the rules of the Securities and Exchange Commission, the Nasdaq listing standards, and the United States Internal Revenue Code (the "IRC") regarding the independence, sophistication and skills of the members of the Board of Directors and the Audit, Compensation and Nominating and Governance committees.

In order to recommend a candidate for consideration by the Nominating and Governance Committee, a stockholder must provide the Committee with the candidate's name, background and relationship with the proposing stockholder, a brief statement outlining the reasons the candidate would be an effective director of Axcelis and information relevant to the considerations described above. Such information should be sent to the Nominating and Governance Committee of Axcelis Technologies, Inc., 108 Cherry Hill Drive, Beverly, Massachusetts 01915, Attn: Corporate Secretary. The Committee may require further information.

Audit Committee

The Audit Committee operates under a written charter and is responsible for assisting the Board of Directors in monitoring and oversight of (1) the integrity of the Company's financial statements and its systems of internal accounting and financial controls and (2) the independence and performance of the Company's independent auditors and any internal auditors engaged by management or the Audit Committee. The Audit Committee has adopted procedures for the handling of complaints regarding accounting, internal controls and auditing matters which are described in our Code of Ethics. The Audit Committee's charter and the Company's Code of Ethics are both available on our website at www.axcelis.com. The Audit Committee met nine times during 2013. During 2013, the Audit Committee consisted of Mr. Jennings (Chairman), Mr. Fletcher and Mr. Keithley.

The Board of Directors has determined that each of Messrs. Jennings, Fletcher, and Keithley are audit committee financial experts as defined by the Securities and Exchange Commission. The Board's conclusions regarding the qualifications of a director as an audit committee financial expert are based on his certification that he has (1) an understanding of generally accepted accounting principles and financial statements; (2) the ability to assess the general application of such principles in connection with the accounting for estimates, accruals and reserves; (3) experience preparing, auditing, analyzing or evaluating financial statements that present a breadth and level of complexity of accounting issues that are generally comparable to the breadth and complexity of issues that can reasonably be expected to be raised by the Company's financial statements, or experience actively supervising one or more persons engaged in such activities; (4) an understanding of internal controls and procedures for financial reporting; and (5) an understanding of audit committee functions.

For a report on the Audit Committee's actions during 2013, see the "2013 Audit Committee Report" below.

2013 Audit Committee Report

The Audit Committee schedules meetings to occur after the preparation of quarterly and annual financial statements but prior to the public release of financial results for the period. The Committee met in May, July and November of 2013, prior to the release of the financial results for the first, second and third quarters of 2013, respectively, and in February 2014, prior to the release of our 2013 year-end results. If appropriate, additional meetings may also be held during the year to address a variety of recurring and non-recurring topics, such as the Company's internal control systems, changes to the Audit Committee charter and other matters.

At all of these meetings, Axcelis' Chief Executive Officer and Chief Financial Officer were present for all or a portion of the meeting, as were our General Counsel and our independent auditors. The Committee's agenda is established by the Committee's Chairman, with input from the Company's Chief Financial Officer. Depending on the content of the meeting, the Committee holds private sessions with the Company's independent auditors, and, separately, with management, at which candid discussions of financial management, accounting and internal control issues can take place. In its executive sessions with representatives of the independent auditors, the Committee seeks to engage in a meaningful dialogue to address any questions or concerns identified by the Committee and to obtain an understanding of any questions or concerns of the auditors.

At the recommendation of the Audit Committee, the Board of Directors appointed Ernst & Young LLP as our Independent Registered Public Accounting Firm to audit our financial statements for 2013. At the 2013 annual meeting of stockholders, our stockholders ratified this appointment. The Audit Committee discussed with our independent auditors and the Company's Chief Financial Officer overall audit scopes and plans, the results of external audit examinations, evaluations by the auditors of the Company's internal controls and the quality of the Company's financial reporting.

Management has reviewed with the Audit Committee the audited consolidated financial statements for the year ended December 31, 2013 prepared by management and audited by Ernst & Young LLP, management's assessment of the effectiveness of our internal control over financial reporting and Ernst & Young LLP's evaluation of our internal control over financial reporting. In addition, the Committee discussed with the independent auditors the matters required to be discussed by Auditing Standard No. 16, *Communications with Audit Committees*, as adopted by the Public Company Accounting Oversight Board ("PCAOB"), and received from the independent auditors their annual written reports covering matters required to be discussed by the auditors with the Committee under the PCAOB's Rule 3526, *Communication with Audit Committees Concerning Independence*. These items were discussed with the auditors and management at an Audit Committee meeting, including a discussion of any relationship that may impact the objectivity and independence of our auditors and whether the provision of any non-audit services by the auditors is compatible with maintaining their independence. The review included a discussion of the quality, not just the acceptability, of the accounting principles, the reasonableness of significant judgments, and the clarity of disclosures in the financial statements.

In reliance on these reviews and discussions, and the report of our Independent Registered Public Accounting Firm, the Audit Committee recommended to the Board of Directors that such audited financial statements be included in the Company's 2013 Annual Report on Form 10-K for filing with the Securities and Exchange Commission and in the Annual Report to Stockholders which accompanies this proxy statement.

The Committee and the Board have also recommended, subject to reconsideration in the absence of stockholder ratification, the selection of the Company's independent auditors for the current year, as discussed below under "*Proposal 2: Ratification of the Appointment of Our Independent Registered Public Accounting Firm.*"

In performing all of these functions, the Audit Committee acts only in an oversight capacity. Necessarily, in its oversight role, the Committee relies on the work and assurances of the Company's management, which has the primary responsibility for financial statements and reports, and of the independent auditors, who in their report on the audited annual financial statements, express an opinion on the conformity of the Company's annual financial statements to accounting principles generally accepted in the United States.

By the Audit Committee,

William C. Jennings, Chairman
R. John Fletcher
Joseph P. Keithley

Code of Ethics

Axcelis has set forth its policy on ethical behavior in a document called "Ethical Business Conduct at Axcelis." This policy applies to the members of our Board of Directors and all employees, including (but not limited to) our principal executive officer, principal financial officer, principal accounting officer or controller and persons performing similar functions. This policy comprises written standards that are reasonably designed to deter wrongdoing and to promote the behavior described in Item 406 of Regulation S-K promulgated by the Securities and Exchange Commission. The text of this code of ethics is posted on the Investors page of our website at www.axcelis.com, where we may also disclose any amendments to and waivers of the code.

Policies regarding Ownership and Transactions in Axcelis Securities by Directors and Officers

To further align the interest of the Company's executive officers and directors with the interests of its stockholders and to promote Axcelis' commitment to sound corporate governance, the Nominating and Governance Committee have adopted Stock Ownership Guidelines for Directors and Officers and prohibited or limited certain transactions in Axcelis securities by Board members and executive officers.

- The Company's Stock Ownership Guidelines require that certain stock ownership levels are achieved by each outside director and executive officer within five years of the commencement of service in that role. These guidelines are available on our website at www.axcelis.com.
- In February 2013, the Nominating and Governance Committee approved Board Member and Executive Officer Policies and Practices Relating to Axcelis Securities. In addition to ensuring that directors and executive officers meet their legal requirements relating to ownership of and transactions in Axcelis securities, these policies prohibit directors and executive officers from pledging Axcelis stock in a margin account or otherwise, or entering into transactions that are designed to hedge or offset any decrease in the market value of Axcelis equity securities owned by such director or executive officer. The Company's policies also prohibit the purchase of publicly traded options on Axcelis securities and place limitations on the use of standing or limit orders to purchase or sell Axcelis securities. A director or executive officer may seek an exception for prohibited transactions (if not prohibited by applicable law), and the Chief Executive Officer and General Counsel are authorized to permit exceptions, after consulting with outside counsel and obtaining approval from the Board of Directors or a Board committee, in their discretion.

Certain Relationships and Related Transactions

Nasdaq listing rules require the Company to conduct an appropriate review of all related party transactions which are disclosable under Item 404 of Regulation S-K. In its charter, the Nominating and Governance Committee is given responsibility to review and approve any such related party transactions, including (a) business arrangements between the Company and directors or their affiliates or between the Company and employees, other than compensation for service as a director or as an employee of the Company, and (b) any other relationships between a director or employee and the Company or a third party (including membership on the boards of directors of a third party) which create the appearance or reality of a current or potential conflict of interest.

Axcelis reviews all relationships and transactions reported to it in which the Company and our directors and executive officers or their immediate family members are participants to determine whether such persons have a direct or indirect material interest. The Company's General Counsel is primarily responsible for the development and implementation of processes and controls to obtain information from the directors and executive officers with respect to related person transactions and for then determining, based on the facts and circumstances, whether the Company or a related person has a direct or indirect material interest in the transaction. As required under SEC rules, transactions that are determined to be directly or indirectly material to the Company or a related person are disclosed in the Company's proxy statement. In addition, the Nominating and Governance Committee reviews and approves or ratifies any related person transaction that is required to be disclosed. In the course of its review and approval or ratification of a disclosable related party transaction, the Nominating and Governance Committee considers:

- the nature of the related person's interest in the transaction;
- the material terms of the transaction, including, without limitation, the amount and type of transaction;
- the importance of the transaction to the related person;

- the importance of the transaction to the Company;
- whether the transaction would impair the judgment of a director or executive officer to act in the best interest of the Company; and
- any other matters the Committee deems appropriate.

Any member of the Nominating and Governance Committee who is a related person with respect to a transaction under review may not participate in the deliberations or vote respecting approval or ratification of the transaction, provided, however, that such director may be counted in determining the presence of a quorum at a meeting of the Committee that considers the transaction.

During 2013, no related person transactions requiring disclosure in the proxy statement were identified or submitted to the Nominating and Governance Committee for approval.

PROPOSAL 2: RATIFICATION OF THE APPOINTMENT OF OUR INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Upon the recommendation of its Audit Committee, the Board of Directors has appointed the independent registered public accounting firm of Ernst & Young LLP as independent auditors to conduct the annual audit of our financial statements for 2014 and is seeking stockholder ratification of the appointment. Ernst & Young LLP is an internationally recognized independent registered public accounting firm that audited the Company’s financial statements in 2013 and which the Audit Committee believes is well qualified to continue.

Representatives of Ernst & Young are expected to attend the annual meeting and be available to respond to appropriate questions. They will also have the opportunity to make a statement if they desire.

The aggregate fees billed for each of the last two fiscal years for professional services rendered by Ernst & Young LLP were as follows:

	<u>2012</u>	<u>2013</u>
Audit Fees	\$1,247,000	\$1,208,500
Audit Related Fees	\$ 18,300	\$ 18,000
Tax Fees		
Tax compliance and preparation of returns	\$ 132,900	\$ 35,405
International tax planning	\$ 43,000	\$ 51,300
General tax planning and other tax services	\$ 0	\$ 17,615
Total Tax Fees	<u>\$ 175,900</u>	<u>\$ 104,320</u>
Total Fees	<u>\$1,441,200</u>	<u>\$1,330,820</u>

Audit fees include statutory audits for subsidiaries and branches operating in countries outside of the United States. Audit related fees include the audit for the Company’s 401(k) plan required under ERISA. International tax planning relates to the setting of fair compensation for services provided to us by our foreign subsidiaries to ensure appropriate revenue levels are reported for taxation in those foreign countries.

Under its charter, the Audit Committee must pre-approve the fees to be paid to the independent auditor for audit services. In addition, the Audit Committee has adopted a policy requiring the Committee’s pre-approval of the engagement of the Company’s independent auditor to perform specific audit-related or non-audit (including tax) services and fees for such services. This pre-approval of audit-related and non-audit services performed by the independent auditor is designed to avoid any engagements which could impair the auditor’s independence. The policy also prohibits engagement of

the independent auditor to perform certain types of services that are always viewed as inconsistent with independence. Any approval required under the policy must be given by the Audit Committee or by any member or members to whom the Committee has delegated that authority. The Audit Committee does not delegate its responsibility to approve services performed by the independent auditor to any member of management.

The standard applied by the Audit Committee in determining whether to grant approval of any type of non-audit service, or of any specific engagement to perform a non-audit service, is whether the services to be performed, the compensation to be paid therefor and other related factors are consistent with the independent auditor's independence under guidelines of the Securities and Exchange Commission, the PCAOB and applicable professional standards. Relevant considerations include whether the work product is likely to be subject to, or implicated in, audit procedures during the audit of our financial statements, whether the independent auditor would be functioning in the role of management or in an advocacy role, whether the independent auditor's performance of the service would enhance our ability to manage or control risk or improve audit quality, whether such performance would increase efficiency because of the independent auditor's familiarity with our business, personnel, culture, systems, risk profile and other factors, and whether the amount of fees involved, or the proportion of the total fees payable to the independent auditor in the period that is for non-audit services, would tend to reduce the independent auditor's ability to exercise independent judgment in performing the audit.

All of the non-audit services rendered by Ernst & Young LLP in respect of the 2012 and 2013 fiscal years were pre-approved by the Audit Committee in accordance with this policy.

Ernst & Young LLP informed the Company that they are not aware of any relationship with the Company that, in their professional judgment, may reasonably be thought to bear on the independence of Ernst & Young LLP.

Ratification of the appointment of Ernst & Young LLP by the stockholders is not required by law or by our bylaws. The Board of Directors is nevertheless submitting it to the stockholders to ascertain their views. If this proposal is not approved at the annual meeting by the affirmative vote of holders of a majority of the votes cast at the meeting, the Audit Committee intends to reconsider its recommendation of Ernst & Young LLP as independent auditors. The Company may retain the firm for 2014 notwithstanding a negative stockholder vote.

The Board of Directors recommends a vote FOR ratification of the appointment of Ernst & Young LLP.

PROPOSAL 3: APPROVAL OF AMENDMENT TO THE 2012 EQUITY INCENTIVE PLAN

We are seeking stockholder approval of an amendment to our 2012 Equity Incentive Plan (the "2012 EIP") increasing the number of shares authorized for issuance by 1,500,000 shares (or such lesser amount as may be fixed by our Chief Executive Officer prior to the annual meeting). An increase of 1,500,000 shares would bring the total reserve under the 2012 EIP from 7,050,000 shares reserved as of December 31, 2013 to 8,550,000 shares, excluding from both amounts shares recaptured from forfeited grants under the 2000 Stock Plan. Of the shares previously approved, 3,602,242 shares remained available for grant as of December 31, 2013. If approved, we expect to use the additional authorized shares for continued periodic equity grants to employees (including executive officers), directors and consultants.

Why the 2012 EIP is Important

Our ability to attract, motivate and retain high-performing employees is vital to our ability to compete successfully in the market and to increase stockholder value. We believe our ability to grant

equity incentives as an element of employee compensation is essential for us to remain competitive in attracting and retaining such employees. We believe equity incentives motivate high levels of performance and provide an effective means of recognizing employee contributions to the success of Axcelis. Moreover, equity incentives align the interests of the employees with the interests of our stockholders—when Axcelis performs well, employees are rewarded along with other stockholders. Axcelis also occasionally uses equity in lieu of cash compensation, as we did in 2013 in our 2013 Base Pay RSU Program and as part of our 2013 Axcelis Management Incentive Plan, both of which are discussed below in “*2013 Compensation Discussion and Analysis*.” As with many companies that need to preserve cash to invest in the business, we sometimes use equity grants to make up the compensation gap.

Because the 2012 EIP is the only plan under which we can grant equity incentives, maintaining its viability by increasing the number of shares available for grant is essential for us to be able to continue to use equity incentives to attract, motivate and retain the employees necessary for our future success.

Reasons for and Effect of the Proposed Amendment

The 2012 EIP is our sole vehicle for making equity awards. The proposed amendment would make an additional 1,500,000 shares available for issuance under the 2012 EIP, which would enable us to continue to offer equity incentives to our employees (including executive officers), directors and consultants. We expect the additional shares would enable us to make equity incentive grants for at least the next year at a rate slightly below the Company’s usual burn rate, which has averaged at an annual rate of approximately 5% of the shares outstanding over the three year period from 2011 to 2013. In order to conserve cash, the Company expects to have an increased reliance on equity compensation rather than cash compensation until a recovery occurs in the Company’s revenue levels. Because future grants and share prices are unknown, the economic dilution associated with the additional shares cannot be determined accurately. However, we are mindful of the dilution associated with equity awards and take it into account in making awards.

The Board has limited the proposed increase to 1,500,000 shares because we anticipate that Institutional Shareholder Services (“ISS”) will support that level of increased availability. A significant portion of our stockholders follow the recommendations of ISS, and we wish to implement an increase that has ISS support. We expect that ISS will determine that the Shareholder Value Transfer (“SVT”) from all outstanding unexercised options and unvested restricted stock units (“RSUs”) plus potential future grants under the 2012 EIP (after giving effect to the proposed increase) would represent less than 16% of the Company’s market value (as we expect market value to be calculated by ISS). ISS has set our company-specific allowable cap for SVT at 19% and 14% in 2012 and 2013, respectively. Since the methodology of calculating the company-specific allowable SVT is not publicly disclosed, we do not yet know what our ISS SVT cap will be in 2014. In addition, the voting power dilution of the shares reserved for unexercised options and unvested RSUs and future grants (after giving effect to the proposed 1,500,000 increase) would be less than 20%.

Grant Practices

We use both RSUs and stock options as our principal equity awards for varying purposes. We use stock options in our annual equity grant program (in which approximately 130 employees and our directors participate) because our low share price allows for significant return on growth in our stock price. Stock options also provide a significant incentive because the optionholder receives no or minimal reward if the stock price does not improve over the level on the date of grant. We use RSUs in lieu of cash incentives to conserve cash as well as in other appropriate circumstances. RSUs allow us to issue fewer shares than with stock options to deliver comparable value, which reduces overhead and potential stockholder dilution. RSUs have a significant retention effect because they retain value even if the stock price declines.

We use both time-based and performance-based awards. Time-based vesting is effective at driving long term retention, and performance-based awards represent meaningful incentives to drive strategic business objectives. Employee options are also conditioned on service; vesting ceases on termination of employment and vested employee options terminate 90 days after termination of employment (or one year in the case of retirement). In general, equity compensation can substitute for cash compensation, allowing the Company to conserve cash for business operations or to maintain a strong cash balance, which is important to many of the Company’s customers. For example, as part of the 2013 Axcelis Management Incentive Plan (the “2013 AMI”), the Compensation Committee established a share pool that would have been used to issue RSUs to 13 of the top managers in the Company, including the executive officers in lieu of a cash payout under the 2013 AMI. This allowed the Company to conserve cash for business operations. The issuance and vesting terms of these RSUs depended on the Company’s performance in 2013. With these types of awards, if the performance targets are not achieved, the awards are forfeited or not issued, as happened with the potential RSU grants under the 2013 AMI.

Board Recommendation

The Board of Directors believes that the amendment to the 2012 EIP promotes important corporate goals and is therefore in the best interests of Axcelis’ stockholders. The amendment to the 2012 EIP will provide Axcelis with the shares necessary to offer effective equity incentives, which are essential for Axcelis to attract, motivate and retain employees and to align Axcelis’ compensation with our stockholders’ interests.

The Board of Directors recommends that you vote FOR the proposed amendment to the 2012 EIP.

Outstanding Equity Awards and Shares Available to Grant

The following table shows the awards outstanding and that may be made under our equity incentive plans as of December 31, 2013.

	<u>Number of Options Outstanding</u>	<u>Number of Restricted Stock Units Outstanding</u>	<u>Shares Available to Grant under Plan</u>
2012 Equity Incentive Plan	8,781,000	10,000	3,602,242
2000 Stock Plan (terminated)	13,518,638	13,093	0
Total	<u>22,299,638</u>	<u>23,093</u>	<u>3,602,242</u>

Summary of the 2012 Equity Incentive Plan

The following is a brief description of the material features of the 2012 EIP, as amended, and is qualified in its entirety by reference to the terms of the 2012 EIP. Stockholders may obtain a copy of the 2012 EIP upon written request to the Secretary of the Company.

- Administration** The 2012 EIP is administered by the Compensation Committee or other committee appointed by the Board. The Compensation Committee has authority to: select the participants who will receive awards, grant awards, determine the terms, conditions, and restrictions applicable to the awards, determine how any exercise price is paid, modify or replace outstanding awards within the limits of the 2012 EIP, accelerate the date on which awards become exercisable, waive the restrictions and conditions applicable to awards, and establish rules governing the 2012 EIP, including special rules applicable to awards made to employees who are foreign nationals or are employed outside the United States. Subject to specific limitations under the Plan, as discussed below, the Compensation Committee is given the broad authority to establish these terms in order best to achieve the purpose of the 2012 EIP. The Compensation Committee may also assume awards granted by an organization acquired by the Company or may grant awards in replacement of any such awards.
- Types of Awards** The 2012 EIP provides for the grant of stock options (incentive stock options or “non-qualified” stock options), restricted stock, RSUs, stock appreciation rights, awards of common stock that are not subject to restrictions or forfeiture, and stock equivalent awards. These awards are payable in cash or common shares, or any combination thereof, as established by the Compensation Committee.
- Eligibility** All employees and consultants of Axcelis and its subsidiaries, and all directors of Axcelis, are eligible to participate in the 2012 EIP. Participants are selected by the Compensation Committee of our Board of Directors in its discretion. At December 31, 2013, the Company had approximately 880 employees, and 6 non-employee directors.
- Plan Limitations on
Award Terms** The 2012 EIP establishes certain limits on the terms of awards granted under the 2012 EIP:
- The exercise price of options and stock appreciation rights granted under the 2012 EIP must be not less than the fair market value of the common stock on the date of grant.
 - The term of options and stock appreciation rights granted under the 2012 EIP may not exceed seven years.
 - In the case of awards granted to the Company’s executive officers, the vesting, settlement or lapse of forfeiture restrictions solely based on continued employment, service or the passage of time must (with certain exceptions) occur (i) with respect to no more than 1/3 of the shares subject to the award in any one year, and (ii) over not less than four years from the date of grant for all shares subject to the award.

- Awards granted under the 2012 EIP must be designed and administered in such a manner that they are either exempt from the application of, or comply with, the requirements of Section 409A of the IRC, which relates to the deferral of compensation for tax purposes.
- The 2012 EIP prohibits the Committee, without obtaining stockholder approval, from amending any outstanding option or stock appreciation right to reduce the exercise price or canceling and replacing an option or stock appreciation right with an award exercisable for common stock at a lower exercise price.
- In order to comply with the exemption from Section 162(m) of the IRC relating to performance-based compensation, no participant may be granted stock options and stock appreciation rights, in the aggregate, for more than 1,250,000 shares during any fiscal year, and no performance-based award settled in cash may pay a participant more than \$1,000,000 in any one year.

Share Counting

Under the Plan . . .

The following provisions apply to determining how the available shares under the 2012 EIP are deemed to be used:

- Each share subject to an award under the 2012 EIP other than options and stock appreciation rights shall be counted as 1.5 shares;
- Shares subject to an award granted under the 2000 Stock Plan or the 2012 EIP that is forfeited, terminated, or canceled without having been exercised will become available for grant under the 2012 EIP, subject to certain exceptions relating to incentive stock options;
- Shares subject to awards granted under the 2012 EIP on assumption of, or substitution for, equity awards of a company acquired by Axcelis will not count against the share reserve under the 2012 EIP; and
- Outstanding shares used to pay the exercise price of an option or stock appreciation right or shares which are withheld by the Company to satisfy the exercise price or tax withholding due on exercise or vesting may not be netted out against the shares issued on an award granted under the 2012 EIP.

**Performance
Objectives for
Performance-Based
Awards.**

The 2012 EIP provides that, when so determined by the Compensation Committee, awards may specify performance objectives that, if achieved, will result in vesting, exercisability or the lapse of restrictions on awards. Awards with performance objectives are intended to satisfy the requirements for “performance-based compensation” under Section 162(m) of the IRC. Such grants should specify one or more objective performance goals and the effect of achieving the goal at or above a specified level for or within a requisite period or at a requisite date. For purposes of Section 162(m), the Compensation Committee must establish any performance goal near the beginning of any performance period and at a time when the outcome of the goals is substantially uncertain, and it must certify that the goal was achieved before the award is paid. Performance objectives may be based on any of the following criteria: revenue; revenue growth; sales; expenses; margins; net income; earnings or earnings per share; cash flow; stock price; stockholder return; return on investment; return on invested capital, assets, or equity; profit before or after tax; operating profit; operating margin; return on research and development investment; market capitalization; quality improvements; market share; cycle time reductions; customer satisfaction measures; strategic positioning or marketing programs; market penetration or expansion; business / information systems improvements; expense management; infrastructure support programs; human resource programs; customer programs; technology development programs; goals relating to acquisitions or divestitures, or any combination of the foregoing, including without limitation goals based on any of such measures relative to peer groups or market indices, and may be particular to an award recipient or may be based, in whole or in part, on the performance of the division, department, line of business, subsidiary, or other business unit, whether or not legally constituted, in which the award recipient works or on the performance of the Company generally.

**Treatment of Awards
in an
Extraordinary
Event**

In the event of a recapitalization, stock dividend, stock split, other distribution to stockholders (other than normal cash dividends), or similar transaction, the Compensation Committee will adjust the number and class of shares that may be issued under the 2012 EIP (including the number of shares that may be subject to awards granted to a participant in any fiscal year) and the number and class of shares, and the exercise price, applicable to outstanding awards. Similar adjustments may be made in the event of reorganization, merger, spin-off or other corporate transaction affecting the common stock where an adjustment is required in order to preserve the benefits intended to be provided by the plan. If considered appropriate, the Committee may make provision for a cash payment with respect to all or part of an outstanding award instead of or in addition to any such adjustment.

In the event of a corporate transaction in which a company other than Axcelis is the surviving, continuing, successor purchasing entity, outstanding awards may be assumed by such other company or may be exchanged for substituted awards from such other company. The terms of such assumed or substituted awards shall be appropriate in light of (A) the consideration received by the Company's stockholders in the transaction and (B) the terms of the outstanding awards. Awards outstanding under the 2012 EIP which are not assumed or exchanged shall terminate on such terms as the Committee may determine. Notwithstanding the foregoing, if in such a transaction the stockholders of the Company receive consideration that is predominantly cash, then either (A) any vesting or lapse of forfeiture provisions on outstanding awards under the 2012 EIP shall accelerate on the closing of the transaction and the award holder may share in the transaction consideration or (B) such awards shall be compensated through a separate payment in an amount that the award holder would have received in the transaction assuming such acceleration, as determined by the Compensation Committee.

Non-Assignability of

Awards No award granted under the 2012 EIP may be transferred or assigned by a participant or eligible transferee except on such terms as the Compensation Committee determines, and incentive stock options may be transferred only to the extent permitted by the Internal Revenue Code.

**Amendment and
Termination of the
2012 EIP**

The Board of Directors may amend, suspend, or terminate the 2012 EIP at any time, subject to stockholder approval as needed to comply with tax or regulatory requirements.

Summary of U.S. Federal Income Tax Consequences of Awards under the 2012 EIP

The following is a brief summary of certain consequences under current U.S. federal income tax law of certain transactions under the 2012 EIP. This summary is not intended to be complete and does not describe state, local, foreign or other tax consequences.

Incentive Stock Options. In general, an employee will not recognize taxable income at the time an incentive stock option is granted or exercised. However, the excess of the fair market value of the common shares acquired upon exercise over the exercise price is potentially subject to the alternative minimum tax. If the option is not exercised by a specified date after termination of the holder's employment, the income tax treatment will be the same as that for a non-qualified stock option, described below. Upon disposition of the common shares acquired upon exercise, capital gain or capital loss will be recognized in an amount equal to the difference between the sale price and the exercise price, so long as minimum holding period requirements are satisfied. If the holding period requirements are not satisfied, the employee will recognize ordinary income upon disposition of the shares equal to the difference between the exercise price and the lesser of the fair market value of the common shares on the date the option is exercised or the amount realized in the disposition. Any remaining gain or loss is treated as a capital gain or capital loss.

Non-Qualified Stock Options. In general, a participant will not recognize taxable income upon the grant of a stock option that does not qualify as an incentive stock option (a "non-qualified stock option"). Upon exercise, the participant will recognize ordinary income in an amount equal to the difference between the exercise price and the fair market value of the common shares acquired upon exercise. Upon disposition of the common shares, appreciation or depreciation after the date of exercise will be treated as either capital gain or capital loss.

Restricted Stock Units. The participant will recognize no income at the time RSUs are awarded to the participant. When shares are issued on the vesting of RSUs, the participant will recognize compensation income equal to the excess of the fair market value of the vested shares stock at that time over the amount, if any, paid by the participant for the shares. Upon disposition of shares after issuance, any gain or loss realized by a participant will be treated as capital gain or loss.

Restricted Stock. Unless a participant makes an election under Section 83(b) of the IRC, the participant will recognize no income at the time restricted stock is awarded to the participant. When the restrictions lapse or are otherwise removed, the participant will recognize compensation income equal to the excess of the fair market value of the restricted stock at that time over the amount, if any, paid by the participant for the restricted stock. Dividends paid on restricted stock during any restriction period will, unless the participant has made an election under Section 83(b) of the IRC, constitute compensation income. Upon disposition of common shares after the restrictions lapse or are otherwise removed, any gain or loss realized by a participant will be treated as capital gain or loss. If a participant makes an election under Section 83(b) of the IRC, the participant will recognize compensation income equal to the excess of the fair market value of the common shares on the date of grant over the price paid for those common shares. Dividends paid on the stock thereafter will be treated as dividends taxable to the participant.

Stock Appreciation Rights and Stock Equivalents. The grant of stock appreciation rights and stock equivalents will have no immediate tax consequences to the participant receiving the grant. The amount received by the participant upon the exercise of the stock appreciation rights or stock equivalent will be included in the participant's ordinary income in the taxable year in which award is exercised or vested.

Parachute Payment Tax. The value of any accelerated vesting or exercisability of options or stock appreciation rights, or any accelerated lapse of restrictions on restricted stock or RSUs, in connection with a change in control of the Company will be taken into account in determining whether the participant is deemed to have received an "excess parachute payment" under Section 280G of the IRC. This may subject the participant to an excise tax.

Tax Consequences to the Company. To the extent that a participant recognizes ordinary income in the circumstances described above, the Company or the subsidiary for which the participant performs services will be entitled to a corresponding tax deduction provided that, among other things, (a) the income meets the test of reasonableness, (b) is an ordinary and necessary business expense, (c) is not an "excess parachute payment" and (d) is not disallowed by the \$1 million limitation on certain executive compensation under Section 162(m) of the IRC.

Under Section 162(m), the Company's federal income tax deductions may be limited to the extent total annual compensation in excess of \$1,000,000 is paid to any of our principal executive officer and our other three most highly compensated executive officers, other than our principal financial officer. However, deductions for certain "performance based compensation" are exempted from this limitation. The 2012 EIP has been structured with the intention that compensation resulting from stock options, stock appreciation rights and other stock or cash performance-based awards granted under the 2012 EIP in compliance with Section 162(m) would qualify as performance-based compensation, and would be deductible without regard to the limitations imposed by Section 162(m). However, nothing in this proposal precludes the Committee from granting awards that do not qualify for tax deductibility under Section 162(m).

Potential Benefits that May Be Awarded under the 2012 Equity Incentive Plan

All employees and consultants of Axcelis and its subsidiaries, and all directors of Axcelis, are eligible to participate in the 2012 EIP. Participants are selected by the Compensation Committee of our Board of Directors in its discretion. The benefits or amounts that will be received in the future under

the 2012 EIP by named executive officers, executive officers as a group, and all current non-employee directors or employees who are not executive officers as a group are not determinable because grants are subject to the discretion of the Compensation Committee. Our current grant practices are described in “*Compensation of Directors*” and “*2013 Compensation Discussion and Analysis*.”

The table below shows the number of RSUs and stock options awarded under the 2012 EIP since the adoption of the plan through December 31, 2013. No other types of awards have been granted.

2012 Equity Incentive Plan Grants through December 31, 2013

Name and Title or Group	Number of RSUs Granted through 12/31/2013	Number of Stock Options Granted through 12/31/2013
Mary G. Puma , <i>Chairman, Chief Executive Officer and President</i>	147,637	500,000
Kevin J. Brewer , <i>Executive Vice President and Chief Financial Officer</i>	0	375,000
William Bintz , <i>Executive Vice President, Engineering and Marketing</i>	37,795	450,000
John E. Aldeborgh , <i>Executive Vice President, Global Customer Operations</i>	0	550,000
Lynnette C. Fallon , <i>Executive Vice President, HR/Legal and General Counsel</i>	0	225,000
Jay Zager , <i>Former Executive Vice President and Chief Financial Officer</i>	0	150,000
All Current Executive Officers as a Group	185,432	2,100,000
All Current Non-Employee Directors as a Group	0	560,000
Mr. George and Ms. Lundberg , nominees for election as a director	0	0
All Current Employees, excluding Executive Officers, as a Group	10,000	6,657,700

The closing price of our common stock on December 31, 2013, as reported by The Nasdaq Global Select Market, was \$2.44.

Current Equity Compensation Plan Information

We maintain three equity compensation plans, the 2000 Stock Plan (which terminated as to new grants on May 1, 2012), the 2012 EIP and the Employee Stock Purchase Plan. The number of shares issuable upon exercise of outstanding options and unvested RSUs granted to employees and

non-employee directors, as well as the number of shares remaining available for future issuance, under our equity compensation plans as of December 31, 2013 are summarized in the following table:

Plan category	(A) Number of shares to be issued upon exercise of outstanding options, warrants and rights(1)	(B) Weighted-average exercise price of outstanding options, warrants and rights(2)	(C) Number of shares remaining available for future issuance under equity compensation plans (excluding shares reflected in column (A))(3)
Equity compensation plans approved by stockholders	22,322,731	\$1.878	5,435,842
Equity compensation plans not approved by stockholders	0	NA	0
Total	22,322,731		

- (1) Represents, as of December 31, 2013: (A) 13,518,638 shares issuable on exercise of outstanding options under the 2000 Stock Plan, plus (B) 8,781,000 shares issuable on exercise of outstanding options under the 2012 EIP, plus (C) 13,093 shares issuable on vesting of outstanding RSUs under the 2000 Stock Plan (some of which will be withheld to compensate for tax withholding) plus (D) 10,000 shares issuable on vesting of outstanding RSUs under the 2012 EIP (some of which will be sold to compensate for tax withholding).
- (2) For the purposes of this table, the weighted-average exercise price of outstanding options, warrants and rights includes RSUs as if they had a \$0 exercise price. The weighted-average exercise price of outstanding options alone at December 31, 2013 was \$1.89.
- (3) Represents the total shares available for issuance under our 2012 EIP and our Employee Stock Purchase Plan, as of December 31, 2013, as follows:
- (A) 3,602,242 shares were available for future issuance under the 2012 EIP. Such amount represents the total number of shares reserved for issuance under the 2012 EIP (7,050,000 plus shares subject to options or restricted stock units granted under the 2000 Stock Plan that expired unexercised or were forfeited between May 2, 2012 and December 31, 2013), less the shares issuable on 8,781,000 options and 13,093 restricted stock units (counted at 1.5 shares each) outstanding under the 2012 EIP included in column (A)) and the shares issued on exercise of options and vesting of restricted stock units granted under the 2012 Equity Incentive Plan. This plan is generally used for grants to employees and directors and was approved by our stockholders at our 2012 annual meeting. No shares are available for future issuance under the 2000 Stock Plan, which terminated on May 1, 2012.
- (B) 1,833,600 shares were available under our Employee Stock Purchase Plan, which represents the total number of shares reserved for issuance under the plan (7,500,000) less 5,666,400 shares issued through December 31, 2013.

PROPOSAL 4: ADVISORY VOTE REGARDING EXECUTIVE COMPENSATION

This proposal, commonly known as “Say on Pay,” asks the stockholders to approve the compensation of the Company’s named executive officers as described under “Executive Compensation” below in this proxy statement (referred to herein as “NEOs”).

The Company’s compensation goals are to (i) retain executive talent by offering base pay that is commensurate with pay at other companies of a similar size in the same or similar industries, as adjusted for individual factors, and (ii) drive achievement of annual strategic goals by rewarding executives through incentives tied to goals. Details of the 2013 compensation provided to the NEOs may be found in the *Executive Compensation—2013 Compensation Discussion and Analysis* and the accompanying tables in this proxy statement. Key factors impacting NEO compensation in 2013 were:

- No increases to NEO base compensation were approved in 2013. An increase approved for Ms. Puma in 2011 was made effective in 2013.
- The Compensation Committee sought to preserve the Company’s cash by offering executive officers an opportunity to forgo a portion of their base pay and receive a RSU for a number of shares equal to 1.5 times the base pay forgone, divided by the stock price on January 15, 2013. Ms. Puma and Mr. Bintz elected to forego \$125,000 and \$32,000 of base pay under this program. See “2013 Base Pay RSU Program” in the “2013 Compensation Discussion and Analysis” below.
- As a cost control initiative, the executive officers each incurred three weeks of unpaid shutdowns, which effectively reduced 2013 executive base pay by 6%.
- Our executive officers were each eligible for a significant incentive compensation component under the 2013 Axcelis Management Incentive Plan (the “2013 AMI”). This plan established a target RSU grant that had a value, in the case of Ms. Puma equal to 100% of base pay, and in the case of the other NEOs, equal to 60% of the executive’s base pay, using the stock price on February 15, 2013. These RSUs were not issued given the de minimus cash payout under the 2013 AMI. See “Annual Cash Incentive” in “2013 Compensation Discussion and Analysis” below.
- Our 2013 Annual Equity Grant program provided stock option grants to our executive officers which offer a meaningful performance incentive, given the potential for significant stock price appreciation as a result of improved financial performance.

The vote solicited by this proposal, which is required by Section 14A of the Securities Exchange Act of 1934, is advisory and its outcome will not be binding on the Board nor require the Board to take any action. Moreover, the outcome of the vote will not be construed as overruling any decision of the Board or creating or implying any additional fiduciary duty of the Board. However, the Board expects to take into account the outcome of this vote when considering future compensation arrangements for the Company’s named executive officers. We will hold such a vote at the annual meeting each year.

The proposal will be considered approved at the annual meeting if more votes are cast in favor than against. Abstentions and broker non-votes will not count as votes cast for or against this proposal.

The Board of Directors recommends a vote FOR approval of the compensation of the Company’s named executive officers.

EXECUTIVE COMPENSATION

2013 Compensation Discussion and Analysis

This 2013 Compensation Discussion and Analysis is intended to provide a context for the disclosures contained in this Proxy Statement with respect to the compensation paid to the Company's principal executive officer (Mary G. Puma), principal financial officer (Kevin J. Brewer), and the three most highly compensated other executive officers serving as executive officers at December 31, 2013 included in the *Summary Compensation Table* below. The tables also include, where relevant, Jay Zager, who served as the Company's principal financial officer for a portion of 2013. These executive officers are referred to herein as "named executive officers" or "NEOs." Specifically, this Compensation Discussion and Analysis will explain the objectives and material elements of the compensation of the NEOs during 2013.

Compensation Principles and Tools

The Company's executive compensation program is designed to:

- (1) retain executive talent by offering compensation that is commensurate with pay at other companies of a similar size in the same or similar industries, as adjusted for individual factors; and
- (2) drive achievement of annual strategic goals by rewarding executives through incentive pay tied to approved financial and operational goals.

All executive compensation is determined by the Compensation Committee of the Board of Directors. For a discussion of the Committee's processes in general, see "*Corporate Governance—Compensation Committee*" elsewhere in this proxy statement. Executive compensation for incumbent executives is reviewed annually.

In 2013, the Compensation Committee reviewed all elements of each NEO's compensation in the context of each executive's total compensation. This was done by reviewing comprehensive reports on each executive's current and historical base and annual incentive cash compensation, equity portfolio and contractual arrangements with the Company. In this review, the Committee referenced benchmarking data prepared for the Company by Pearl Meyer & Partners, a compensation consultant, in 2011 using a peer group and broader survey data, as detailed in our 2012 and 2013 proxy statements. The Committee also considered 2013 compensation survey data from Radford for high technology firms with revenues less than \$1 billion and for capital equipment firms. The 2013 Radford survey data suggested that the various compensation elements for the executive officers had not changed significantly since the data reported in the 2011 Pearl Meyer report.

The Compensation Committee did not consider making any changes to executive compensation in light of the results of the say-on-pay vote of the shareholders at the 2013 Annual Meeting. At that meeting, 92.6% of the votes cast approved the compensation paid to the Company's executive officers for fiscal 2012.

Material Elements of Named Executive Officer Compensation

The key elements of NEO compensation are: base salaries; an annual cash incentive program; equity compensation; and a "double-trigger" Change of Control Agreement. Executives also may participate, on the same terms as all other employees, in an Employee Stock Purchase Plan, a 401(k) retirement savings plan and health and welfare benefits.

The following discussion seeks to explain why Axcelis has chosen to pay each compensation element, how Axcelis determines the amount of each element, and how the element and the Company's decisions regarding that element in 2013 fit into the Company's overall compensation objectives and affect decisions regarding other elements.

Base Salary. The Company pays a base salary to each of its NEOs. The objective is to provide base compensation to the executive that is at or above the 50th percentile of the market data for base compensation for the benchmarked position, because Axcelis believes that this is necessary to attract and retain suitably qualified executives. Base pay for NEOs is set on commencement of employment with the Company and annually reviewed thereafter. In the event that base pay is a factor in calculating annual incentive cash compensation or equity grants, when fixing or adjusting base pay, the Compensation Committee will consider the impact of a change on these other compensation components.

CEO Base Pay in 2013. Ms. Puma's base pay increased to \$550,000, as approved by the Compensation Committee in April 2011. This increase was determined appropriate by the Committee since her base salary had been at the 30th percentile of the 2011 CEO base pay benchmark developed by Pearl Meyer in the report discussed above. The increase was initially intended to be effective on May 1, 2011, but, at Ms. Puma's request, the effective date of such increase was deferred until January 1, 2013, with the condition that if Ms. Puma is at any time entitled to separation pay under her employment agreement or under her Change of Control Agreement, all amounts due to her shall be calculated as if such increase had become effective on May 1, 2011.

Ms. Puma's actual 2013 cash base pay was reduced by two programs: (A) Ms. Puma participated in a program to forgo base pay in exchange for the issuance of RSUs that vested over the course of 2013 (discussed below under "2013 Base Pay RSU Program") and (B) she participated in three weeks of unpaid shutdowns in 2013, further reducing her cash base pay by 6%. Accordingly, as shown in the *Summary Compensation Table* below, Ms. Puma's actual cash base pay in 2013 was approximately \$400,500.

2013 Base Pay for the Other NEOs. In January 2013, the Committee set Mr. Aldeborgh's 2013 base pay rate as part of his offer package. In June 2013, the Committee approved the payment of a \$25,000 bonus to Mr. Brewer in consideration of his acceptance of the Interim Chief Financial Officer position on Mr. Zager's retirement in 2013. This bonus was paid in January 2014. In August 2013, the Committee reviewed the base pay of the other NEOs, but did not consider or approve any increase, since the base pay for each of them was still relatively well aligned with the prior market benchmarking and the Company was seeking to control spending. However, the Committee instructed management that executive base pay should be reviewed again in February 2014. Actual 2013 base compensation paid to the NEOs was lower than the rate last approved by the Compensation Committee because 2013 base pay for all NEOs other than Mr. Zager was reduced by approximately 6% when the Company implemented three weeks of unpaid shutdowns in 2013. In addition, Mr. Bintz elected to participate in the 2013 Base Pay RSU Program as discussed below.

The Committee approved separation compensation for Mr. Zager upon his retirement in August 2013 as discussed below.

Annual Cash Incentive.

In February 2013, the Compensation Committee adopted an annual incentive plan, called the 2013 Axcelis Management Incentive Plan (the "2013 AMI"), in which approximately 130 management-level employees participated. The funding of the 2013 AMI was subject to the approval of the Compensation Committee, and would not exceed an amount equal to 25% of the Company's quarterly net income (without regard to loss quarters) in 2013, up to \$10 million (which was 200% of the target payout). To achieve an on-target payout (a 100% AMI Score), the total profit in all profitable quarters of 2013 (ignoring loss quarters) would have to have been approximately \$12 million. The Company's only profitable quarter in 2013 was the fourth, with net income of approximately \$600,000. This level of profitability resulted in a 3.71% AMI Score. In February 2014, the Compensation Committee approved a payout to the cash participants based on the 3.71% AMI Score.

The NEOs were not eligible for a cash payout under the 2013 AMI. In order to conserve cash and drive shareholder alignment, in February 2013, the Compensation Committee established a separate program within the 2013 AMI for the NEOs and seven other senior participants. In lieu of a cash target under the 2013 AMI, they were given a target RSU grant. The Compensation Committee established a share pool under the 2012 Equity Incentive Plan for the potential grant of RSUs to the NEOs and seven other senior participants. The share pool was set by dividing the sum of each of the 13 executives' cash targets under the 2013 AMI by the closing price of the Company's common stock on February 15, 2013. Thus, each NEO received a target RSU grant equal to his or her 2013 AMI cash target divided by the February 15, 2013 closing price. The Committee set the cash target under the 2013 AMI for Ms. Puma at 100% of her base pay, and for each of the other NEOs at 60% of their respective 2013 base pay. In February 2014, the Compensation Committee considered whether any RSUs should be granted from the 2013 AMI share pool. Given the low level of profitability achieved in 2013, management recommended, and the Committee concurred, that no grant of RSUs would be made under the 2013 AMI, and accordingly, the NEOs and the seven other senior participants received no payout under the 2013 AMI.

Long Term Incentive Compensation through Equity.

Equity compensation for NEOs, which has taken the form of stock options and RSUs, is designed to align the interests of executives with those of our investors and to retain executives during multi-year vesting periods. Equity grants are a key retention device as a result of vesting provisions which typically extend over four years. Long term ownership of equity awards is further encouraged through the Company's executive stock ownership guidelines, which establish a minimum number of shares that the executive must own. During 2013, these guidelines required ownership ranging from the lesser of three times base pay or 215,000 shares, in the case of Ms. Puma, to the lesser of 1.5 times base pay or 65,000 shares, in the case of the other NEOs. These guidelines were intended to insure that the executive's interest in the value of the Company's stock was not limited to stock price appreciation via options without a downside. NEOs are also subject to the Company's Policies and Practices Relating to Axcelis Securities, which are discussed above under "*Corporate Governance—Policies regarding Ownership and Transactions in Axcelis Securities by Directors and Officers.*"

Equity grants are also intended to drive performance, in that the value ultimately realized is linked to stock price appreciation. Option grants have no value without stock price appreciation, and RSUs have value at grant that can increase with stock price appreciation. Thus, equity grants should constructively influence management's motivation to enhance the value of the Company's stock. Equity grants to executives are made upon hire and, typically, thereafter on an annual basis. Annual equity grants to executive officers have been made in most years in order to ensure a meaningful retentive effect by maintaining the percentage of the executive's equity position that is unvested.

The Compensation Committee determines the form of equity grants made to the NEOs. The 2012 Equity Incentive Plan allows the Compensation Committee to award several different forms of equity rights, including restricted stock, RSUs, incentive stock options and non-qualified stock options. Past equity grants to NEOs have taken the form of non-qualified stock options and RSUs. It is the Committee's general practice to approve equity awards with a future effective date, usually on the 15th of the month following the approval. The Company believes that this time period between the approval and effectiveness of an equity grant means that the Committee is unable to know or estimate the trading price of the Company's common stock on the effective date of grant. As a result, the Committee has not, to date, thought it necessary to adopt a policy of timing the approval or effectiveness of equity awards to specific dates following the release of financial results or other material information.

John E. Aldeborgh New Hire Grant. In January 2013, the Compensation Committee approved the grant of an option to John Aldeborgh as part of his employment offer. This grant is reflected in the *Grants of Plan Based Awards in Fiscal 2013* table below.

2013 Base Pay RSU Program. In an effort to conserve cash in 2013, the Compensation Committee offered to issue RSUs to executive officers willing to forgo a portion of their base pay. The number of RSUs would equal the amount of base pay forgone multiplied by 1.5, and divided by the closing price of the Company's common stock on January 15, 2013. Ms. Puma and Mr. Bintz elected to participate in this program, with respect to \$125,000 in base pay in the case of Ms. Puma, and with respect to \$32,000 in base pay in the case of Mr. Bintz. These "Base Pay RSUs" vested as to 25% of the shares on each of March 15, 2013, June 15, 2013, September 15, 2013 and December 15, 2013. The RSU agreements authorized the sale of vested shares to cover the tax withholding on the value of the vested shares. These grants are reflected in the *Grants of Plan Based Awards in Fiscal 2013* table below.

2013 Annual Equity Grants. The Compensation Committee usually provides annual grants of equity compensation to the NEOs. In 2013, the Compensation Committee determined that stock options were an attractive form of equity compensation for the annual program, given the Company's opportunity to drive stock price increases through improved performance. Prior to granting new options, the Committee reviewed the value of each executive's equity portfolio and the benchmarking of equity grants in the 2011 Pearl Meyer report and other compensation survey data. The Committee considered Black-Scholes valuations of peer group and survey data for annual equity grants to executives in similar positions to the NEOs.

In 2013, the Committee determined to make option grants to the NEOs that were larger than past annual option grants, as a result of the Committee's recognition that:

- cash compensation to the NEOs was, and would likely continue to be, below-market, given the unpaid shutdowns in 2012 and 2013 and a failure to achieve a cash incentive payout since 2010; and
- the Company was on the path to a financial recovery beginning in 2013, given the development and introduction of new products and management's initiatives to control costs and improve gross margins, and that this financial recovery would be reflected in stock price appreciation beginning in 2013, driving significant value in these stock option grants.

The Committee established target 2013 annual equity grants for each of the NEOs as shown in the table below. The target grants were approximately twice the size of the option grants in 2012. The Committee determined that these larger grants were appropriate to both retain and incentivize the executive to continue to improve Company performance and stock price at a critical time in the Company's history.

After establishing the desired size of 2013 option grants to the NEOs, the Committee determined that, to minimize the number of new options granted in 2013 in lieu of approving new 2013 grants for all of the desired shares, they would modify outstanding options granted to the NEOs (other than Mr. Aldeborgh) in 2008. These 2008 option grants were fully vested, but unexercisable, due to a stock price-related exercise condition. By eliminating the stock price condition, these earlier grants became fully exercisable. The table below shows, for each NEO, how the 2013 annual grant program achieved the Committee's target grant sizes by providing for new 2013 stock option grants and modifying the outstanding 2008 grants:

Executive Officer	Target 2013 Annual Equity Grant Established by the Compensation Committee (# of shares)	2013 Annual Equity Program Action	
		2013 Stock Option grant (# of shares)	2008 grant modified to permit exercise (# of shares)
Mary G. Puma	500,000	250,000	250,000
Kevin J. Brewer	350,000	225,000	125,000
William Bintz	400,000	300,000	100,000
John E. Aldeborgh	350,000	350,000	NA
Lynnette C. Fallon	200,000	75,000	125,000

The 2013 stock option grants to NEOs are set forth in the *Grants of Plan Based Awards in Fiscal 2013* table below, and the modified 2008 stock option grants, which expire in 2018, held by Ms. Puma, Mr. Brewer, Mr. Bintz and Ms. Fallon are shown as fully exercisable in the *Outstanding Equity at Fiscal 2013 Year End* table below. Mr. Zager did not participate in the 2013 annual equity program.

To best reward the NEOs for improving stock price levels, the Committee provided for the 2013 stock options to vest as to 25% of the shares on each of the next four anniversaries of the grant date, but to accelerate vesting as to 50% of the shares if the market price of our common stock closes at \$2.50 or more for 20 consecutive trading days and as to 100% of the shares if the price closes at \$3.00 or more for 20 consecutive trading days. In November 2013, the NEOs elected to waive these accelerated vesting provisions until 2015.

Former Chief Financial Officer Retirement Compensation

Mr. Zager, who served as the Company's Chief Financial Officer at the beginning of the year, resigned as Chief Financial Officer on July 1, 2013 and retired from employment with the Company on August 23, 2013. In 2013, the Compensation Committee approved an Executive Separation Agreement with Mr. Zager under which he received a total of 31 weeks of separation pay. Accordingly, Mr. Zager received 18 weeks of separation pay in 2013 (as shown in the *2013 Summary Compensation Table*) and the remaining 13 weeks in 2014. Mr. Zager's unvested equity awards terminated on his termination of employment, although the Executive Separation Agreement provided for the acceleration of certain equity awards effective August 23, 2013. His vested options will be exercisable until August 23, 2014, as reflected in the *Outstanding Equity Awards at Fiscal 2013 Year End* table below.

Change of Control Agreements

Each of the NEOs has a double-trigger Change of Control Agreement with the Company, described below under "*Payments on Termination or Change of Control.*" No action was taken by the Compensation Committee in 2013 relating to the Change of Control Agreements. Mr. Zager's Change of Control Agreement terminated on his retirement in August 2013.

Other Compensation Components

In order to encourage our executives to obtain adequate financial and tax planning assistance, Axcelis reimburses up to \$5,500 of an executive's annual tax and financial planning expenses. This

program is the only executive perquisite at Axcelis and amounts paid to NEOs under this program are included in the “All other compensation” column in the Summary Compensation Table.

Executives may elect to make contributions to a retirement account in the Company’s IRC Section 401(k) plan, which is available to all employees. The Company has not made 401(k) plan matching contributions to participants’ accounts since 2008.

NEOs may also participate in the Company’s medical and dental insurance offerings by electing to make payroll deductions designed to cover approximately 25% of the cost of those programs (the Company covers the other 75% of the cost). The Company provides life, accidental death and dismemberment and disability insurance for all employees, and the opportunity to increase coverage levels via payroll deductions.

Finally, the Company maintains the Employee Stock Purchase Plan, an IRC Section 423 plan, a voluntary plan in which employees may purchase Axcelis shares through salary deductions.

Risk Assessment of Compensation Policies and Practices

The Company has determined that its compensation policies and practices for its employees, including the NEOs, do not give rise to risks that are reasonably likely to have a material adverse effect on the Company. In reaching this determination, management engaged in (i) a review of the Company compensation program’s policies and practices, (ii) identification of risks, if any, related to the programs, (iii) consideration of the materiality of a potentially risk-related reward to the total compensation provided to the individual, and (iv) identification of those aspects of the program and its oversight that provide risk control. Although all compensation programs were considered, management’s review focused on the programs with variability of payout and in which there is a potential for the participant to directly affect payout.

Based on this review, management determined that the compensation policies and practices for Axcelis’ employees do not create risks that are reasonably likely to have a material adverse effect on the Company, principally because:

- (1) Base pay is a material component of all employees’ total compensation package, so those employees who receive incentive compensation have a total compensation package that is balanced; and
- (2) Our incentive compensation programs are subject to appropriate risk controls in their design and oversight:
 - The Company’s internal controls and risk management practices restrict risk-taking that is not consistent with senior management’s determinations on appropriate risk;
 - Payment of small bonuses for extraordinary effort or for achieving individual or team goals are subject to approval by direct managers, and representatives of human resources and finance departments, and, for higher amounts, a representative of senior management;
 - Payment of sales commission plans are subject to calculation and approval by the finance department and are tied to actual receipt of payments from the customer; and
 - Payouts under the Company’s annual cash incentive plans are in the discretion of the Compensation Committee of the Board of Directors, who will consider both qualitative and quantitative assessments of performance.

Tax Implications

In setting NEO compensation, the Committee takes into account the impact of IRC Section 162(m), which bars the Company from taking a tax deduction for compensation for any NEO

that exceeds \$1 million, subject to exceptions for certain performance-based compensation. To the extent that compensation under an annual cash incentive plan and/or in the form of time-vested RSUs causes the total compensation paid to an NEO to exceed \$1 million in any year, such excess compensation has not typically been tax deductible to the Company. In the case of cash incentive payments, this is because certain components of the plan, such as the Committee's determination that some operational and individual performance goals have been achieved, may require subjectivity that does not meet the requirements of Section 162(m). In the case of time-vested RSU awards, it is because vesting is not performance-based for purposes of Section 162(m).

The Compensation Committee believes that the structure of its cash incentive plans will provide benefits to the Company that outweigh the potential tax deductions that might be available if the plans included only objective performance measures. It also believes that the occasional use of time-vesting RSUs in appropriate circumstances has benefits that outweigh the potential loss of tax deductions from such equity compensation. The Company's tax deductions for compensation have not been limited by Section 162(m) in recent years. The Committee expects to continue to take Section 162(m) into account as it makes decisions in future years and may modify the forms of compensation used accordingly.

In addition, in making compensation decisions, the Committee considers the impact of IRC Section 409A, which imposes certain requirements on "nonqualified deferred compensation plans."

2013 Compensation Committee Report

The Compensation Committee has reviewed and discussed the foregoing Compensation Discussion and Analysis with management and, based on this review and discussion, the Compensation Committee recommended to the Board of Directors that the Compensation Discussion and Analysis be included in this Proxy Statement.

By the Compensation Committee,

H. Brian Thompson, Chairman
R. John Fletcher
Stephen R. Hardis

2013 Summary Compensation Table

Name and Principal Position	Year	Salary (\$)(1)	Stock awards \$(2)(3)	Option awards \$(2)	Non-equity incentive plan compensation (\$)	All other compensation \$(4)	Total (\$)
Mary G. Puma , <i>Chairman, Chief Executive Officer and President</i>	2013	\$400,481	\$187,499	\$359,716	\$—	\$ —	\$ 947,696
	2012	\$471,530	\$ —	\$182,518	\$—	\$ —	\$ 654,048
	2011	\$500,001	\$ —	\$314,448	\$—	\$ 330	\$ 814,778
Kevin J. Brewer , <i>Executive Vice President and Chief Financial Officer</i>	2013	\$310,962	\$ —	\$323,744	\$—	\$ 549	\$ 635,255
	2012	\$310,962	\$198,000	\$109,511	\$—	\$ 900	\$ 619,373
	2011	\$320,193	\$ —	\$188,669	\$—	\$ 3,875	\$ 512,736
William Bintz , <i>Executive Vice President, Engineering and Marketing</i>	2013	\$271,385	\$ 48,000	\$431,659	\$—	\$ —	\$ 751,043
	2012	\$301,538	\$191,999	\$109,511	\$—	\$ —	\$ 603,048
	2011	\$297,115	\$ —	\$188,669	\$—	\$ 147	\$ 485,930
John E. Aldeborgh , <i>Executive Vice President, Global Customer Operations(5)</i>	2013	\$271,154	\$ —	\$703,166	\$—	\$ —	\$ 974,320
Lynnette C. Fallon , <i>Executive Vice President, HR/ Legal and General Counsel</i>	2013	\$301,538	\$ —	\$107,915	\$—	\$ —	\$ 409,453
	2012	\$301,538	\$191,999	\$109,511	\$—	\$ —	\$ 603,048
	2011	\$315,096	\$ —	\$188,669	\$—	\$ 220	\$ 503,985
Jay Zager , <i>Former Executive Vice President and Chief Financial Officer(6)</i>	2013	\$215,384	\$ 24,375	\$ 2,801	\$—	\$147,232	\$ 389,792
	2012	\$329,807	\$209,999	\$109,511	\$—	\$ 3,950	\$ 653,267
	2011	\$336,538	\$179,500	\$755,496	\$—	\$ 2,450	\$1,273,984

- (1) Base salary is set by the Compensation Committee, based on market benchmarking. Other than Ms. Puma, the named executive officers (NEOs) do not have employment agreements. Ms. Puma's employment agreement is described under the heading "Payments on Termination or Change in Control" in this Proxy Statement. The 2012 and 2013 base compensation for each of the NEOs reflects their participation in three weeks of unpaid shutdowns in each of those years. In addition, the 2013 base pay for each of Ms. Puma and Mr. Bintz was reduced as a result of their participation in the "2013 Base Pay RSU Program" described in "2013 Compensation Discussion and Analysis" above.
- (2) Represents the grant date fair value of the stock and option awards received by the NEO in the year indicated, determined in accordance with FASB ASC Topic 718, using the assumptions described in the Stock Award Plans and Stock-Based Compensation Note to the Company's Financial Statements included in the Form 10-K filed with the Securities and Exchange Commission for the respective year.
- (3) The 2013 stock award amounts reported for Ms. Puma and Mr. Bintz relate to RSUs granted as a result of their participation in the "2013 Base Pay RSU Program" discussed in "2013 Compensation Discussion and Analysis" above. The 2012 stock award amounts reported for Mr. Brewer, Mr. Bintz, Ms. Fallon and Mr. Zager relate to RSU awards granted in 2012 and forfeited in February 2013 in accordance with the terms of the 2012 Axcelis Management Incentive Plan. Accordingly, no value was received by the executive in connection with these RSU grants.
- (4) In the case of Mr. Brewer, the amounts in this column for 2011 and 2012 represent amounts reimbursed under the Company's Executive Tax and Financial Planning Reimbursement Program; the amount for 2013 represents the value of a service award. In the case of each of Ms. Puma, Mr. Bintz and Ms. Fallon, the 2011 figure includes the value of a service award. In the case of Mr. Zager, the 2013 amount includes 18 weeks of separation pay and other amounts provided under his Executive Separation Agreement, and in all years, amounts reimbursed under the Company's Executive Tax and Financial Planning Reimbursement Program.
- (5) Mr. Aldeborgh joined the Company in January 2013.

- (6) Mr. Zager retired in August 2013. Mr. Zager did not receive any new equity grants in 2013, but the Compensation Committee modified a 2011 RSU grant and a 2011 option grant by accelerating the vesting of a portion of the prior grants as of the date of his termination of employment. The incremental fair value of the modified awards incurred in 2013 is shown in the columns entitled “Stock Awards” and “Option Awards.” See “2013 Compensation Discussion and Analysis” above.

Grants of Plan Based Awards in Fiscal 2013

Name	Grant Date	Date of Compensation Committee Approval	Estimated Future Payouts Under Non-Equity Incentive Plan Awards(1)	All Other Stock Awards: Number of Shares of Stock or Units (#)(2)	All Other Option Awards: Number of Securities Underlying Options (#)(3)	Exercise or Base Price of Option Awards (\$/Sh)	Grant Date Fair Value of Stock and Option Awards(4)
Mary G. Puma	1/15/2013	11/30/2012		147,637			\$187,499
	7/15/2013	6/10/2013	\$0		250,000	\$1.99	\$359,716
Kevin J. Brewer	7/15/2013	6/10/2013	\$0		225,000	\$1.99	\$323,744
William Bintz	1/15/2013	11/30/2012		37,795			\$ 48,000
	7/15/2013	6/10/2013	\$0		300,000	\$1.99	\$431,659
John E. Aldeborgh	1/15/2013	1/12/2013			200,000	\$1.27	\$199,564
	7/15/2013	6/10/2013	\$0		350,000	\$1.99	\$503,602
Lynnette C. Fallon	7/15/2013	6/10/2013	\$0		75,000	\$1.99	\$107,915
Jay Zager	8/23/2013	6/10/2013	\$0				\$ 27,176

- (1) None of the NEOs had a cash target under the 2013 Axcelis Management Incentive Plan adopted by the Compensation Committee on February 12, 2013. See “Annual Cash Incentive” in “2013 Compensation Discussion and Analysis.”
- (2) Ms. Puma and Mr. Bintz elected to forgo a portion of their 2013 base compensation in exchange for RSUs for a number of shares equal to 150% of the base pay forgone divided by the closing price of the common stock on January 15, 2013 (\$1.27). These RSUs vested over the course of 2013. See “Base Pay RSU Program” discussed in “2013 Compensation Discussion and Analysis,” above. Other than future services to the Company, no consideration was paid or due in respect of these RSUs or the shares issued thereon.
- (3) The NEOs were granted stock options under the Company’s 2012 EIP effective July 15, 2013. Also on July 15, 2013, the Compensation Committee eliminated a stock price-based exercise condition on fully vested options granted in 2008 to Ms. Puma (250,000 shares), Mr. Brewer (125,000 shares), Mr. Bintz (100,000 shares) and Ms. Fallon (125,000 shares). These 2008 options have an exercise price of \$0.70 and expire in November 2018, as shown in the table named “Outstanding Equity Awards at Fiscal 2013 Year End” below. Other than future services to the Company, no consideration was paid or will be due in respect of these stock options or the shares issued thereon. The 2013 stock options will be forfeited if the NEO’s employment terminates prior to vesting, as described in the table entitled “Outstanding Equity Awards at Fiscal 2013 Year End.”
- (4) Represents the grant date fair value of the equity awards received by the NEO (other than Mr. Zager) in 2013, determined in accordance with FASB ASC Topic 718, using the assumptions described in the Stock Award Plans and Stock-Based Compensation Note to the Company’s Financial Statements included in the Form 10-K filed with the Securities and Exchange Commission for 2013. Mr. Zager did not receive any new equity grants in 2013, but the Compensation Committee modified a 2011 RSU grant and a 2011 option grant by accelerating the vesting of a portion of the prior grants as of the date of his termination of employment. The incremental fair value of the modified awards incurred in 2013 is shown in the column entitled “Grant Date Fair Value of Stock and Option Awards.”

Outstanding Equity Awards at Fiscal 2013 Year End

None of the NEOs held unvested restricted stock or RSUs as of December 31, 2013.

<u>Name</u>	<u>Option Awards</u>				
	<u>Number of Securities Underlying Unexercised Options (#) Exercisable</u>	<u>Number of Securities Underlying Unexercised Options (#) Unexercisable</u>	<u>Option Exercise Price (\$)</u>	<u>Option Expiration Date</u>	
Mary G. Puma	100,000	0	\$11.87	6/25/2014	
	100,000	0	\$ 7.97	6/25/2014	
	250,000	0	\$ 0.70	11/17/2018	
	250,000	0	\$ 1.16	11/16/2019	
1	187,500	62,500	\$ 1.60	7/15/2020	
2	125,000	125,000	\$ 1.60	7/15/2021	
3	62,500	187,500	\$ 0.93	7/16/2019	
4	0	250,000	\$ 1.99	7/15/2020	
Kevin J. Brewer	15,000	0	\$11.87	6/25/2014	
	15,000	0	\$ 7.97	6/25/2014	
	125,000	0	\$ 0.70	11/17/2018	
	125,000	0	\$ 1.16	11/16/2019	
1	112,500	37,500	\$ 1.60	7/15/2020	
2	75,000	75,000	\$ 1.60	7/15/2021	
3	37,500	112,500	\$ 0.93	7/16/2019	
4	0	225,000	\$ 1.99	7/15/2020	
William Bintz	17,000	0	\$ 4.78	1/3/2016	
	5,000	0	\$ 6.39	5/15/2017	
	100,000	0	\$ 0.70	11/17/2018	
	100,000	0	\$ 1.16	11/16/2019	
1	112,500	37,500	\$ 1.60	7/15/2020	
2	75,000	75,000	\$ 1.60	7/15/2021	
3	37,500	112,500	\$ 0.93	7/16/2019	
4	0	300,000	\$ 1.99	7/15/2020	
John E. Aldeborgh	5	0	200,000	\$ 1.27	1/15/2020
	4	0	350,000	\$ 1.99	7/15/2020
Lynnette C. Fallon	30,000	0	\$11.87	6/25/2014	
	30,000	0	\$ 7.97	6/25/2014	
	125,000	0	\$ 0.70	11/17/2018	
	125,000	0	\$ 1.16	11/16/2019	
1	93,750	31,250	\$ 1.60	7/15/2020	
2	75,000	75,000	\$ 1.60	7/15/2021	
3	37,500	112,500	\$ 0.93	7/16/2019	
4	0	75,000	\$ 1.99	7/15/2020	
Jay Zager	6	150,000	0	\$ 3.59	8/23/2014
	6	75,000	0	\$ 1.60	8/23/2014
	6	37,500	0	\$ 0.93	8/23/2014

(1) Assuming continued employment, the unexercisable options will become exercisable on July 15, 2014.

(2) Assuming continued employment, the unexercisable options will become exercisable as to 50% of the shares on each of July 15, 2014 and 2015.

- (3) Assuming continued employment, the unexercisable options will become exercisable as to 1/3 of the shares on each of July 16, 2014, 2015 and 2016.
- (4) Assuming continued employment, the unexercisable options will become exercisable as to 25% of the shares on each of July 15, 2014, 2015, 2016 and 2017, subject to acceleration beginning in 2015 based on the closing price of the Common Stock over a 20 trading day period.
- (5) Assuming continued employment, the unexercisable options will become exercisable as to 25% of the shares on each of January 15, 2014, 2015, 2016 and 2017.
- (6) The vesting and expiration terms of Mr. Zager's options were modified in connection with his retirement in August 2013.

Option Exercises and Stock Vested During Fiscal 2013

Name	Option Awards		Stock Awards	
	Number of Shares Acquired on Exercise (#)(1)	Value Realized on Exercise (\$)	Number of Shares Acquired on Vesting (#)	Value Realized on Vesting (\$)(4)
Mary G. Puma(2)	0	—	147,637	\$272,760
Kevin J. Brewer	0	—	0	—
William Bintz(2)	0	—	37,795	\$ 69,827
John E. Aldeborgh	0	—	0	—
Lynnette C. Fallon	0	—	0	—
Jay Zager(3)	0	—	25,000	\$ 40,250

- (1) No officers exercised stock options during 2013.
- (2) Represents shares vested during 2013 on RSUs issued to Ms. Puma and Mr. Bintz in lieu of a portion of their 2013 base compensation. See “2013 Base Pay RSU Program” in “2013 Compensation Discussion and Analysis” above. These RSUs vested over the course of 2013. In accordance with the RSU agreement with the Company, a portion of these vested shares were sold for purposes of tax withholding.
- (3) Represents shares vested in 2013 on RSUs granted to Mr. Zager in 2011, and includes shares issued on accelerated vesting in connection with Mr. Zager's retirement arrangements. In accordance with the RSU agreement with the Company, a portion of these vested shares were withheld, and not issued, by the Company for purposes of tax withholding.
- (4) Represents, for each NEO, the sum for each vesting event of the product of (A) the number of shares vested on a 2013 vesting date multiplied by (B) the closing market price on the vesting date or, if the shares vest on a day which is not a trading day, the first trading day after the vesting date. The actual amount received by the NEO on the sale of any of the net shares issued or retained after a vesting event will depend on the market values of the Company's common stock at the time of such transactions.

Payments on Termination or Change of Control

Employment Agreement with Ms. Puma. The Company has had an Employment Agreement with Ms. Puma since November 2007 that provides for a one-year term of employment at a minimum annual base salary of \$500,000 and an annual target incentive compensation opportunity of 100% of base salary. In 2011, the Compensation Committee approved an increase in Ms. Puma's base pay to \$550,000, which increase was deferred at Ms. Puma's request and implemented on January 1, 2013.

Ms. Puma's base salary and incentive opportunities may be subject to future adjustment by the Board, but not below the minimum levels in her Employment Agreement, unless mutually agreed. In 2012 and 2013, Ms. Puma voluntarily reduced her compensation by participating in unpaid shutdowns. She also agreed to accept RSUs in lieu of \$125,000 in base pay in 2013. See “2013 Base Pay RSU Program” in “2013 Compensation Discussion and Analysis” above.

The term of Ms. Puma’s agreement automatically renews on a year-to-year basis unless one party notifies the other that the agreement will not be extended. Such termination notice must be sent within a 60 day window period beginning 180 days prior to the next anniversary of the effective date. The agreement also provides that Ms. Puma will participate in the Company’s equity compensation plans, the 401(k) savings plan and the welfare benefit plans that we sponsor.

In the event Ms. Puma’s employment is terminated prior to the end of the term for reasons other than cause, death, disability or in the event of voluntary resignation without “good reason,” she is entitled to receive all compensation accrued to date, acceleration of vesting of options and other equity rights and a cash separation payment. The cash separation payment will equal 24 months of her base compensation and two times an annual bonus amount determined in accordance with the agreement. For this purpose, Ms. Puma’s annual bonus compensation will be her current base multiplied by the greater of (a) the percentage of her base that she actually received as a bonus for the prior fiscal year or (b) 25%. The following table sets forth the separation pay that would have been due to Ms. Puma if a qualifying termination occurred on December 31, 2013:

<u>Lump sum cash payment(1)</u>	<u>Value of accelerated vesting on equity awards(2)</u>	<u>18 months of COBRA premiums for health coverage(3)</u>	<u>Total</u>
\$1,375,000	\$1,601,561.00	\$36,824	\$3,013,385

- (1) This amount represents 24 months of Ms. Puma’s base salary at the highest rate in effect in the year preceding December 31, 2013 plus 24 months of the minimum bonus amount specified in the agreement equal to 25% of the base pay. For the purpose of this calculation, we used Ms. Puma’s approved base pay without regard to her voluntary agreement to forgo cash of \$125,000 in exchange for RSUs, as discussed in “2013 Compensation Discussion and Analysis.” Accordingly, the monthly rate of pay (\$45,833) and monthly bonus amount (\$11,458) were calculated using base pay of \$550,000. The lump sum cash payment above would be due within 30 days of termination.
- (2) This amount reflects a valuation of the acceleration of Ms. Puma’s outstanding equity awards using the methodology prescribed under IRC Section 280G, which provides for an excise tax on certain change of control payments. In addition to options held by Ms. Puma, this calculation assumes the issuance of 429,687 RSUs to Ms. Puma under the 2013 AMI as a result of the assumed change of control. These 2013 AMI RSUs were not ultimately issued. See “2013 Compensation Discussion and Analysis.” This valuation is based on the closing price of our common stock on the last trading day of 2013 (\$2.44). The actual amount received by Ms. Puma on exercise of options and sales of shares issued on RSUs will depend on the market values at the time of such transactions.
- (3) Ms. Puma’s employment agreement provides that the Company will pay for up to 18 months of COBRA premiums. This amount represents 18 months of COBRA premiums in effect during 2013 for Ms. Puma’s coverage elections. Actual COBRA rates changed on January 1, 2014.

In the event of an actual termination of Ms. Puma’s employment, it is possible that her separation pay would be renegotiated by Ms. Puma and the Board of Directors, in which case the amounts payable might differ from the foregoing.

Change of Control Agreements. The Company has entered into a Change of Control Agreement with each of our executive officers, including Ms. Puma, to provide that severance compensation will be paid in a lump sum within 30 days of a covered termination following a change in control, as defined in the agreement. Mr. Zager’s Change of Control Agreement terminated in August 2013 on his retirement. These Change of Control Agreements provide that executive officers are entitled to

severance compensation in the event there is both (1) a change in control and (2) a termination of employment within three years of that change in control for reasons other than cause, death, disability or voluntary resignation without good reason. Under the Change of Control Agreements, “good reason” can be a material diminution in the executive’s authority, a material reduction in base pay or a material change in geographic location of the executive’s job. A “change of control” is defined in the agreement and covers a number of events, including a merger or acquisition involving the Company in which the persons holding the Company’s shares immediately prior to the transaction hold less than 75% of the shares outstanding after the transaction.

In these agreements, the executives have agreed not to be engaged by, or own, any business competing with any of the businesses conducted by the Company for a period of 12 months following any termination of employment (whether or not following a change of control). The executives also agreed not to solicit employees of the Company to leave employment with the Company or solicit or induce customers of the Company to cease doing business with the Company, during such period.

If severance compensation is payable, it would consist of a cash payment equal to the sum of (a) the Company’s accrued obligations for base pay and incentive compensation and (b) the amount determined by multiplying the executive’s then salary and average bonus by three. For this purpose, an executive’s average bonus is his or her current cash bonus opportunity multiplied by the average of the individual performance scores given to the executive in the last three years, but without taking into account company performance scores. In the event such severance is payable, all unvested RSUs and options held by the executive will become vested until termination or expiration in accordance with their terms. In February 2013, the Compensation Committee provided that in the event of a change of control prior to the determination of funding under the 2013 AMI (see “2013 Compensation Discussion and Analysis” above), each of the NEOs would be granted, effective on the change of control, the NEO’s target RSU under the 2013 AMI. Accordingly, the amounts set forth in the column entitled “Value of accelerated vesting on equity awards” in the table below includes the value of these RSUs in addition to equity grants actually held by the NEO on December 31, 2013.

We will also reimburse the executive for the effects, including federal, state and local income tax consequences, of any excise tax due on severance compensation, as shown in the chart below. The excise taxes due under Sections 280G and 4999 of the IRC are unpredictable and can have widely divergent and unexpected effects based on an executive’s personal compensation history. Therefore, to provide a predictable and equal level of benefit between individuals without regard to the effect of the excise tax, the Company determined that it was appropriate to pay the cost of this excise tax plus an amount needed to pay income taxes due on such additional payment. The amounts due to each named executive officer in the event that a change of control and termination occurred on December 31, 2013 are set forth in the table below:

Estimated Payments under the Change of Control Agreements if due at December 31, 2013

<u>Name</u>	<u>Lump sum cash payment(1)</u>	<u>Value of accelerated vesting on equity awards(2)</u>	<u>Excise tax due under IRC 280G, plus gross-up amount(3)</u>	<u>Total</u>
Mary G. Puma	\$3,454,000	\$1,601,561	\$2,430,505	\$7,486,066
Kevin J. Brewer	\$1,613,700	\$ 743,063	\$1,025,745	\$3,382,508
William Bintz	\$1,564,800	\$ 765,375	\$ 911,263	\$3,241,438
John E. Aldeborgh	\$1,440,000	\$ 734,625	\$ 942,765	\$3,117,390
Lynnette C. Fallon	\$1,584,000	\$ 658,877	\$ 979,822	\$3,222,699

(1) This amount, which is due within 30 days of termination, represents separation pay equal to (A) three times the NEO’s current base salary plus an average bonus amount based on past

performance assessments, and (B) the amount earned but unpaid, if any, under a cash incentive plan in effect for 2013. Ms. Puma's and Mr. Bintz's base salaries were calculated for this purpose without regard to their decision to accept RSUs in lieu of a portion of their 2013 base pay. See "2013 Base Pay RSU Program" in "2013 Compensation Discussion and Analysis" above. None of the NEOs had a cash incentive plan in 2013, since the Compensation Committee established a share pool for a potential RSU issuance in lieu of a cash payout under the 2013 Axcelis Management Incentive Plan. See "Annual Cash Incentive" in "2013 Compensation Discussion and Analysis."

- (2) These amounts reflect a valuation of the acceleration of all of the NEO's outstanding equity awards (including the assumed issuance of RSUs under the 2013 AMI) using the methodology prescribed under IRC Section 280G, which provides for an excise tax on certain change of control payments. In addition to options held by the NEOs, these amounts assume the issuance of target RSUs for each NEO under the 2013 AMI, which were not ultimately issued. See "2013 Compensation Discussion and Analysis." This valuation is based on the closing price of our common stock on the last trading day of 2013 (\$2.44). The actual amount received by the NEO on exercise of options and sales of shares issued on RSUs will depend on the market values at the time of the change of control.
- (3) The Change of Control Agreement with each NEO provides for the Company's reimbursement of the excise tax liability due on the separation pay under IRC Section 280G, which amount is grossed up to cover income taxes due on such reimbursement. Therefore, the amounts shown in this column represent amounts due to taxing authorities and will not be retained by the executive.

In the event Ms. Puma receives payment under her Change of Control Agreement, she will not receive amounts and benefits due under her Employment Agreement unless such amounts are in excess of the amounts paid under the Change of Control Agreement. Also, in the event of an actual termination of an NEO's employment in connection with a change of control, it is possible that the NEO's separation pay would be renegotiated by the NEO and the Board of Directors, in which case the amounts payable might differ from the foregoing.

OTHER MATTERS

Stockholder Communications to the Directors

Security holders may communicate with the Axcelis Board of Directors by mailing a communication to the entire Board or to one or more individual directors in care of the Corporate Secretary, Axcelis Technologies, Inc., 108 Cherry Hill Drive, Beverly, Massachusetts 01915. All communications from security holders to Board members (other than communications soliciting the purchase of products and services) will be promptly relayed to the Board members to whom the communication is addressed.

Compensation Committee Interlocks and Insider Participation

During 2013, the Compensation Committee of the Board of Directors consisted of Mr. Hardis, Mr. Fletcher and Mr. Thompson, as Chairman, none of who has been an officer or employee of Axcelis or had a relationship during 2013 requiring disclosure under Item 404 of Regulation S-K.

Section 16(a) Beneficial Ownership Reporting Compliance

Section 16(a) of the Exchange Act requires our directors, executive officers and persons owning more than 10% of our registered equity securities to file with the SEC reports of their initial ownership and of changes in their ownership of our common stock and to provide us with copies of all Section 16(a) reports they file.

To our knowledge, based solely on our review of copies of reports furnished to us and written representations that no other reports were required, during 2013, our directors, officers, and 10% stockholders complied with all Section 16(a) filing requirements, except that Mr. Keithley filed a late report of one transaction.

Deadlines for Stockholder Proposals

Assuming the 2015 annual meeting is not held more than 30 days before or 30 days after May 13, 2015, if you wish to bring business before or propose director nominations at the 2015 annual meeting, you must give written notice to Axcelis by February 12, 2015 (the date 90 days before the anniversary of the 2014 annual meeting).

If you intend to bring proposed business to the 2015 annual meeting and you would like us to consider the inclusion of your proposal in our proxy statement for the meeting, you must provide written notice to Axcelis of such proposal prior to November 26, 2014 (120 days before the anniversary date of the mailing of this proxy statement), assuming the 2015 annual meeting is not held more than 30 days before or 30 days after May 13, 2015.

Notices of stockholder proposals and nominations shall be given in writing to Axcelis Technologies, Inc., 108 Cherry Hill Drive, Beverly, Massachusetts 01915, Attn: Corporate Secretary.