



**NOTICE OF ANNUAL MEETING OF STOCKHOLDERS
to be Held May 19, 2020**

The 2020 annual meeting of the stockholders of Axcelis Technologies, Inc., a Delaware corporation, will be held at the offices of the Company at 108 Cherry Hill Drive, Beverly, Massachusetts, at 12:30 p.m. on Tuesday, May 19, 2020 for the following purposes:

1. To elect as directors nine nominees to serve until the 2021 annual meeting of stockholders, with the Axcelis Board of Directors' recommended director candidates named in the attached proxy statement.
2. To approve a 2020 Employee Stock Purchase Plan to replace the expiring 2000 Employee Stock Purchase Plan, reserving shares for issuance thereunder.
3. To ratify, by an advisory vote, the appointment of our independent registered public accounting firm to audit our financial statements for the year ending December 31, 2020.
4. To approve, by an advisory vote, the 2019 compensation of our named executive officers.
5. To transact such other business as may properly come before the meeting or any adjournment thereof.

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

Only stockholders of record at the close of business on March 25, 2020 will be entitled to vote at the annual meeting or at any adjournment.

By order of the Board of Directors,

Dated: March 31, 2020

Lynnette C. Fallon, *Secretary*

Stockholders should bring identification and, after checking in with the Security Desk in the building lobby, they will be directed to the meeting room

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GENERAL INFORMATION ABOUT VOTING

The Board of Directors of Axcelis Technologies, Inc. (“Axcelis” or the “Company”) is soliciting your proxy for use at the 2020 annual meeting of stockholders to be held on Tuesday, May 19, 2020 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 31, 2020. The meeting will be held at the offices of the Company at 108 Cherry Hill Drive, Beverly, Massachusetts. Stockholders should bring identification and, after checking in with the Security Desk in the building lobby, they will be directed to the meeting room.

Currently, Axcelis is implementing social distancing practices at our headquarters to curtail the spread of the coronavirus that causes COVID-19. Our policies and governmental regulation of business activities continues to evolve. Please note that we may modify the location or format of the 2020 annual meeting if deemed advisable or necessary, including, weather permitting, meeting outside. If the address or time of the meeting changes, we will issue a press release announcing the change.

Important Notice Regarding the Availability of Proxy Materials for the Stockholder Meeting to Be Held on May 19, 2020: 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 25, 2020. On that date, there were 32,831,750 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 the proxy card or voting instruction form or (B) follow the instructions on the card or form for voting online or by telephone.

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 as instructed on the proxy card or voting instruction form to ensure that your shares are represented at the meeting. If you attend the meeting, you can 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 nine directors whose current terms end in 2020; the approval of the 2020 Employee Stock Purchase Plan; an advisory vote to ratify the selection of independent auditors of the Company; and an advisory vote on our 2019 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 and the Axcelis Board of Directors' recommendation. The votes required to approve the proposals that are scheduled to be presented at the meeting and the recommendation of Axcelis' Board of Directors on each are as follows:

Proposal	Required Vote	Axcelis Board Recommendation
Election of nine nominees as directors.	Each nominee must receive a plurality of the votes cast.	FOR ALL of the Axcelis Board-recommended nominees named in this proxy statement and on the proxy card
Approval of the proposed 2020 Employee Stock Purchase Plan.	The proposed plan will be considered approved if more votes are cast in favor than against.	FOR approval
Ratification of the appointment of our independent registered public accounting firm (our "independent auditors") to audit our financial statements for 2020.	This non-binding proposal will be considered approved if more votes are cast in favor than against.	FOR ratification
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.	FOR approval

Abstentions. Abstaining from voting on any of the 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 two 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.

If your shares are held in a stock brokerage account or by a bank or other nominee. You are considered the beneficial owner of shares held in a brokerage or bank account, and these proxy materials are being forwarded to you by your broker, bank, or other nominee, which is considered the stockholder of record with respect to those shares. As a beneficial owner, you have the right to direct your broker, bank, or other nominee on how to vote the shares in your

account. **Your broker, bank, or other nominee will only be able to vote your shares with respect to the proposals at the annual meeting (other than the ratification of the auditor appointment) if you have instructed them how to vote.** Your broker, bank, or other nominee has enclosed a voting instruction form for you to use to direct the broker, bank, or other nominee regarding how to vote your shares. Please instruct your broker, bank, or other nominee how to vote your shares using the voting instruction form. Please return your completed proxy card or voting instruction form to your broker, bank or other nominee and contact the person responsible for your account so that your vote can be counted. If your broker, bank, or other nominee permits you to provide voting instructions via the Internet or by telephone, you may vote that way as well.

Discretionary voting by proxies on other matters. Aside from the proposals for the election of directors, the approval of the proposed 2020 Employee Stock Purchase Plan, the ratification of our selection of auditors, and the advisory vote on 2019 executive compensation, we do not know of any other proposals that may be presented at the 2020 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.

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, 2019 by persons known by us to own more than 5% of our common stock.

Beneficial Owner (1)	Shares Owned	Percent of Class
BlackRock, Inc. (2) 55 East 52 nd Street, New York, NY 10055	5,069,440	15.6%
PRIMECAP Management Company (3) 225 South Lake Ave., #400, Pasadena, CA 91101	2,891,100	8.9%
Senvest Management, LLC and Richard Mashaal (4) 540 Madison Avenue, 32nd Floor, New York, NY 10022	2,798,206	8.6%
Dimensional Fund Advisors LP (5) Building One, 6300 Bee Cave Road, Austin, TX 78746	2,350,858	7.2%
The Vanguard Group (6) 100 Vanguard Blvd., Malvern, PA 19355	2,062,027	6.3%
Wellington Management Group LLP (7) 280 Congress Street, Boston, MA 02210	1,818,057	5.6%

- (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, 2019 (32,585,043 shares).
- (2) Based on a Schedule 13G/A filed with the Securities and Exchange Commission (the "SEC") in January 2020 reporting on ownership as of December 31, 2019. This filing states that BlackRock, Inc. is a holding company whose investment management subsidiaries acquired the shares reported. According to the Schedule 13G/A, BlackRock, Inc. has sole voting power over 4,986,478 shares and sole dispositive power of all the shares reported in the table.
- (3) Based on a Schedule 13G/A filed with the SEC in February 2020 reporting on ownership as of December 31, 2019. This filing states that PRIMECAP Management Company is a registered investment adviser. According to the Schedule 13G, PRIMECAP Management Company has sole voting power and sole dispositive power over all of the shares reported in the table.
- (4) Based on a Schedule 13G/A filed with the SEC in February 2020 reporting on ownership as of December 31, 2019. This filing reports on beneficial ownership of Senvest Management, LLC ("Senvest"), a registered investment adviser, and Richard Mashaal, the managing member of Senvest. It states that the shares are owned by two funds managed by Senvest, and that both Senvest and Mr. Mashaal have shared voting and shared dispositive power over all the shares reported in the table.
- (5) Based on a Schedule 13G/A filed with the SEC in February 2020 reporting on ownership as of December 31, 2019. This filing states that Dimensional Fund Advisors LP is a registered investment adviser. According to the Schedule 13G, Dimensional Fund Advisors LP has sole voting power over 2,244,400 shares and sole dispositive power over all of the shares reported in the table.
- (6) Based on a Schedule 13G filed with the SEC in February 2020 reporting on ownership as of December 31, 2019. This filing reports on beneficial ownership of The Vanguard Group. The report states that The Vanguard Group has sole voting power over 32,635 shares, shared voting power over 2,200 shares, sole dispositive power over 2,033,021 shares and shared dispositive power over 29,006 shares.

- (7) Based on a Schedule 13G/A filed with the SEC in February 2020 reporting on ownership as of December 31, 2019. This filing states that the reported shares are owned of record by clients of one or more investment advisors identified in the filing, which companies are directly or indirectly owned by Wellington Management Group LLP. The report states that each of Wellington Management Group LLP, Wellington Group Holdings LLP and Wellington Investment Advisors Holdings LLP have shared dispositive power over the shares reported in the table and shared voting power with respect to 1,532,438 shares.

SHARE OWNERSHIP OF DIRECTORS AND EXECUTIVE OFFICERS

The following table shows the amount of our common stock beneficially owned as of March 25, 2020 (the record date for the 2020 annual meeting) by our directors, the executive officers named in the *Executive Compensation—Summary Compensation Table* below, and all of our current executive officers and directors as a group.

Beneficial Owner (1)	Shares Owned as of March 25, 2020	Shares Subject to Exercisable Rights to Acquire as of May 24, 2020 (4)	Total Shares Beneficially Owned	Percent of Class
<i>Non-Executive Directors</i>				
Tzu-Yin Chiu	13,278	1,409	14,687	*
Richard J. Faubert	35,558	—	35,558	*
R. John Fletcher	52,104	—	52,104	*
Arthur L. George, Jr.	48,558	10,000	58,558	*
Joseph P. Keithley	33,308	—	33,308	*
John T. Kurtzweil	30,558	—	30,558	*
Thomas St. Dennis	25,058	—	25,058	*
Jorge Titingier	6,344	—	6,344	*
<i>Named Executive Officers</i>				
Mary G. Puma (2)	209,898	196,860	406,758	1.23%
Kevin J. Brewer	27,538	18,899	46,437	*
John E. Aldeborgh	28,426	13,121	41,547	*
William Bintz	22,777	34,816	57,593	*
Russell J. Low	21,098	24,251	45,350	*
<i>All current Executive Officers and Directors as a Group (15 persons) (3)</i>				
	612,250	360,265	972,515	2.93%

* 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. In accordance with the rules of the Securities and Exchange Commission, 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 24, 2020 (60 days after March 25, 2020) by exercising a stock option or other right. Unless otherwise noted, to the knowledge of the Company based on information provided to the Company or filed with the Securities and Exchange Commission, 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 25, 2020 (32,831,750 shares), plus any shares that person could acquire upon the exercise of any options or other rights on or before May 24, 2020. None of the shares owned or rights to acquire shares are held in a margin account or subject to a pledge.

(2) Ms. Puma's ownership includes 6,000 shares owned by her husband.

- (3) Includes shares owned and shares issuable on restricted stock units and options vesting on or before May 24, 2020 which are held by the directors and current named executive officers and two other executive officers holding 57,747 shares (including 3,125 held by an officer's spouse) and 60,908 shares issuable on on restricted stock units and options vesting on or before May 24, 2020.
- (4) The shares subject to exercisable rights to acquire as of May 24, 2020 include, for the executive officers, shares issuable on restricted stock units vesting in May 2020, assuming continuation of employment. A portion of these vesting shares will be withheld to cover payroll taxes on the value of the vesting shares, which have not been subtracted from the amounts in this table.

STOCKHOLDER ENGAGEMENT

2019 Annual Meeting Vote Results

In 2019, the average vote in favor of the election of our Board nominees was 92.4%. This approval level was down from the 99.6% support our Board received in 2018, reflecting lower votes received for Mr. Keithley, Mr. Chiu and Mr. St. Dennis, the three members of our Nominating and Governance Committee. These three directors each received almost 5 million withhold votes, substantially higher than the other directors, none of whom received more than one million withhold votes. After the 2019 meeting, we investigated the source of withhold votes and learned that BlackRock, which held 4.8 million shares of our common stock at year end 2018, had withheld support for the three directors at the 2019 annual meeting because Axcelis had only one female Board member, Ms. Puma, also our Chief Executive Officer (“CEO”). BlackRock’s 2019 Proxy Voting Guidelines state that “In identifying potential candidates, boards should take into consideration the full breadth of diversity including personal factors, such as gender, ethnicity, and age; as well as professional characteristics, such as a director’s industry, area of expertise, and geographic location. In addition to other elements of diversity, we encourage companies to have at least two women directors on their board.”

Upon discovering that BlackRock was the source of the 2019 withhold votes, we engaged with BlackRock’s stewardship staff to review the Company’s Board composition history. We observed that Ms. Puma had served on the Board since 2000, and that a second female director, Barbara Lundberg, served from 2014 until her sudden death in January 2017. We also noted that the current Board includes an African American, Mr. George, and an Asian American, Mr. Chiu. We spoke again to BlackRock stewardship staff following the announcement of the election of Jorge Titingier to the Board in August 2019, and again in January 2020. We explained that while we had sought to fill the opening with a woman, we were unable to attract identified female candidates with the right skills. We noted that Mr. Titingier, who has valuable experience in our industry, also is of Hispanic ethnicity, and contributes to the ethnic diversity of the Board. We assured BlackRock that we will continue to seek to add women to our Board as future openings arise.

At our 2019 annual meeting, 96.1% of votes were cast for approval of the advisory vote on the Company’s 2018 executive compensation (commonly referred to as “Say-on-Pay”). We believe that this voting result reflects stockholder support for our executive compensation decisions.

2019 Stockholder Outreach

We rely on our regular disclosure documents and routine investor relations to ensure that our stockholders understand our performance, our potential, our governance policies and compensation practices.

Routine Investor Relations. We routinely engage with our stockholders to discuss our business, performance, and strategy. These discussions sometimes also cover Board composition, governance policies and executive compensation. Our investor relations program includes: press releases on product shipments, earnings, and other material matters; quarterly earnings conference calls; participation in industry conferences arranged by investment banks; an Investor

Day Conference held at least biennially; non-deal roadshows arranged by investment analysts and others supporting our stock; one-on-one meetings in connection with conferences, roadshows or otherwise; and routine phone and email conversations with stockholders.

During 2019, in addition to our routine quarterly earnings calls and follow up meetings, Axcelis held an Investor Day Conference in New York City in September and presented and held one-on-one meetings at 10 investor conferences and non-deal roadshows held in New York City, San Francisco, Los Angeles, San Diego, Boston, and Minneapolis. We also hosted multiple investors and analysts at our Beverly headquarters.

Key 2019 Investor Messages. 2019 was a challenging year for the semiconductor equipment industry, with memory spending remaining low throughout the year. Despite reduced spending by our customers, Axcelis achieved several critical milestones in our drive to market leadership in ion implantation. In addition, we sought to meet investor expectations in areas beyond our business performance.

Fiscally Responsible Investment in Market Share Growth. During 2019, the Purion installed base continued to expand. Our product development initiatives were informed by our focus on key market segments using mature process technologies, such as image sensors, power devices and mature foundry and logic. In 2019, we launched four new Purion implanters specifically targeted at these segments. We made this investment in R&D while maintaining a vigilant eye on operating expenses. This allowed us to remain profitable through the cycle, deliver annual gross margins of 42%, sustain a healthy balance sheet, and institute a share repurchase program.

Expanded Focus on Environmental, Safety and Social Concerns. In 2019, we published our first Annual Report on Environmental and Safety Concerns. We also adopted a Supplier Code of Conduct and updated our Corporate Social Responsibility policy. These documents are available under both the “About Us” and “Investor Relations” pages on our website at Axcelis.com. Key governance policies are outlined below under “Corporate Governance—Governance Policies.”

Benchmarked Compensation Programs. In 2019, our Compensation Committee worked with Pearl Meyer & Partners, an independent compensation consultant (“Pearl Meyer”), to review the composition of our peer group, which resulted in no changes to our peer group composition. The Compensation Committee relied on Pearl Meyer’s benchmarking data from 2018, with certain updates, to evaluate the competitiveness of our executive compensation. See “Executive Compensation—2019 Compensation Discussion and Analysis” below.

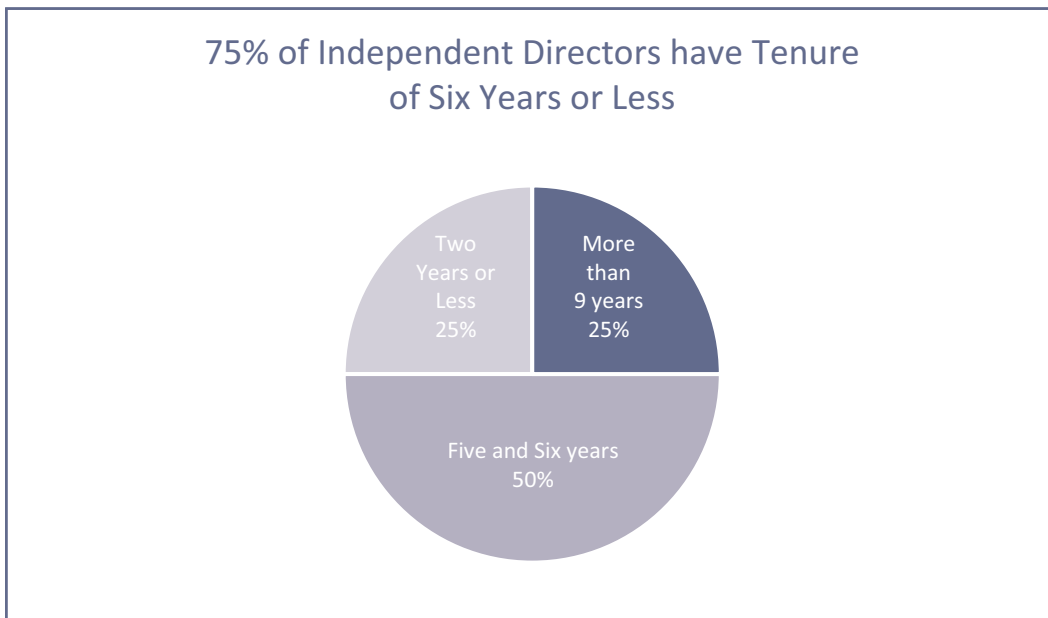
Outcome of Outreach Efforts. We found both our direct interaction with investors and third party input extremely informative and valuable, and we are very appreciative of the time that our investors took to speak with us.

PROPOSAL 1: ELECTION OF DIRECTORS

Our Board of Directors has fixed the number of directors at nine, effective as of the 2020 annual meeting. The number of directors is subject to increase or decrease by action of the Board. Our Board of Directors is nominating all of the current directors for re-election at the 2020 annual meeting. Each director will, if elected, hold office for a term of one year until our annual meeting in 2021 and until the director's successor is 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.

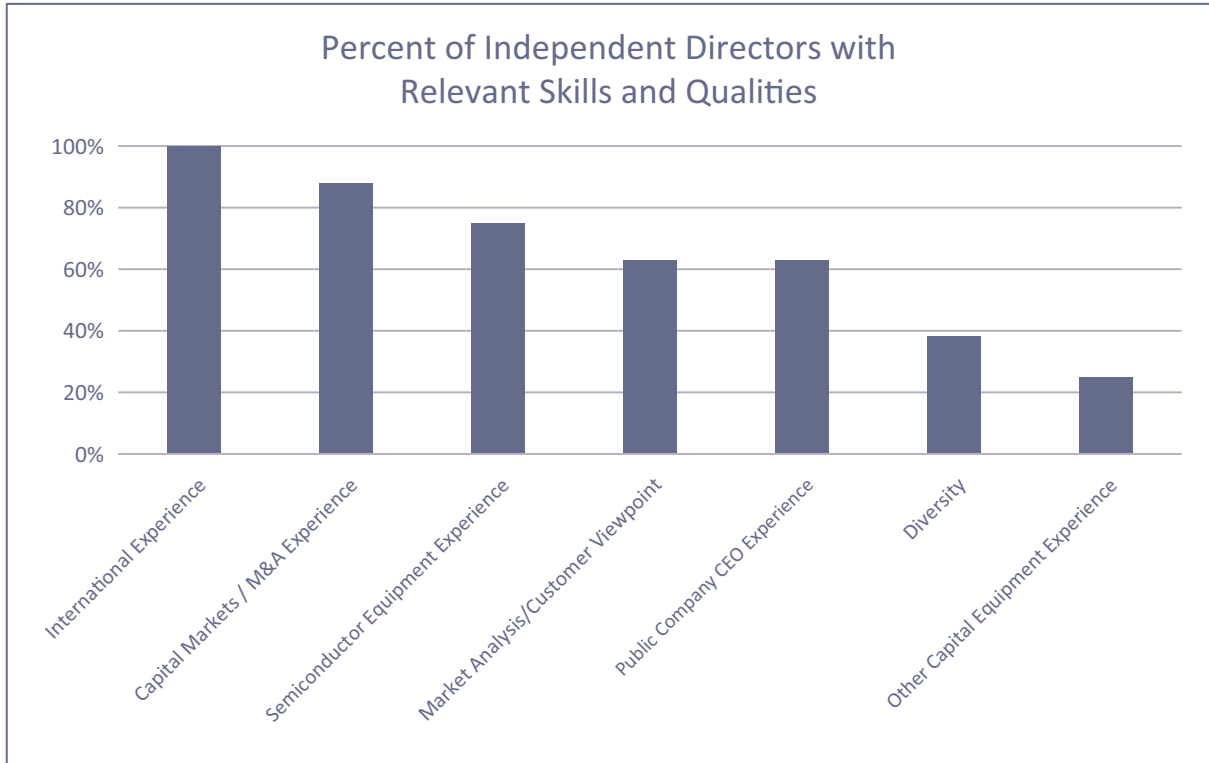
The Board recommends a vote FOR each of the nine Axcelis nominees. The eight independent nominees represent a balance of long tenured and newer directors with a strong mix of relevant experience. Axcelis' Nominating and Governance Committee and Board have evaluated each of the Axcelis nominees against the factors and principles Axcelis uses to select nominees for director discussed below under "*Corporate Governance—Board Nomination Process and Requirements.*"

Based on this evaluation of the current Board members, our Nominating and Governance Committee and Board have concluded that it is in the best interests of Axcelis and its stockholders that each of the proposed nominees listed below continue to serve as a director of Axcelis for a one year term. The average tenure of the eight Axcelis independent director nominees is six years:



Our independent director nominees bring a strong mix of relevant experience, as shown in the chart below. We have also classified three of the eight independent nominees as diverse, in

light of Dr. Chiu's and Mr. George's non-European backgrounds and Mr. Titingher's Hispanic background.



The following table contains biographical information about the nominees for election and 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:

2020 NOMINEES FOR ELECTION TO THE BOARD OF DIRECTORS

Tzu-Yin (“TY”) Chiu: director since 2018, age 63

Business Experience and Other Directorships

Dr. Tzu-Yin Chiu serves as the Chairman and Chief Executive Officer of Zing Semiconductor Corporation, a provider of high-quality semiconductor wafer research and development, production and sales. Dr. Chiu retired as the non-executive Vice Chairman of Semiconductor Manufacturing International Corporation (“SMIC”), a leading semiconductor foundry in China, in July 2018. Dr. Chiu served in that position following his retirement as SMIC’s CEO in May 2017, a position he assumed in August 2011, at which time he also joined the SMIC Board. Between 2009 and 2011, Dr. Chiu served as Chief Executive Officer of Hua Hong Semiconductor Limited (known as “HHNEC”), a global, leading pure-play foundry, headquartered in China. From 2005 to 2009, Dr. Chiu worked at other chip manufacturers in Asia, having first worked at SMIC from 2001 to 2005 as Senior Vice President, Operations. Prior to joining SMIC, Dr. Chiu was a Senior Director Fab Operations at Taiwan Semiconductor Manufacturing Company Limited. In addition, Dr. Chiu has served as Vice Council Chairman of China Semiconductor Industry Association (CSIA) and a board member of Global Semiconductor Alliance (GSA). He is also a member of the Engineering Advisory Board of University of California, Berkeley and the external Advisory Board of Tsinghua-Berkeley Institute.

Experience, Qualifications and Attributes

Dr. Chiu has over 30 years’ experience in the semiconductor industry and a track record of managing successful semiconductor manufacturing companies at the executive level. Dr. Chiu’s expertise spans technology research, business development, operations and corporate management. His familiarity with the Chinese semiconductor market will be particularly valuable to Axcelis as that market grows. Dr. Chiu has served on the Technology and New Product Development Committee and the Nominating and Governance Committee since his election in May 2019.

Richard J. Faubert: director since 2015, age 72

Business Experience and Other Directorships

Richard J. Faubert has served as Chairman of the Board of Directors of the Company since May 2018. He retired as President, Chief Executive Officer and Chairman of AmberWave Systems Corporation, a semiconductor technology company, in 2010, where he had served since 2003. From 1998 through 2002, Mr. Faubert served as President, Chief Executive Officer and Director of SpeedFam-IPEC, Inc., a manufacturer of semiconductor equipment. Upon the sale of SpeedFam-IPEC to Novellus Systems, Inc., a semiconductor capital equipment manufacturer, Mr. Faubert served as Executive Vice President of Novellus Systems until April 2003. Prior to his employment with SpeedFam-IPEC, Mr. Faubert held executive and management positions at Tektronix, Inc., a test, measurement, and monitoring company, and GenRad, Inc., an electronics testing and manufacturing company. Mr. Faubert served on the Board of Directors of Electro Scientific Industries, Inc., a provider of laser-based manufacturing solutions for the microtechnology industry, from 2003 to 2015, and on the Board of Directors of RadiSys Corporation, a provider of wireless infrastructure solutions for telecom, aerospace, and defense applications, from 1993 until 2012. Mr. Faubert also served on the North American Advisory Board of SEMI, a global industry association serving the manufacturing supply chain for the micro- and nano-electronics industries, from 2001 to 2011.

Experience, Qualifications and Attributes

Mr. Faubert's qualifications to serve as Chairman of the Board and as an independent director include his extensive technology leadership experience in the semiconductor capital equipment industry. He also brings significant manufacturing, engineering, research and development, business and operations experience in a high technology environment. Mr. Faubert served on the Nominating and Governance Committee and the Technology and New Product Development Committee from his election to the Board in May 2015 until May 2019, when he was elected as Chairman of the Board, and moved from the Nominating and Governance Committee to the Compensation Committee. He remains on the Technology and New Product Development Committee. The Board highly values Mr. Faubert's contributions in these roles.

R. John Fletcher: director since 2003, age 74

Business Experience and Other Directorships

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 serves as a director of ClearPoint Neuro, Inc. a maker of medical devices for minimally invasive surgical procedures and as a director of Koru Medical, a developer and manufacturer of medical devices and supplies. Mr. Fletcher also served as a director of The Spectranetics Corporation, a manufacturer of single-use medical devices used in cardiovascular procedures, until its sale in August 2017.

Experience, Qualifications and Attributes

Mr. Fletcher's extensive work experience in strategic planning, especially in the area of market analysis for technology-based businesses, 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 as Committee Chairman since May 2015), and on the Audit Committee since February 2017 (having previously served on the Audit Committee from April 2004 to May 2014). Mr. Fletcher served on the Technology and New Product Development Committee from May 2014 until February 2017. The Board highly values his contributions in these roles.

Arthur L. George, Jr.: director since 2014, age 58

Business Experience and Other Directorships

Mr. George retired in 2014 after 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 most recently served as Senior Vice President and Manager of TI's Analog Engineering Operations, a position he held from 2010. Prior to that, beginning in 2006, Mr. George served as Senior Vice President and General Manager of TI's High Performance Analog business unit. Mr. George also serves on the Board of Directors of Nordson Corporation, a manufacturer of precision dispensing equipment for industrial liquid and powder coatings, adhesives, and sealants.

Experience, Qualifications and Attributes

Mr. George brings 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. Mr. George has served on the Compensation Committee and the Technology and New Product Development Committee since May 2014. He has served as the Chairman of the Technology and New Product Development Committee since August 2017. The Board highly values Mr. George's contributions in these roles.

Joseph P. Keithley: director since 2011, age 71

Business Experience and Other Directorships

Mr. Keithley is the retired Chairman and CEO of Keithley Instruments, Inc., a provider of measurement solutions to the semiconductor, fiber optics, telecommunications and electronics industries, having served as Chairman from 1991 to 2010, as Chief Executive Officer from 1993 to 2010 and as President from 1994 to 2010. Mr. Keithley serves as a director of Nordson Corporation, of which he was the non-executive Chairman of the Board from 2010 until 2019. Nordson Corporation is a manufacturer of precision dispensing equipment for industrial liquid and powder coatings, adhesives, and sealants. Mr. Keithley also served 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 from 1997 until 2018.

Experience, Qualifications and Attributes

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 served as a member of the Technology and New Product Development Committee until May 2015, at which time he joined the Nominating and Governance Committee as chair. The Board highly values his contributions in these roles.

John T. Kurtzweil: director since 2015, age 63

Business Experience and Other Directorships

Mr. Kurtzweil is an independent consultant. From July 2017 to November 2018, Mr. Kurtzweil served as the Chief Financial Officer of Akoustis Technologies, Inc., an RF filter semiconductor company. From 2015 to March 2017, Mr. Kurtzweil was VP Finance of Cree, Inc., a provider of light emitting diode, lighting, and semiconductor products, and Chief Financial Officer of its subsidiary, Wolfspeed, a Cree Company. He was an independent consultant from October 2014 to June 2015. From 2012 until 2014, Mr. Kurtzweil served as Senior Vice President, Chief Financial Officer and Special Advisor to the CEO of Extreme Networks, Inc., a provider of open networking innovations. From 2006 to 2012, Mr. Kurtzweil served as Executive Vice President, Finance and as Chief Financial Officer and Treasurer of Cree, Inc. From 2004 to 2006, Mr. Kurtzweil was Senior Vice President and Chief Financial Officer at Cirrus Logic, Inc., a fabless semiconductor company. Mr. Kurtzweil served as a director of Akoustis from January 2017 to July 2017, when he became Chief Financial Officer of Akoustis, and for Meru Networks, Inc. from May 2015 to July 2015 when the company was sold.

Experience, Qualifications and Attributes

Mr. Kurtzweil brings to the Board significant senior executive leadership experience, including nineteen years as chief financial officer of publicly traded technology companies and placing an aggregate of \$2.0 billion in equity and debt instruments. His technology industry experience includes several M&A transactions and when combined with his treasury experience, gives him a valuable perspective as a director. His qualifications to serve as a director also include that he is a certified public accountant and certified management accountant, his financial market experience, training through the Stanford Directors College, active membership with National Association of Corporate Directors and his qualifications as an audit committee financial expert. Mr. Kurtzweil has served on the Audit Committee (and as Chairman since February 2017) and on the Compensation Committee since his election to the Board in May 2015. The Board highly values his contributions in these roles.

Mary G. Puma: director since 2000, age 62

Business Experience and Other Directorships

Ms. Puma is Axcelis' Chief Executive Officer and President. Ms. Puma also served as Chairman of the Board from 2005 to 2015. Prior to becoming Chief Executive Officer in 2002, Ms. Puma served as President and Chief Operating Officer from 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 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, a manufacturer of precision dispensing equipment for industrial liquid and powder coatings, adhesives, and sealants, and of Semiconductor Equipment and Materials International (SEMI), a global industry association serving the manufacturing supply chain for the micro- and nano-electronics industries.

Experience, Qualifications and Attributes

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.

Thomas St. Dennis: director since 2015, age 66

Business Experience and Other Directorships

Thomas St. Dennis is the non-executive Chairman of FormFactor, Inc., a leading provider of semiconductor wafer test technologies and expertise, a position he assumed in 2016. Prior to this, Mr. St. Dennis served as FormFactor's Executive Chairman beginning in 2013, and as its Chief Executive Officer from 2010 to 2014. Mr. St. Dennis held various positions at Applied Materials, Inc., a semiconductor equipment manufacturer, from 1992 to 1999 and again from 2005 to 2009. His most recent role at Applied Materials was as Senior Vice President and General Manager of the Silicon Systems Group. From 2003 to 2005, Mr. St. Dennis was Executive Vice President of Sales and Marketing at Novellus Systems, Inc., a semiconductor capital equipment manufacturer. Mr. St. Dennis currently serves on the boards of directors of FormFactor and Veeco Instruments Inc., a company that designs, manufactures and markets thin film equipment for semiconductor processing applications. Mr. St. Dennis previously served as a director of Mattson Technology, Inc., a supplier of dry strip and rapid thermal processing equipment to the semiconductor industry from 2013 to 2016.

Experience, Qualifications and Attributes

Mr. St. Dennis's prior experience in the semiconductor industry as well as his extensive international business background make him an effective advisor to the Board regarding strategic and marketing issues. His experience and skills are highly valued by our Board. Mr. St. Dennis has served on the Nominating and Governance Committee and the Technology and New Product Development Committee since his election to the Board in May 2015. The Board highly values his contributions in these roles.

Jorge Titinger: director since 2019, age 58

Business Experience and Other Directorships

Mr. Titinger serves as principal of Titinger Consulting, a private consulting and advisory service provider founded by Mr. Titinger in 2016. Beginning in 2012, Mr. Titinger served as President and Chief Executive Officer of Silicon Graphics International Corp., a producer of computer hardware and software, which was acquired by Hewlett Packard Enterprise in 2016. From 2008 to 2011, Mr. Titinger served in various offices at Verigy Ltd., a provider of semiconductor automatic test equipment, ending as President and Chief Executive Officer in 2011. Prior to his service at Verigy, Mr. Titinger held executive positions with FormFactor, Inc. from 2007 to 2008, and KLA-Tencor Corporation from 2002 to 2007. Mr. Titinger served as a director of Xcerra Corporation, a provider of semiconductor and electronics test products and services from 2012 until it was acquired by Cohu, Inc. in 2018. Mr. Titinger currently serves as a director of Cohu, Inc., a supplier of semiconductor test and inspection equipment and CalAmp Corp., a provider of mobile resource management telematics systems, software and subscription services for the Internet of Things market.

Experience, Qualifications and Attributes

Mr. Titinger's prior experience in the semiconductor industry as well as his extensive international business background make him an effective advisor to the Board regarding strategic and marketing issues. His experience and skills are highly valued by our Board. On his election in 2019, Mr. Titinger joined the Audit Committee and the Compensation Committee. The Board highly values his contributions in these roles.

BOARD OF DIRECTORS

Board of Directors Independence and Meetings

The Board of Directors has determined that, other than Ms. Puma, all directors who served on the Board during 2019, who are nominated for re-election in 2020, are independent under the criteria established by Nasdaq. None of the directors, to the Company's knowledge, had any business, financial, family or other type of relationship in 2019 with the Company or its management (other than as a director and stockholder of the Company), except for 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. In 2019, none of our directors had a relationship with another company with which Axcelis does business. See also *"Corporate Governance—Certain Relationships and Related Transactions—2019 Related Party Disclosures."*

The Board also determined that the members of the Audit and Compensation Committees meet additional independence requirements under Securities and Exchange Commission ("SEC") rules, Internal Revenue Code ("IRC") rules and additional Nasdaq rules.

Our Board of Directors held seven meetings during 2019. Independent directors have regularly scheduled executive sessions at which only independent directors are present. None of our Board members attended less than 75% of the 2019 Board meetings and of those committees of which a director is a member, and the average rate of attendance at such 2019 meetings was 97%. All Board members are expected to attend the 2020 annual meeting of stockholders, subject to special circumstances. All Board members then in office attended the annual meeting in 2019.

Board of Directors Leadership Structure

Mr. Faubert has been Chairman of the Board of Directors since May 2018. He is an independent director (as defined in the listing standards for the Nasdaq Stock Market), as required for the Chairman position by our Governance Guidelines. Our Governance Guidelines enumerate the responsibilities of the Chairman. We believe this leadership structure serves the Company and our stockholders well by providing independent leadership of the Board of Directors. However, the Board could modify our Governance Guidelines in the future to permit a non-independent Chairman, if they felt that was in the best interests of our stockholders. In that case, our policy has been to have an independent Lead Director who assumes most of the duties of the Chairman of the Board.

Chairman's Responsibility for an Annual Evaluation of the CEO

A critical responsibility of the Chairman of the Board under the Company's Governance Guidelines is to lead the Board in conducting an annual evaluation of the Chief Executive Officer (the "CEO"). The process for the annual CEO evaluation may be modified from time to time by

the Nominating and Governance Committee with the consent of the Chairman, but currently involves the following steps:

- Annually, after the close of a fiscal year, the CEO submits a self-evaluation to the Chairman;
- The Chairman discusses the self-evaluation with the CEO and solicits input from other Directors in one-on-one conversations; and
- The Chairman consolidates the CEO self-evaluation with Board feedback and communicates the Board's evaluation to the Chief Executive Officer at the first Board Meeting of the new fiscal year.

Our Governance Guidelines provide that the CEO evaluation should consider aspects of corporate performance, including progress against strategic goals and the capacity of the Company to achieve future goals. The evaluation should use a combination of objective and subjective criteria.

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.

2019 Director Cash Compensation. Non-employee director cash compensation in effect in 2019 was fixed in May 2015, with some retainers modified effective January 2018. Non-employee director compensation is approved by the full Board of Directors on the recommendation of the Nominating and Governance Committee. The current retainers for each category of director service are set at approximately the median for each category, as shown in a November 2017 Pearl Meyer report using a peer group of companies identical to the roster used to benchmark executive compensation. See *“Executive Compensation—2019 Compensation Discussion and Analysis—Review of Executive Compensation in 2019.”*

Non-employee director cash compensation in 2019 consisted solely of annual cash retainers, paid quarterly in advance, in accordance with the following schedule:

Board Member Retainer	\$50,000
Independent Chairman Premium	\$20,000
<i>Committee Chairmen Retainers</i>	
Audit Committee Chairman	\$20,000
Compensation Committee Chairman	\$15,000
Nominating and Governance Committee Chairman	\$10,000
Technology and New Product Development Committee Chairman	\$10,000
<i>Other Committee Member Retainers</i>	
Audit Committee Member	\$10,000
Compensation Committee Member	\$7,500
Nominating and Governance Committee Member	\$5,000
Technology and New Product Development Committee Member	\$5,000

The Company has entered into Indemnification Agreements with each of the non-employee directors, which are in the same form as the Indemnification Agreements with each of the Company's executive officers. Axcelis' Indemnification Agreements are intended to provide protection from legal liability arising from the individual's service as a director to the extent typically provided by U.S. public companies. The Company indemnifies its non-employee directors to the fullest extent permitted by law with respect to his or her status or activities as a director of Axcelis against all judgments, fines, amounts paid in settlement, and all reasonably incurred expenses. These Indemnification Agreements supplement the indemnification provisions in the Company's Restated Certificate of Incorporation. As required in the Indemnification Agreements, the Company purchases director and officer liability insurance that would reimburse the Company for costs incurred under these Indemnification Agreements and for certain third party liabilities. In addition, the Company maintains "Side A" director and officer liability insurance which is for the exclusive benefit of the directors and officers, permitting direct reimbursement from the insurer if the Company was unable or unwilling to provide indemnification due to a lack of funds or other issue. The adequacy of our director and officer liability insurance coverage is reviewed, and adjusted if needed, on an annual basis.

Non-employee directors also receive reimbursement of reasonable and customary out-of-pocket expenses incurred in attending Board and committee meetings. Travel by directors to Axcelis Board meetings, or otherwise on Company business, is covered by our standard business travel insurance, which provides emergency medical coverage. Non-employee directors do not receive any Company-paid perquisites.

The Board of Directors may, from time to time, form committees in addition to the Audit, Compensation, Nominating and Governance and Technology and New Product Development Committees and set compensation for service on such additional committees.

2019 Equity Awards. On February 5, 2019, upon recommendation of the Nominating and Governance Committee and the Compensation Committee, the full Board of Directors approved the grant to each of the then seven in office non-employee directors (all of the current directors other than Mr. Titinger), effective May 15, 2019, of restricted stock units (“RSUs”) valued at \$130,000. This amount was the same as that approved for these grants in 2018, and equaled the median equity grant to independent directors at peer companies, as reported by Pearl Meyer in November 2017 (at that time, our most recent report on Board compensation). The number of units was determined by dividing \$130,000 by a 30-day average closing price of the Company’s common stock over a period ending May 10, 2019, which was \$20.86. In accordance with this formula, each non-employee director received a restricted stock unit exercisable for 6,232 shares of common stock. Using the grant date closing price of \$17.15, each director RSU grant had a value of \$106,879. These RSU grants became fully vested on November 15, 2019 (six months after the date of grant) as each director remained in service on that date.

On the election of Jorge Titinger in August 2019, upon recommendation of the Nominating and Governance Committee and the Compensation Committee, the full Board of Directors approved a pro-rated annual grant to Mr. Titinger of RSUs valued at \$97,500, which amount represented 75% of the \$130,000 annual grant awarded to the other directors in May. This grant size reflected the fact that Mr. Titinger would serve only 9 months (75% of the year) before the next annual meeting of stockholders in his first term. As with the other annual RSU grants to non-employee directors, this pro-rated annual RSU grant vested six months after the date of grant. The Board also approved a second RSU grant to Mr. Titinger in August 2019, an initial director RSU grant, which vests as to 25% of the units on each of the first four anniversaries of the date of grant, assuming continuation of service to the Company. This initial director grant had a value of \$130,000. To size both grants, the Board used a 30-day average closing price of the Company’s common stock over a period ending August 12, 2019, which was \$15.37. As a result, Mr. Titinger received a pro-rated 2019 annual RSU grant exercisable for 6,344 shares of common stock and an initial director RSU grant exercisable for 8,459 shares. Using the August 15, 2019 grant date closing price of \$14.91, Mr. Titinger’s RSU grants had a value of \$94,596 and \$126,128, respectively.

Long-term ownership of Company equity by directors is encouraged through the Company’s director stock ownership guidelines, which are discussed below under “*Corporate Governance—Governance Policies.*”

The chart below shows compensation for all non-employee directors who served the Company during 2019:

Name	Fees earned or paid in cash (\$)	Stock awards (\$)(1)(2)(3)	Total (\$)
Tzu-Yin Chiu	\$60,000	\$106,879	\$166,879
Richard J. Faubert	\$82,500	\$106,879	\$189,379
R. John Fletcher	\$75,000	\$106,879	\$181,879
Arthur L. George, Jr.	\$67,500	\$106,879	\$174,379
Joseph P. Keithley	\$70,000	\$106,879	\$176,879
John T. Kurtzweil	\$77,500	\$106,879	\$184,379
Thomas St. Dennis	\$60,000	\$106,879	\$166,879
Jorge Titinger(4)	\$25,313	\$220,713	\$246,026

- (1) The amount shown represents the grant date fair value of the equity awards received by the director in 2019 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 Company's 2019 Annual Report on Form 10-K filed with the SEC.
- (2) Except in the case of Mr. Titinger, the stock awards reflect the grant date fair value of 6,232 RSUs granted to each of non-employee directors elected on May 15, 2019. These awards vested as to 100% of the RSUs on November 15, 2019. Mr. Titinger's stock awards were granted on August 15, 2019 and represent the grant date fair value of (i) a pro-rated annual RSU award for 6,344 shares which vested in February 2020 and (ii) an initial director RSU award for 8,459 shares which will vest as to 25% of the RSUs on each of the first four anniversaries of the date of grant. In addition to Mr. Titinger's unvested RSUs, Dr. Chiu holds 4,228 unvested RSUs granted to him in May 2018, which will be fully vested in May 2022.
- (3) None of the non-employee directors received stock option grants in 2019. As of December 31, 2019, Mr. George held a stock option for 10,000 shares at a price of \$7.20, which was fully vested. No other non-employee director held stock options at year end 2019.
- (4) Mr. Titinger was elected to the Board in August 2019.

BOARD COMMITTEES

Our Board has standing Audit, Compensation, Nominating and Governance, and Technology and New Product Development Committees, each of which has a Chairman and two or more additional members from among the independent directors. The current composition of each of these committees is set forth below:

Audit Committee	Compensation Committee	Nominating and Governance Committee	Technology and New Product Development Committee
<ul style="list-style-type: none"> • John T. Kurtzweil, Chairman • R. John Fletcher • Joseph P. Keithley • Jorge Titingier 	<ul style="list-style-type: none"> • R. John Fletcher, Chairman • Richard J. Faubert • Arthur L. George, Jr. • John T. Kurtzweil • Jorge Titingier 	<ul style="list-style-type: none"> • Joseph P. Keithley, Chairman • Tzu-Yin Chiu • Thomas St. Dennis 	<ul style="list-style-type: none"> • Arthur L. George, Jr., Chairman • Tzu-Yin Chiu • Richard J. Faubert • Thomas St. Dennis

Committee membership is reviewed by the Board annually after each annual meeting.

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 Ethics policy. The Audit Committee’s charter and the Company’s Ethics policy are both available on our website at www.axcelis.com. During 2019, the Audit Committee consisted of Mr. Kurtzweil (Chairman), Mr. Keithley and Mr. Fletcher, with Mr. Titingier joining the Audit Committee in August 2019.

The Board of Directors determined that each of Messrs. Keithley, Kurtzweil, Fletcher and Titingier are audit committee financial experts as defined by the SEC. The Board’s conclusions regarding the qualifications of a director as an audit committee financial expert are based on the director’s certification that the director 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 2019, see the “2019 Audit Committee Report” below.

2019 Audit Committee Report

Note: In accordance with an instruction to the SEC regulation under which this Audit Committee report is provided (Regulation S-K, Item 407(d)(3)), this Audit Committee Report shall not be deemed to be “soliciting material,” or to be “filed” with the SEC or subject to certain other SEC provisions, as described in that instruction.

The Audit Committee schedules meetings to occur after the preparation of preliminary quarterly and annual financial statements and prior to the public release of financial results for the period. The Committee met in May, August and October of 2019, prior to the release of the financial results for the first, second and third quarters of 2019, respectively, and in February 2020, prior to the release of our fourth quarter and 2019 year-end results. The Audit Committee also usually reviews the Form 10-Q and Form 10-K in either a telephonic or in-person meeting. The Audit Committee meets in person in connection with each of the quarterly in person Board meetings. At these meetings, and the occasional additional meeting, the Committee addresses 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.

The Audit Committee met eight times during 2019. At all meetings relating to the release of financial results, Axcelis’ Chief Financial Officer and Corporate Controller were present for all or a portion of the meeting, as were our independent auditors. Our General Counsel also participated in all of these meetings. 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.

Under its charter, the Audit Committee has responsibility for recommending to the Board the appointment of the independent auditing firm, which firm will be accountable directly to the Audit Committee, as representative for the stockholders of the Company. To determine independence, the Audit Committee relies on responses from directors and executive officers in annual questionnaires and on the auditing firm’s own conclusion regarding its independence. In selecting and evaluating an independent auditing firm, the Audit Committee considers the firm’s history with the Company, if any, and the quality and efficiency of its past work; the firm’s familiarity with the Company’s industry and the significant accounting principles relating to the Company’s business; the firm’s general reputation, capability and expertise in handling the breadth and complexity of the Company’s worldwide operations; and the firm’s estimated fees. Beyond the performance and capabilities of a particular firm, the Audit Committee also considers whether a change in audit firm is advisable either to ensure independence or to obtain more competitive fees. This consideration is balanced by an awareness of the potential inefficiency and disruption from changing to a different independent public accounting firm. Weighing these factors, the Audit Committee recommended the engagement of Ernst & Young LLP as the Company’s independent auditing firm for 2019, which accounting firm has served as the Company’s auditor since 1999.

The lead audit partner of the independent auditor is required by law to rotate every five years. The next mandatory periodic rotation of Axcelis' lead audit partner at Ernst & Young LLP is scheduled to take place in 2021. The Audit Committee will provide oversight and input to the selection of the audit engagement partner.

Once the firm is appointed, the Audit Committee has the sole authority for the definition of the scope of, and oversight of, the work of the independent auditor, and for compensation of the firm. The Audit Committee manages the process of approving the procurement of services and compensation in accordance with a Policy Regarding Pre-Approval of Services adopted by the Audit Committee. Under this policy, when the Board appoints an audit firm, the purchase of planned audit-related and specified planned tax services are also automatically approved. Estimated fees for these planned services are reviewed by the Audit Committee each year, and under the Pre-Approval of Services policy, management may pay all fees that are not materially higher than the estimates reviewed by the Audit Committee.

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 2019. At the 2019 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, 2019 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. The review of these audited financial statements 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 addition, the Committee discussed with the independent auditors the matters required to be discussed by the applicable requirements of the Public Company Accounting Oversight Board ("PCAOB") and the SEC, and received from the independent auditors their written disclosure letter concerning independence required to be discussed by the auditors with the Committee under the applicable requirements of the PCAOB. 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.

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 2019 Annual Report on Form 10-K for filing with the SEC 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, who have 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,

John T. Kurtzweil, Chairman
Joseph P. Keithley
R. John Fletcher
Jorge Titinger

Compensation Committee

During 2019, the Compensation Committee consisted of Messrs. Fletcher (Chairman), George, Kurtzweil and Faubert, with Mr. Titinger joining the committee in August 2019. 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 2019, the Compensation Committee met four times. 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 annual CEO evaluation is considered by the Compensation Committee in the course of its deliberations on the Chief Executive Officer's compensation.

The Compensation Committee meets in the first quarter of each year to review the level of each component of executive compensation, and to establish the goals and targets applicable to the executives' annual cash and equity incentive compensation for the coming year, as well as to determine the results for the year just ended. The Committee's 2019 compensation decisions are described in detail in *"Executive Compensation—2019 Compensation Discussion and Analysis"* below.

To support its decision-making processes, the Compensation Committee frequently obtains 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 consistency of our programs 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. In 2019, the Company engaged Pearl Meyer to provide benchmarking

and advice related to compensation decisions for executive officers. Pearl Meyer has also advised the Committee and the Nominating and Governance Committee on compensation paid to the independent directors. Pearl Meyer did not provide any other services to the Company in 2019. 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. The consultant's invoices are paid by the Company. The Chief Executive 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. The Committee delegates to the Chief Executive Officer the authority to make equity grants to employees other than executive officers on commencement of employment or as a bonus award, subject to maximum grant sizes and annual program limits established by the Committee.

For a discussion on the Compensation Committee's decisions relating to executive compensation during 2019, see *"Executive Compensation—2019 Compensation Discussion and Analysis"* below. The Compensation Committee also makes recommendations to the Board with respect to policies relating to compensation, including the Company's director and officer stock ownership guidelines, executive compensation clawback policy, and policies relating to the ownership of Axcelis securities by directors and officers. See *"Corporate Governance—Governance Policies"* below.

Compensation Committee Interlocks and Insider Participation

During 2019, the Compensation Committee of the Board of Directors consisted of Mr. Fletcher (Chairman), Mr. George, Mr. Kurtzweil and Mr. Faubert. Mr. Titinger joined the Compensation Committee upon his election to the Board in August 2019. None of these directors has been an officer or employee of Axcelis or had a relationship during 2019 requiring disclosure under Item 404 of Regulation S-K.

Nominating and Governance Committee

During 2019, the Nominating and Governance Committee was comprised of Mr. Keithley (Chairman), Dr. Chiu and Mr. St. Dennis.

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 Guidelines, copies of which are available on our website at www.axcelis.com. The Committee held five meetings in 2019. 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. See *“Corporate Governance—Board Evaluations and Peer Review Processes.”*

The Nominating and Governance Committee manages the process of identifying and recommending individuals to either (A) be nominated by the Board of Directors to be elected as directors by the stockholders or (B) to be appointed by the Board as a director until the next annual meeting of stockholders, as discussed below under *“Corporate Governance—Board Nomination Process and Requirements.”*

The Nominating and Governance Committee also adopts, or recommends to the Board the adoption of, Bylaw provisions and governance policies that relate to the operation of the Board and committees and the Company’s relationship with stockholders, which are described below under *“Corporate Governance—Governance Policies.”* The Nominating and Governance Committee, together with the Compensation Committee, makes recommendations to the Board with respect to membership on Board committees, the Company’s director and officer stock ownership guidelines, executive compensation clawback policy, and policies relating to the ownership of Axcelis securities by directors and officers. See *“Corporate Governance—Governance Policies”* below.

The Nominating and Governance Committee has developed a comprehensive statement of the Company’s governance standards and processes arising from its charter, bylaws and policies, called Governance Guidelines. These were first adopted by the Board of Directors in February 2016, and are periodically updated. These Governance Guidelines are available on our website at www.axcelis.com

CORPORATE GOVERNANCE

Governance Policies

Our Board and committees seek to implement best governance practices, both on general corporate governance matters and on compensation. Key policies are as follows:

Corporate Governance: What We Do

Adhere to High Ethical Standards and Legal Compliance: Our ethics policy applies to our directors, executive officers and all other employees. This policy promotes ethical actions and legal compliance. We provide employee training on ethics, compliance with the Foreign Corrupt Practices Act, Export Controls regulation, employment laws, and Insider Trading regulation.

Ensure we have an Independent Chairman of the Board: Our Governance Guidelines require that the Chairman of the Board be an independent director and specify the responsibilities of that role.

Ensure Directors and Officers Hold Stock in Axcelis: Our Stock Ownership Guidelines require that non-employee directors own shares having a value at least equal to three times the amount of the annual base Board retainer (which is currently \$50,000). Our Chief Executive Officer is required to own shares having a value equal to three times her base salary. The other executive officers are required to hold the lesser of 16,250 shares or shares having a value equal to 150% of such officer's base salary. Executive officers are encouraged to retain 50% of any shares received on exercise of options or vesting of whole share awards (after payment of the exercise price and tax withholding), until stock ownership guidelines are met. Directors and executive officers have five years to meet guideline ownership.

Conduct a Strong CEO Performance Review Process: As described above under "*Board of Directors—Chairman's Responsibility for an Annual Evaluation of the CEO,*" our Governance Guidelines specify the process by which an annual Chief Executive Officer performance review is developed and submitted to the full Board for their consideration, with input from the Chief Executive Officer, the independent Chairman of the Board and all other Board members.

Conduct an Annual Board Assessment and Director Evaluation: Our Governance Guidelines and the charter of the Nominating and Governance Committee address the requirement for annual Board self-assessment processes, which cover meeting agendas, schedules, presentations, access to and communications with senior management, and the Board's contribution as a whole. The annual process also includes an assessment by the each director of their own and each other directors' individual performance using established criteria. See "*Corporate Governance—Board Evaluations and Peer Review Processes.*"

Corporate Governance: What We Don't Do

Fail to Refresh our Board: Our Governance Guidelines require an annual Board self-evaluation prior to the re-election nomination process. These Guidelines also require Board members to tender their resignation on a change in principal occupation, and if he or she receives a greater

number of votes “withheld” in an uncontested election than votes “for” his or her election. Directors who have reached the age of 75 will not be nominated for election.

Allow Directors and Officers to Hedge or Pledge Their Stock Positions: Our policies prohibit directors and executive officers from pledging Axcelis stock in a margin account or otherwise, or entering into transactions designed to hedge or offset any decrease in the market value of Axcelis stock. 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.

Allow Stockholder Rights to be Harmed: Our charter and bylaws protect all stockholders by requiring advance notice of stockholder proposals, and prohibit stockholders from calling a special meeting, acting by written consent or filing governance litigation outside of Delaware. These provisions ensure that stockholders have notice and an opportunity to vote on all matters properly brought before them, and that claims are heard by sophisticated Delaware courts.

Compensation Governance: What We Do

Align Compensation with Median Pay at Peer Companies and Relevant Survey Data. Executive officer compensation is benchmarked, at least biennially, to median levels at peer companies and in surveys. We re-evaluate these peers, at least biennially, to ensure they are comparable companies.

Align Compensation with Company and Individual Performance: We set compensation with strong pay-for-performance orientation, using both a cash annual incentive plan tied to financial metrics and restricted stock unit grants tied to operational goals. Performance evaluations are obtained and considered in compensation decision-making. Only the Chief Executive Officer has an employment agreement setting a minimum salary and bonus opportunity, with a one-year term.

Assert Executive Compensation Clawback Rights: Our policy authorizes the Board to seek recovery of incentive cash and equity compensation that complies with Dodd-Frank and extends beyond the requirements of that law to allow a clawback of incentive compensation in the event of any violation of an agreement with the Company or of any policy of the Company or a voluntary departure to work for a competitor.

Require Termination of Employment prior to a Change of Control Payout: Agreements with our executive officers provide for “double trigger” change of control benefits, due only if the employee experiences a qualifying termination of employment.

Require Multi-Year Vesting of Equity Awards. Under our equity incentive plan, equity grants to employees that are solely based on continued employment, service or the passage of time may not vest until the first anniversary of grant, and full vesting may not occur until the fourth anniversary of grant, except for grants received in lieu of cash compensation otherwise due.

Maintain Compensation Committee Practices that Ensure Independence: All of the members of the Compensation Committee are determined to be independent, and they have authority to engage an independent consultant of their choice. All compensation decisions involving executive

officers are made in executive sessions of the independent directors without management. In addition, the Committee receives feedback from stockholders through an annual Say on Pay vote.

Compensation Governance: What We Don't Do

Pick Aspirational Peer Companies or Benchmark above Median Compensation Levels: Our Compensation Committee avoids these practices and re-evaluates our compensation peer group at least biennially, with the help of an independent compensation consultant chosen by the Compensation Committee Chairman.

Allow for Unlimited Cash Incentive Payouts or Guaranteed Bonuses: Payout under our annual cash incentive plan is capped at 200% of target, which insures outperformance reaches our stockholders after a fixed return to executives. We do not provide guaranteed minimum bonuses under any compensation arrangements with executives, other than occasionally for the year in which an executive joins the Company.

Provide Special Perquisites or Retirement Benefits: We do not provide any perquisites or retirement benefits to our executive officers that are not generally made available to all of our employees.

Provide "Single Trigger" Severance Payments or Golden Parachute Arrangements: We do not provide "single trigger" severance payments due solely on account of the occurrence of a change of control event.

Indemnify Executives for Change of Control Excise Taxes: None of our current change of control agreements with executive officers contain reimbursement provisions for change in control excise taxes, including those under US Internal Revenue Code Sections 280G and 4999. Our Governance Guidelines prohibit the Company from entering into any future change of control agreement with a provision indemnifying an executive for the effects of any excise tax due on severance compensation.

Re-Price or Buy back Equity Awards: Our equity plans prohibit repricing of equity awards or cash repurchase of equity awards (except in the case of a corporate transaction).

Offer Nonqualified Defined Contribution or Other Deferred Compensation Plan. We do not have any such plans.

Our Governance Guidelines, other policies and our Certificate of Incorporation and Bylaws are posted on the Investors page of our website at www.axcelis.com. Any waivers of our Ethics policy would also be disclosed on that site.

Board Evaluations and Peer Review Processes

A healthy and vigorous Board evaluation process is an essential part of good corporate governance. At Axcelis, this process includes annual evaluations of the Board and committee functions, including the interaction between the Board and management, and assessments by each director of their own performance and of that of each of the other directors. The Nominating and Governance Committee establishes and oversees the evaluation process, which

focuses on identifying areas where Board, committee and director performance is both effective, as well as opportunities for further development or improvement.

Each year, the Nominating and Governance Committee reviews the format and effectiveness of prior evaluation processes to identify actionable feedback for directors and management to consider. Axcelis' process has been a combination of written input, collected by the Chairman of the Nominating and Governance Committee and one-on-one interviews between the Chairman of the Nominating and Governance Committee and each director. These individual discussions are an important opportunity to ensure directors feel they can provide candid feedback on Board operations and the performance of Board members.

The Board has historically used two documents to guide the process: (i) a Board evaluation questionnaire and (ii) a self- and peer- evaluation form. The Board evaluation questionnaire addresses topics such as the composition of the Board and committees, the meeting schedule, agenda items, presentation content, the relationship with management (including availability and responsiveness), and the overall effectiveness of the Board and opportunities for improvement. The self- and peer-evaluation form asks directors to rate themselves and other directors on skills and behaviors in three categories: essential Board qualifications, participation in meetings, and overall value-add of the member.

The Nominating and Governance Committee has considered whether to engage a third-party facilitator for these annual processes, but has not done so to date. Thus far, the process has not incorporated the use of the Board's internet portal, or other technology solution, to collect and organize the Board evaluation input, but may do so in the future if the Nominating and Governance Committee believes doing so would enhance the evaluation process.

This formal process is conducted annually between the August and November in-person meetings of the Board, so that conclusions from the Board evaluation process can inform the decisions regarding nominations for re-election, usually made in February of each year. At the November in-person Board meeting, the Chairman of the Nominating and Governance Committee provides a verbal summary of the feedback he received, first to the Nominating and Governance Committee and then to the full Board. Depending on the feedback received, the Chairman of the Board may have been consulted prior to the November meeting on specific potential outcomes from the feedback.

Under our Governance Guidelines, the Chairman of the Board and the Chairman of the Nominating and Governance Committee are responsible for responding to issues identified in the annual Board self-evaluation. These processes commonly lead to actions such as the following:

- Addressing Board and committee composition and refreshment needs to ensure the availability of appropriate skills and experience to meet the current and anticipated needs of the business;
- Implementing individual director input on Board and Committee meeting agenda items;
- Increasing time available for executive sessions without management present; and

- Providing periodic input to our CEO and senior management on desired presentation content and style.

In addition to the formal Board evaluation process, our Board and committees engage in an on-going informal evaluation of their own effectiveness throughout the year, usually discussed in executive sessions and in one-on-one conversations outside of meetings. Committee chairs also regularly communicate with management to discuss the development of meeting agendas and presentations, which results in a two-way feedback loop. The Chairman of the Board and other directors have on-going engagement on these topics with our Chief Executive Officer. The Chair of our Audit Committee consults regularly with our Chief Financial Officer and Corporate Controller. The Chairs of our Nominating and Governance Committee and Compensation Committee communicate regularly with our General Counsel and Corporate Secretary, and the Chair of our Technology Committee interacts regularly with our EVP, Product Development and our EVP, Engineering. These conversations mainly relate to agenda items, presentation content and the need to obtain external reports to support committee discussions and decision-making.

Stockholder Communications to the Directors

Stockholders 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.

Annual Meeting Stockholder Deadlines

The Company's annual meeting of stockholders provides our stockholders with an opportunity to propose actions for adoption by the stockholders and to nominate individuals for election to the Board of Directors. The Company's Bylaws include provisions requiring advance notice of proposals by stockholders for items to include in the agenda for the annual meeting and for director nominations. Our Bylaws have been filed with the SEC and are also posted on the Investors page of our website at www.axcelis.com.

If you intend to bring proposed business to the 2021 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 by December 2, 2020 (120 days before the anniversary date of the mailing of this proxy statement). Any such proposal should comply with the requirements of SEC Rule 14a-8.

If you wish to bring business before or propose director nominations at the 2021 annual meeting, you must give written notice to Axcelis between January 19, 2021 and February 19, 2021 (the dates 120 days and 90 days, respectively, before the anniversary of the 2020 annual meeting). These dates assume that the 2021 annual meeting is held not more than 30 days before or 30 days after May 19, 2021. If that is not the case, you must give written notice to Axcelis between the date 120 days before the 2021 annual meeting date and the later of (A) 90 days before the 2021 annual meeting date or (B) the date 10 days after public announcement of the 2021 annual meeting date.

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.

Board Nomination Process and Requirements

In an on-going effort to refresh the Board of Directors, the Nominating and Governance Committee from time to time seeks new nominees for election to the Board through a variety of channels, including the engagement of director search firms, less formal recommendations from stockholders of the Company and 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 in accordance with the nomination provisions in our Bylaws, 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 Guidelines. These Governance Guidelines 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 set forth in the Company's Governance Guidelines;

(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. Given the global nature of the Company's business, the Nominating and Governance Committee will consider whether a nominee's geographic or cultural background or other factors contributes to Board diversity that is beneficial to the Company for business reasons. Apart from seeking candidates with attributes that are deemed advantageous in terms of the Company's

business objectives, the Nominating and Governance Committee has not adopted an explicit policy promoting the nomination of candidates who are diverse in race, gender, ethnicity, religion, nationality, disability, sexual orientation, socio-economic background, or in other aspects. However, in recent Board searches, the Committee has sought in particular to identify female candidates who meet the established specifications for the search.

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 SEC, the Nasdaq listing standards, and 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 provide clarity to our stockholders on the information required to support the consideration of an individual as a candidate for nomination for election as a director, the Company's Bylaws stipulate the amount and nature of information required about a director candidate and the stockholder proposing his election. These disclosure requirements also ensure that all stockholders entitled to vote on a director nomination have all relevant information about the nominee. Our Bylaws have been filed with the SEC and are also posted on the Investors page of our website at www.axcelis.com. Nomination 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, including but not limited to the completion of a questionnaire designed to elicit disclosures required by the securities laws and to determine eligibility for Board and committee membership.

Certain Relationships and Related Transactions

Review Process

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 determines whether to approve or ratify 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.

2019 Related Party Disclosures

During 2019, no related person transactions requiring disclosure in the proxy statement were identified or submitted to the Nominating and Governance Committee for approval.

Three of the current Board members nominated for re-election (Mr. Keithley, Mr. George and Ms. Puma) are also Board members of Nordson Corporation. The Company has no business relationship with Nordson Corporation.

Risk Oversight by the Board of Directors

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 and requires us to continue to make substantial investments in new products and features to successfully compete for customer selection;
- The dependence of our business on international trade, especially with Asia and the potential negative impact on our business from economic disruption from political, fiscal or global health reasons;

- The need to maintain global infrastructure to support our customers; and
- The cyclical nature of the semiconductor industry and its overall condition in a particular period.

A more extensive list of risk factors associated with our business can be found in the Company's 2019 Annual Report on Form 10-K filed with the SEC 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 risks that are rated as having a higher likelihood of occurrence than other risks and/or a higher severity of impact than other risks, commenting on the trend and the status of the risk at the time of the report. The Audit Committee periodically reviews 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, Corporate Controller and the Company's independent auditors. The Audit Committee also reviews the Company's activities to mitigate cybersecurity risk, such as network security, data encryption, employee training and other measures to protect its systems and data from unauthorized access or misuse. The Technology and New Product Development Committee oversees risk in the Company's technology and product development initiatives. The Compensation Committee considers risk arising from compensation policies and practices. See *"Executive Compensation—2019 Compensation Discussion and Analysis—Risk Assessment of Compensation Policies and Practices."* 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 an 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. 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 the CEO, the other executive officers, and other key management positions.

PROPOSAL 2: APPROVAL OF THE 2020 EMPLOYEE STOCK PURCHASE PLAN

We are asking our stockholders to approve a 2020 Employee Stock Purchase Plan, which we refer to as the 2020 ESPP, under which 1,000,000 shares of common stock are reserved for issuance. The 2020 ESPP is a tax-advantaged plan under Section 423 of the Internal Revenue Code (the "IRC"). Under this plan, eligible employees can elect to use a percentage of their base pay to purchase shares of Axcelis' stock at a 15% discount from the market price.

The 2020 ESPP will replace our current IRC Section 423 Employee Stock Purchase Plan adopted in 2000, under which approximately 195,875 shares remain reserved for issuance at the end of 2019 (the "Old ESPP"). The Old ESPP has a fixed 20 year term, which expires on June 30, 2020. The 2020 ESPP is substantially the same as the Old ESPP, with certain clarifying changes to the administrative provisions. The 2020 ESPP, if adopted by the stockholders, will become effective on July 1, 2020. We believe the share reserve of 1,000,000 under the 2020 ESPP will be sufficient to satisfy employee interest in purchasing our stock for at least the next 15 years, based on current usage.

Adopting the 2020 ESPP will allow us to continue to make the benefits of this type of plan available to eligible employees.

Company Considerations

When approving the 2020 ESPP, the Board considered various factors. Our Board and management believe an employee stock purchase plan is an important element of the total compensation and benefits we offer, serving to retain current employees and to attract new employees. An employee stock purchase plan also facilitates employee ownership of Axcelis common stock, which better aligns the interests of our employees with those of our investors.

In setting the share reserve for the 2020 ESPP, the Board determined that reserving shares sufficient for approximately 15 years of new purchases, at historical rates, is in line with the practice of our peer public companies. Over the full term of the 2020 ESPP, the potential dilution from the proposed 1,000,000 share reserve is approximately 3.1%, based on the number of common shares outstanding at the end of 2019. The expected 15 year usage of this reserve is based on the issuances under the Old ESPP, which have been less than 0.2% of shares outstanding per year over the last seven years. We expect that rate of usage to continue under the 2020 ESPP. The actual rate of usage of the 2020 ESPP will depend on employee interest, but usage is also limited by various caps in the 2020 ESPP: (i) a participant may not purchase more than 500 shares per offering period, (ii) a participant may not contribute more than 10% of his or her base pay to purchases under the plan, and, (iii) as required by Code Section 423, the total value of annual purchases by a participant under the plan may not exceed \$25,000.

The Board also considered that, unlike grants of equity awards under the 2012 Equity Incentive Plan, the shares issued under the 2020 ESPP will be purchased by our employees in lieu of a portion of their base pay. Accordingly, the issuance of shares under the 2020 ESPP will be offset by a reduction in our obligation to provide base pay in cash to the participating employees.

Summary of the 2020 Employee Stock Purchase Plan

The following is a summary of the principal provisions of the 2020 ESPP. This summary is qualified in its entirety by reference to the full text of the 2020 ESPP, which is attached as Appendix A to this proxy statement. To the extent that there is a conflict between this summary and the actual terms of the 2020 ESPP, the terms of the 2020 ESPP will govern.

The 2020 ESPP, including the right of participants to make purchases under the 2020 ESPP, is intended to qualify as an “Employee Stock Purchase Plan” under the provisions of Section 421 and 423 of the IRC. The provisions of the 2020 ESPP are, accordingly, construed so as to extend and limit participation in a manner consistent with the requirements of those sections of the IRC. The 2020 ESPP is not a qualified deferred compensation plan under Section 401(a) of the IRC, and is not subject to the provisions of ERISA.

The Internal Revenue Code requirements for qualifying employee stock purchase plans are (i) all employees of the issuer must be allowed to participate, subject to limited exceptions, (ii) the purchase price per year must not exceed \$25,000 per participant, (iii) the purchase price must not be less than 85% of fair market value on specific dates within offering periods, (iv) the offering period must be 27 months or less, and (v) the plan be approved by shareholders.

Plan History. The 2020 ESPP was approved by the Compensation Committee of the Board of Directors in May 2019, and recommended for approval by the full Board. The Board of Directors approved the 2020 ESPP in August 2019, and in February 2020 voted to submit the 2020 ESPP for approval by the stockholders of the Company at the 2020 Annual Meeting. If approved by the stockholders, the 2020 ESPP will become effective on July 1, 2020.

Purpose. The purpose of the 2020 ESPP is to continue to provide our employees with a convenient means of acquiring an equity interest in the Company through payroll deductions, to enhance such employees’ sense of participation in our affairs, and to provide an incentive for continued employment.

Share Reserve. The 2020 ESPP authorizes the issuance of shares of common stock to our employees, and employees of any of our designated subsidiaries, under certain conditions. If this proposal is approved, the shares of common stock available for grant under the 2020 ESPP will be 1,000,000 shares. The 2020 ESPP will have a fixed share reserve and any increases to such reserve will be voted on by our stockholders periodically.

Administration. Our Board has delegated its authority to administer the 2020 ESPP to our Compensation Committee. The Compensation Committee has full power and authority to establish, amend and revoke rules and regulations to administer the 2020 ESPP, to interpret the provisions of the 2020 ESPP, and subject to the express terms of the 2020 ESPP, to establish the terms of offerings under the 2020 ESPP. The decisions of the Compensation Committee will be final and binding on all participants. As further contemplated by the Plan, the Committee has delegated to the Chief Executive Officer the day-to-day administration of the Plan. Our Chief Executive Officer has approved certain Rules and Procedures relating to the implementation of the 2020 ESPP, identifying the subsidiaries designated for inclusion in the 2020 ESPP and terms related to offering periods.

Eligibility. Generally, all regular employees, including executive officers, employed by the Company or by any of our designated subsidiaries may participate in the 2020 ESPP. Coop and intern employees are not deemed “regular employees.” As of December 31, 2019, there were approximately 890 employees who would be eligible to participate in the 2020 ESPP.

Offering. The 2020 ESPP is implemented by offering eligible employees an opportunity to join a purchase period. The 2020 ESPP contemplates that the Company will have purchase periods of six months in duration, beginning every January 1st and July 1st. However, the 2020 ESPP allows the Company to modify the length of the offering period to any duration of up to 27 months. The last day of the purchase period will be the date on which shares of common stock will be purchased for employees participating in the offering. It is expected that the offering periods under the 2020 ESPP will continue to be six months in duration, as has been the case with the Old ESPP.

Payroll Deductions and Stock Purchases. Eligible employees may contribute, normally through payroll deductions, up to 10% of their compensation, as defined in the 2020 ESPP, for the purchase of common stock under the 2020 ESPP. Unless otherwise determined by the Compensation Committee of our Board, common stock will be purchased under the 2020 ESPP at a price per share equal 85% of the fair market value of a share of our common stock on the date of purchase. Eligible employees may not purchase more than 500 shares per purchase period.

Limitations. Eligible employees may be granted purchase rights only if the purchase rights, together with any other purchase rights granted under the 2020 ESPP, do not permit such employee’s rights to purchase our stock to accrue at a rate that exceeds \$25,000 of the fair market value of such stock for each calendar year in which such purchase rights are outstanding. No employee will be eligible for the grant of any purchase rights under the 2020 ESPP if immediately after such rights are granted, such employee has voting power over 5% or more of our outstanding capital stock, measured by vote or value.

Participant’s Withdrawal from a Purchase Period. At any time prior to the end of a purchase period, a participant may terminate his or her payroll deductions under the 2020 ESPP and withdraw from the offering by delivering a notice of withdrawal to the Company. Upon such withdrawal from the offering, the Company will distribute to such participant all of his or her accumulated payroll deductions under the offering (without interest), and such participant’s purchase right in the offering will be automatically terminated. The Committee may establish rules limiting the frequency with which participants may withdraw and re-enroll in the 2020 ESPP and may impose a waiting period on participants wishing to re-enroll following withdrawal.

Termination of Employment by a Participant during a Purchase Period. The participant’s purchase right will immediately terminate upon his or her cessation of employment for any reason during a purchase period. Any payroll deductions that the participant may have made for the purchase period will be refunded (without interest) and will not be applied to the purchase of Company common stock.

Transferability. Payroll deductions and purchase rights granted under the 2020 ESPP may not be voluntarily or involuntarily assigned, transferred, pledged, or otherwise disposed of in any way, and any attempted assignment, transfer, pledge, or other disposition shall be null and void

and without effect. If a participant in any manner attempts to transfer, assign or otherwise encumber his or her rights or interests under the 2020 ESPP, other than as permitted by the Internal Revenue Code, such act shall be treated as an election by the Participant to discontinue participation in the 2020 ESPP.

Changes to Capital Structure. In the event that there is a specified type of change in our capital structure, such as a stock split, the number of shares reserved under the 2020 ESPP and the number of shares and purchase price of all outstanding purchase rights will be appropriately adjusted.

Corporate Transactions. In the event of certain significant corporate transactions (such as a merger or consolidation in which the Company is not the surviving corporation), then in the sole discretion of our Board of Directors, (1) any outstanding option to purchase shares of common stock under the 2020 ESPP shall be assumed or an equivalent option shall be substituted by the successor corporation or parent or subsidiary of such successor corporation, (2) a date established by the Board on or before the date of consummation of such merger, consolidation or sale shall be treated as the purchase date, and all outstanding options shall be exercised on such date, or (3) all outstanding options shall terminate and the accumulated payroll deductions will be refunded without interest to the participants.

U.S. Tax Consequences

The following is a general summary as of the date of this proxy statement of the United States federal income tax consequences to the Company and participants in the 2020 ESPP. The federal tax laws may change and the federal, state, and local tax consequences for any participant will depend upon his or her individual circumstances. This summary is not intended to be exhaustive or constitute tax advice.

The 2020 ESPP and the right of participants to make purchases under the 2020 ESPP are intended to qualify under the provisions of Sections 421 and 423 of the IRC. Under these provisions, no income will be taxable to a participant, and no deductions will be allowable to the Company, at the time of grant of the option or the purchase of shares. Taxable income will not be recognized until either there is a sale or other disposition of the shares acquired under the 2020 ESPP or in the event the participant should die while still owning the purchased shares.

If the shares are sold or disposed, including by way of gift, at least two years after the offering date (the first day of the offering period during which shares were purchased) and more than one year after the date on which shares were transferred to the employee, then the lesser of (a) the excess of the fair market value of the shares on the date of disposition over the purchase price paid for the shares, referred to as the "option price," or (b) fifteen percent of the fair market value of the shares on the offering date, will be treated as ordinary income to the participant. We are not entitled to take a deduction for the amount of the discount in the circumstances described above. The employee's basis of the stock will be increased by the amount of the compensation income recognized. Any further gain or loss upon such disposition will be treated as long-term capital gain or loss. If the shares are sold and the sales price is less than the option price, there is no ordinary income and the participant has a capital loss for the difference.

If the shares are sold or disposed of (including by way of gift or by exchange in connection with the exercise of an incentive stock option) before the expiration of the holding periods described above, then the excess of the fair market value of the shares on the purchase date over the option price will be treated as ordinary income to the participant. This excess will constitute ordinary income in the year of sale or other disposition even if no gain is realized on the sale or a gratuitous transfer of the shares is made. The basis of the option stock will be increased by the amount of the compensation income recognized. Any further gain or loss recognized in connection with any such sale or exchange will be treated as capital gain or loss and will be treated as short-term capital gain or loss if the shares have been held less than one year.

If shares are sold or disposed of before the expiration of the statutory holding periods, we are generally entitled to a tax deduction in an amount equal to the ordinary income recognized by the participant in connection with such sale or disposition.

The foregoing summary of the effect of federal income taxation upon the participant and us with respect to the shares purchased under the 2020 ESPP does not purport to be complete. Reference should be made to the applicable provisions of the Internal Revenue Code. In addition, the summary does not discuss the tax implications of a participant's death or the provisions of the income tax laws of any municipality, state, or foreign country in which the participant may reside.

New Plan Benefits

Each of our current executive officers qualifies for participation under the 2020 ESPP. If the 2020 ESPP is approved by the stockholders, 1,000,000 shares of our common stock will be available for sale under the 2020 ESPP. Participation in the 2020 ESPP is voluntary and depends upon each eligible employee's election to participate and his or her determination as to the level of payroll deductions. Accordingly, future purchases by executive officers and other eligible employees under the 2020 ESPP are not determinable.

The Board of Directors Recommends A Vote "FOR" Proposal 2.

Current Equity Compensation Plan Information

We maintain three equity compensation plans, the 2000 Stock Plan (which was terminated as to new grants on May 1, 2012), the 2012 Equity Incentive Plan and the Old ESPP. As discussed above, the Old ESPP will expire on June 30, 2020. 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, 2019 are summarized in the following table:

	(A)	(B)	(C)
Plan category	Number of shares to be issued upon exercise of outstanding options, warrants and rights (1)	Weighted-average exercise price of outstanding options, warrants and rights (2)	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	2,635,095	\$5.10	2,866,027
Equity compensation plans not approved by stockholders	0	NA	NA
Total	2,635,095		2,866,027
Weighted average exercise price of outstanding options at December 31, 2019	\$ 8.92		
Weighted average remaining term of outstanding options at December 31, 2019	1.67 years		

- (1) Represents, as of December 31, 2019: (A) 353,919 shares issuable on exercise of outstanding options under the 2000 Stock Plan, plus (B) 1,151,804 shares issuable on exercise of outstanding options under the 2012 EIP, plus (C) 1,129,372 shares issuable on vesting of outstanding RSUs under the 2012 EIP (some of which will be withheld in respect of tax withholding obligations).
- (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, 2019 was \$8.92.
- (3) Represents the total shares available for issuance under our 2012 EIP and our Employee Stock Purchase Plan, as of December 31, 2019, as follows:
- (A) 2,670,152 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 (7,762,500 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, 2019), less the shares issuable on options and restricted stock units (counted at 1.5 shares each) outstanding under the 2012 EIP included in column (A)) and the shares issued prior to such date 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) 195,875 shares were available under the Old ESPP, which represents the total number of shares reserved for issuance under the plan (1,875,000) less the shares issued through December 31, 2019.

PROPOSAL 3: RATIFICATION OF THE APPOINTMENT OF OUR INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Upon the recommendation of the 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 2020 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 2019 and which the Audit Committee believes is well qualified to continue.

Ernst & Young LLP has audited the Company's financial statements since our initial public offering. Prior to recommending the re-appointment of the Company's independent auditor each year, the Audit Committee receives input from the Chief Executive and Chief Financial Officer on management's relationship with the auditor and input from the independent auditor on the engagement. In its decision to recommend re-appointment, the Audit Committee also considers the fees charged by the independent auditor and the potential benefits and challenges from switching independent audit firms. The audit engagement partner assigned to the Company's account rotates every 5 years, and the Audit Committee provides oversight and input to the selection of a successor audit engagement partner, along with management.

Representatives of Ernst & Young LLP 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 audit fees billed for, and other fees billed in, each of the last two fiscal years for professional services rendered by Ernst & Young LLP were as follows:

	2018	2019
Audit Fees	\$1,728,553	1,837,966
Audit Related Fees	\$26,628	31,660
Tax Compliance, Preparation of Returns and Tax Planning	\$117,909	96,264
Total Fees	\$1,873,090	\$1,965,890

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, and the Company's subscription to Ernst & Young's accounting & auditing research platform. Tax fees may include international tax planning, relating 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.

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. The Audit Committee does not delegate its responsibility to approve services performed by the independent auditor to any member of management. Under its charter, the

Audit Committee must pre-approve the fees to be paid to the independent auditor for audit services. The Audit Committee handles auditor fees under its pre-approval policy, in which the Audit Committee reviews fee estimates from the audit firm, and management is authorized to pay actual fee amounts that are not materially greater than the reviewed estimates.

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 SEC, 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 2018 and 2019 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 2020 notwithstanding a negative stockholder vote.

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

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 overall compensation goal is to drive stockholder value by (i) retaining executive talent through pay opportunities commensurate with pay at other companies of a similar size in the same or similar industries, as adjusted for individual factors, and (ii) driving achievement of long-term and annual strategic goals through payouts tied to performance. Details of the 2019 compensation provided to the NEOs may be found in the “*Executive Compensation—2019 Compensation Discussion and Analysis*” and the accompanying tables in this proxy statement. Key features of NEO compensation in 2019 were:

- **2019 Target Pay was a Balanced Mix of Base and Short- and Long-Term Incentive Pay with a Strong Emphasis on Performance Based Awards.** In 2019, the NEOs received base pay, a target annual cash incentive, and RSU equity compensation (half of which were performance based) that aligned well with elements of peer executive compensation targets. Combining the annual cash incentive with the performance based RSUs, 50% of the total target compensation of the Company’s chief executive officer (Mary G. Puma) was subject to achievement of specific performance goals, and an average of 44% of the other NEOs’ 2019 total target compensation was similarly performance based.
- **Executives Voluntarily Reduced their 2019 Base Pay.** In order to reduce expenses and maintain profitability in 2019, the Company’s executive officers, including the NEOs, voluntarily reduced base pay for 18 weeks in 2019 (35% of the year) by 10%, for an effective full year reduction of 3.5%. The Company achieved five years of consecutive quarterly profitability in 2019.
- **2019 Realized Short Term Performance Based Compensation was Below Target.** The performance based compensation realized by the NEOs in 2019 was below target pay as a result of the Company’s below-plan revenues and profitability. Specifically, there was no payout under the 2019 Axcelis Management Incentive Plan for the NEOs, since the Company’s revenue and operating profit performance fell below plan threshold metrics. However, all of the performance based RSUs granted in 2019 were earned by the NEOs based on the achievement of six of nine 2019 operational goals, each weighted 16.67%. The earned 2019 performance RSUs vested 50% in February 2020 and the remaining 50% will vest in February 2021, subject to continuation of employment.
- **2019 Realized Total Compensation was Below Target.** As a result of the base pay reductions and the absence of a payout on the 2019 Axcelis Management Incentive Plan, the Company’s chief executive officer and, on average, the other NEOs, received 80% of their target pay for 2019 (assuming all RSUs vest over the remaining service periods).

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 intends to take into account the outcome of this vote when considering future compensation arrangements for the Company's NEOs. We expect to 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 2019 compensation of the Company's named executive officers.

EXECUTIVE COMPENSATION

2019 Compensation Discussion and Analysis

This 2019 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 at December 31, 2019, who are included in the *Summary Compensation Table* below. 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 2019.

Executive Summary of Axcelis 2019 Executive Compensation

2019 Business Environment.

Axcelis designs, manufactures and services ion implantation and other processing equipment used in the fabrication of semiconductor chips. Our Purion platform family of ion implanters are, we believe, the most innovative implanters available on the market today. We sell to leading semiconductor chip manufacturers worldwide. In addition to equipment, we provide extensive aftermarket lifecycle products and services through our Customer Support and Innovation ("CS&I") team, which sells spare parts, equipment upgrades, maintenance services, used tools, and customer training.

2019 was a challenging year for the semiconductor equipment industry, with memory spending remaining low throughout the year. Despite reduced spending by our customers, Axcelis achieved several critical milestones in our drive to market leadership in ion implantation. 2019 marked the first time Axcelis has remained profitable through a full industry cycle. We have now achieved over five years of consecutive quarterly profits while making investments that put the Company in a stronger competitive position as we enter what we hope will be a period of extended growth.

In 2019 we continued to expand the Purion installed base, growing our large and diverse group of customers. We also sharpened our focus on key market segments using mature process technologies, such as image sensors and power devices. We grew our family of Purion product extensions with the launch of four new Purion implanters specifically targeted at these segments. Through the introduction of new Purion product extensions and continuous cost out activity, we improved our gross margin year over year, making this the second consecutive year with gross margin greater than 40 percent. Additionally, we maintained a strong balance sheet free of debt and instituted a share repurchase program.

2019 Say-on-Pay Vote

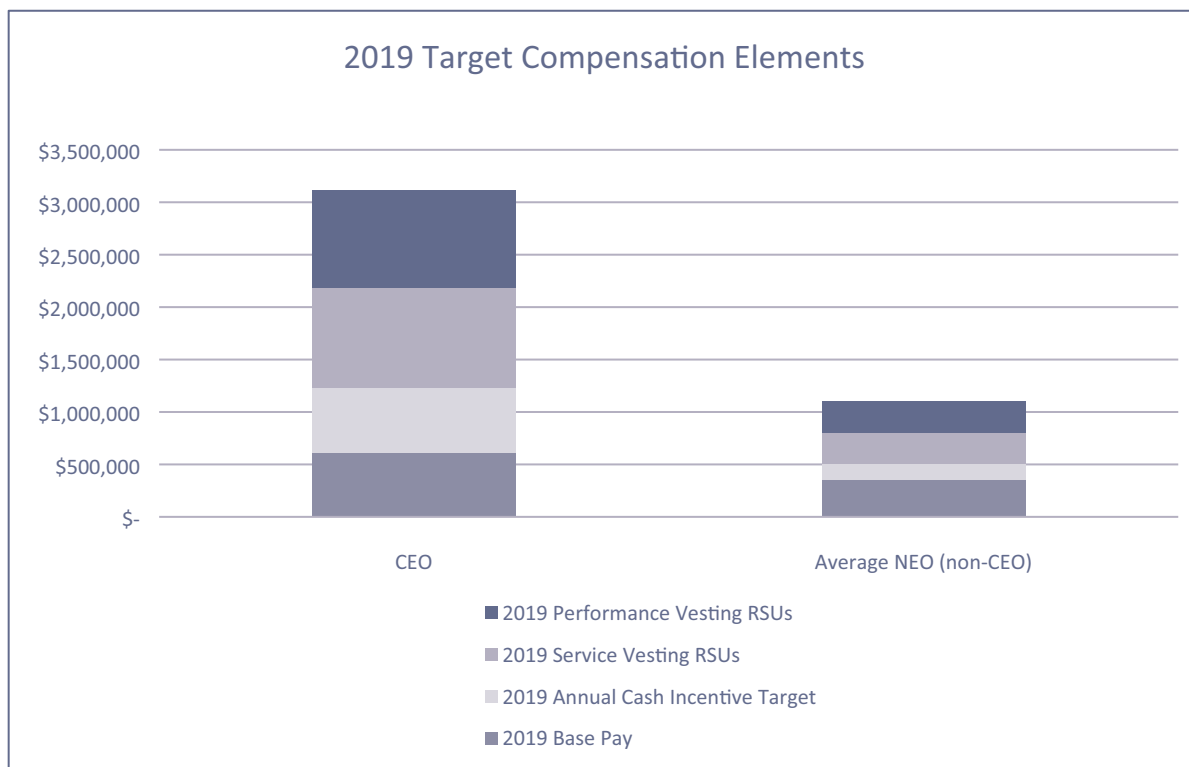
At our 2019 annual meeting, approximately 96.1% of votes cast were in favor in the advisory vote on 2018 executive compensation (commonly referred to as "Say-on-Pay"). The Compensation Committee of our Board of Directors considered that the results of the 2019

Say-on-Pay vote validated our general approach to executive compensation. The overall structure of our 2019 executive compensation was unchanged from that in 2018.

2019 Executive Target Compensation Balanced Service and Performance Based Components.

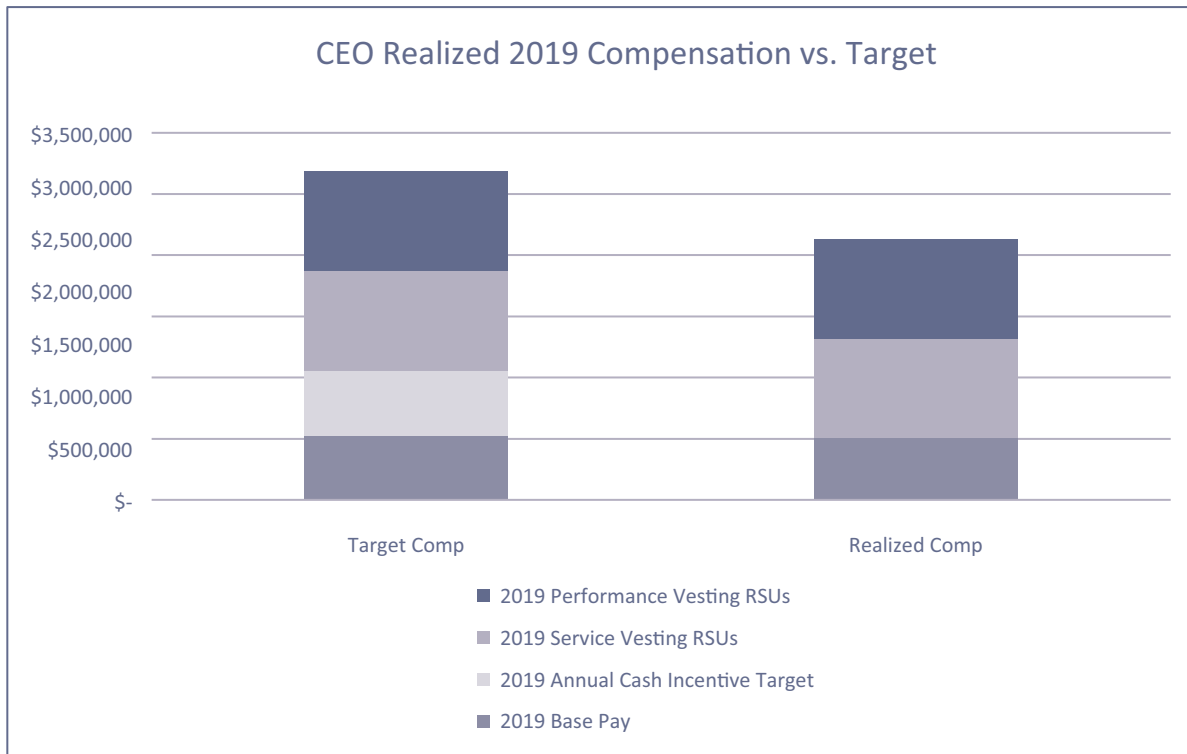
- Base salary represented 20% of the 2019 total target compensation of the Company’s chief executive officer (Mary G. Puma) and an average of 30% of the other NEOs’ 2019 total target compensation.
- In 2019, both the CEO’s cash compensation and the CEO’s equity compensation were equally divided between service based components and performance based components, with the performance based components totaling 50% of the CEO’s total target compensation. For the other NEOs, on average, performance based components represented 44% of the total target compensation.
- Each NEO received two 2019 RSU grants having equal value at grant: one with four year service based vesting and the other to be earned based on achievement of operational performance goals designed to drive long term business value, and having a two year service based vesting overlay. Using the value approved by the Compensation Committee, these RSU grants represented 61% of total target compensation for the CEO and 51% of the other NEOs’ 2019 total target compensation, on average.

The 2019 target compensation elements for the CEO and the average NEO other than the CEO are shown in the chart below:



2019 Realized Compensation was Below Target.

The 2019 performance compensation realized by the NEOs was below the target levels established for the year. Given the industry downturn, all Axcelis executive officers, including the NEOs, voluntarily reduced their base pay for 18 weeks in 2019 (35% of the year) by 10%, for an effective full year reduction of 3.5%. In addition, the Company's 2019 financial performance was below the threshold revenue and operating profit metrics used in the 2019 Axcelis Management Incentive Plan, so the NEOs received no cash incentive payout for 2019. However, all of the performance based RSUs granted in 2019 were earned, based on the achievement of six operational objectives established by the Compensation Committee for the year. Assuming that the service based vesting RSUs will vest over time, overall, the NEOs will realize 80% of their 2019 target compensation. The chart below compares the CEO's 2019 realized compensation to her 2019 target compensation:



Compensation Philosophy and Governance Practices

The Company's overall compensation goal is to drive stockholder value by implementing an executive compensation program designed to:

- (1) motivate and retain executive talent by offering total target compensation with a proportion of performance based compensation that aligns with median compensation in those categories at other companies of a similar size in the same or similar industries, as adjusted for individual factors; and

(2) drive achievement of annual and long-term strategic objectives by rewarding executives through incentive pay tied to approved financial and operational goals and equity grants that deliver value on the achievement of operational goals that will drive long-term business objectives, aligning pay with performance.

The Company also seeks to support our compensation philosophy with strong governance practices, which include:

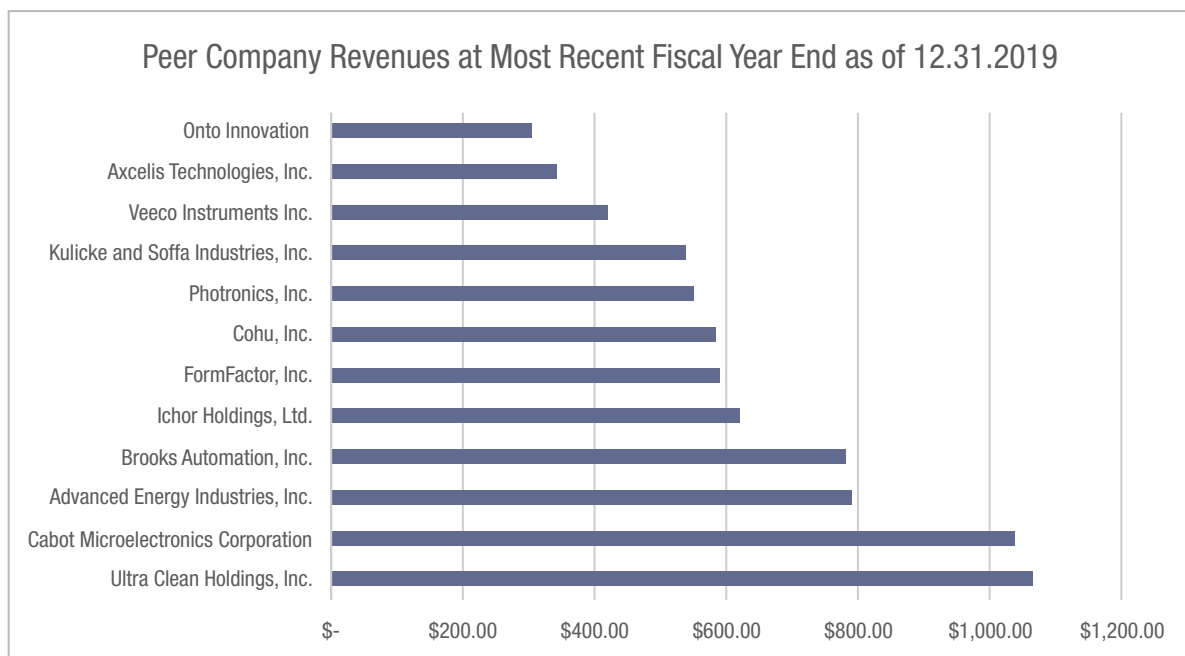
- An annual Say-on-Pay vote and related stockholder outreach;
- Annual or biennial benchmarking of executive compensation against an appropriate peer group;
- An equity award plan that seeks to align to best practices (including with respect to cost and voting power dilution, fungible share counting for whole share awards and prohibitions on repricing and cash repurchases);
- Equity grant practices below industry burn rates and acceptable voting power dilution;
- Executive stock ownership guidelines;
- Appropriate double trigger change of control benefits for executives with no excise tax indemnification;
- An executive compensation clawback policy that empowers the Board to recover incentive compensation under terms set forth in the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010; and
- No executive perquisites.

Review of Executive Compensation in 2019

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*" in this proxy statement. Executive compensation for incumbent executives is reviewed annually.

The Compensation Committee engaged an outside compensation consultant, Pearl Meyer, to assist with compensation decisions throughout 2019. These decisions were made with reference to a full benchmarked review of executive compensation provided by Pearl Meyer in August 2018, covering both cash and equity compensation for each of the executive officer positions at Axcelis in comparison to market data. The Committee determined that it was not necessary to update this full review in 2019, but did obtain benchmarking updates on specific topics from Pearl Meyer in 2019. The Committee assessed Pearl Meyer's independence in light of the SEC rules and Nasdaq listing standards and determined that no conflict of interest or independence concerns exist.

In August 2019, the Compensation Committee, together with management, reviewed the companies selected as peer companies in 2018, noting that Electro Scientific Industries, Inc. and Xcerra Corporation had been consolidated with other companies. At that time, the Committee considered an addition to the Company's compensation peer group proposed by Pearl Meyer in light of the loss of these two other companies. The Compensation Committee decided the proposed company was not appropriate peer, given that it participated in a very different part of the semiconductor industry. Since the August 2019 review of the peer group, two other peers have merged: Nanometrics Incorporated and Rudolph Technologies, Inc. The consolidation in the semiconductor capital equipment industry has resulted in Axcelis' revenues falling below the median of the remaining companies in our peer group, with whom we mainly compete for talent. The Company's current peer group for compensation purposes is currently the following 11 companies:



The Committee will review the peer group again prior to the next executive compensation benchmarking exercise, expected to be in 2020. The Committee agreed to look outside of the semiconductor industry to other global manufacturing capital equipment businesses. Companies engaged in semiconductor manufacturing, semiconductor design and suppliers of materials to semiconductor manufacturers are not appropriate peers. Unlike chip designers, chip makers and semiconductor material suppliers, semiconductor equipment manufacturers make large, high cost products, sold in relatively small numbers to a relatively small number of global customers and maintain and support their products at customer sites around the world. The Committee determined to continue to look for peers from among companies whose businesses require similar types, numbers and locations of employees to those of the Company, while also being in a reasonable range of revenues around Axcelis.

In developing their report in August 2018, Pearl Meyer obtained compensation information for Axcelis' peers from proxy statements and other filings available at that time. In addition, Pearl

Meyer used compensation information from a proprietary global technology survey, reflecting companies of approximately the same size as Axcelis. The weight of peer group information and compensation survey data information used to develop compensation benchmark data for each of the Axcelis executive officers varied by the position, depending on the availability of data for that position from the peer group.

In Pearl Meyer’s August 2018 report, the then-current compensation of each NEO was between the 40th and 50th percentiles of the market data. Benchmarking also showed that Axcelis’ pay mix was near peers, but weighted more towards cash compensation than equity due to relatively modest equity grants. In response, the Committee increased the size of the NEO equity awards in 2019 to align with median equity award values as shown in the 2018 Pearl Meyer report.

Material Elements of Named Executive Officer Compensation

The table below lists the key elements of NEO compensation, why Axcelis has chosen to pay each compensation element, and how Axcelis determines the amount of each element:

Compensation Element	Principal Rationale for Inclusion	How Amount is Determined
Base salaries	To attract and retain qualified executives in a competitive industry.	We seek to provide opportunities for each element of compensation at levels that consider both the market median benchmark for the position and the contribution and experience of the particular executive.
Annual Cash Incentive	To drive achievement of annual strategic objectives through at-risk pay tied to financial and operational goals, resulting in appropriate pay-for-performance.	
Equity Awards	To drive achievement of long-term stockholder value through RSU grants with service based vesting, half of which are earned only on achievement of operational goals designed to drive long term performance, resulting in retention and appropriate pay-for-performance.	

The following discussion explains how, in 2019, each compensation element and the Company’s decisions regarding that element fit into the Company’s overall compensation objectives and affected decisions regarding other elements.

Base Salary

The Company pays a base salary to each of its NEOs. Base salary for NEOs is set on commencement of employment with the Company and reviewed by the Compensation Committee annually thereafter to adjust as needed to align with market benchmarking. In the event that base salary is a factor in calculating annual incentive cash compensation or equity grants, when fixing or adjusting base salary, the Compensation Committee will consider the impact of a change on these other compensation components. In February 2019, the Compensation Committee

increased Ms. Puma’s base pay, which had been below the median base pay reported by Pearl Meyer in their August 2018 report, to \$615,000, which amount is between median and the 75th percentile of peer companies in the 2018 Pearl Meyer report. No other changes to NEO base pay were made by the Compensation Committee in 2019.

As noted above, in 2019, the executive officers of the Company, including the NEOs, elected to voluntarily reduce their 2019 base pay. This action was designed to reduce expenses and maintain profitability in 2019 during the continuance of challenging market conditions in which the memory sector significantly reduced its investment in new production equipment. The Company’s executive officers, including the NEOs, voluntarily reduced base pay for 18 weeks in 2019 (35% of the year) by 10%, for an effective full year reduction of 3.5%. The action was effective; 2019 marked the first time Axcelis has remained profitable through a full industry cycle.

Annual Cash Incentive—2019 Axcelis Management Incentive Plan

In February 2019, the Compensation Committee adopted the Company’s annual cash incentive plan, the 2019 Axcelis Management Incentive Plan (the “2019 AMI”). Approximately 260 management-level employees participated in the 2019 AMI, each of whom was assigned a target payout, expressed as a percent of base salary. As in 2018, the Committee set the 2019 AMI target for Ms. Puma at 100% of her base salary. Mr. Brewer’s 2019 AMI target was set at 70%, and Mr. Aldeborgh, Mr. Bintz and Dr. Low’s 2019 AMI targets were set at 60%, of their respective 2019 base salary.

Based on the relevance of revenue and operating profit to the Company’s long term goals, and a supportive 2018 Say-on-Pay vote, the Committee used the same metric categories for the 2019 AMI as in 2018. Revenue growth over time is critical for the Company, an indicia of growing market share. Operating profit is viewed as a preferable metric to net income, since it eliminates factors outside the control of management. The table below shows the metrics established for the 2019 AMI, setting 0%, 100% and 200% funding scores for 2019 revenue and operating profit.

Targets, in millions, each weighted 50%	Threshold: 85% of 2019 Plan Revenues	2019 Profit Plan	Maximum: 115% of 2019 Plan Revenues
Score	<i>0%</i>	<i>100%</i>	<i>200%</i>
2019 Revenue	\$390.08	\$458.91	\$527.75
2019 Operating Profit before annual cash incentive plan payout	\$ 31.8	\$ 65.9	\$ 85.5

The target profit plan revenues in 2019 were 11% higher than in 2018, despite the fact that, on an industry-wide basis, 2019 semiconductor equipment sales were expected to be flat with or below 2018 sales. The levels of revenue and operating profit in the 2019 AMI were chosen so that the revenue and operating profit expected in the 2019 profit plan would result in a 100% AMI funding, with the minimum and maximum levels set at a reasonable range around the expected performance, ranging from 85% of the planned revenues to 200% of the planned revenues, with appropriate operating profit levels for those revenue levels. The 2019 AMI funding level was capped at a 200% payout. At the 200% level, the payout under the 2019 AMI would have represented 17% of the total operating profit before payout.

Under the 2019 AMI plan design, actual 2019 financial performance would be compared to these metrics, and a weighted score developed. Each of metrics would be scored by placing the 2019 results between the two applicable goal posts (0% and 100%; or 100% and 200%) and interpolating the final score. Each of these scores would be weighted and totaled for a final score to be submitted to the Compensation Committee for approval. A total at-target payout (a 100% funding score) of the 2019 AMI would have equaled approximately \$7.0 million. The Compensation Committee had the authority to adjust the funding for extraordinary items and other qualitative aspects of the Company's 2019 performance (using benchmarks and budgets) to ensure that the funding score reflected actual performance and not extraordinary events and was otherwise appropriate. As designed, actual payouts would equal the individual participant's target payout, multiplied by the AMI funding score.

In February 2020, the Compensation Committee determined that no payout had been earned under the 2019 AMI, given that both 2019 revenue and operating profit before the annual cash incentive payout (at \$343.0 million and \$25.6 million, respectively) were below the threshold levels in the 2019 AMI. Accordingly, the executive officers received no payout under the 2019 AMI.

In light of financial and other achievements in 2019, management determined to use their discretionary authority under the 2019 AMI (known as the Star Performer Pool) to make small payouts under the 2019 AMI to the non-executive officer participants in the 2019 AMI, totaling approximately \$440,000.

Long-Term Equity Incentive Compensation

Equity Compensation Philosophy. Equity compensation for NEOs, which since 2016 has taken the form of restricted stock units, is designed to align the interests of executives with those of our stockholders and to retain executives through the use of multi-year vesting periods and performance goals. Thus, equity grants should constructively influence management's motivation to enhance the value of the Company's stock and achieve strategic objectives.

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 and align executive officers with long-term stockholder interests. Ms. Puma is required to own shares having a value equal to three times her base salary. The other NEOs are required to own shares having a value equal to 1.5 times base salary or, if less, 16,250 shares. Until an NEO meets the requisite stock ownership level prescribed by the stock ownership guidelines, the NEO is encouraged to retain 50% of the net shares received through the exercise of stock options or in connection with the vesting of RSUs. These guidelines are intended to ensure that the executives' interests in the value of the Company's stock include interests in stock as well as equity-based incentive awards, and as such are more fully aligned with the interests of Company stockholders generally. NEOs are also subject to the Company's policies prohibiting hedging and pledging our common stock, which are discussed above under "*Corporate Governance.*"

Equity Compensation Processes. Equity grants to executives are made upon hire and, typically, on an annual basis thereafter. 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 and to continue to award long-term compensation that is directly tied to Company performance. 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.

RSUs allow us to issue fewer shares than stock options to deliver comparable value, which reduces overhang and potential stockholder dilution. RSUs also have a significant retention effect given the vesting terms. Beginning in 2016, the Compensation Committee attached performance goals to a portion of the RSU grants to NEOs, a practice aligned with peers.

It is the Committee's general practice to approve equity awards with a future effective date, usually on the 15th (or the next succeeding trading day) of a month following the approval, with annual equity grants approved in February and made in May. 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.

2019 Annual Equity Grants. In February 2019, the Compensation Committee determined that, as in the prior two years, RSUs would be used as the form of equity compensation for the annual executive equity grants, with 50% vesting on a service basis alone, and 50% to be earned based on the achievement of performance goals, followed by service based vesting.

In February 2019, the Compensation Committee fixed values for the 2019 RSU grant to each NEO at approximately the median peer group and survey benchmark for the position, as reported by in Pearl Meyer's August 2018 report. The 2018 benchmarking showed that Axcelis' pay mix was near peers, but weighted more towards cash compensation than equity due to relatively modest equity grants. In response, the Committee increased the size of the NEO equity awards in 2019 to align with median equity award values as shown in the 2018 Pearl Meyer report. The number of units for each RSU grant was determined by dividing an approved grant value by the average closing price of the Company's common stock over a 30-day period ending three trading days prior to the grant date. The 2019 RSU grants to NEOs are set forth in the *Grants of Plan Based Awards in Fiscal 2019* table below.

The Committee determined that 50% of the 2019 RSUs would vest at the rate of 25% on each of the first four anniversaries of the date of grant until fully vested in May 2023 (assuming continuation of employment). The remaining 50% of the 2019 RSUs were made subject to performance goals. The 2019 performance RSUs granted by the Committee would be either forfeited or earned, in whole or in part, based on management's attainment of up to nine performance goals. With the annual cash incentive plan focused on current year financial results, the Committee used these annual equity awards to focus the NEOs on achieving milestones that were essential for the Company's long term growth.

The 2019 performance RSUs were designed to drive the achievement of specific operational goals that needed to be achieved in 2019 for the Company to fulfill its aggressive growth strategy, and reach its long term business model of \$550M in revenue, resulting in high profitability and market share. As in prior years, the Committee used the performance RSUs to keep management's focus on critical, well-understood, initiatives rather than on broad financial metrics. These operational goals related to specific customer penetrations, specific technical achievements and other tactical goals with strategic implications. Unlike broad financial metrics, which can be set over multiple years, the type of foreseeable operational goals selected by the Committee are by nature more near term. The Committee believes that these operational goals are no less strategic than longer term financial goals, and given the Company's track record, may be more effective at driving the right near term behavior to achieve desired long term results.

Specifically, the 2019 RSU performance goals related to: (i) the achievement of a specific milestone for the Purion Dragon system at a customer beta site; (ii) achievement of ready to ship status for the Purion XEmax and the Purion H200 systems; (iii) the sign off of two Purion evaluation systems at customer sites; (iv) receipt of orders from identified customers; and (v) the production release of a productivity upgrade. Disclosure of the customer names and exact financial and technical goals for these performance objectives would violate customer confidentiality agreements and provide sensitive information to the Company's competitors. Each of the nine objectives was weighted 16.67%, so achievement of six would result in 100% vesting. The 2019 performance RSU terms did not contemplate either partial achievement of a goal or more than 100% vesting. Performance RSUs that are earned through goal achievement are also subject to service vesting terms, in which 50% of the earned RSUs vest in 2020 and 50% in 2021.

In February 2020, the Compensation Committee determined that the Company met six of the nine performance objectives, and accordingly, 100% of the 2019 performance RSUs were earned and would vest in accordance with the two year schedule, assuming continuation of employment.

Employment and Change of Control Agreements

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 and severance upon a qualifying termination of employment. See *"Payments on Termination or Change of Control—Employment Agreement with Ms. Puma"* below. No action was taken by the Compensation Committee in 2019 relating to this Employment Agreement, which renews automatically each year.

Beginning in 2015, the Company entered into Executive Separation Pay Agreements with each of the NEOs other than Ms. Puma. The initial agreements had a five year term, expiring in March 2020 for Mr. Brewer, Mr. Aldeborgh and Mr. Bintz, and in November 2021 for Dr. Low. In 2019, the Compensation Committee approved the replacement of the initial agreements with 2019 Executive Separation Pay Agreements having the same terms, but which had an initial term expiring January 1, 2021 (January 1, 2022 in the case of Dr. Low), and for one year terms thereafter unless, not later than April 1 of the preceding year, the Company or the executive had given notice not to extend the term. These 2019 Executive Separation Pay Agreements were

entered into with each of the NEOs, other than Ms. Puma, on May 15, 2019. They provide that in the event of a termination without cause, the executive will continue to receive base salary for 12 months. If the NEO elects to continue health coverage under COBRA, the Company will waive 12 months of COBRA premiums. In addition, the Company will provide transition support having a value of \$15,000.

Each of the NEOs has a double-trigger Change of Control Agreement, with no indemnification for the “Golden Parachute” excise taxes under Sections 280G and 4999 of the Internal Revenue Code. In 2019 and early 2020, older change of control agreements with excise tax indemnifications held by Ms. Puma, and certain of the other NEOs expired in accordance with their terms. See “*Payments on Termination or Change of Control*,” below, and “*Corporate Governance—Governance Policies*,” above. If a Change of Control Agreement applies, the NEO will receive the greater of the change of control payout or the payout under the Executive Separation Pay Agreement (or in the case of Ms. Puma, under her Employment Agreement).

Other Compensation Components

The Company has entered into Indemnification Agreements with each of its executive officers, which are in the same form as the Indemnification Agreements with each of the Company’s non-employee directors. Axcelis’ Indemnification Agreements are intended to provide protection from legal liability arising from the individual’s service as an executive to the extent typically provided by U.S. public companies. The Company indemnifies its executive officers to the fullest extent permitted by law with respect to his or her status or activities as an executive or other fiduciary of Axcelis, its subsidiaries and any other entities or committees on which the executive has been asked by the Company to serve, against all judgments, fines, amounts paid in settlement, and all reasonably incurred expenses. These Indemnification Agreements supplement the indemnification provisions in the Company’s Restated Certificate of Incorporation. As required in the Indemnification Agreements, the Company purchases director and officer liability insurance that would reimburse the Company for costs incurred under these Indemnification Agreements and for certain third party liabilities. In addition, the Company maintains “Side A” director and officer liability insurance which is for the exclusive benefit of the directors and officers, permitting direct reimbursement from the insurer if the Company was unable or unwilling to provide indemnification due to a lack of funds or other issue. The adequacy of our director and officer liability insurance coverage is reviewed, and adjusted if needed, on an annual basis.

The Company maintains no executive perquisites. Executives are entitled to service awards under a recognition program in which all employees participate, that provides gift certificates to employees on each five year work anniversary. The value of these service awards increases by tenure from \$100 to \$425, after tax, without regard to position.

Executives may elect to make contributions to a retirement account in the Company’s IRC Section 401(k) plan on the same basis as Company employees generally. For 2019, the Company made a matching contribution to the 401(k) plan at the rate of 50% of the employee’s pre-tax contributions up to the first 6% of eligible compensation contributed to the plan. Employer contributions to NEOs participating in the 401(k) plan are included in the “All other compensation” column in the *2019 Summary Compensation Table*. The Company does not

maintain for the NEOs either a defined benefit pension plan or any non-qualified deferred compensation plan.

NEOs may also participate in the Company's medical insurance offerings on the same basis as full time Company employees generally by electing to make payroll deductions designed to cover approximately 25% or 30% of the cost of those programs (the Company covers the remaining cost). The Company also offers dental insurance, and provides life, accidental death and dismemberment and disability insurance for all employees, with the opportunity to increase coverage levels via payroll deductions. Emergency medical coverage is included in the Company's standard business travel insurance, which would be secondary to an employee's regular medical coverage.

Finally, the Company maintains an Employee Stock Purchase Plan, a voluntary IRC Section 423 plan in which employees may purchase Axcelis shares through salary deductions. None of the NEOs participated in the Employee Stock Purchase Plan in 2019.

Executive Compensation Clawback Policy

In 2014, the Board of Directors adopted an Executive Compensation Clawback Policy which authorizes the Board to seek recovery of incentive cash and equity compensation as contemplated by Section 954 of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010. In addition, the Company's policy authorizes a clawback of incentive compensation (including both cash and equity awards) in the event of any violation of an agreement with the Company or of any policy of the Company (which would include violations of the Company's Ethics policy or any applicable law) and also in the event of a voluntary departure to work for a competitor.

Risk Assessment of Compensation Policies and Practices

In 2019, the Company determined, in its reasonable business judgment, 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's compensation programs, policies and practices, (ii) identification of risks, if any, related to the programs, policies and practices, (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) The structure of our executive compensation program includes a balanced mix of cash and equity compensation; 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 risks inherent in the Company's strategic plan, as approved by the Board;
 - 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 incentive compensation is made pursuant to written plans, subject to calculation and approval by senior management and the finance department, and tied to actual receipt of payments from the customer;
 - Payouts under the Company's European and Asian annual cash incentive plan are in the discretion of senior management, which considers both qualitative and quantitative assessments of performance; and
 - Payouts under the Company's US annual cash incentive plan are in the discretion of the Compensation Committee, which considers both qualitative and quantitative assessments of performance.

Tax Implications

Section 162(m) of the Internal Revenue Code generally disallows a federal tax deduction to public companies for compensation in any tax year to specified executive officers to the extent that the compensation to such executive officer exceeds \$1 million. Prior to 2018, certain "qualified performance based compensation" was exempted from the deductibility limitation under Section 162(m) of the Internal Revenue Code. Beginning in 2018, under the Tax Cuts and Jobs Act of 2017, performance based compensation that was not under a written binding contract in effect at November 2, 2017 will not be exempted from the \$1 million deduction limitation.

Our stock options and performance based RSUs were intended to be "qualified performance-based compensation" in 2017 and earlier years, and those equity grants outstanding at November 2, 2017 should continue to be exempt from the \$1 million deduction limitation under Section 162(m). However, it is possible that awards intended to qualify for the tax deduction will not qualify if all requirements of the "qualified performance-based compensation" exemption are not met.

The Compensation Committee believes that tax deductibility is only one of several relevant considerations in setting compensation, and that the tax deduction limitation should not be permitted to compromise the Compensation Committee's ability to structure its compensation to provide benefits to the Company that outweigh the potential benefit of the tax deduction. Accordingly, the Committee may approve compensation that is not deductible for federal income tax purposes in the future.

2019 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,

R. John Fletcher, Chairman
Arthur L. George, Jr.
John T. Kurtzweil
Richard J. Faubert
Jorge Titinger

2019 Summary Compensation Table

Name and Principal Position	Year	Salary \$(1)	Stock awards \$(2)	Non-equity incentive plan compensation \$(3)	All other compensation \$(4)	Total (\$)
Mary G. Puma, Chief Executive Officer and President	2019	\$590,250	\$1,562,091	\$ —	\$8,400	\$2,160,741
	2018	\$585,000	\$1,457,075	\$ 556,335	\$8,250	\$2,606,660
	2017	\$579,615	\$ 951,042	\$1,064,753	\$8,100	\$2,603,511
Kevin J. Brewer, Executive Vice President and Chief Financial Officer	2019	\$378,431	\$ 596,065	\$ —	\$8,825	\$ 983,321
	2018	\$387,423	\$ 704,256	\$ 232,535	\$8,250	\$1,332,464
	2017	\$379,616	\$ 345,833	\$ 418,412	\$8,100	\$1,151,961
John E. Aldeborgh, Executive Vice President, Global Customer Operations	2019	\$347,538	\$ 476,839	\$ —	\$7,154	\$ 831,531
	2018	\$355,385	\$ 364,269	\$ 202,782	\$ 142	\$ 922,577
	2017	\$330,000	\$ 276,667	\$ 363,726	\$ —	\$ 970,393
William Bintz, Executive Vice President, Product Development	2019	\$318,577	\$ 452,177	\$ —	\$8,400	\$ 779,154
	2018	\$330,000	\$ 364,269	\$ 188,298	\$8,250	\$ 890,816
	2017	\$330,000	\$ 276,667	\$ 363,726	\$8,100	\$ 978,493
Russell J. Low, Executive Vice President, Engineering	2019	\$318,577	\$ 452,177	\$ —	\$8,400	\$ 779,154
	2018	\$325,384	\$ 364,269	\$ 185,664	\$8,250	\$ 883,568
	2017	\$300,000	\$ 276,667	\$ 330,660	\$8,100	\$ 915,427

- (1) Base salary is set by the Compensation Committee, based on benchmarking using our peer group or survey data. Other than Ms. Puma, the named executive officers (NEOs) do not have employment agreements addressing base salary. Ms. Puma's employment agreement is described under the heading "Payments on Termination or Change in Control" in this proxy statement.
- (2) Represents the grant date fair value of RSU 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) No non-equity incentive plan compensation was paid in respect of the 2019 Axcelis Management Incentive Plan as described in the "Compensation Discussion and Analysis" in this Proxy Statement. Non-equity incentive plan compensation in 2018 and 2017 represents amounts that were paid under the 2018 and 2017 Axcelis Management Incentive Plans, as described in the "Compensation Discussion and Analysis" in the Proxy Statements for our 2019 Annual Meeting and our 2018 Annual Meeting, respectively.
- (4) The amounts in this column represent (A) the amount paid in cash as a matching contribution to Axcelis' 401(k) plan in respect of contributions made by the NEO during the year, and (B) the value of service awards received in the year, under a recognition program in which gift certificates are given to employees on each 5 year work anniversary, increasing in value from \$100 to \$425, after tax.

Grants of Plan Based Awards in Fiscal 2019

Name	Grant Date(2)	Date of Compensation Committee Approval	Estimated Possible Payouts under Non-Equity Incentive Plan Awards(1)		Threshold (#)	Estimated Possible Payouts under Equity Incentive Plan Awards(2)		All Other Stock Awards: Number of Shares of Stock or Units (#)(3)	Grant Date Fair Value of Stock and Option Awards(4)
			Target (\$)	Maximum (\$)		Target (#)	Maximum (#)		
Mary G. Puma	5/15/2019	2/5/2019	\$615,000	\$1,230,000	7,592	45,542	45,542	45,542	\$1,562,091
Kevin J. Brewer	5/15/2019	2/5/2019	\$274,400	\$ 548,800	2,897	17,378	17,378	17,378	\$ 596,065
John E. Aldeborgh	5/15/2019	2/5/2019	\$216,000	\$ 432,000	2,317	13,902	13,902	13,902	\$ 476,839
William Bintz	5/15/2019	2/5/2019	\$198,000	\$ 396,000	2,198	13,183	13,183	13,183	\$ 452,177
Russell J. Low	5/15/2019	2/5/2019	\$198,000	\$ 396,000	2,198	13,183	13,183	13,183	\$ 452,177

- (1) These target and maximum payouts are under the 2019 Axcelis Management Incentive Plan, discussed above in “2019 Compensation Discussion and Analysis—Annual Cash Incentive—2019 Axcelis Management Incentive Plan.” Based on the achievement of financial metrics for 2019, no payout to the NEOs was made under the 2019 AMI, as shown in the Summary Compensation Table.
- (2) The NEOs were granted performance based RSUs under the Company’s 2012 Equity Incentive Plan effective May 15, 2019, to be earned based on the achievement of performance goals tied to long-term objectives. The threshold number of shares that could be earned was 16.67%, if only one out of nine performance goals were achieved. Fifty percent of the earned shares vest on each of February 28, 2020 and February 28, 2021. As discussed above, 100% of these performance based RSUs were earned, and accordingly 50% of the shares vested on February 28, 2020, with the remainder to vest on February 28, 2021. Other than future services to the Company, no consideration was paid or will be due in order acquire these RSUs. The unvested 2019 performance RSUs will be forfeited if the NEO’s employment terminates prior to vesting, as described in the table entitled “Outstanding Equity Awards at Fiscal 2019 Year End.” See “Long-Term Equity Incentive Compensation—2019 Equity Grants” in “2018 Compensation Discussion and Analysis” above.
- (3) The NEOs were granted service based RSUs under the Company’s 2012 Equity Incentive Plan effective May 15, 2019, which vest as to 25% of such shares on the each of the first four anniversaries of the date of grant, assuming continuation of employment. Other than future services to the Company, no consideration was paid or will be due in order acquire these RSUs. The 2019 service based RSUs will be forfeited if the NEO’s employment terminates prior to vesting, as described in the table entitled “Outstanding Equity Awards at Fiscal 2019 Year End.” See “Long-Term Equity Incentive Compensation—2019 Equity Grants” in “2019 Compensation Discussion and Analysis” above.
- (4) Represents the grant date fair value of the equity awards received by the NEO in 2019, 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 2019.

Outstanding Equity Awards at Fiscal 2019 Year End

Name	Option Awards				Stock Awards			
	Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable	Option Exercise Price (\$)	Option Expiration Date	Number of Shares or Units of Stock that Have Not Vested (#)(2)	Market Value of Shares or Units of Stock that Have Not Vested (\$)(3)	Equity Incentive Plan Awards: Number of Unearned Shares, Units or Other Rights that Have Not Vested (#)(4)	Equity Incentive Plan Awards: Market Value of Unearned Shares, Units or Other Rights that Have Not Vested (\$)(3)
Mary G. Puma	62,500	0	\$ 6.40	7/15/2021				
	75,000	0	\$ 7.20	7/15/2021				
	75,000	0	\$12.04	7/15/2022	122,134	\$2,943,434	45,542	\$1,097,555
Kevin J. Brewer	14,063	0	\$ 7.20	7/15/2021				
	24,610	0	\$12.04	7/15/2022	50,778	\$1,223,744	17,378	\$ 418,804
John E. Aldeborgh	50,000	0	\$ 7.20	7/15/2021				
	50,000	0	\$12.04	7/15/2022	34,180	\$ 823,728	13,902	\$ 335,043
William Bintz	12,500	0	\$ 7.20	7/15/2021				
	21,875	0	\$12.04	7/15/2022	33,461	\$ 806,398	13,183	\$ 317,713
Russell J. Low	(1) 16,424	5,475	\$14.00	11/15/2023	31,084	\$ 749,127	13,183	\$ 317,713

(1) Assuming continued employment, Dr. Low's unexercisable 2016 options will become exercisable on November 15, 2020.

(2) The NEOs except for Dr. Low were granted service-vesting RSUs under the Company's 2012 Equity Incentive Plan effective May 16, 2016. Dr. Low was granted a service-vesting RSU under that plan on November 15, 2016. All of the NEOs were granted service-vesting RSUs under that plan on May 17, 2017, May 16, 2018 and May 15, 2019. All of the service-vesting RSUs granted to NEOs vest as to 25% of the shares on each of the first four anniversaries of the date of grant, assuming continuation of employment. In addition, each of the executives were granted RSUs on May 16, 2018 that were earned based on the achievement of performance goals, all of which were earned. Half of these performance RSUs vested in February 2019 and the remaining 50% of the 2018 performance vesting RSUs will vest on February 28, 2020, assuming continuation of employment.

(3) The market value of the unvested RSUs held by the executives at December 31, 2019 was determined by multiplying the unvested RSUs by the closing price on December 31, 2019 of \$24.10.

(4) Each of the executives were granted RSUs on May 15, 2019 that could be earned based on the achievement of performance goals. In February 2020, the Compensation Committee determined that all of the 2019 performance RSUs were earned. In accordance with the terms of the grant, 50% of the earned RSUs vested on February 28, 2020. The remaining 50% of the 2019 performance vesting RSUs will vest on February 28, 2021, assuming continuation of employment. See "Long-Term Equity Incentive Compensation—2019 Equity Grants" in "2019 Compensation Discussion and Analysis" above.

Option Exercises and Stock Vested During Fiscal 2019

Name	Option Awards		Stock Awards	
	Number of Shares Acquired on Exercise (#)	Value Realized on Exercise (\$)(1)	Number of Shares Acquired on Vesting (#)	Value Realized on Vesting (\$)(2)
Mary G. Puma	125,000	\$1,921,506	51,737	\$939,261
Kevin J. Brewer	—		22,415	\$410,518
John E. Aldeborgh	—		13,710	\$247,804
William Bintz	—		13,710	\$247,804
Russell J. Low	—		11,334	\$223,378

- (1) Represents the difference between the closing market price of Axcelis common stock on the date of exercise and the exercise price of the option, multiplied by the number of options exercised. The actual amount received by the NEO on the sale of any of the shares acquired on exercise will depend on the market values of the Company's common stock at the time the NEO disposes of such shares.
- (2) Represents the closing market price of Axcelis common stock on the date of vesting multiplied by the number of shares vested. A portion of the vested shares were withheld for taxes and not issued to the NEO. The actual amount received by the NEO on the sale of any of the shares acquired on exercise will depend on the market values of the Company's common stock at the time the NEO disposes of such shares.

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. Ms. Puma's initial rate of pay in 2019 was \$585,000, which was increased to \$615,000 on Compensation Committee approval in February 2019. 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.

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 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 of the Employment Agreement for reasons other than cause, death, disability or in the event of voluntary resignation without "good reason" (as defined in the Employment Agreement), she is entitled to full acceleration of vesting of options and other equity rights and a cash separation payment. The cash separation payment will equal 24 months of her monthly base salary and a monthly annual bonus amount, determined in accordance with the agreement. For this purpose, Ms. Puma's monthly bonus compensation equals her then effective annual base salary, divided by 12 and multiplied by the greater of (a) the percentage of her annual base salary that she actually received as a bonus for the prior fiscal year or (b) 25% of her annual base salary. Under the Employment Agreement, Ms. Puma is also entitled to up to 18 months of Company-paid COBRA

premiums. The following table sets forth the separation pay that would have been due to Ms. Puma under her Employment Agreement if a qualifying termination occurred on December 31, 2019:

Lump sum cash payment (1)	Value of accelerated vesting on equity awards (2)	18 months of COBRA premiums for health coverage (3)	Total
\$2,399,730	\$1,948,671	\$34,696	\$4,383,097

- (1) This amount represents 24 months of Ms. Puma’s base salary at the highest rate in effect in the year preceding December 31, 2019 plus 24 months of a monthly bonus amount as specified in the agreement. The monthly rate of annual base salary (\$51,250) and monthly bonus amount (\$48,739) were calculated using her annual base salary of \$615,000 in effect at December 31, 2019, and the 2018 AMI score of 95.1%. 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. This valuation is based on the closing price of our common stock on the last trading day of 2019 (\$24.10). The actual amount received by Ms. Puma on exercise of options and the sale of shares issued on restricted stock units 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 2019 for Ms. Puma’s coverage elections. Actual COBRA rates will change on January 1, 2020.

Executive Officer Separation Pay Agreements. In May 2019, the Compensation Committee approved the execution of Executive Separation Pay Agreements with each of the NEOs other than Ms. Puma (the “2019 Executive Separation Pay Agreements”). These agreements replaced similar agreements that were expiring in 2020 and 2021. These 2019 Executive Separation Pay Agreements provide that in the event of a termination without cause, the executive will continue to receive base salary for 12 months. If the NEO elects to continue health coverage under COBRA, the Company will waive 12 months of COBRA premiums. In addition, the Company will provide transition support having a value of \$15,000.

The NEO must provide a release of claims in order to receive the separation pay. The NEO will not be eligible to receive the severance payments and benefits described in the agreement in the event that (i) the executive’s employment is terminated by the Company for cause or due to executive’s death or disability, or (ii) the executive resigns from employment, regardless of the reason(s) for such resignation. The following table sets forth the separation pay that would have

been due to these NEOs under their respective 2019 Executive Separation Pay Agreements if a qualifying termination occurred on December 31, 2019:

	Cash Separation Pay (1)	Value of transition assistance (2)	12 months of COBRA premiums for health coverage (3)	Total
Kevin J. Brewer	\$392,000	\$15,000	\$23,131	\$430,131
John E. Aldeborgh	\$360,000	\$15,000	\$23,131	\$398,131
William Bintz	\$330,000	\$15,000	\$23,131	\$368,131
Russell J. Low	\$330,000	\$15,000	\$31,724	\$376,724

- (1) This amount represents 12 months of the NEO's annual base salary in effect on December 31, 2019. This amount would be paid in 26 bi-weekly installments.
- (2) In the event separation pay is due, the Company will provide transition assistance to the NEO having a value of \$15,000. The Company will work with the executive to provide assistance that meets the needs of the executive, and will offer support in accordance with the Company's practices for executive terminations generally.
- (3) The Executive Separation Pay Agreements provide that the Company will pay for up to 12 months of COBRA premiums. This amount represents 12 months of 2019 COBRA premiums for the executive's coverage elections for 2019. Actual COBRA rates will change on January 1, 2020.

Change of Control Agreements. Each of the NEOs is a party to a Change of Control Agreement with the Company. None of the currently effective agreements have an indemnification or gross up for excise taxes. This is consistent with our 2014 governance policy against any new commitments to reimburse excise taxes due on change of control payouts under Sections 280G and 4999 of the Internal Revenue Code. See "*Payments on Termination or Change of Control*," below, and "*Corporate Governance—Governance Policies*," above.

The Change of Control Agreements provide that the NEOs are entitled to severance compensation in the event there is both (1) a change in control and (2) a termination of employment within a period of time following the change in control either (A) by the Company for reasons other than cause, death, disability or (B) due to a voluntary resignation by the executive without good reason. "Good reason" includes an adverse change in the executive's role or position; a reduction in the executive's base salary; 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 a majority of the shares outstanding after the transaction. Under the Change of Control Agreements, severance compensation consists of a cash payment equal to a multiple of the executive's annual base salary and annual bonus as of the date of termination. The multiple in Ms. Puma's Change of Control Agreement is two, while the multiple in the other NEOs' Change of Control Agreements is 1.5.

The amounts that would have been due to each NEO under the Change of Control Agreements in effect at December 31, 2019, in the event that a change of control and termination occurred on that date, are set forth in the table below:

Estimated Payments under the Change of Control Agreements if due at December 31, 2019			
Name	Lump sum cash payment (2)	Value of accelerated vesting on equity awards (3)	Total (4)
Mary G. Puma	\$3,075,000	\$1,948,671	\$5,023,671
Kevin J. Brewer	\$1,274,000	\$ 794,089	\$2,068,089
John E. Aldeborgh (1)	\$1,944,000	\$ 565,776	\$2,509,776
William Bintz	\$ 990,000	\$ 544,020	\$1,534,020
Russell J. Low	\$ 990,000	\$ 552,302	\$1,542,302

- (1) At December 31, 2019, Mr. Aldeborgh was a party to a legacy change of control agreement that provided for a grossed-up indemnification for excise taxes under IRC Section 280G. Mr. Aldeborgh's hypothetical termination on December 31, 2019 would not have triggered any excise tax under IRC Section 280G. This legacy change of control agreement expired in February 2020.
- (2) This amount represents separation pay equal to (A) a multiple of (i) the executive's current annual base salary plus (ii) a target bonus amount, and (B) the executive's target AMI for 2019, prorated for the months worked during the year. Since termination for all NEOs is assumed at year end, the 2019 AMI targets have not been prorated. The multiple is 2, in the case of Ms. Puma, and 1.5, in the case of the other NEOs, other than Mr. Aldeborgh. Mr. Aldeborgh's multiple, under the legacy change of control agreement that expired in February 2020, was 3.
- (3) These amounts reflect a valuation of the acceleration of all of the NEO's outstanding unvested RSU awards (and in the case of Dr. Low, an unvested stock option) using the value of the closing price of our common stock on the last trading day of 2019 (\$24.10) and the methods prescribed by regulations under IRC Section 280G. Depending on the terms of the transaction, some or all of the executive's unvested equity awards may vest without regard to the effect of the Change of Control Agreements. The actual amount received by the NEO on the sale of shares from vested equity awards will depend on the market values at the time of the change of control.
- (4) The Change of Control Agreement with each NEO other than Mr. Aldeborgh provides that the lump sum cash value is reduced by an amount needed to avoid the excise tax due under IRC Section 280G. The hypothetical terminations on December 31, 2019 would not have triggered any excise tax under IRC Section 280G, so no reduction would have been made.

Ratio of CEO Pay to Median Employee Pay

Ms. Puma's total 2019 compensation was \$2,160,741, as determined for the purposes of the *2019 Summary Compensation Table* above. This amount was approximately 28 times the total 2019 compensation of the median Axcelis employee selected in 2017, calculated on the same basis. We do not believe that there has been any change in (a) the 2017 median employee's circumstances, or (b) our employee population or employee compensation arrangements that would result in a significant change in our pay ratio disclosure if a new employee were selected using 2019 data. We identified our 2017 median employee by estimating annual base salary for all Axcelis employees (excluding Ms. Puma) over the twelve month period ending October 1, 2017. To do this, we used the annual full time rate of pay as of October 1, 2017 for all

employees, and then reduced the pay of those employees who, during the period (i) worked part time schedules, (ii) worked partial work years due to leaves and/or (iii) were newly hired. The 2017 median employee's 2019 compensation, calculated on the basis required for the Summary Compensation Table, was \$77,852.

Since other companies have different employee populations and compensation practices and may utilize different methodologies, exclusions, estimates, and assumptions in calculating their own pay ratios, the pay ratios reported by other companies may not be comparable to the pay ratio reported above.

AXCELIS TECHNOLOGIES, INC.

EMPLOYEE STOCK PURCHASE PLAN

As adopted by the Board of Directors, on August 15, 2019,
for consideration by the Stockholders in May 2020

Adopted effective July 1, 2020, pursuant to a resolution of the Board of Directors on August 15, 2019, provided approval by the Stockholders of the Company is obtained within 12 months after Board approval in accordance with Code section 423(b)(2)

1. *PURPOSE.*

The purpose of this Plan is to provide an opportunity for Employees of Axcelis Technologies, Inc. (the “Company”) and its Designated Subsidiaries, to purchase Common Stock of the Company and thereby to have an additional incentive to contribute to the prosperity of the Company. It is the intention of the Company that the Plan qualifies as an “Employee Stock Purchase Plan” under Section 423 of the Internal Revenue Code of 1986, as amended.

2. *DEFINITIONS.*

(a) **“Board”** shall mean the Board of Directors of the Company.

(b) **“Code”** shall mean the Internal Revenue Code of 1986, as amended. Any reference to a section of the Code herein shall be a reference to any successor or amended section of the Code.

(c) **“Committee”** shall mean the committee appointed by the Board in accordance with Section 14 of the Plan.

(d) **“Common Stock”** shall mean the Common Stock of the Company, or any stock into which such Common Stock may be converted.

(e) **“Compensation”** shall mean:

- Regular earnings/base pay;
- Overtime pay, including California “Doubletime” pay and Axcelis “Long Hours Pay;” and
- Paid time off, including Axcelis Time Management pay (but not the payment of accrued and unused ATM on termination of employment), Sick Time pay, and Holiday pay.

All other payments by the Company to the Employee are not “Compensation,” subject to the Committee’s authority to change the definition of “Compensation” pursuant to the last sentence of this provision. Specifically, but without limitation, “Compensation” *does not include*:

- (A) any variable pay (including without limitation sales incentive compensation, such as commissions and MBOs, patent awards, spot bonuses, AIM bonuses, holiday bonuses, sign-on bonuses, relocation bonuses, referral bonuses, and payments under the Axcelis Management Incentive Plan, Axcelis Asian Incentive Plans, Axcelis European Incentive Plan, or any successors to such plans or any other similar management bonuses or incentive payment);
- (B) shift or lead premiums or differentials, non-worked pay for compressed shifts;
- (C) short term or long term disability pay, severance pay, retirement recognition payments, pay in lieu of ATM or other paid time off, whether on termination of employment or otherwise; and
- (D) “beeper” or “on-call” pay, allowances for cars, cost-of-living, housing, internet, other goods and services, expat tax-related payments, relocation reimbursement, and tuition reimbursement.

The Committee shall have the authority to change the forms of pay included in the definition of Compensation on a prospective basis; any such change shall be documented in writing and made available to participants together with this plan.

(f) “**Company**” shall mean Axcelis Technologies, Inc., a Delaware corporation.

(g) “**Designated Subsidiary**” shall mean a Subsidiary that has been designated by the Committee as eligible to participate in the Plan with respect to its Employees.

(h) “**Employee**” shall mean an individual classified as an employee (within the meaning of Code Section 3401(c) and the regulations thereunder) by the Company or a Designated Subsidiary on the Company’s or such Designated Subsidiary’s payroll records during the relevant participation period. Employees shall not include individuals classified as independent contractors.

(i) “**Entry Date**” shall mean the first Trading Day of an Offering Period.

(j) “**Fair Market Value**” shall be the closing sales price for the Common Stock (or the closing bid, if no sales were reported) as quoted on the NASDAQ Stock Market, or other principal securities market on which the Common Stock is traded, on the date of determination if that date is a Trading Day, or if the date of determination is not a Trading Day, the last market Trading Day prior to the date of determination, as reported in *The Wall Street Journal* or such other source as the Committee deems reliable.

(k) “**Offering Period**” shall mean the period of six (6) months commencing on the first Trading Day on or about July 1 of every year and terminating on the last Trading Day in the period ending six (6) months later. Subsequent Offering Periods, if any, shall run consecutively after the termination of the preceding Offering Period. The duration and timing of Offering

Periods may be changed or modified by the Committee, subject to the limitations set forth in Section 4.

(l) **“Participant”** shall mean a participant in the Plan as described in Section 5 of the Plan.

(m) **“Plan”** shall mean the Axcelis Technologies, Inc. Employee Stock Purchase Plan.

(n) **“Purchase Date”** shall mean the last Trading Day of each Offering Period.

(o) **“Purchase Price”** shall mean 85% of the Fair Market Value of a share of Common Stock on the Purchase Date; provided however, that the Purchase Price may be adjusted by the Committee pursuant to Section 7.3.

(q) **“Stockholder”** shall mean a record holder of shares entitled to vote shares of Common Stock under the Company’s by-laws.

(r) **“Subsidiary”** shall mean any corporation (other than the Company) in an unbroken chain of corporations beginning with the Company, as described in Code Section 424(f).

(s) **“Trading Day”** shall mean a day on which U.S. national stock exchanges are open for trading.

3. ELIGIBILITY.

3.1 Except as set forth herein, any Employee regularly employed on a full-time or part-time basis by the Company or by any Designated Subsidiary on an Entry Date shall be eligible to participate in the Plan with respect to the Offering Period commencing on such Entry Date, provided that the Committee may establish administrative rules requiring that employment commence some minimum period (e.g., one pay period) prior to an Entry Date to be eligible to participate with respect to the Offering Period beginning on that Entry Date.

3.2 The Committee may also determine that a designated group of highly compensated Employees are ineligible to participate in the Plan so long as the excluded category fits within the definition of “highly compensated employee” in Code Section 414(q). No Employee may participate in the Plan if immediately after an option is granted the Employee owns or is considered to own (within the meaning of Code Section 424(d)), shares of stock, including stock which the Employee may purchase by conversion of convertible securities or under outstanding options granted by the Company, possessing five percent (5%) or more of the total combined voting power or value of all classes of stock of the Company or of any of its Subsidiaries.

3.3 All Employees who participate in the Plan shall have the same rights and privileges under the Plan except for differences which may be mandated by local law and which are consistent with Code Section 423(b)(5); provided, however, that any affiliate of the Company whose Employees are not granted options under this Plan may adopt a separate “sub-plan” in accordance with the provisions of Section 15 which is not designed to qualify under Code section 423 and the Employees participating thereunder need not have the same rights and privileges as Employees participating in the Code section 423 Plan. The Board may impose

restrictions on eligibility and participation of Employees who are officers and directors to facilitate compliance with federal or state securities laws or foreign laws.

4. *OFFERING PERIODS.*

The Plan shall be implemented by consecutive Offering Periods with a new Offering Period commencing on the first Trading Day on or after the date six (6) months from the first date of the immediately preceding Offering Period, or on such other date as the Committee shall determine, and continuing thereafter for six (6) months or until terminated pursuant to Section 13 hereof. Unless otherwise determined by the Committee, the Plan will operate with successive six (6) month Offering Periods commencing at July 1 and January 1. The Committee shall have the power to change the duration of future Offering Periods, without Stockholder approval, and without regard to the expectations of any Participants if such change is announced at least five (5) days prior to the scheduled beginning of the first Offering Period to be affected thereafter, provided, however, that an Offering Period shall in no event be longer than twenty-seven (27) months or such longer period as may be consistent with Section 423 of the Code.

5. *PARTICIPATION.*

5.1 An Employee who is eligible to participate in the Plan in accordance with Section 3 may become a Participant by completing and submitting, on a date prescribed by the Committee prior to an applicable Entry Date (unless a later date is set by the Committee), a completed payroll deduction authorization and Plan enrollment form provided by the Company or by following an electronic or other enrollment process as prescribed by the Committee. An eligible Employee may authorize payroll deductions at the rate of any whole percentage of the Employee's Compensation, not to exceed ten percent (10%) of the Employee's Compensation. As determined by the Committee, payroll deductions may begin at a date after the effective date of the Plan and shall continue through subsequent Offering Periods pursuant to Section 5.4 until the Participant's termination, subject to modification by the Participant as provided in Section 5.3, and unless participation is earlier withdrawn by the Participant as provided in Section 5.2. All payroll deductions may be held by the Company and commingled with its other corporate funds where administratively appropriate. No interest shall be paid or credited to the Participant with respect to such payroll deductions. The Company shall maintain a separate bookkeeping account for each Participant under the Plan and the amount of each Participant's payroll deductions shall be credited to such account. A Participant may not make any additional payments into such account.

5.2 Under procedures established by the Committee, a Participant may withdraw from the Plan during an Offering Period, by completing and filing a new payroll deduction authorization and Plan enrollment form with the Company or by following electronic or other procedures prescribed by the Committee, prior to a date set by the Committee that precedes the Purchase Date. If a Participant withdraws from the Plan during an Offering Period, his or her accumulated payroll deductions will be refunded to the Participant without interest. The Committee may establish rules limiting the frequency with which Participants may withdraw and re-enroll in the Plan and may impose a waiting period on Participants wishing to re-enroll following withdrawal.

5.3 A Participant may change his or her rate of contribution through payroll deductions during the periods specified by the Committee by filing a new payroll deduction authorization and Plan enrollment form or by following electronic or other procedures prescribed by the Committee. If a Participant has not followed such procedures to change the rate of contribution, the rate of contribution shall continue at the originally elected rate throughout the Offering Period and future Offering Periods. In accordance with Section 423(b)(8) of the Code, the Committee may reduce a Participant's payroll deductions to zero percent (0%) at any time during an Offering Period.

5.4 Automatic Re-Enrollment. At the termination of each Offering Period, each Participant who continues to be eligible to participate pursuant to Section 3 shall be automatically re-enrolled in the next Offering Period, unless the Participant has advised the Company otherwise in accordance with Section 5.2 and Section 5.3.

6. TERMINATION OF EMPLOYMENT.

In the event any Participant terminates employment with the Company or any of its Designated Subsidiaries for any reason (including death) prior to the expiration of an Offering Period, the Participant's participation in the Plan shall terminate and all amounts credited to the Participant's account shall be paid to the Participant or, in the case of death, to the Participant's heirs or estate, without interest. Whether a termination of employment has occurred shall be determined by the Committee. The Committee may also establish rules regarding when leaves of absence or changes of employment status will be considered to be a termination of employment, including rules regarding transfer of employment among Designated Subsidiaries, Subsidiaries and the Company, and the Committee may establish termination of employment procedures for this Plan which are independent of similar rules established under other benefit plans of the Company and its Subsidiaries.

7. OFFERING.

7.1 Subject to adjustment as set forth in Section 10, the maximum number of shares of Common Stock which may be issued pursuant to the Plan shall be 1,000,000 shares. If, on a given Purchase Date, the number of shares with respect to which options are to be exercised exceeds the number of shares then available under the Plan, the Company shall make a pro rata allocation of the shares remaining available for purchase in as uniform a manner as shall be practicable and as it shall determine to be equitable.

7.2 With respect to any Offering Period, each Participant shall be granted, as of such Participant's Entry Date, an option for each Offering Period to purchase that number of whole shares of Common Stock (not to exceed 500 shares per Offering Period) which may be purchased with the payroll deductions accumulated on behalf of such Participant during each such Offering Period at the purchase price specified in Section 7.3 below, subject to the additional limitation that no Participant participating in the Section 423 Plan shall be granted an option to purchase Common Stock under the Plan at a rate which exceeds U.S. twenty-five thousand dollars (U.S. \$25,000) of the Fair Market Value of such Common Stock (determined at the time such option is granted) for each calendar year in which such option is outstanding at any time. The foregoing sentence shall be interpreted so as to comply with Code Section 423(b)(8).

7.3 The purchase price under each option shall be a percentage (not less than eighty-five percent (85%)) established by the Committee (“Designated Percentage”) of the Fair Market Value of the Common Stock on the Purchase Date on which the Common Stock is purchased. The Committee may change the Designated Percentage with respect to any future Offering Period, but not below eighty-five percent (85%).

8. *PURCHASE OF STOCK.*

Upon the Purchase Date, a Participant’s option shall be exercised automatically for the purchase of that number of whole and fractional shares of Common Stock which the accumulated payroll deductions credited to the Participant’s account at that time shall purchase at the applicable price specified in Section 7.3. Notwithstanding the foregoing, the Company or its designee may make such provisions and take such action as it deems necessary or appropriate for the withholding of taxes and/or social insurance which the Company or its Designated Subsidiary is required by law or regulation of any governmental authority to withhold. Each Participant, however, shall be responsible for payment of all individual tax liabilities arising under the Plan.

9. *PAYMENT AND DELIVERY.*

As soon as practicable after the exercise of an option, the Company shall deliver to the Participant a record of the Common Stock purchased and the balance of any amount of payroll deductions credited to the Participant’s account not used for the purchase, except as specified below. The Committee may permit or require that shares be deposited directly with a broker designated by the Committee or to a designated agent of the Company, and the Committee may utilize electronic or automated methods of share transfer. The Committee may require that shares be retained with such broker or agent for a designated period of time and/or may establish other procedures to permit tracking of disqualifying dispositions of such shares. The Company shall retain the amount of payroll deductions used to purchase Common Stock as full payment for the Common Stock and the Common Stock shall then be fully paid and non-assessable. No Participant shall have any voting, dividend, or other Stockholder rights with respect to shares subject to any option granted under the Plan until the shares subject to the option have been purchased and delivered to the Participant as provided in this Section 9.

10. *RECAPITALIZATION.*

If after the grant of an option, but prior to the purchase of Common Stock under the option, there is any increase or decrease in the number of outstanding shares of Common Stock because of a stock split, stock dividend, combination or recapitalization of shares subject to options, the number of shares to be purchased pursuant to an option, the price per share of Common Stock covered by an option and the maximum number of shares specified in Section 7.1 may be appropriately adjusted by the Board, and the Board shall take any further actions which, in the exercise of its discretion, may be necessary or appropriate under the circumstances.

The Board’s determinations under this Section 10 shall be conclusive and binding on all parties.

11. MERGER, LIQUIDATION, OTHER CORPORATE TRANSACTIONS.

In the event of Stockholder approval of a liquidation or dissolution of the Company, the Offering Period will terminate immediately, unless otherwise provided by the Board in its sole discretion, and all outstanding options shall automatically terminate and the amounts of all payroll deductions will be refunded without interest to the Participants.

In the event of a sale of all or substantially all of the assets of the Company, the acquisition by a person (including any entity or group) of beneficial ownership of a majority of the Company's outstanding capital stock (based on voting power, but excluding any acquisition by the Company, its affiliate, employee benefit plans of the Company or its affiliate, and any underwriter holding securities temporarily pursuant to an offering), or the merger or consolidation of the Company with or into another corporation, then in the sole discretion of the Board, (1) each option shall be assumed or an equivalent option shall be substituted by the successor corporation or parent or subsidiary of such successor corporation, (2) a date established by the Board on or before the date of consummation of such merger, consolidation or sale shall be treated as a Purchase Date, and all outstanding options shall be exercised on such date, or (3) all outstanding options shall terminate and the accumulated payroll deductions will be refunded without interest to the Participants.

12. TRANSFERABILITY.

Options granted to Participants may not be voluntarily or involuntarily assigned, transferred, pledged, or otherwise disposed of in any way, and any attempted assignment, transfer, pledge, or other disposition shall be null and void and without effect. If a Participant in any manner attempts to transfer, assign or otherwise encumber his or her rights or interests under the Plan, other than as permitted by the Code, such act shall be treated as an election by the Participant to discontinue participation in the Plan pursuant to Section 5.2.

13. AMENDMENT OR TERMINATION OF THE PLAN.

13.1 The Plan shall continue until terminated in accordance with Section 13.2.

13.2 The Board may, in its sole discretion, insofar as permitted by law, terminate or suspend the Plan, or revise or amend it in any respect whatsoever, except that, without approval of the Stockholders, no such revision or amendment shall materially increase the number of shares subject to the Plan, other than an adjustment under Section 10 of the Plan.

14. ADMINISTRATION.

The Board shall appoint a Committee to serve as the administrator of the Plan, consisting of at least two members who will serve for such period of time as the Board may specify and whom the Board may remove at any time. The Committee will have the authority and responsibility for the day-to-day administration of the Plan, the authority and responsibility specifically provided in this Plan and any additional duty, responsibility and authority delegated to the Committee by the Board, which may include any of the functions assigned to the Board in this Plan. The Committee may delegate to one or more individuals the day-to-day administration

of the Plan. The Committee shall have full power and authority to promulgate any rules and regulations which it deems necessary for the proper administration of the Plan, to interpret the provisions and supervise the administration of the Plan, to make factual determinations relevant to Plan entitlements and to take all action in connection with administration of the Plan as it deems necessary or advisable, consistent with the delegation from the Board. Decisions of the Board and the Committee shall be final and binding upon all participants. Any decision reduced to writing and signed by a majority of the members of the Committee shall be fully effective as if it had been made at a meeting of the Committee duly held. The Company shall pay all expenses incurred in the administration of the Plan. No Board or Committee member shall be liable for any action or determination made in good faith with respect to the Plan or any option granted hereunder.

15. COMMITTEE RULES FOR FOREIGN JURISDICTIONS.

The Committee may adopt rules or procedures relating to the operation and administration of the Plan to accommodate the specific requirements of local laws and procedures. Without limiting the generality of the foregoing, the Committee is specifically authorized to adopt rules and procedures regarding handling of payroll deductions, payment of interest, conversion of local currency, payroll tax, withholding procedures and handling of stock certificates which vary with local requirements.

The Committee may also adopt "sub-plans" separate from this Plan for purposes of Code Section 423 applicable to particular affiliates of the Company, which sub-plans may be designed to be outside the scope of Code section 423. Notwithstanding the foregoing, the shares of Common Stock issued under any sub-plan shall be aggregated with the shares of Common Stock issued under this Plan and such aggregate number of shares shall be subject to the maximum number set forth under Section 7.1 hereof. The rules of such sub-plans may take precedence over other provisions of this Plan, with the exception of Section 7.1, but unless otherwise superseded by the terms of such sub-plan, the provisions of this Plan shall govern the operation of such sub-plan.

16. SECURITIES LAWS REQUIREMENTS.

The Company shall not be under any obligation to issue Common Stock upon the exercise of any option unless and until the Company has determined that: (i) it and the Participant have taken all actions required to register the Common Stock under the Securities Act of 1933, or to perfect an exemption from the registration requirements thereof; (ii) any applicable listing requirement of any stock exchange on which the Common Stock is listed has been satisfied; and (iii) all other applicable provisions of state, federal and applicable foreign law have been satisfied.

17. GOVERNMENTAL REGULATIONS.

This Plan and the Company's obligation to sell and deliver shares of its stock under the Plan shall be subject to the approval of any governmental authority required in connection with the Plan or the authorization, issuance, sale, or delivery of stock hereunder.

18. *NO ENLARGEMENT OF EMPLOYEE RIGHTS.*

Nothing contained in this Plan shall be deemed to give any Employee the right to be retained in the employ of the Company or any Designated Subsidiary or to interfere with the right of the Company or Designated Subsidiary to discharge any Employee at any time.

19. *GOVERNING LAW.*

This Plan shall be governed by Delaware law, without regard to that State's choice of law rules.

20. *EFFECTIVE DATE.*

By resolution of the Board of Directors on August 15, 2019, this Plan was adopted to be effective July 1, 2020, subject to approval by the Stockholders of the Company within 12 months before or after Board approval, in accordance with Code section 423(b)(2).

21. *REPORTS.*

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