
**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**
Washington, D.C. 20549
FORM 10-Q

(Mark One)

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

For the quarterly period ended **June 30, 2017**

Or

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

For the transition period from _____ to _____

Commission file number **000-30941**

AXCELIS TECHNOLOGIES, INC.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

34-1818596
(IRS Employer
Identification No.)

108 Cherry Hill Drive
Beverly, Massachusetts 01915
(Address of principal executive offices, including zip code)

(978) 787-4000
(Registrant's telephone number, including area code)

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

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

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer

Accelerated filer

Non-accelerated filer
(Do not check if a smaller reporting company)

Smaller reporting company

Emerging growth company

If an emerging growth company, indicate by check mark if registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act) Yes No

As of August 1, 2017 there were 31,223,801 shares of the registrant's common stock outstanding.

Table of Contents

PART I - FINANCIAL INFORMATION

<u>Item 1. Financial Statements (Unaudited)</u>	
Consolidated Statements of Operations for the three and six months ended June 30, 2017 and 2016	3
Consolidated Statements of Comprehensive Income for the three and six months ended June 30, 2017 and 2016	4
Consolidated Balance Sheets as of June 30, 2017 and December 31, 2016	5
Consolidated Statements of Cash Flows for the six months ended June 30, 2017 and 2016	6
Notes to Consolidated Financial Statements (Unaudited)	7
<u>Item 2. Management’s Discussion and Analysis of Financial Condition and Results of Operations</u>	14
Overview	14
Critical Accounting Estimates	14
Results of Operations	15
Liquidity and Capital Resources	22
<u>Item 3. Quantitative and Qualitative Disclosures About Market Risk</u>	23
<u>Item 4. Controls and Procedures</u>	23
<u>PART II - OTHER INFORMATION</u>	24
<u>Item 1. Legal Proceedings</u>	24
<u>Item 1A. Risk Factors</u>	24
<u>Item 2. Unregistered Sales of Equity Securities and Use of Proceeds</u>	24
<u>Item 3. Defaults Upon Senior Securities</u>	24
<u>Item 4. Mine Safety Disclosures</u>	24
<u>Item 5. Other Information</u>	24
<u>Item 6. Exhibits</u>	25

PART 1—FINANCIAL INFORMATION**Item 1. Financial Statements.**

Axcelis Technologies, Inc.
Consolidated Statements of Operations
(In thousands, except per share amounts)
(Unaudited)

	Three months ended June 30,		Six months ended June 30,	
	2017	2016	2017	2016
Revenue:				
Product	\$ 96,539	\$ 58,859	\$ 178,517	\$ 121,034
Services	6,251	5,592	11,166	10,938
Total revenue	<u>102,790</u>	<u>64,451</u>	<u>189,683</u>	<u>131,972</u>
Cost of revenue:				
Product	57,689	34,638	104,486	74,902
Services	6,039	4,682	11,421	8,523
Total cost of revenue	<u>63,728</u>	<u>39,320</u>	<u>115,907</u>	<u>83,425</u>
Gross profit	<u>39,062</u>	<u>25,131</u>	<u>73,776</u>	<u>48,547</u>
Operating expenses:				
Research and development	11,256	8,478	21,151	17,114
Sales and marketing	7,485	5,790	14,534	11,750
General and administrative	7,791	6,232	14,848	12,274
Restructuring charges	—	—	—	282
Total operating expenses	<u>26,532</u>	<u>20,500</u>	<u>50,533</u>	<u>41,420</u>
Income from operations	<u>12,530</u>	<u>4,631</u>	<u>23,243</u>	<u>7,127</u>
Other (expense) income:				
Interest income	111	54	180	108
Interest expense	(1,336)	(1,338)	(2,447)	(2,385)
Other, net	16	(238)	(138)	(297)
Total other expense	<u>(1,209)</u>	<u>(1,522)</u>	<u>(2,405)</u>	<u>(2,574)</u>
Income before income taxes	<u>11,321</u>	<u>3,109</u>	<u>20,838</u>	<u>4,553</u>
Income tax (benefit) provision	<u>(2,611)</u>	<u>172</u>	<u>(2,600)</u>	<u>(332)</u>
Net income	<u>\$ 13,932</u>	<u>\$ 2,937</u>	<u>\$ 23,438</u>	<u>\$ 4,885</u>
Net income per share:				
Basic	<u>\$ 0.46</u>	<u>\$ 0.10</u>	<u>\$ 0.78</u>	<u>\$ 0.17</u>
Diluted	<u>\$ 0.42</u>	<u>\$ 0.10</u>	<u>\$ 0.72</u>	<u>\$ 0.16</u>
Shares used in computing net income per share:				
Basic weighted average common shares	<u>30,589</u>	<u>29,097</u>	<u>30,183</u>	<u>29,066</u>
Diluted weighted average common shares	<u>33,168</u>	<u>30,701</u>	<u>32,779</u>	<u>30,607</u>

See accompanying Notes to these Consolidated Financial Statements

Axcelis Technologies, Inc.
Consolidated Statements of Comprehensive Income
(In thousands)
(Unaudited)

	<u>Three months ended</u>		<u>Six months ended</u>	
	<u>June 30,</u>		<u>June 30,</u>	
	<u>2017</u>	<u>2016</u>	<u>2017</u>	<u>2016</u>
Net income	\$ 13,932	\$ 2,937	\$ 23,438	\$ 4,885
Other comprehensive income (loss):				
Foreign currency translation adjustments	489	(456)	2,404	593
Amortization of actuarial gains/losses and other adjustments from pension plan	29	26	57	52
Total other comprehensive income (loss)	<u>518</u>	<u>(430)</u>	<u>2,461</u>	<u>645</u>
Comprehensive income	<u>\$ 14,450</u>	<u>\$ 2,507</u>	<u>\$ 25,899</u>	<u>\$ 5,530</u>

See accompanying Notes to these Consolidated Financial Statements

Axcelis Technologies, Inc.
Consolidated Balance Sheets
(In thousands, except per share amounts)
(Unaudited)

	June 30, 2017	December 31, 2016
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 108,558	\$ 70,791
Accounts receivable, net	48,561	50,573
Inventories, net	122,574	113,853
Prepaid expenses and other current assets	9,985	5,512
Total current assets	<u>289,678</u>	<u>240,729</u>
Property, plant and equipment, net	31,617	30,840
Long-term restricted cash	6,793	6,864
Other assets	26,654	23,798
Total assets	<u>\$ 354,742</u>	<u>\$ 302,231</u>
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	\$ 27,606	\$ 24,996
Accrued compensation	12,170	5,142
Warranty	3,537	2,426
Income taxes	255	240
Deferred revenue	13,832	10,335
Other current liabilities	4,957	4,592
Total current liabilities	<u>62,357</u>	<u>47,731</u>
Sale leaseback obligation	47,692	47,586
Long-term deferred revenue	1,070	674
Other long-term liabilities	5,185	4,785
Total liabilities	<u>116,304</u>	<u>100,776</u>
Commitments and contingencies (Note 12)		
Stockholders' equity:		
Preferred stock, \$0.001 par value, 30,000 shares authorized; none issued or outstanding	—	—
Common stock, \$0.001 par value, 75,000 shares authorized; 31,180 shares issued and outstanding at June 30, 2017; 29,518 shares issued and outstanding at December 31, 2016	31	30
Additional paid-in capital	546,491	535,408
Accumulated deficit	(308,266)	(331,704)
Accumulated other comprehensive income (loss)	182	(2,279)
Total stockholders' equity	<u>238,438</u>	<u>201,455</u>
Total liabilities and stockholders' equity	<u>\$ 354,742</u>	<u>\$ 302,231</u>

See accompanying Notes to these Consolidated Financial Statements

Axcelis Technologies, Inc.
Consolidated Statements of Cash Flows
(In thousands)
(Unaudited)

	Six months ended June 30,	
	2017	2016
Cash flows from operating activities		
Net income	\$ 23,438	\$ 4,885
Adjustments to reconcile net income to net cash provided by (used in) operating activities:		
Depreciation and amortization	2,432	2,061
Deferred taxes	(2,910)	480
Stock-based compensation expense	2,580	2,079
Provision for excess and obsolete inventory	1,014	815
Changes in operating assets & liabilities:		
Accounts receivable	2,699	(26,448)
Inventories	(7,527)	(1,540)
Prepaid expenses and other current assets	(4,253)	(3,054)
Accounts payable and other current liabilities	10,788	3,721
Deferred revenue	3,859	5,875
Income taxes	7	50
Other assets and liabilities	(730)	(5,627)
Net cash provided by (used in) operating activities	31,397	(16,703)
Cash flows from investing activities		
Expenditures for property, plant and equipment	(1,849)	(1,859)
Net cash used in investing activities	(1,849)	(1,859)
Cash flows from financing activities		
Net settlement on restricted stock grants	(1,134)	(2)
Financing fees and other expenses	—	(117)
Proceeds from Employee Stock Purchase Plan	349	—
Proceeds from exercise of stock options	9,290	556
Net cash provided by financing activities	8,505	437
Effect of exchange rate changes on cash and cash equivalents	(357)	143
Net increase (decrease) in cash, cash equivalents and restricted cash	37,696	(17,982)
Cash, cash equivalents and restricted cash at beginning of period	77,655	85,825
Cash, cash equivalents and restricted cash at end of period	<u>\$ 115,351</u>	<u>\$ 67,843</u>

See accompanying Notes to these Consolidated Financial Statements

Axcelis Technologies, Inc.
Notes to Consolidated Financial Statements (Unaudited)

Note 1. Nature of Business

Axcelis Technologies, Inc. (“Axcelis” or the “Company”) was incorporated in Delaware in 1995, and is a worldwide producer of ion implantation and other processing equipment used in the fabrication of semiconductor chips in the United States, Europe and Asia. In addition, the Company provides extensive aftermarket service and support, including spare parts, equipment upgrades, used equipment and maintenance services to the semiconductor industry.

The accompanying unaudited consolidated financial statements have been prepared in accordance with U.S. generally accepted accounting principles for interim financial information and with the instructions to Form 10-Q and Article 10 of Regulation S-X. Accordingly, they do not include all of the information and footnotes required by generally accepted accounting principles for complete financial statements. In the opinion of management, all adjustments which are of a normal recurring nature and considered necessary for a fair presentation of these financial statements have been included. Operating results for the interim period presented are not necessarily indicative of the results that may be expected for other interim periods or for the year as a whole.

The balance sheet at December 31, 2016 has been derived from the audited financial statements at that date but does not include all of the information and footnotes required by generally accepted accounting principles for complete financial statements. For further information, refer to the consolidated financial statements and footnotes thereto included in Axcelis Technologies, Inc.’s Annual Report on Form 10-K for the year ended December 31, 2016.

Note 2. Stock-Based Compensation

The Company maintains the Axcelis Technologies, Inc. 2012 Equity Incentive Plan (the “2012 Equity Plan”), which became effective on May 2, 2012, and permits the issuance of options, restricted stock, restricted stock units and performance awards to selected employees, directors and consultants of the Company. The Company’s 2000 Stock Plan (the “2000 Stock Plan”), expired on May 1, 2012 and no new grants may be made under that plan after that date. However, unexpired awards granted under the 2000 Stock Plan remain outstanding and subject to the terms of the 2000 Stock Plan. The Company also maintains the Axcelis Technologies, Inc. Employee Stock Purchase Plan (the “ESPP”), an Internal Revenue Code Section 423 plan.

The 2012 Equity Plan and the ESPP are more fully described in Note 14 to the consolidated financial statements in the Company’s 2016 Annual Report on Form 10-K.

The Company recognized stock-based compensation expense of \$1.5 million and \$1.2 million for the three month periods ended June 30, 2017 and 2016, respectively. The Company recognized stock-based compensation expense of \$2.6 million and \$2.1 million for the six month periods ended June 30, 2017 and 2016, respectively. These amounts include compensation expense related to restricted stock units, non-qualified stock options and stock to be issued to participants under the ESPP.

In the three month periods ended June 30, 2017 and 2016, the Company issued 1.2 million and 0.3 million shares of common stock, respectively, related to stock option exercises, shares issued under the ESPP and vesting of restricted stock units. In the three month periods ended June 30, 2017 and 2016, the Company received proceeds of \$7.1 million and \$0.4 million, respectively, related to stock option exercises and ESPP purchases.

In the six month periods ended June 30, 2017 and 2016, the Company issued 1.7 million 0.6 million shares of common stock, respectively, related to stock option exercises, shares issued under the ESPP and vesting of restricted stock units. In the six month periods ended June 30, 2017 and 2016, the Company received proceeds of \$9.6 million and \$0.6 million, respectively, related to stock option exercises and ESPP purchases.

Note 3. Computation of Net Earnings per Share

Basic earnings per share is computed by dividing income available to common stockholders (the numerator) by the weighted-average number of common shares outstanding (the denominator) for the period. The computation of diluted earnings per share is similar to basic earnings per share, except that the denominator is increased by the number of additional common shares that would have been outstanding if the potentially dilutive common shares issuable for stock options, restricted stock units and employee stock purchase plan accounts had been issued, calculated using the treasury stock method.

The components of net earnings per share are as follows:

	<u>Three months ended June 30,</u>		<u>Six months ended June 30,</u>	
	<u>2017</u>	<u>2016</u>	<u>2017</u>	<u>2016</u>
	(in thousands, except per share data)			
Net income available to common stockholders	\$ 13,932	\$ 2,937	\$ 23,438	\$ 4,885
Weighted average common shares outstanding used in computing basic income per share	30,589	29,097	30,183	29,066
Incremental options and RSUs	2,579	1,604	2,596	1,541
Weighted average common shares outstanding used in computing diluted net income per share	33,168	30,701	32,779	30,607
Net income per share				
Basic	\$ 0.46	\$ 0.10	\$ 0.78	\$ 0.17
Diluted	\$ 0.42	\$ 0.10	\$ 0.72	\$ 0.16

Diluted weighted average common shares outstanding does not include options and restricted stock units outstanding to purchase six thousand and 0.9 million common equivalent shares for the three month periods ended June 30, 2017 and 2016, respectively, and does not include options and restricted stock units outstanding to purchase 0.3 million and 0.9 million common equivalent shares for the six month periods ended June 30, 2017 and 2016, respectively, as their effect would have been anti-dilutive.

Note 4. Accumulated Other Comprehensive Income (Loss)

The following table presents the changes in accumulated other comprehensive income (loss), net of tax, by component for the six months ended June 30, 2017:

	<u>Foreign</u>	<u>Defined benefit</u>	<u>Total</u>
	<u>currency</u>	<u>pension plan</u>	
	(in thousands)		
Balance at December 31, 2016	\$ (1,591)	\$ (688)	\$ (2,279)
Other comprehensive income and pension reclassification	2,404	57	2,461
Balance at June 30, 2017	\$ 813	\$ (631)	\$ 182

Note 5. Cash, cash equivalents and restricted cash

The following table provides a reconciliation of cash, cash equivalents, and restricted cash reported within the statement of financial position that sum to the total of the same such amounts shown in the statement of cash flows.

	<u>June 30,</u>	
	<u>2017</u>	<u>2016</u>
	(dollars in thousands)	
Cash and cash equivalents	\$ 108,558	\$ 60,981
Long-term restricted cash	6,793	6,862
Total cash, cash equivalents and long-term restricted cash	\$ 115,351	\$ 67,843

The restricted cash balance of \$6.8 million as of June 30, 2017 includes a \$5.9 million letter of credit associated with the security deposit for the sale leaseback transaction, a \$0.8 million letter of credit relating to workers' compensation insurance and a \$0.1 million deposit relating to customs activity. The restricted cash balance of \$6.9 million as of June 30, 2016 includes the \$5.9 million letter of credit associated with the security deposit for the sale leaseback transaction, a \$0.9 million letter of credit relating to workers' compensation insurance and a \$0.1 million deposit relating to customs activity.

Note 6. Inventories, net

The components of inventories are as follows:

	June 30, 2017	December 31, 2016
	(in thousands)	
Raw materials	\$ 79,850	\$ 82,263
Work in process	27,532	14,117
Finished goods (completed systems)	15,192	17,473
Inventories, net	<u>\$ 122,574</u>	<u>\$ 113,853</u>

When recorded, inventory reserves are intended to reduce the carrying value of inventories to their net realizable value. The Company establishes inventory reserves when conditions exist that indicate inventory may be in excess of anticipated demand or is obsolete based upon assumptions about future demand for the Company's products or market conditions. The Company regularly evaluates the ability to realize the value of inventories based on a combination of factors including the following: forecasted sales or usage, estimated product end of life dates, estimated current and future market value and new product introductions. Purchasing and usage alternatives are also explored to mitigate inventory exposure. As of June 30, 2017 and December 31, 2016, inventories are stated net of inventory reserves of \$8.5 million and \$8.8 million, respectively.

Note 7. Product Warranty

The Company generally offers a one year warranty for all of its systems, the terms and conditions of which vary depending upon the product sold. For all systems sold, the Company accrues a liability for the estimated cost of standard warranty at the time of system shipment and defers the portion of systems revenue attributable to the fair value of non-standard warranty. Costs for non-standard warranty are expensed as incurred. Factors that affect the Company's warranty liability include the number of installed units, historical and anticipated product failure rates, material usage and service labor costs. The Company periodically assesses the adequacy of its recorded liability and adjusts the amount as necessary.

The changes in the Company's standard product warranty liability are as follows:

	Six months ended June 30,	
	2017	2016
	(in thousands)	
Balance at January 1 (beginning of year)	\$ 2,666	\$ 3,555
Warranties issued during the period	2,577	1,551
Settlements made during the period	(1,090)	(2,399)
Changes in estimate of liability for pre-existing warranties during the period	(281)	520
Balance at June 30, (end of period)	<u>\$ 3,872</u>	<u>\$ 3,227</u>
Amount classified as current	\$ 3,537	\$ 2,958
Amount classified as long-term	335	269
Total warranty liability	<u>\$ 3,872</u>	<u>\$ 3,227</u>

Note 8. Fair Value Measurements

Certain assets on the Company's balance sheets are reported at their "fair value." Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date.

(a) Fair Value Hierarchy

The accounting guidance for fair value measurement requires an entity to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value. The standard establishes a fair value hierarchy based on the level of independent, objective evidence surrounding the inputs used to measure fair value. A financial instrument's categorization within the fair value hierarchy is based upon the lowest level of input that is significant to the fair value measurement. The fair value hierarchy is as follows:

Level 1 - applies to assets or liabilities for which there are quoted prices in active markets for identical assets or liabilities.

Level 2 - applies to assets or liabilities for which there are inputs other than quoted prices that are observable for the asset or liability, such as quoted prices for similar assets or liabilities in active markets; quoted prices for identical assets or liabilities in markets with insufficient volume or infrequent transactions (less active markets); or model-derived valuations in which significant inputs are observable or can be derived principally from, or corroborated by, observable market data.

Level 3 - applies to assets or liabilities for which there are unobservable inputs to the valuation methodology that are significant to the measurement of the fair value of the assets or liabilities.

(b) Fair Value Measurements

The Company's money market funds are included in cash and cash equivalents in the consolidated balance sheets and are considered a level 1 investment as they are valued at quoted market prices in active markets.

The following table sets forth the Company's assets by level within the fair value hierarchy:

	June 30, 2017			
	Fair Value Measurements			
	Level 1	Level 2	Level 3	Total
	(in thousands)			
Assets				
Cash equivalents:				
Money market funds	\$ 92,756	\$ —	\$ —	\$ 92,756
	December 31, 2016			
	Fair Value Measurements			
	Level 1	Level 2	Level 3	Total
	(in thousands)			
Assets				
Cash equivalents:				
Money market funds	\$ 54,170	\$ —	\$ —	\$ 54,170

(c) Other Financial Instruments

The carrying amounts reflected in the consolidated balance sheets for cash and cash equivalents (which are comprised primarily of deposit and investment accounts), accounts receivable, prepaid expenses and other current assets

and non-current cash assets, accounts payable and accrued expenses approximate fair value due to their short-term maturities.

Note 9. Financing Arrangements

Sale Leaseback Obligation

On January 30, 2015, the Company sold its corporate headquarters facility for \$48.9 million. As part of the sale, the Company also entered into a 22-year lease agreement. The sale leaseback is accounted for as a financing arrangement for financial reporting and, as such, the Company has recorded a financing obligation of \$47.7 million as of June 30, 2017. The associated lease payments are deemed to include both an interest component and payment of principal, with the underlying liability being extinguished at the end of the original lease term. The Company posted a collateralized security deposit of \$5.9 million in the form of an irrevocable letter of credit at the time of the closing. Upon the termination of a credit facility in October 2015, this letter of credit was cash collateralized.

Note 10. Income Taxes

Income tax expense relates principally to operating results of foreign entities in jurisdictions, primarily in Europe and Asia, where the Company earns taxable income. The Company has significant net operating losses in the United States and certain other tax jurisdictions and, as a result, does not pay significant income taxes in those jurisdictions.

In the first quarter of 2017, the Company adopted Accounting Standard Update (ASU) 2016-09, “*Compensation — Stock Compensation*.” See Note 13 for further discussion. As a result of the implementation of this ASU, the Company recorded a net tax benefit of approximately \$2.6 million primarily due to \$2.8 million in excess tax benefits on the exercise of nonqualified stock options and the vesting of restricted stock during the three months ended June 30, 2017.

During the first quarter of 2017, the statute of limitations expired with respect to certain tax positions for which the Company had previously recorded a reserve. The related tax reserve of \$0.3 million and accrued interest of \$0.2 million that had been recorded were reversed during the six month period ended June 30, 2017.

At December 31, 2016, the Company had \$124.0 million of deferred tax assets worldwide relating to net operating loss carryforwards, tax credit carryforwards and other temporary differences, which are available to reduce income taxes in future years. With the exception of the deferred tax assets recognized related to the excess tax benefits stated above, the Company maintains a 100% domestic valuation allowance, reducing the carrying value of those deferred tax assets in the United States to zero. The Company will continue to maintain a full valuation allowance for those tax assets until accounting principles require the release of the allowance based on expectations of continuing profitability.

Note 11. Concentration of Risk

For the three months ended June 30, 2017, four customers accounted for 27.3%, 21.6%, 12.8% and 10.5% of consolidated revenue, respectively. For the six months ended June 30, 2017, four customers accounted for 22.3%, 19.2%, 15.7% and 13.3% of consolidated revenue, respectively.

For the three months ended June 30, 2016, three customers accounted for 14.8%, 11.7% and 10.4%, of consolidated revenue, respectively. For the six months ended June 30, 2016, two customers accounted for 16.4% and 14.1% of consolidated revenue, respectively.

At June 30, 2017, three customers accounted for 20.3%, 18.2% and 15.3% of consolidated accounts receivable, respectively. At December 31, 2016, four customers accounted for 22.0%, 12.3%, 12.0% and 10.6% of accounts receivable, respectively.

Note 12. Contingencies

(a) Litigation

The Company is, from time to time, a party to litigation that arises in the normal course of its business operations. The Company is not presently a party to any litigation that it believes might have a material adverse effect on its business operations.

(b) Indemnifications

The Company's system sales agreements typically include provisions under which the Company agrees to take certain actions, provide certain remedies and defend its customers against third-party claims of intellectual property infringement under specified conditions and to indemnify customers against any damage and costs awarded in connection with such claims. The Company has not incurred any material costs as a result of such indemnifications and has not accrued any liabilities related to such obligations in the accompanying consolidated financial statements.

Note 13. Recent Accounting Guidance

Accounting Standards or Updates Adopted

In July 2015, the FASB issued Accounting Standards Update (ASU) No. 2015-11, "*Simplifying the Measurement of Inventory*," which changes the inventory measurement principles for entities using the first-in, first-out (FIFO) or average cost methods. For entities utilizing one of these methods, the inventory measurement principle changes from lower of cost or market to the lower of cost and net realizable value. Net realizable value is the estimated selling price in the ordinary course of business, less the reasonably predictable costs of completion, disposal and transportation. The Company adopted this ASU prospectively in the first quarter of 2017, which did not have a material impact on our financial statements and disclosures.

In March 2016, the FASB issued ASU No. 2016-09 "*Compensation — Stock Compensation*," which changes the accounting for stock-based payment transactions, including the income tax consequences, classification of awards as either equity or liabilities, and classification on the statement of cash flows. The amended guidance eliminates the requirement to record excess tax benefits as a reduction in current taxes payable and an increase to additional paid-in capital. The Company adopted this ASU in the first quarter of 2017, in part prospectively and in part retrospectively, as permitted by the ASU.

The Company prospectively adopted the provisions of ASU No. 2016-09 relating to the accounting for excess tax benefits, which resulted in the recognition of approximately \$2.8 million of tax benefit for the six month period ending June 30, 2017.

The Company retrospectively adopted the provisions of ASU 2016-09 related to the presentation of employee taxes. These provide that when an employer withholds shares for taxes on vesting of equity compensation, the value withheld is presented as a financing activity on the statement of cash flows. This resulted in a \$1.1 million and a two thousand dollar reduction in net cash provided by financing activities for the six month periods ended June 30, 2017 and 2016, respectively. Prior to adoption, these amounts were reflected within cash flows from operating activities.

The Company has also elected to continue to estimate a forfeiture rate associated with our stock-based awards and related expense.

In November 2016, the FASB issued ASU 2016-18, "*Statement of Cash Flows (Topic 203): Restricted Cash (a consensus of the FASB Emerging Issues Task Force)*." This ASU requires the statement of cash flows to explain the change during the period in the total cash, cash equivalents, and amounts generally described as restricted cash or restricted cash equivalents. Therefore, amounts generally described as restricted cash and restricted cash equivalents are to be included with cash and cash equivalents when reconciling the beginning of period and end of period amounts shown on the statement of cash flows. On January 1, 2017, the Company early adopted this ASU retrospectively, resulting in \$6.9 million of restricted cash being included in the beginning balances of cash, cash equivalents and

restricted cash balances on the statement of cash flows for the periods presented. Please see Note 5 for additional information.

Accounting Standards or Updates Not Yet Effective

In May 2014, the FASB issued ASU No. 2014-09, “*Revenue from Contracts with Customers*,” which provides guidance for revenue recognition. The standard’s core principle is that a company will recognize revenue when it transfers promised goods or services to customers in an amount that reflects the consideration to which the company expects to be entitled in exchange for those goods or services. In April 2016, the FASB issued ASU 2016-10, “*Revenue from Contracts with Customers*” (Topic 606): *Identifying Performance Obligations and Licensing*, which further clarifies performance obligations in a contract with a customer. In May 2016, the FASB issued ASU 2016-12, “*Revenue from Contracts with Customers*” (Topic 606): *Narrow-Scope Improvements and Practical Expedients*, which provides a more narrow interpretation of ASU No. 2014-09. These ASUs (collectively referred to as “Topic 606”) are effective for annual reporting periods beginning after December 15, 2017 and interim periods within those annual periods.

We are in the process of comparing our current revenue recognition policies to the requirements of Topic 606 for each of our revenue categories. While we have not identified any material differences in the amount and timing of revenue recognition for the categories we have reviewed to date, our evaluation is not complete, and we have not concluded on the overall impact of adopting Topic 606. We intend to adopt Topic 606, effective January 1, 2018, using the modified retrospective approach.

In February 2016, the FASB issued ASU No. 2016-02 “*Leases*.” The ASU requires lessees to recognize the rights and obligations created by most leases as assets and liabilities on their balance sheet and continue to recognize expenses on their income statement over the lease term. It will also require disclosures designed to give financial statement users information on the amount, timing, and uncertainty of cash flows arising from leases. The guidance is effective for annual reporting periods beginning after December 15, 2018, and interim periods within those years. Early adoption is permitted for all entities. We are currently evaluating the impact of ASU 2016-02 on the consolidated financial statements and disclosures.

In August 2016, the FASB issued ASU No. 2016-15 “*Classification of Certain Cash Receipts and Cash Payments*.” The ASU is intended to add or clarify guidance on the classification of certain receipts and payments in the statement of cash flows and to eliminate the diversity in practice related to such classifications. The guidance in ASU 2016-15 is required for annual reporting periods beginning after December 15, 2017, with early adoption permitted. We are currently evaluating the impact of ASU 2016-15 on the consolidated financial statements and disclosures.

In March 2017, the FASB issued ASU No. 2017-07 “*Compensation – Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost*.” The ASU is intended to improve the presentation of net periodic pension cost and net periodic postretirement benefit cost. The amendment applies to all entities offering a defined benefit pension plan, other postretirement benefit plans, or other types of benefits accounted for under Topic 715. The amendments in the ASU require an employer to report the service cost component in the same line item or items as other compensation costs arising from services rendered by the pertinent employees during the period. The other components of net benefit cost are required to be presented in the income statement separately from the service cost component and outside a subtotal of income from operations. The amendments in this ASU are effective for public business entities for annual periods beginning after December 15, 2017, including interim periods within the annual period. The amendments in this ASU should be applied retrospectively for the presentation of the service cost component and the other components of net periodic pension cost and net periodic postretirement benefit cost in the income statement and prospectively, on and after the effective date, for the capitalization of the service cost component of net periodic pension cost and net periodic postretirement benefit in assets. We are currently evaluating the impact of ASU 2017-07 on the consolidated financial statements and disclosures.

Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations.

Certain statements in "Management's Discussion and Analysis of Financial Condition and Results of Operations" are forward-looking statements that involve risks and uncertainties. Words such as may, will, should, would, anticipates, expects, intends, plans, believes, seeks, estimates and similar expressions identify such forward-looking statements. The forward-looking statements contained herein are based on current expectations and entail various risks and uncertainties that could cause actual results to differ materially from those expressed in such forward-looking statements. Factors that might cause such a difference include, among other things, those set forth under "Liquidity and Capital Resources" and under "Risk Factors" in Part II, Item 1A to our annual report on Form 10-K for the year ended December 31, 2016, which discussion is incorporated herein by reference. Readers are cautioned not to place undue reliance on these forward-looking statements, which reflect management's analysis only as of the date hereof. We assume no obligation to update these forward-looking statements to reflect actual results or changes in factors or assumptions affecting forward-looking statements, except as may be required by law.

Overview

Axcelis is a worldwide producer of ion implantation and other processing equipment used in the fabrication of semiconductor chips in the United States, Europe and Asia. In addition, the Company provides extensive aftermarket service and support, including spare parts, equipment upgrades and maintenance services to the semiconductor industry worldwide. Consolidation and partnering within the semiconductor manufacturing industry has resulted in a small number of customers representing a substantial portion of our business. Our ten largest customers accounted for 83.3% of total revenue for the six months ended June 30, 2017.

Our product development and manufacturing activities occur primarily in the United States. Axcelis' equipment and service products are highly technical and are sold primarily through a direct sales force in the United States, Europe and Asia.

In the second quarter of 2017, we delivered strong financial results driven by substantially higher Purion system sales than in the first quarter and consistent gross margin performance. Higher revenues in the quarter were the result of customers' increasing selection of Purion ion implanters and strong memory and mature process spending. The impact of a new accounting standard regarding the accounting for the tax benefits associated with equity compensation had a positive effect upon our net income and earnings per share. Please see Note 10 and Note 13 for further discussion.

Critical Accounting Estimates

Management's discussion and analysis of our financial condition and results of operations included herein and in our Annual Report on Form 10-K for the year ended December 31, 2016 are based upon Axcelis' consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States. The preparation of these financial statements requires management to make estimates and judgments that affect the reported amounts of assets, liabilities, revenue and expenses and related disclosure of contingent assets and liabilities. On an on-going basis, we evaluate our estimates and assumptions. Management's estimates are based on historical experience and on various other assumptions that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

Management has not identified any need to make any material change in, and has not changed, any of our critical accounting estimates and judgments as described in Management's Discussion and Analysis of Financial Conditions and Results of Operations included in our Annual Report on Form 10-K for the year ended December 31, 2016.

Results of Operations

The following table sets forth our results of operations as a percentage of total revenue:

	Three months ended June 30,		Six months ended June 30,	
	2017	2016	2017	2016
Revenue:				
Product	93.9 %	91.3 %	94.1 %	91.7 %
Services	6.1	8.7	5.9	8.3
Total revenue	100.0	100.0	100.0	100.0
Cost of revenue:				
Product	56.1	53.7	55.1	56.8
Services	5.9	7.3	6.0	6.5
Total cost of revenue	62.0	61.0	61.1	63.3
Gross profit	38.0	39.0	38.9	36.7
Operating expenses:				
Research and development	11.0	13.2	11.2	13.0
Sales and marketing	7.3	9.0	7.7	8.9
General and administrative	7.6	9.7	7.8	9.3
Restructuring charges	—	—	—	0.2
Total operating expenses	25.9	31.9	26.7	31.4
Income from operations	12.1	7.1	12.2	5.3
Other (expense) income:				
Interest income	0.1	0.1	0.1	0.1
Interest expense	(1.3)	(2.1)	(1.3)	(1.8)
Other, net	0.0	(0.4)	(0.1)	(0.2)
Total other expense	(1.2)	(2.4)	(1.3)	(1.9)
Income before income taxes	10.9	4.7	10.9	3.4
Income tax (benefit) provision	(2.5)	0.3	(1.4)	(0.3)
Net income	13.4 %	4.4 %	12.3 %	3.7 %

Revenue

The following table sets forth our revenue:

	Three months ended June 30,		Period-to-Period Change		Six months ended June 30,		Period-to-Period Change	
	2017	2016	\$	%	2017	2016	\$	%
(dollars in thousands)								
Revenue:								
Product	\$ 96,539	\$58,859	\$37,680	64.0 %	\$178,517	\$121,034	\$57,483	47.5 %
Percentage of revenue	93.9 %	91.3 %			94.1 %	91.7 %		
Services	6,251	5,592	659	11.8 %	11,166	10,938	228	2.1 %
Percentage of revenue	6.1 %	8.7 %			5.9 %	8.3 %		
Total revenue	<u>\$102,790</u>	<u>\$64,451</u>	<u>\$38,339</u>	59.5 %	<u>\$189,683</u>	<u>\$131,972</u>	<u>\$57,711</u>	43.7 %

Three Months Ended June 30, 2017 Compared with Three Months Ended June 30, 2016

Product

Product revenue, which includes system sales, sales of spare parts, product upgrades and used systems was \$96.5 million, or 93.9%, of revenue during the three months ended June 30, 2017, compared with \$58.9 million, or 91.3% of revenue for the three months ended June 30, 2016. The \$37.7 million increase in product revenue for the three month period ending June 30, 2017, in comparison to the same period in 2016, was primarily driven by an increase in the number of Purion systems sold.

A portion of our revenue from system sales is deferred until installation and other services related to future deliverables are performed. The total amount of deferred revenue at June 30, 2017 and December 31, 2016 was \$14.9 million and \$11.0 million, respectively. The increase in deferred revenue is primarily due to the higher revenue in the quarter and the timing of the acceptance of system sales.

Services

Services revenue, which includes the labor component of maintenance and service contracts and fees for service hours provided by on-site service personnel, was \$6.3 million, or 6.1% of revenue for the three months ended June 30, 2017, compared with \$5.6 million, or 8.7% of revenue for the three months ended June 30, 2016. Although services revenue typically increases with the expansion of the installed base of systems, it can fluctuate from period to period based on capacity utilization at customers' manufacturing facilities, which affects the need for equipment service.

Six Months Ended June 30, 2017 Compared with Six Months Ended June 30, 2016

Product

Product revenue was \$178.5 million, or 94.1%, of revenue during the six months ended June 30, 2017, compared with \$121.0 million, or 91.7% of revenue for the six months ended June 30, 2016. The \$57.5 million increase in product revenue for the six month period ending June 30, 2017, in comparison to the same period in 2016, was primarily driven by an increase in the number of Purion systems sold.

Services

Services revenue was \$11.2 million, or 5.9% of revenue for the six months ended June 30, 2017, compared with \$10.9 million, or 8.3% of revenue for the six months ended June 30, 2016. Although services revenue typically increases with the expansion of the installed base of systems, it can fluctuate from period to period based on capacity utilization at customers' manufacturing facilities, which affects the need for equipment service.

Revenue Categories used by Management

As an alternative to the line item revenue categories discussed above, management also uses revenue categorizations which divide revenue into new systems sales and "aftermarket," meaning sales of spare parts, product upgrades and used systems, combined with the sale of maintenance labor and service contracts and services hours.

Three Months Ended June 30, 2017 Compared with Three Months Ended June 30, 2016

New Systems

Included in total revenue of \$102.8 million during the three months ended June 30, 2017 is revenue from sales of new systems of \$62.4 million, or 60.7% of total revenue, compared with \$33.7 million, or 52.2%, of total revenue for the three months ended June 30, 2016. The increase was due to higher sales of our Purion systems sold in the recent quarter.

Aftermarket

Included in total revenue of \$102.8 million during the three months ended June 30, 2017 is revenue from our aftermarket business of \$40.4 million, compared to \$30.8 million for the three months ended June 30, 2016. The significant increase was due to a large sale of upgrades to one customer in Asia. Aftermarket revenue fluctuates from period to period based on capacity utilization at customers' manufacturing facilities, which affects the sale of spare parts and demand for equipment service. Aftermarket revenue can also fluctuate from period to period based on the demand for system upgrades or used tools.

Six Months Ended June 30, 2017 Compared with Six Months Ended June 30, 2016

New Systems

Included in total revenue of \$189.7 million during the six months ended June 30, 2017 is revenue from sales of new systems of \$117.7 million, or 62.0% of total revenue, compared with \$70.7 million, or 53.6%, of total revenue for the six months ended June 30, 2016. The increase was due to higher sales of our Purion systems sold in the six month period ended June 30, 2017.

Aftermarket

Included in total revenue of \$189.7 million during the six months ended June 30, 2017 is revenue from our aftermarket business of \$72.0 million, compared to \$61.3 million for the six months ended June 30, 2016. The significant increase was due to a large sale of upgrades to one customer in Asia.

Gross Profit / Gross Margin

The following table sets forth our gross profit / gross margin.

	Three months ended June 30,		Period-to-Period Change		Six months ended June 30,		Period-to-Period Change	
	2017	2016	\$	%	2017	2016	\$	%
(dollars in thousands)								
Gross Profit:								
Product	\$ 38,850	\$ 24,221	\$14,629	60.4 %	\$ 74,031	\$ 46,132	\$ 27,899	60.5 %
<i>Product gross margin</i>	40.2 %	41.2 %			41.5 %	38.1 %		
Services	212	910	(698)	(76.7)%	(255)	\$ 2,415	(2,670)	(110.6)%
<i>Services gross margin</i>	3.4 %	16.3 %			(2.3)%	22.1 %		
Total gross profit	\$ 39,062	\$ 25,131	\$13,931	55.4 %	\$ 73,776	\$ 48,547	\$ 25,229	52.0 %
Gross margin	38.0 %	39.0 %			38.9 %	36.8 %		

Three Months Ended June 30, 2017 Compared with Three Months Ended June 30, 2016

Product

Gross margin from product revenue was 40.2% for the three months ended June 30, 2017, compared to 41.2% for the three months ended June 30, 2016. The decrease in gross margin of 1.0 percentage points resulted from a mix of slightly lower margin parts and upgrades.

Services

Gross margin from services revenue was 3.4% for the three months ended June 30, 2017, compared to 16.3% for the three months ended June 30, 2016. The decrease in gross margin in the recent period is primarily attributable to increased costs on service contracts.

Six Months Ended June 30, 2017 Compared with Six Months Ended June 30, 2016

Product

Gross margin from product revenue was 41.5% for the six months ended June 30, 2017, compared to 38.1% for the six months ended June 30, 2016. The increase in gross margin of 3.4 percentage points resulted from improved margins on Purion systems.

Services

Gross margin from services revenue was (2.3)% for the six months ended June 30, 2017, compared to 22.1% for the six months ended June 30, 2016. The decrease in gross margin in the recent period is primarily attributable to increased costs on service contracts.

Operating Expenses

The following table sets forth our operating expenses:

	Three months ended June 30,		Period-to-Period Change		Six months ended June 30,		Period-to-Period Change	
	2017	2016	\$	%	2017	2016	\$	%
	(dollars in thousands)							
Research and development	\$ 11,256	\$ 8,478	\$ 2,778	32.8 %	\$ 21,151	\$ 17,114	\$ 4,037	23.6 %
Percentage of revenue	11.0 %	13.2 %			11.2 %	13.0 %		
Sales and marketing	7,485	5,790	1,695	29.3 %	14,534	11,750	2,784	23.7 %
Percentage of revenue	7.3 %	9.0 %			7.7 %	8.9 %		
General and administrative	7,791	6,232	1,559	25.0 %	14,848	12,274	2,574	21.0 %
Percentage of revenue	7.6 %	9.7 %			7.8 %	9.3 %		
Restructuring charges	—	—	—	— %	—	282	(282)	(100.0)%
Percentage of revenue	— %	— %			— %	0.2 %		
Total operating expenses	\$ 26,532	\$ 20,500	\$ 6,032	29.4 %	\$ 50,533	\$ 41,420	\$ 9,113	22.0 %
Percentage of revenue	25.9 %	31.9 %			26.7 %	31.3 %		

Our operating expenses consist primarily of personnel costs, including salaries, commissions, expected incentive plan payouts, stock-based compensation and related benefits and taxes; project material costs related to the design and development of new products and enhancement of existing products; and professional fees, travel and depreciation expenses.

Personnel costs are our largest expense, representing \$16.6 million or 62.7% of our total operating expenses for the three month period ended June 30, 2017. For the six month period ended June 30, 2016, personnel costs were \$31.2 million or 61.7% of our total operating expenses. The higher personnel costs for both the three and six months ended June 30, 2017 are primarily due to increased incentive plan expense and to a lesser extent increased headcount.

Research and Development

	Three months ended June 30,		Period-to-Period Change		Six months ended June 30,		Period-to-Period Change	
	2017	2016	\$	%	2017	2016	\$	%
	(dollars in thousands)							
Research and development	\$ 11,256	\$ 8,478	\$ 2,778	32.8	\$ 21,151	\$ 17,114	4,037	23.6 %
Percentage of revenue	11.0 %	13.2 %			11.2 %	13.0 %		

Our ability to remain competitive depends largely on continuously developing innovative technology, with new and enhanced features and systems and introducing them at competitive prices on a timely basis. Accordingly, based on our strategic plan, we establish annual R&D budgets to fund programs that we expect will drive competitive advantages.

Three Months Ended June 30, 2017 Compared with Three Months Ended June 30, 2016

Research and development expense was \$11.3 million during the three months ended June 30, 2017; a \$2.8 million increase from \$8.5 million during the three months ended June 30, 2016. The increase is primarily due to an investment in increased headcount to support the development of new Purion products and incentive plan expense.

Six Months Ended June 30, 2017 Compared with Six Months Ended June 30, 2016

Research and development expense was \$21.2 million during the six months ended June 30, 2017; a \$4.0 million increase from \$17.1 million during the six months ended June 30, 2016. The increase is primarily due to an investment in increased headcount to support the development of new Purion products and incentive plan expense.

Sales and Marketing

	Three months ended June 30,		Period-to-Period Change		Six months ended June 30,		Period-to-Period Change	
	2017	2016	\$	%	2017	2016	\$	%
	(dollars in thousands)							
Sales and marketing	\$ 7,485	\$ 5,790	\$ 1,695	29.3 %	\$ 14,534	\$ 11,750	\$ 2,784	23.7 %
Percentage of revenue	7.3 %	9.0 %			7.7 %	8.9 %		

Our sales and marketing expenses result primarily from the sale of our equipment and services through our direct sales force.

Three Months Ended June 30, 2017 Compared with Three Months Ended June 30, 2016

Sales and marketing expense was \$7.5 million during the three months ended June 30, 2017; an increase of \$1.7 million, or 29.3%, compared with \$5.8 million during the three months ended June 30, 2016. The increase is primarily due to incentive plan expense and to a lesser extent increased headcount.

Six Months Ended June 30, 2017 Compared with Six Months Ended June 30, 2016

Sales and marketing expense was \$14.5 million during the six months ended June 30, 2017; an increase of \$2.8 million, or 23.7%, compared with \$11.8 million during the six months ended June 30, 2016. The increase is primarily due to incentive plan expense and to a lesser extent increased headcount.

General and Administrative

	Three months ended June 30,		Period-to-Period Change		Six months ended June 30,		Period-to-Period Change	
	2017	2016	\$	%	2017	2016	\$	%
	(dollars in thousands)							
General and administrative	\$ 7,791	\$ 6,232	\$ 1,559	25.0 %	\$ 14,848	\$ 12,274	2,574	21.0 %
Percentage of revenue	7.6 %	9.7 %			7.8 %	9.3 %		

Our general and administrative expenses result primarily from the costs associated with our executive, finance, information technology, legal and human resource functions.

Three Months Ended June 30, 2017 Compared with Three Months Ended June 30, 2016

General and administrative expense was \$7.8 million during the three months ended June 30, 2017; an increase of \$1.6 million, or 25.0%, compared to \$6.2 million during the three months ended June 30, 2016. The increase is primarily due to increased incentive plan expense.

Six Months Ended June 30, 2017 Compared with Six Months Ended June 30, 2016

General and administrative expense was \$14.8 million during the six months ended June 30, 2017; an increase of \$2.6 million, or 21.0%, compared to \$12.3 million during the six months ended June 30, 2016. The increase is primarily due to increased incentive plan expense.

Restructuring Charges

	Three months ended June 30,		Period-to-period change		Six months ended June 30,		Period-to-period change	
	2017	2016	\$	%	2017	2016	\$	%
	(dollars in thousands)							
Restructuring charges	\$ —	\$ —	\$ —	— %	\$ —	\$ 282	\$ (282)	(100.0)%
Percentage of revenue	— %	— %			— %	0.2 %		

In the first quarter of 2016, due to changes in customer service contracts resulting from a consolidation in our customer base, we had severance and other costs related to a reduction in force.

Other (Expense) Income

	Three months ended June 30,		Period-to-period change		Six months ended June 30,		Period-to-period change	
	2017	2016	\$	%	2017	2016	\$	%
	(dollars in thousands)							
Other (expense) income	\$ (1,209)	\$ (1,522)	\$ 313	20.6 %	\$ (2,405)	\$ (2,574)	\$ 169	6.6 %
Percentage of revenue	(1.2)%	(2.4)%			(1.3)%	(1.9)%		

Other (expense) income consists primarily of foreign exchange gains and losses attributable to fluctuations against local currencies of the countries in which we operate, interest expense related to the sale leaseback of our headquarters and interest earned on our invested cash balances. Other expense was \$1.2 million for the three months ended June 30, 2017, compared with \$1.5 million for the three months ended June 30, 2016. The \$0.3 million decrease in other expense for the three month period ended June 30, 2017 compared to the three month period ended June 30, 2016, was primarily due to fluctuations in currency exchange. During both of the three month periods ended June 30, 2017 and 2016, the Company recorded \$1.3 million in deemed interest expense associated with the lease payments for our headquarters in Beverly, which is being accounted for as a financing obligation.

The \$0.2 million decrease in other expense for the six month period ended June 30, 2017 compared to the six month period ended June 30, 2016, was primarily due to fluctuations in currency exchange.

During the three and six month periods ended June 30, 2017 and 2016, with the exception of operating lease agreements entered into by the Company, we had no significant off-balance-sheet risk such as exchange contracts, option contracts or other foreign hedging arrangements.

Income Tax (Benefit) Provision

	Three months ended June 30,		Period-to-period change		Six months ended June 30,		Period-to-period change	
	2017	2016	\$	%	2017	2016	\$	%
	(dollars in thousands)				(dollars in thousands)			
Income tax	\$ (2,611)	\$ 172	\$ (2,783)	(1,618.0)%	\$ (2,600)	\$ (332)	\$ (2,268)	683.1 %
<i>Percentage of revenue</i>	(2.5)%	0.3 %			(1.4)%	(0.3)%		

We incur income tax expense relating principally to operating results of foreign entities in Europe and Asia, where we earn taxable income. We have significant net operating loss carryforwards in the United States and certain European tax jurisdictions and, as a result, we do not currently pay significant income taxes in those jurisdictions. Additionally, we do not recognize the tax benefit for such losses in the United States and certain European taxing jurisdictions, and will not do so until we have sufficient income such that these tax benefits can be utilized. The Company will continue to maintain a full valuation allowance for these tax assets until accounting principles require the release of the allowance based on expectations of continuing profitability.

During the three months ended June 30, 2017, the Company recorded a tax benefit of approximately \$2.8 million as a discrete item in relation to excess tax benefits associated with the exercise of nonqualified stock options and vesting of restricted stock. This resulted in a net tax benefit of \$2.6 million for the three months ending June 30, 2017.

During the three months ended March 31, 2017, the statute of limitations expired with respect to certain tax positions for which the Company had previously recorded a reserve. The related tax reserve of \$0.3 million and accrued interest of \$0.2 million were reversed.

During the three months ended March 31, 2016, the statute of limitations associated with tax positions previously taken by the Company expired. The related tax reserve of \$0.6 million and accrued interest of \$0.3 million were reversed.

Liquidity and Capital Resources

The Company had \$108.6 million in unrestricted cash and cash equivalents at June 30, 2017, in addition to \$6.8 million in restricted cash, primarily comprised of the \$5.9 million security deposit under the lease on our headquarters. Management believes that maintaining a strong cash balance is necessary to provide funding for potential ramps in our business, which can require significant cash investment to meet sudden demand.

Our liquidity is affected by many factors. Some of these relate specifically to the operations of our business, for example, the rate of sale of our products, and others relate to the uncertainties of global economies, including the availability of credit and the condition of the overall semiconductor equipment industry. Our established cost structure, other than cost of goods sold, does not vary significantly with changes in volume. We experience fluctuations in operating results and cash flows depending on these factors.

During the six months ended June 30, 2017, the Company generated \$31.4 million of cash in operating activities. This was predominately driven by strong sales and collection efforts resulting in decreases in accounts receivable as well as increases to accounts payable, offset by increases in inventories, prepaid expenses, deferred income taxes, other current assets and other assets and liabilities. In comparison, during the six months ended June 30, 2016, the Company used \$16.7 million of cash in operating activities.

Investing activities for the six months ended June 30, 2017 and 2016 resulted in cash outflows of \$1.8 million and \$1.9 million, respectively, used for capital expenditures.

Financing activities for the six months ended June 30, 2017 provided net cash of \$8.5 million, primarily relating to the proceeds from the exercise of stock options. In comparison, financing activities for the six months ended June 30, 2016 provided net cash of \$0.4 million, primarily due to proceeds from the exercise of stock options.

We believe that based on our current market, revenue, expense and cash flow forecasts, our existing cash and cash equivalents will be sufficient to satisfy our anticipated cash requirements for the short and long-term. We currently have no credit facility but management believes we would be able to borrow on reasonable terms if needed.

Commitments and Contingencies

Significant commitments and contingencies at June 30, 2017 are consistent with those discussed in Item 7, “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” and Note 17 to the consolidated financial statements in our Annual Report on Form 10-K for the fiscal year ended December 31, 2016.

Item 3. Quantitative and Qualitative Disclosures about Market Risk.

As of June 30, 2017, there have been no material changes to the quantitative information about market risk disclosed in Item 7A to our annual report on Form 10-K for the year ended December 31, 2016.

Item 4. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our principal executive officer and principal financial officer, has evaluated the effectiveness of our disclosure controls and procedures (as defined in Rule 13a-15(e) under the Securities Exchange Act of 1934, as amended (the “Exchange Act”) as of the end of the period covered by this report (the “Evaluation Date”). Based on this evaluation, our principal executive officer and principal financial officer concluded that, as of the Evaluation Date, these disclosure controls and procedures are effective.

Changes in Internal Control over Financial Reporting

There was no change in our internal control over financial reporting (as defined in Rule 13a-15(f) under the Exchange Act) identified in connection with the evaluation of our internal control that occurred during the three months ended June 30, 2017 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

PART II—OTHER INFORMATION

Item 1. Legal Proceedings.

The Company is, from time to time, a party to litigation that arises in the normal course of its business operations. The Company is not presently a party to any litigation that it believes might have a material adverse effect on its business operations.

Item 1A. Risk Factors.

As of June 30, 2017, there have been no material changes to the risk factors described in Item 1A to our annual report on Form 10-K for the year ended December 31, 2016.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds.

None.

Item 3. Defaults Upon Senior Securities.

None.

Item 4. Mine Safety Disclosures.

Not Applicable.

Item 5. Other Information.

None.

Item 6. Exhibits.

The following exhibits are filed herewith:

Exhibit No	Description
3.1	Amended and Restated Certificate of Incorporation of the Company adopted May 6, 2009. Incorporated by reference to Exhibit 3.1 of the Company's Current Report on Form 8-K filed with the Commission on May 11, 2009.
3.2	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of Axcelis Technologies, Inc., effective June 30, 2016, as filed with the Secretary of State of the State of Delaware. Incorporated by reference to Exhibit 3.1 of the Company's Current Report on Form 8-K filed with the Commission on July 5, 2016.
3.3	Bylaws of the Company, as amended as of May 13, 2014. Incorporated by reference to Exhibit 3.2 of the Company's Form 8-K filed with the Commission on May 19, 2014.
10.1	Axcelis Technologies, Inc. 2012 Equity Incentive Plan, as amended through May 16, 2017. Filed herewith.
31.1	Certification of the Principal Executive Officer under Exchange Act Rule 13a-14(a)/15d-14(a) (Section 302 of the Sarbanes-Oxley Act), dated August 4, 2017. Filed herewith.
31.2	Certification of the Principal Financial Officer under Exchange Act Rule 13a-14(a)/15d-14(a) (Section 302 of the Sarbanes-Oxley Act), dated August 4, 2017. Filed herewith.
32.1	Certification of the Principal Executive Officer pursuant to Section 1350 of Chapter 63 of title 18 of the United States Code (Section 906 of the Sarbanes-Oxley Act), dated August 4, 2017. Filed herewith.
32.2	Certification of the Principal Financial Officer pursuant to Section 1350 of Chapter 63 of title 18 of the United States Code (Section 906 of the Sarbanes-Oxley Act), dated August 4, 2017. Filed herewith.
101	The following materials from the Company's Form 10-Q for the quarter ended June 30, 2017, formatted in eXtensible Business Reporting Language (XBRL): (i) Consolidated Statements of Operations, (ii) Consolidated Statements of Comprehensive Income (Loss), (iii) Consolidated Balance Sheets, (iv) Consolidated Statements of Cash Flows and (v) Notes to Consolidated Financial Statements (Unaudited). Filed herewith.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

DATED: August 4, 2017

AXCELIS TECHNOLOGIES, INC.

By: /s/ KEVIN J. BREWER

Kevin J. Brewer
Executive Vice President and Chief Financial Officer
Duly Authorized Officer and Principal Financial Officer

AXCELIS TECHNOLOGIES, INC.

2012 EQUITY INCENTIVE PLAN

As approved by the Stockholders on May 2, 2012, May 14, 2013, May 13, 2014, May 13, 2015, and May 4, 2016; as adjusted for the reverse stock split on June 30, 2016; as amended by the Board of Directors on February 15, 2017 (Stockholder approval not required); and as approved by the Stockholders on May 16, 2017

1. *Purpose.*

The purpose of the Axcelis Technologies, Inc. 2012 Equity Incentive Plan (the "Plan") is to attract and retain persons who are expected to make important contributions to the Company and its Affiliates, to provide an incentive for them to achieve the Company's goals, and to enable them to participate in the growth of the Company by granting Awards with respect to the Company's Common Stock. Certain capitalized terms used herein are defined in Section 7 below.

2. *Administration.*

The Plan shall be administered by the Committee; provided, that the Board may in any instance perform any of the functions of the Committee hereunder. The Committee shall have authority to adopt, alter and repeal such administrative rules, guidelines and practices governing the operation of the Plan as it shall from time to time consider advisable, and to interpret the provisions hereof in its discretion. The Committee's determinations hereunder shall be final and binding. The Committee may, subject to applicable law, delegate to one or more Executive Officers of the Company the power to make Awards to Participants who are not Reporting Persons or Covered Employees and all determinations hereunder with respect thereto, provided that the Committee shall fix the maximum number of shares that may be subject to such Awards.

3. *Eligibility.*

All directors and all employees and consultants of the Company or any Affiliate capable of contributing to the successful performance of the Company, other than any person who has irrevocably elected not to be eligible, are eligible to be Participants in the Plan.

4. *Stock Available for Awards.*

(a) *Amount.* Subject to adjustment under subsection 4(b), up to an aggregate of 4,762,500 shares of Common Stock may be issued pursuant to Awards, including Incentive Stock Options, under the Plan. For the purposes of counting shares hereunder:

i. The number of shares issued as, or upon settlement of, any Award other than an Option or Stock Appreciation Right shall be multiplied by 1.5;

ii. Outstanding shares tendered by the Participant to pay for the exercise of an Option or Stock Appreciation Right, shares repurchased in the open market by the Company, and shares that are withheld by the Company to satisfy the exercise or tax withholding obligation upon exercise or vesting of an Award may not be netted out against shares of Common Stock issued pursuant to Awards hereunder;

iii. Shares subject to any Award granted under this Plan that are not issued because the Award expires, is terminated unexercised or is forfeited, in whole or in part, may be subject to new Awards without being deemed to exceed such maximum amount;

iv. Shares that are not issued under an award that is outstanding under the 2000 Stock Plan as of May 2, 2012 because such award expires, is terminated unexercised or is forfeited may be subject to new Awards under this Plan (other than Incentive Stock Options), without being deemed to exceed such maximum amount; and

v. Shares issued under this Plan as a result of the assumption or substitution of outstanding grants from an acquired company shall not be deemed to exceed such maximum amount.

Shares issued under the Plan may consist of authorized but unissued shares or treasury shares

(b) *Adjustments.* Upon any equity restructuring, whether a stock dividend, recapitalization, split-up or combination of shares, or otherwise, the number of shares in respect of which Awards may be made under the Plan, the number of shares subject to outstanding Awards, the exercise, purchase or conversion price with respect to any Award, and the limit on individual grants in subsection 5(c) shall be proportionately adjusted, provided that the number of shares subject to any Award shall always be a whole number. In the event the Committee determines that any other reorganization, recapitalization, merger, spin-off or other corporate transaction affects the Common Stock such that an adjustment is required in order to preserve the benefits intended to be provided by the Plan, the Committee shall equitably adjust any or all of the number and kind of shares in respect of which Awards may be made under the Plan, the number and kind of shares subject to outstanding Awards, the exercise, purchase or conversion price with respect to any Award, and the limit on individual grants in subsection 5(c), provided that the number of shares subject to any Award shall always be a whole number. If considered appropriate, the Committee may make provision for a cash payment with respect to all or part of an outstanding Award instead of or in addition to any such adjustment. Any adjustment made pursuant to this subsection shall be subject, in the case of Incentive Stock Options, to any limitation required under the Code.

5. *Awards under the Plan.*

(a) *Types of Awards.* The Committee may grant Options, Stock Appreciation Rights, Restricted Stock, Restricted Stock Units, Stock Equivalents, and Awards of shares of Common Stock that are not subject to restrictions or forfeiture. The effectiveness of any such grant may be conditioned on the passage of time, the achievement of any Performance Goals, or the happening of any other event.

(b) *Terms and Conditions of Awards.*

(i) *Participants; Terms.* The Committee shall select the Participants to receive Awards and determine the terms and conditions of each Award. Without limiting the foregoing but subject to the other provisions of the Plan and applicable law, the Committee shall determine (A) the number of shares of Common Stock subject to each Award or the manner in which such number shall be determined, (B) the price, if any, a Participant shall pay to receive or exercise an Award or the manner in which such price shall be determined, (C) the time or times when an Award may vest or be exercised, settled, or transferred, (D) any Performance Goals, restrictions or other conditions to vesting, exercise, settlement, or transferability of an Award, (E) whether an Award may be settled in the form of cash, Common Stock

or other securities of the Company, Awards or other property, and the manner of calculating the amount or value thereof, (F) the duration of any Restricted Period or any other circumstances in which an Award may be forfeited to the Company, (G) the effect on an Award of the disability, death, retirement or other termination of employment or other service of a Participant, and (H) the extent to which, and the period during which, the Participant or the Participant's legal representative, guardian or Designated Beneficiary may receive payment of an Award or exercise rights thereunder. Except as otherwise provided hereby or in a particular Award, any determination or action with respect to an Award may be made or taken by the Committee at the time of grant or at any time thereafter.

(ii) *Options and Stock Appreciation Rights.* Incentive Stock Options may only be granted to persons eligible to receive such Options under the Code. The exercise price for any Option or Stock Appreciation Right shall not be less than 100% of the Fair Market Value of the Common Stock on the Date of Grant; provided that Options granted in substitution for options granted by a former employer to persons who become eligible to receive Awards hereunder as a result of a transaction described in Section 424(a) of the Code may, consistent with such Section, have a lower exercise price. No Option or Stock Appreciation Right shall have a term longer than seven (7) years. No Incentive Stock Option may be granted more than ten years after the Effective Date. The Committee shall determine the manner of calculating the excess in value of the shares of Common Stock over the exercise price of a Stock Appreciation Right.

(iii) *Restricted Stock and Restricted Stock Units.* Shares of Restricted Stock and shares subject to Restricted Stock Units may not be sold, assigned, transferred, pledged or otherwise encumbered, except as permitted by the Committee, during the applicable Restricted Period. Restricted Stock Units may be settled in shares of Common Stock or cash as determined by the Committee.

(iv) *Minimum Vesting Requirements.* Notwithstanding Sections 5(b)(i) or Section 6(e), with respect to Awards to Executive Officers:

(A) vesting, settlement, or lapse of forfeiture restrictions that is solely based on continued employment, service or the passage of time shall occur (A) with respect to no more than one-third of the shares subject to such Award per year and (B) over not less than four years from the date of grant with respect to the full number of shares subject to such Award; and

(B) vesting, settlement, or lapse of forfeiture restrictions that is based on the achievement of Performance Goals shall occur based on a Performance Period of at least one year;

provided that the foregoing limitations shall not (1) apply to vesting, settlement, or lapse of forfeiture restrictions in connection with the termination of employment or other service of a Participant by the Company or due to the Participant's disability, death or retirement nor (2) preclude the Committee from (x) exercising its discretion to accelerate the vesting of any Award upon a Transaction as contemplated by Section 5(b)(viii), (y) establishing a shorter vesting schedule for consultants or newly-hired employees, or (z) establishing a shorter schedule for vesting, settlement, or lapse of forfeiture restrictions on Awards that are granted in exchange for or in lieu of the right to receive the payment of an equivalent amount of salary, bonus or other compensation.

(v) *Payment of Exercise Price.* The Committee shall determine the form of consideration and manner of payment of the exercise price, if any, of any Award. Without limiting the foregoing, the Committee may,

subject to applicable law, permit such payment to be made in whole or in part in cash or by surrender of shares of Common Stock (which may be shares retained from the respective Award or any other Award) valued at their Fair Market Value on the date of surrender, or such other lawful consideration, including a payment commitment of a financial or brokerage institution, as the Committee may determine. The Company may accept, in lieu of actual delivery of stock certificates, an attestation by the Participant in form acceptable to the Committee that he or she owns of record the shares to be tendered free and clear of claims and other encumbrances.

(vi) *Dividends.* In the discretion of the Committee, any Award may provide that dividends or dividend equivalents on shares of Common Stock underlying the Award may be credited to the Participant prior to the issuance of such shares of Common Stock upon vesting, or upon vesting and exercise, if applicable. However, such dividends or dividend equivalents may be paid to the Participant (in cash, in shares of Common Stock, or in the form of Awards under the Plan, as specified by the Committee) with or without interest as determined by the Committee only if, when and to the extent such Award vests and shares of Common Stock are issued upon vesting or upon vesting and exercise, if applicable. The value of dividends or other distributions credited with respect to shares of Common Stock underlying an Award that are not issued prior to the expiration of the Award shall be forfeited.

(vii) *Termination and Forfeiture.* The terms of any Award may include such continuing provisions for termination of the Award and/or forfeiture or recapture of any shares, cash or other property previously issued pursuant thereto relating to competition or other activity or circumstances detrimental to the Company as the Committee may determine to be in the Company's best interests. Without limiting the foregoing, the terms of any Award shall be subject to, and shall be deemed automatically amended to incorporate, any "clawback," "recapture," or similar policy adopted by the Company and in effect before or after the grant of such Award.

(viii) *Certain Extraordinary Transactions.* The Committee may in its discretion provide, at the time of grant or at any time thereafter, that in the case of any recapitalization, stock acquisition, merger, consolidation or other form of corporate transaction in which a company other than the Company is the surviving, continuing, successor or purchasing entity (a "Transaction"), the surviving, continuing, successor or purchasing entity or a parent or subsidiary of such entity may, without the consent of the Participant, assume the Company's rights and obligations under any Award or portion thereof outstanding immediately before the Transaction or substitute for any such outstanding Award or portion thereof a substantially equivalent award with respect to such entity's own stock or other property or cash, in either case with equitable adjustments in the number and type of shares or other assets subject to the Awards and the exercise, purchase or conversion price with respect to any Award, in light of the consideration received by the Company's stockholders in the Transaction. Any such Award that is not so assumed or substituted for shall terminate upon the consummation of such Transaction on such terms, if any, as the Committee shall provide. Notwithstanding the foregoing, if the stockholders of the Company receive consideration that is all or predominantly cash in exchange for their shares of common Stock in a Transaction, then, in order to preserve the Participants' rights under outstanding Awards, the Committee shall, without the need for consent of any Participant, either (A) cause any unexercisable or unvested portion of an Award outstanding immediately before the Transaction to become fully exercisable and vested prior to such Transaction (but effective only on consummation of the Transaction), and any Options and Stock Appreciation Rights that have not been exercised as of the consummation of the Transaction shall thereupon terminate or (B) provide for payment to the

Participant of cash, stock of another entity party to the Transaction, or other property with a Fair Market Value equal to the amount, if any, that would have been received upon the vesting, exercise, settlement, or transferability of the Award had any unexercisable or unvested portion of the Award become fully exercisable and vested and the Award been exercised or paid in connection with the Transaction, reduced (but not below zero) by the exercise or purchase price per share, if any, under such Award, whereupon the Award shall terminate. If any portion of such consideration may be received by Company's stockholders in the Transaction on a contingent or delayed basis, the Committee may, in its sole discretion, determine such Fair Market Value per share as of the time of the Transaction on the basis of the Committee's good faith estimate of the present value of the probable amount of future payment of such consideration.

In the event of a recapitalization, stock acquisition, merger, consolidation or other form of corporate transaction in which the Company is the surviving, continuing, successor or purchasing entity, the Committee may make equitable adjustments to outstanding Awards pursuant to Section 4(b).

(ix) *Documentation.* Each Award under the Plan shall be evidenced by documentation in the form prescribed from time to time by the Committee and delivered to or executed and delivered by the Participant specifying the terms and conditions of the Award and containing such other terms and conditions not inconsistent with the provisions hereof as the Committee considers necessary or advisable to achieve the purposes of the Plan or to comply with applicable law and accounting principles. Any such documentation may be maintained solely in electronic format.

(x) *In General.* Any Award may be made alone, in addition to, or in relation to any other Award. The terms of Awards of each type need not be identical, and the Committee need not treat Participants uniformly. No Award shall be transferable except upon such terms and conditions and to such extent as the Committee determines, provided that no Award shall be transferable for value and Incentive Stock Options may be transferable only to the extent permitted by the Code. No Award to any Participant subject to United States income taxation shall provide for the deferral of compensation that does not comply with Section 409A of the Code. The achievement or satisfaction of any Performance Goals, restrictions or other conditions to vesting, exercise, settlement, or transferability of an Award shall be determined by the Committee.

(c) *Limit on Individual Grants.* The maximum number of shares of Common Stock subject to Options, Stock Appreciation Rights and other Awards intended to satisfy the requirements for "performance-based compensation" within the meaning of Section 162(m) of the Code that may be granted to a Participant in any fiscal year may not exceed 312,500 shares, subject to adjustment under subsection 4(b). In the case of any performance-based Awards settled in cash, no more than \$1,000,000 may be paid to any Participant with respect to any one year of a Performance Period.

6. *General Provisions.*

(a) *Tax Withholding.* A Participant shall pay to the Company, or make provision satisfactory to the Committee for payment of, any taxes required by law to be withheld in respect of Awards under the Plan no later than the date of the event creating the tax liability. The Company and its Affiliates may, to the extent permitted by law, deduct any such tax obligations from any payment of any kind due to the Participant under the Plan or otherwise. In the Committee's discretion, the minimum tax obligations required by law to be withheld in respect of Awards may be paid in whole or in part in shares of

Common Stock, including shares retained from the Award creating the tax obligation, valued at their Fair Market Value on the date of retention or delivery.

(b) *Legal Compliance.* The Company shall not be required to issue any shares of Common Stock or take any other action pursuant to the Plan unless the Company is satisfied that all requirements of law, or of any stock exchange on which the Common Stock is then listed, in connection therewith have been or will be complied with, and the Committee may impose any restrictions on the rights of Participants hereunder as it shall deem necessary or advisable to comply with any such requirements.

(c) *Foreign Nationals.* Awards may be made to Participants who are foreign nationals or employed outside the United States on such terms and conditions different from those specified herein as the Committee considers necessary or advisable to achieve the purposes of the Plan or to comply with applicable laws.

(d) *Awards Not Includable for Benefit Purposes.* Awards and other payments received by a Participant pursuant to the provisions of the Plan shall not be included in the determination of benefits under any pension, group insurance or other benefit plan applicable to the Participant which is maintained by the Company or any of its Affiliates, except as may be provided under the terms of such plans or determined by the Board.

(e) *Amendment, Exchange and Repurchase of Awards.*

(i) Subject to clauses (ii) and (iii) below, the Committee may amend, modify or terminate any outstanding Award, including without limitation changing the dates of vesting, exercise or settlement, causing the Award to be assumed by another entity, and substituting therefor another Award of the same or a different type, provided that the Participant's consent to such action shall be required unless the terms of this Plan or the Award permit such action, the Committee determines that such action is required by law or stock exchange rule, or the Committee determines that the action, taking into account any related action, would not materially and adversely affect the Participant.

(ii) Notwithstanding the attainment of Performance Goals in the case of any Award intended to satisfy the requirements for "performance-based compensation" within the meaning of Section 162(m) of the Code, the Committee may reduce (but not increase) the amount payable at a given level of performance to take into account additional factors that the Committee may deem relevant.

(iii) The foregoing notwithstanding, without further approval of the stockholders of the Company, (A) the Committee shall not authorize the amendment of any outstanding Option or Stock Appreciation Right to reduce the exercise price, (B) no Option or Stock Appreciation Right shall be canceled and replaced with an Award exercisable for Common Stock at a lower exercise price and (C) no Award shall be canceled in exchange for a cash payment from the Company to the Award owner, except under the limited circumstances described above in Section 5(b)(viii) relating to Transactions.

7. *Certain Definitions. As used in this Plan:*

"Affiliate" means any business entity in which the Company owns directly or indirectly 50% or more of the total voting power or has a significant financial interest as determined by the Committee.

"Award" means any award of shares of Common Stock or right with respect to shares described in Section 5(a).

“Board” means the Board of Directors of the Company.

“Code” means the Internal Revenue Code of 1986, as amended from time to time, or any successor law.

“Committee” means one or more committees appointed by the Board to administer the Plan or a specified portion thereof. Each such committee shall be comprised of not less than two members of the Board who shall meet such criteria as the Board may specify from time to time.

“Common Stock” means the Common Stock, \$0.001 par value, of the Company.

“Company” means Axcelis Technologies, Inc., a Delaware corporation.

“Covered Employee” means a “covered employee” within the meaning of Section 162(m) of the Code.

“Date of Grant” means the date on which all requirements under applicable law and the Company’s certificate of incorporation and bylaws for the effective grant of an Award have been satisfied.

“Designated Beneficiary” means the beneficiary designated by a Participant, in a manner determined by the Committee, to receive amounts due or exercise rights of the Participant in the event of the Participant’s death. In the absence of an effective designation by a Participant, “Designated Beneficiary” means the Participant’s legal representative.

“Effective Date,” from time to time, means the most recent date that the Plan was adopted or, if earlier, that it was approved by the stockholders (including approval of the Plan as amended), as such terms are used in the regulations under Section 422 of the Code.

“Exchange Act” means the Securities Exchange Act of 1934, as amended from time to time, or any successor law.

“Executive Officer” has the meaning given in Rule 3b-7 under the Exchange Act, or any successor provision.

“Fair Market Value” with respect to the Common Stock or other property means the fair market value thereof determined by such methods as shall be established by the Committee from time to time. Unless otherwise determined by the Committee in good faith, the per share Fair Market Value of the Common Stock as of any date shall mean (a) if the Common Stock is then listed or admitted to trading on a national securities exchange, (i) the last reported sale price on such date on the principal national securities exchange on which the Common Stock is then listed or admitted to trading, (ii) if no such reported sale took place on such date, the average of the closing bid and asked prices on such exchange on such date, or (iii) if neither (i) nor (ii) applies, the last reported sale price on the next preceding date on which trading took place, or (b) if the Common Stock is then traded in the over-the-counter market, the average of the closing bid and asked prices on such date, as reported by The Wall Street Journal or other appropriate publication selected by the Committee, for the over-the-counter market.

“Incentive Stock Option” means an Option complying with the requirements of Section 422 of the Code or any successor provision and any regulations thereunder.

“Option” means a right to purchase shares of Common Stock and may be an Incentive Stock Option if specified by the Committee.

“Participant” means a person selected by the Committee to receive an Award under the Plan.

“Performance Goals” means, in the case of Awards intended to satisfy the requirements for “performance-based compensation” within the meaning of Section 162(m) of the Code, one or more objective performance goals established by the Committee, based on one or more of the following criteria: revenue; revenue growth; sales; expenses; margins; net income; earnings or earnings per share; cash flow; stock price; shareholder return; return on investment; return on invested capital, assets, or equity; profit before or after tax; operating profit; operating margin; return on research and development investment; market capitalization; quality improvements; market share; cycle time reductions; customer satisfaction measures; strategic positioning or marketing programs; market penetration or expansion; business / information systems improvements; expense management; infrastructure support programs; human resource programs; customer programs; technology development programs; goals relating to acquisitions or divestitures, or any combination of the foregoing, including without limitation goals based on any of such measures relative to peer groups or market indices, and may be particular to a Participant or may be based, in whole or in part, on the performance of the division, department, line of business, subsidiary, or other business unit, whether or not legally constituted, in which the Participant works or on the performance of the Company generally.

“Performance Period” means any period of service of at least one year designated by the Committee as applicable to an Award intended to satisfy the requirements for “performance-based compensation.”

“Reporting Person” means a person subject to Section 16 of the Exchange Act.

“Restricted Period” means any period during which an Award or any part thereof may be forfeited to the Company.

“Restricted Stock” means shares of Common Stock that are subject to forfeiture to the Company.

“Restricted Stock Unit” means the right, subject to forfeiture, to receive the value of a share of Common Stock in the future, payable in the form of cash, Common Stock or other securities of the Company, Awards or other property, and is an unfunded and unsecured obligation of the Company.

“Stock Appreciation Right” means the right to receive any excess in value of shares of Common Stock over the exercise price of such right.

“Stock Equivalent” means the right to receive payment from the Company based in whole or in part on the value of the Common Stock, payable in the form of cash, Common Stock or other securities of the Company, Awards or other property, and may include without limitation phantom stock, performance units, and Stock Appreciation Rights.

“Termination of employment or other service of a Participant” means the voluntary or involuntary termination of a Participant’s employment with the Company or an Affiliate for any reason, including death, disability, retirement or as the result of the divestiture of the Participant’s employer or any similar transaction in which the Participant’s employer ceases to be the Company or one of its Affiliates. Whether entering military or other government service shall constitute “termination of employment or other service,” or whether a “termination of employment or other service” shall occur as a result of disability, shall be determined in each case by the Committee in its sole discretion before or after the grant of the respective Award. In the case of a member of the Board or consultant who is not an employee of the Company or an Affiliate, “termination of employment or other service” shall mean the

voluntary or involuntary termination of Board service or the consulting relationship, as the case may be, for any reason.

“Transferable for value” means a transfer on terms that would prevent the Company from relying on Securities and Exchange Commission Form S-8 (or any successor form) with respect to the issuance of the Common Stock underlying the respective Award.

8. *Miscellaneous.*

(a) *No Rights with Respect to Service.* No person shall have any claim or right hereunder to be granted an Award. Neither the adoption, maintenance, or operation of the Plan nor any Award hereunder shall confer upon any person any right with respect to the continuance of his or her employment by or other service with the Company or any Affiliate nor shall they interfere with the rights of the Company or any Affiliate to terminate or otherwise change the terms of such service at any time, including, without limitation, the right to promote, demote or otherwise re-assign any person from one position to another within the Company or any Affiliate. Unless the Committee otherwise provides in any case, the service of a Participant with an Affiliate shall be deemed to terminate for purposes of the Plan when such Affiliate ceases to be an Affiliate of the Company.

(b) *No Rights as Stockholder.* Subject to the provisions of the applicable Award, no Participant or Designated Beneficiary shall have any rights as a stockholder with respect to any shares of Common Stock to be issued under the Plan until he or she becomes the holder thereof. A Participant to whom Common Stock is awarded will be considered the holder of such Common Stock at the time of the Award, except as otherwise provided in the applicable Award.

(c) *Amendment of Plan.* The Board may amend, suspend or terminate the Plan or any portion thereof at any time, subject to such stockholder approval as the Board determines to be necessary or advisable to comply with any tax or regulatory requirement.

**CERTIFICATION
of the Principal Executive Officer
Pursuant to Rule 13a-14(a)/15d-14(a) (implementing Section 302 of the Sarbanes-Oxley Act)**

I, Mary G. Puma, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Axcelis Technologies, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: August 4, 2017

/s/ MARY G. PUMA

Mary G. Puma,
President and Chief Executive Officer

**CERTIFICATION
of the Principal Financial Officer
Pursuant to Rule 13a-14(a)/15d-14(a) (implementing Section 302 of the Sarbanes-Oxley Act)**

I, Kevin J. Brewer, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Axcelis Technologies, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: August 4, 2017

/s/ KEVIN J. BREWER

Kevin J. Brewer,
Executive Vice President and Chief Financial Officer

AXCELIS TECHNOLOGIES, INC.
Certification of the Principal Executive Officer
Pursuant to Section 1350 of Chapter 63 of title 18 of the United States Code

The undersigned Chief Executive Officer of Axcelis Technologies, Inc., a Delaware corporation, hereby certifies, for the purposes of Section 1350 of Chapter 63 of title 18 of the United States Code (as implemented by Section 906 of the Sarbanes-Oxley Act of 2002) as follows:

This Form 10-Q quarterly report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m or 78o(d)) and the information contained herein fairly presents, in all material respects, the financial condition and results of operations of the Company.

IN WITNESS WHEREOF, the undersigned has executed this Certification as of August 4, 2017.

/s/ MARY G. PUMA

Mary G. Puma
*President and Chief Executive Officer of Axcelis
Technologies, Inc.*

AXCELIS TECHNOLOGIES, INC.
Certification of the Principal Financial Officer
Pursuant to Section 1350 of Chapter 63 of title 18 of the United States Code

The undersigned Chief Financial Officer of Axcelis Technologies, Inc., a Delaware corporation, hereby certifies, for the purposes of Section 1350 of Chapter 63 of title 18 of the United States Code (as implemented by Section 906 of the Sarbanes-Oxley Act of 2002) as follows:

This Form 10-Q quarterly report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m or 78o(d)) and the information contained herein fairly presents, in all material respects, the financial condition and results of operations of the Company.

IN WITNESS WHEREOF, the undersigned has executed this Certification as of August 4, 2017.

/s/ KEVIN J. BREWER

Kevin J. Brewer
*Executive Vice President and Chief Financial Officer of
Axcelis Technologies, Inc.*
