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**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 September 30, 2018

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 every Interactive Data File required to be submitted 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 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

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 October 31, 2018 there were 32,412,147 shares of the registrant's common stock outstanding.

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**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 September 30,		Nine months ended September 30,	
	2018	2017	2018	2017
Revenue:				
Product	\$ 88,496	\$ 98,161	\$ 317,039	\$ 276,678
Services	6,878	6,321	19,853	17,487
Total revenue	<u>95,374</u>	<u>104,482</u>	<u>336,892</u>	<u>294,165</u>
Cost of revenue:				
Product	49,136	58,056	181,423	162,542
Services	6,325	6,675	19,400	18,096
Total cost of revenue	<u>55,461</u>	<u>64,731</u>	<u>200,823</u>	<u>180,638</u>
Gross profit	<u>39,913</u>	<u>39,751</u>	<u>136,069</u>	<u>113,527</u>
Operating expenses:				
Research and development	12,845	11,003	37,631	32,154
Sales and marketing	7,923	6,801	25,246	21,335
General and administrative	8,477	8,112	24,755	22,960
Total operating expenses	<u>29,245</u>	<u>25,916</u>	<u>87,632</u>	<u>76,449</u>
Income from operations	<u>10,668</u>	<u>13,835</u>	<u>48,437</u>	<u>37,078</u>
Other (expense) income:				
Interest income	593	219	1,518	399
Interest expense	(1,323)	(1,337)	(3,787)	(3,784)
Other, net	(592)	138	(1,710)	—
Total other expense	<u>(1,322)</u>	<u>(980)</u>	<u>(3,979)</u>	<u>(3,385)</u>
Income before income taxes	<u>9,346</u>	<u>12,855</u>	<u>44,458</u>	<u>33,693</u>
Income tax provision (benefit)	508	1,014	7,036	(1,586)
Net income	<u>\$ 8,838</u>	<u>\$ 11,841</u>	<u>\$ 37,422</u>	<u>\$ 35,279</u>
Net income per share:				
Basic	<u>\$ 0.27</u>	<u>\$ 0.38</u>	<u>\$ 1.16</u>	<u>\$ 1.15</u>
Diluted	<u>\$ 0.26</u>	<u>\$ 0.35</u>	<u>\$ 1.10</u>	<u>\$ 1.07</u>
Shares used in computing net income per share:				
Basic weighted average common shares	<u>32,365</u>	<u>31,274</u>	<u>32,225</u>	<u>30,550</u>
Diluted weighted average common shares	<u>33,973</u>	<u>33,524</u>	<u>34,032</u>	<u>33,048</u>

See accompanying Notes to these Consolidated Financial Statements

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

	<b>Three months ended</b>		<b>Nine months ended</b>	
	<b>September 30,</b>		<b>September 30,</b>	
	<b>2018</b>	<b>2017</b>	<b>2018</b>	<b>2017</b>
Net income	\$ 8,838	\$ 11,841	\$ 37,422	\$ 35,279
Other comprehensive (loss) income:				
Foreign currency translation adjustments	(284)	524	(1,584)	2,928
Amortization of actuarial loss and other adjustments from pension plan	30	32	90	89
Total other comprehensive (loss) income	(254)	556	(1,494)	3,017
Comprehensive income	<u>\$ 8,584</u>	<u>\$ 12,397</u>	<u>\$ 35,928</u>	<u>\$ 38,296</u>

See accompanying Notes to these Consolidated Financial Statements

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

	September 30, 2018	December 31, 2017
<b>ASSETS</b>		
Current assets:		
Cash and cash equivalents	\$ 148,716	\$ 133,407
Short-term restricted cash	—	750
Accounts receivable, net	84,977	75,302
Inventories, net	124,008	120,544
Prepaid expenses and other current assets	9,582	9,772
Total current assets	367,283	339,775
Property, plant and equipment, net	37,659	36,168
Long-term restricted cash	6,877	6,723
Deferred income taxes	76,382	83,148
Other assets	31,031	22,404
Total assets	<u>\$ 519,232</u>	<u>\$ 488,218</u>
<b>LIABILITIES AND STOCKHOLDERS' EQUITY</b>		
Current liabilities:		
Accounts payable	\$ 27,930	\$ 32,642
Accrued compensation	14,261	20,955
Warranty	4,545	4,112
Income taxes	205	273
Deferred revenue	14,393	16,181
Other current liabilities	4,938	5,124
Total current liabilities	66,272	79,287
Sale leaseback obligation	47,746	47,714
Long-term deferred revenue	3,381	1,964
Other long-term liabilities	4,759	5,643
Total liabilities	122,158	134,608
Commitments and contingencies (Note 13)		
Stockholders' equity:		
Common stock, \$0.001 par value, 75,000 shares authorized; 32,398 shares issued and outstanding at September 30, 2018; 32,048 shares issued and outstanding at December 31, 2017	32	32
Additional paid-in capital	562,083	556,147
Accumulated deficit	(165,723)	(204,745)
Accumulated other comprehensive income	682	2,176
Total stockholders' equity	397,074	353,610
Total liabilities and stockholders' equity	<u>\$ 519,232</u>	<u>\$ 488,218</u>

See accompanying Notes to these Consolidated Financial Statements

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

	<b>Nine months ended</b>	
	<b>September 30,</b>	
	<b>2018</b>	<b>2017</b>
<b>Cash flows from operating activities</b>		
Net income	\$ 37,422	\$ 35,279
Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation and amortization	4,208	3,752
Deferred taxes	6,767	(2,076)
Stock-based compensation expense	5,603	4,325
Provision for excess and obsolete inventory	1,657	1,547
Changes in operating assets & liabilities:		
Accounts receivable	(10,222)	(18,374)
Inventories	(4,867)	(8,237)
Prepaid expenses and other current assets	49	(1,645)
Accounts payable and other current liabilities	(10,872)	21,345
Deferred revenue	1,245	5,353
Income taxes	(61)	34
Other assets and liabilities	(13,709)	(981)
Net cash provided by operating activities	17,220	40,322
<b>Cash flows from investing activities</b>		
Expenditures for property, plant and equipment and capitalized software	(3,852)	(6,910)
Net cash used in investing activities	(3,852)	(6,910)
<b>Cash flows from financing activities</b>		
Net settlement on restricted stock grants	(1,393)	(1,134)
Proceeds from Employee Stock Purchase Plan	437	349
Proceeds from exercise of stock options	1,289	11,112
Net cash provided by financing activities	333	10,327
Effect of exchange rate changes on cash and cash equivalents	1,012	(706)
Net increase in cash, cash equivalents and restricted cash	14,713	43,033
Cash, cash equivalents and restricted cash at beginning of period	140,880	77,655
Cash, cash equivalents and restricted cash at end of period	<u>\$ 155,593</u>	<u>\$ 120,688</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 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 worldwide 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 periods 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, 2017 has been derived from the audited consolidated 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, 2017.

**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 11 to the consolidated financial statements in the Company’s 2017 Annual Report on Form 10-K.

The Company recognized stock-based compensation expense of \$2.4 million and \$1.7 million for the three month periods ended September 30, 2018 and 2017, respectively. The Company recognized stock-based compensation expense of \$5.6 million and \$4.3 million for the nine month periods ended September 30, 2018 and 2017, respectively. These amounts include compensation expense related to restricted stock units (“RSUs”), non-qualified stock options and stock to be issued to participants under the ESPP.

In the three month periods ended September 30, 2018 and 2017, the Company issued 0.1 million and 0.3 million shares of common stock, respectively, in relation to stock option exercises and vesting of RSUs. In the three month periods ended September 30, 2018 and 2017, the Company received proceeds of \$0.5 million and \$1.8 million, respectively, in connection with the exercise of stock options.

In the nine month periods ended September 30, 2018 and 2017, the Company issued 0.3 million and 1.9 million shares of common stock, respectively, in relation to stock option exercises, shares issued under the ESPP and vesting of RSUs. In the nine month periods ended September 30, 2018 and 2017, the Company received proceeds of \$1.7 million and \$11.4 million, respectively, in connection with the exercise of stock options and ESPP purchases.

### **Note 3. Revenue**

We design, manufacture and service ion implantation and other processing equipment used in the fabrication of semiconductor chips and sell our products to leading semiconductor chip manufacturers worldwide. We offer a complete line of high energy, high current and medium current implanters (“Systems”) for all application requirements. In addition, we provide extensive aftermarket lifecycle products and services (“Aftermarket”), including used tools, spare parts, equipment upgrades, maintenance service and customer training.

#### **(a) Recognition of GAAP Revenue**

Under Financial Accounting Standards Board (“FASB”) Accounting Standards Codification (“ASC”) Topic 606, *Revenue from Contracts with Customers* or (“ASC 606”), revenue is recognized when a customer obtains control of promised goods or services in an amount that reflects the consideration we expect to receive in exchange for those goods or services. We measure revenue based on the consideration specified in the client arrangement, and revenue is recognized when the performance obligations in the client arrangement are satisfied. A performance obligation is a promise in a contract to transfer a distinct product or service to the customer. The transaction price of a contract is allocated to each distinct performance obligation based upon the relative standalone selling price for each performance obligation and recognized as revenue when or as, the customer receives the benefit of the performance obligation. See Note 14 regarding the impact of the adoption of ASC 606 on our financial statements. To account for and measure revenue, the Company applies the following five steps:

##### *1) Identify the contract with the customer*

A contract with a customer exists when (i) the Company enters into an enforceable contract with a customer that defines each party’s rights regarding the goods or services to be transferred and identifies the related payment terms, (ii) the contract has commercial substance, and (iii) the Company determines that collection of substantially all consideration for goods and services that are transferred is probable based on the customer’s intent and ability to pay the promised consideration.

##### *2) Identify the performance obligations in the contract*

Performance obligations promised in a contract are identified based on the goods and services that will be transferred to the customer that are both capable of being distinct, whereby the customer can benefit from the good or service either on its own or together with other available resources, and are distinct in the context of the contract, whereby the transfer of the good or service is separately identifiable from other promises in the contract. To the extent a contract includes multiple promised goods and services, the Company must apply judgment to determine whether promised goods and services are capable of being distinct and distinct in the context of the contract. If these criteria are not met, the promised goods and services are accounted for as a combined performance obligation.

Our Systems sales consist of multiple performance obligations, including the system itself and obligations that are not delivered simultaneously with the system. These undelivered obligations might include a combination of installation services, extended warranty and support and spare parts, all of which are generally covered by a single sales price.

Our aftermarket business includes both products and services type arrangements. Performance obligations in these contracts consist of used tools, spare parts, equipment upgrades, maintenance services and customer training.



Customers who purchase new systems are provided an assurance-type warranty for one year after acceptance of the tool. For Aftermarket transactions, we provide customers an assurance-type warranty for 90 days. Customers can choose to purchase extended warranty terms with enhanced support similar to a service-type warranty ranging from one to three years. In accordance with ASC 606, assurance-type warranties are not considered a performance obligation, whereas service-type warranties are.

3) *Determine the transaction price*

The transaction price is determined based on the consideration to which the Company will be entitled in exchange for transferring goods and services to the customer. To the extent the transaction price includes variable consideration, the Company estimates the amount of variable consideration that should be included in the transaction price utilizing either the expected value method or the most likely amount method depending on the nature of the variable consideration. Variable consideration is included in the transaction price if, in the Company's judgment, it is probable that a significant future reversal of cumulative revenue under the contract will not occur. Any estimates, including the effect of the constraint on variable consideration, are evaluated at each reporting period for any changes. In applying this guidance, Companies must also consider whether any significant financing components exist.

The transaction price for all transactions is based on the price reflected in the individual customer's purchase order. Variable consideration has not been identified as a significant component of the transaction price for any of our transactions.

For those transactions where all performance obligations will be satisfied within one year or less, the Company is applying the practical expedient outlined in ASC 606-10-32-18. This practical expedient allows the Company not to adjust promised consideration for the effects of a significant financing component if the Company expects at contract inception the period between when the Company transfers the promised good or service to a customer and when the customer pays for that good or service will be one year or less. For those transactions that are expected to be completed after one year, the Company has assessed that there are no significant financing components because any difference between the promised consideration and the cash selling price of the good or service is for reasons other than the provision of financing.

4) *Allocate the transaction price to performance obligations in the contract*

If the contract contains a single performance obligation, the entire transaction price is allocated to the single performance obligation. Contracts that contain multiple performance obligations require an allocation of the transaction price to each performance obligation on a relative standalone selling price basis unless the transaction price is variable and meets the criteria to be allocated entirely to a performance obligation or to a distinct service that forms part of a single performance obligation.

Where required, the Company determines standalone selling price (SSP) for each obligation based on consideration of both market and Company specific factors, including the selling price and profit margin for similar products, the cost to produce, and the anticipated margin.

For those contracts that contain multiple performance obligations (primarily systems sales, as well as some aftermarket contracts requiring both time and material inputs), the company must determine SSP. The Company used a cost plus margin approach in determining the SSP for any materials related performance obligations (such as upgrades, spare parts, systems). To determine the SSP for labor related performance obligations (such as the labor component of installation), the Company used directly observable inputs based on the standalone sale prices for these services.

5) *Recognize revenue when or as the Company has satisfied a performance obligation*

The Company satisfies performance obligations either over time or at a point in time. Revenue is recognized over time if either 1) the customer simultaneously receives and consumes the benefits provided by the entity's performance, 2) the entity's performance creates or enhances an asset that the customer controls as the asset is created or enhanced, or 3) the entity's performance does not create an asset with an alternative use to the entity

and the entity has an enforceable right to payment for performance completed to date. If the entity does not satisfy a performance obligation over time, the related performance obligation is satisfied at a point in time by transferring the control of a promised good or service to a customer. Examples of control are using the asset to produce goods or services, enhance the value of other assets, settle liabilities, and holding or selling the asset. For over time recognition, ASC 606 requires the Company to select a single revenue recognition method for the performance obligation that faithfully depicts the Company's performance in transferring control of the goods and services. The guidance allows entities to choose between two methods to measure progress toward complete satisfaction of a performance obligation:

Output methods - recognize revenue on the basis of direct measurements of the value to the customer of the goods or services transferred to date relative to the remaining goods or services promised under the contract (e.g. surveys of performance completed to date, appraisals of results achieved, milestones reached, time elapsed, and units produced or units delivered); and

Input methods - recognize revenue on the basis of the entity's efforts or inputs to the satisfaction of a performance obligation (e.g., resources consumed, labor hours expended, costs incurred, or time elapsed) relative to the total expected inputs to the satisfaction of that performance obligation.

The Company has the right to consideration from a customer in an amount that corresponds directly with the value to the customer of the entity's performance completed to date (i.e. certain aftermarket contracts), as such the Company has elected a practical expedient to recognize revenue in the amount to which the entity has a right to invoice for such services.

Product related revenues (whether for systems or aftermarket business) are recognized at a point in time, when they are shipped or delivered, depending on shipping terms.

For installation services, revenue is recognized at a point in time, once the installation of the tool is complete. The nature of the installation services are such that the customer does not simultaneously receive and consume the benefits provided by the entity's performance, nor does performance of installation services create or enhance an asset that the customer controls. Installation services do not create an asset with an alternative use to the entity, and the entity does not have an enforceable right to payment for performance completed to date.

Service-type warranties for any product are recognized over time, as these represent a stand ready obligation to service the product during the warranty period. Progress in the satisfaction of these performance obligations will be measured using an input method of time elapsed.

Maintenance and service contracts are recognized over time. Progress in the satisfaction of these performance obligations will be measured using an input method of either time elapsed in the case of fixed period contracts, or labor hours expended, in the case of project based contracts.

#### **(b) Recognizing Assets related to Recoverable Customer Contract Costs**

The Company recognizes an asset related to incremental costs of obtaining a contract with a customer if the Company expects to recover those costs. The Company will recognize an asset from costs incurred to fulfill a contract only if such costs relate directly to a contract that the entity can specifically identify, the costs generate or enhance resources of the Company that will be used in satisfying performance obligations in the future, and the costs are expected to be recovered. Any assets recognized related to costs to obtain or fulfill a contract are amortized on a systematic basis that is consistent with the transfer to the customer of the goods or services to which the asset relates.

In substantially all of our business transactions, we incur incremental costs to obtain contracts with customers, in the form of sales commissions. We maintain a commission program which awards our employees for System sales, aftermarket activity and other individual goals. Under ASC 606, an asset shall be amortized on a systematic basis that is consistent with the transfer to the customer of the goods or services to which the asset relates. However, ASC 606 provides a practical expedient to allow for the recognition of commission expense when incurred if the amortization period of the asset that the entity otherwise would have recognized is one year or less.

Based on the nature of the Company's commission agreements, all commissions are expensed as incurred based upon the expectation that the amortization period would be one year or less.

**(c) Alternative Operational Revenue Categories used by Management**

To reflect the organization of the Company's business operations, management also divides revenue into two categories: revenue from sales of new Systems and revenue arising from the sale of used systems, parts and labor to customers who own systems, which we refer to as Aftermarket.

Below are the revenues by categories used by management for the periods covered in this report:

	Three months ended September 30,		Nine months ended September 30,	
	2018*	2017	2018*	2017
	(in thousands)		(in thousands)	
Systems	\$ 56,394	\$ 69,218	\$ 215,789	\$ 186,908
Aftermarket	38,980	35,264	121,103	107,257
	<u>\$ 95,374</u>	<u>\$ 104,482</u>	<u>\$ 336,892</u>	<u>\$ 294,165</u>

\*The impact upon adoption of ASC 606 was a decrease to Systems revenue of \$0.6 million for the three month period ended September 30, 2018 and \$1.3 million increase for the and nine month period ended September 30, 2018. Please refer to Note 14 for additional discussion of ASC 606 adoption impact on revenue amounts and comparable revenue figures.

The increase in revenue in the nine month period ended September 30, 2018, in comparison to the nine month period ended September 30, 2017, is attributable to an increase in sales of our Purion products and Aftermarket business.

**(d) Economic Factors Affecting our Revenue: Geographic Breakdown of Revenue**

Global economic conditions have a direct impact on our revenue. We are substantially dependent on sales of our products and services to customers outside the United States. Adverse economic conditions, political instability, potential adverse tax consequences and volatility in exchange rates pose a risk that our clients may reduce, postpone or cancel spending for our products and services, which would impact our revenue.

Revenue by geographic markets is determined based upon the location to which our products are shipped and where our services are performed. Revenue in our principal geographic markets is as follows:

	Three months ended September 30,		Nine months ended September 30,	
	2018*	2017	2018*	2017
	(in thousands)		(in thousands)	
North America	\$ 12,115	\$ 12,435	\$ 39,123	\$ 31,834
Asia	67,019	80,245	253,179	224,591
Europe	16,240	11,802	44,590	37,740
	<u>\$ 95,374</u>	<u>\$ 104,482</u>	<u>\$ 336,892</u>	<u>\$ 294,165</u>

\*The impact upon adoption of ASC 606 for the three months ended September 30, 2018 was a decrease in revenue to Asia of \$0.8 million and an increase to Europe of \$0.2 million. The impact upon adoption of ASC 606 for the nine months ended September 30, 2018 was primarily an increase in revenue to Asia of \$1.5 million, partially offset by a decline to North America of \$0.2 million. Please refer to Note 14 for additional discussion of ASC 606 adoption impact on revenue amounts and comparable revenue figures.

**(e) Recognition of Deferred Revenue from Contract Liabilities**

Contract assets and contract liabilities are as follows:

	September 30, December 31, 2018 2017	
	(in thousands)	
Contract assets	\$ —	\$ —
Contract liabilities	\$ 17,774	\$ 18,145

  

	Three months ended September 30,		Nine months ended September 30,	
	2018	2017	2018	2017
	(in thousands)			
Revenue recognized in the period from:				
Amounts included in contract liability at the beginning of the period	\$ 4,569	\$ 8,516	\$ 11,957	\$ 8,880
Performance obligations satisfied in previous periods	\$ —	\$ —	\$ —	\$ —

Contract liabilities are reflected as deferred revenue on the consolidated balance sheet. Contract liabilities relate to payments invoiced or received in advance of completion of performance obligations under a contract. Contract liabilities are recognized as revenue upon the fulfillment of performance obligations. The decrease in contract liabilities of \$0.4 million from December 31, 2017 to September 30, 2018 is primarily due to the reclassification of \$1.6 million relating to our adoption of ASC 606, offset by the timing of system acceptances.

The majority of our system transactions have payment terms that are 90% due upon shipment of the tool and 10% due upon installation. Aftermarket transaction payment terms are such that payment is due either within 30 or 60 days of service provided or delivery of parts.

As of September 30, 2018, the Company had deferred revenue of \$17.8 million. This represents the portion of the transaction price for contracts with customers allocated to the performance obligations that remain unsatisfied or partially unsatisfied. Short-term deferred revenue of \$14.4 million represents performance obligations that will be satisfied within the next 12 months. This amount relates primarily to installation and non-standard warranty performance obligations for system sales. Long-term deferred revenue of \$3.4 million relates primarily to unsatisfied extended warranty performance obligations that we expect to be satisfied within the next 24 months.

**Note 4. 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 and restricted stock units had been issued, calculated using the treasury stock method.

The components of net earnings per share are as follows:

	Three months ended September 30,		Nine months ended September 30,	
	2018	2017	2018	2017
	(in thousands, except per share amounts)			
Net income available to common stockholders	\$ 8,838	\$ 11,841	\$ 37,422	\$ 35,279
Weighted average common shares outstanding used in computing basic income per share	32,365	31,274	32,225	30,550
Incremental options and RSUs	1,608	2,250	1,807	2,498
Weighted average common shares used in computing diluted net income per share	33,973	33,524	34,032	33,048
Net income per share				
Basic	\$ 0.27	\$ 0.38	\$ 1.16	\$ 1.15
Diluted	\$ 0.26	\$ 0.35	\$ 1.10	\$ 1.07

Diluted weighted average common shares outstanding does not include options and restricted stock units outstanding to purchase 0.3 million and four thousand common equivalent shares for the three month periods ended September 30, 2018 and 2017, respectively, and does not include options and restricted stock units outstanding to purchase eleven thousand and 0.2 million common equivalent shares for the nine month periods ended September 30, 2018 and 2017, respectively, as their effect would have been anti-dilutive.

#### Note 5. Accumulated Other Comprehensive Income

The following table presents the changes in accumulated other comprehensive income, net of tax, by component, for the nine months ended September 30, 2018:

	Foreign currency	Defined benefit pension plan	Total
	(in thousands)		
Balance at December 31, 2017	\$ 2,756	\$ (580)	\$ 2,176
Other comprehensive income and pension reclassification	(1,584)	90	(1,494)
Balance at September 30, 2018	\$ 1,172	\$ (490)	\$ 682

#### Note 6. 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 amounts shown in the statement of cash flows.

	September 30, 2018	December 31, 2017
	(in thousands)	
Cash and cash equivalents	\$ 148,716	\$ 133,407
Short-term and long-term restricted cash	6,877	7,473
Total cash, cash equivalents and restricted cash	\$ 155,593	\$ 140,880

The restricted cash balance of \$6.9 million as of September 30, 2018 is the result of (i) a \$5.9 million letter of credit associated with a security deposit for the lease of our corporate headquarters in Beverly, Massachusetts, (ii) a \$0.8 million letter of credit relating to workers' compensation insurance, (iii) a bank guarantee of our performance relating to customer payment in the amount of \$0.1 million and (iv) a \$0.1 million deposit relating to customs activity. The restricted cash balance of \$7.5 million as of December 31, 2017 includes (i) a \$5.9 million letter of credit associated with a security deposit for the lease of our corporate headquarters in Beverly, Massachusetts, (ii) a

\$0.8 million letter of credit relating to workers' compensation insurance, a \$0.7 million letter of credit associated with a bank guarantee and a \$0.1 million deposit relating to customs activity.

**Note 7. Inventories, net**

The components of inventories are as follows:

	September 30, 2018	December 31, 2017
	(in thousands)	
Raw materials	\$ 91,782	\$ 82,313
Work in process	23,849	31,651
Finished goods (completed systems)	8,377	6,580
Inventories, net	<u>\$ 124,008</u>	<u>\$ 120,544</u>

When recorded, inventory reserves 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.

**Note 8. 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:

	Nine months ended September 30,	
	2018	2017
	(in thousands)	
Balance at January 1 (beginning of year)	\$ 4,502	\$ 2,666
Warranties issued during the period	4,294	3,898
Settlements made during the period	(4,566)	(1,614)
Changes in estimate of liability for pre-existing warranties during the period	650	(562)
Balance at September 30 (end of period)	<u>\$ 4,880</u>	<u>\$ 4,388</u>
Amount classified as current	\$ 4,545	\$ 4,154
Amount classified as long-term	335	234
Total warranty liability	<u>\$ 4,880</u>	<u>\$ 4,388</u>

**Note 9. 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 and short-term investments 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:

	September 30, 2018			
	Fair Value Measurements			
	Level 1	Level 2	Level 3	Total
	(in thousands)			
<b>Assets</b>				
Cash equivalents:				
Money market funds, U.S. Government				
Securities and Agency Investments	\$ 131,654	\$ —	\$ —	\$ 131,654
	December 31, 2017			
	Fair Value Measurements			
	Level 1	Level 2	Level 3	Total
	(in thousands)			
<b>Assets</b>				
Cash equivalents:				
Money market funds, U.S. Government				
Securities and Agency Investments	\$ 116,433	\$ —	\$ —	\$ 116,433

**(c) Other Financial Instruments**

The carrying amounts reflected in the consolidated balance sheets for accounts receivable, prepaid expenses and other current assets and non-current assets, restricted cash, accounts payable and accrued expenses approximate fair value due to their short-term maturities.

#### **Note 10. Financing Arrangements**

On January 30, 2015, the Company sold its corporate headquarters facility in Beverly Massachusetts for \$48.9 million. As part of the sale, the Company also entered into a 22-year lease agreement of our headquarters facility. This sale leaseback is accounted for as a financing arrangement under generally accepted accounting principles and, as such, the Company has recorded a financing obligation of \$47.7 million as of September 30, 2018. 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 security deposit of \$5.9 million in the form of an irrevocable letter of credit at the time of the closing. This letter of credit is cash collateralized and the associated cash is included in long-term restricted cash.

#### **Note 11. Income Taxes**

On December 22, 2017, the Tax Cuts and Jobs Act ("TCJA") was enacted into law, which significantly changed existing U.S. tax law and includes numerous provisions that affect our business, such as reducing the U.S. federal statutory tax rate and adopting a territorial tax system. The TCJA reduces the U.S. federal statutory tax rate from 35% to 21%, effective January 1, 2018. The TCJA also includes a provision to tax global intangible low-taxed income ("GILTI") of foreign subsidiaries and a base erosion anti-abuse tax ("BEAT") measure that taxes certain payments between a U.S. corporation and its subsidiaries. The Company considered the available guidance and has incorporated the relevant provisions of GILTI into the income tax provision and concluded that the provisions of BEAT do not apply to the Company at this time.

In accordance with Staff Accounting Bulletin 118, the Company disclosed in its 2017 Annual Report on Form 10-K that it is able to determine a reasonable estimate for certain effects of tax reform and has recorded that estimate as a provisional amount. The Company intends to use the one-year measurement period to update the provisional amount recorded as it finalizes its analysis relating to certain matters, such as developing interpretations of provisions to the TCJA, changes to certain estimates and amounts related to the Earning and Profits of certain subsidiaries and the filing of tax returns. Also, Treasury regulations, administrative interpretations, or court decisions interpreting the TCJA may require further adjustments and changes to the provisional amounts.

During the three months ended September 30, 2018 we recorded an income tax provision of \$0.5 million. During the nine months ended September 30, 2018 we recorded an income tax provision of \$7.0 million. Included in the income tax provision for the three and nine months ended September 30, 2018 is a tax benefit of \$1.4 million relating to the calculation of transition tax under the TCJA. This tax benefit reduced by 15.2% and 3.1% the otherwise effective tax rate for the three and nine months ended September 30, 2018, respectively. Also included in the income tax provision for the nine months ended September 30, 2018 is a tax benefit of \$0.3 million recognized upon the expiration of the statute of limitations regarding an uncertain tax position previously recorded. The related interest and penalties previously accrued were reversed resulting in a reduction to interest expense of \$0.2 million.

The change in the income tax provision for the three and nine months periods ended September 30, 2018 compared to the prior year was primarily due to the release of a significant portion of our valuation allowance in the fourth quarter of 2017. Prior to the release of the valuation allowance, the Company reported in its consolidated statements of operations only the amount of taxes actually payable. Subsequent to the release of the valuation allowance, tax expense also reflects the tax liability that would be payable without consideration of the usage of any net operating loss carryforwards. We have significant net operating loss carryforwards in the United States and certain European jurisdictions, and, as a result, we do not currently pay significant income taxes in those jurisdictions. At December 31, 2017, the Company had \$90.3 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 tax liabilities in future years.



**Note 12. Concentration of Risk**

For the three months ended September 30, 2018, three customers accounted for 17.8%, 13.6% and 13.1% of total revenue, respectively. For the three months ended September 30, 2017, two customers accounted for 25.9% and 15.9% of total revenue, respectively.

For the nine months ended September 30, 2018, two customers accounted for 22.9% and 10.8% of total revenue, respectively. For the nine months ended September 30, 2017, four customers accounted for 23.6%, 18.0%, 13.4% and 10.5% of total revenue, respectively.

At September 30, 2018, three customers accounted for 16.0%, 13.8% and 12.5% of accounts receivable, respectively. At December 31, 2017, three customers accounted for 19.8%, 11.8% and 10.6% of accounts receivable, respectively.

**Note 13. 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 14. Recent Accounting Guidance**

**(a) Accounting Standard Codification 606 on Revenue Recognition Adopted January 1, 2018**

Effective January 1, 2018, we adopted FASB ASC Topic 606, *Revenue from Contracts with Customers*, or ASC 606. In accordance with ASC 606, we changed certain characteristics of our revenue recognition accounting policy as described below. In our adoption, ASC 606 was applied only to open contracts using the modified retrospective method, where the cumulative effect of the initial application is recognized as an adjustment to opening retained earnings at January 1, 2018. Therefore, comparative prior periods have not been adjusted and continue to be reported under FASB ASC Topic 605, *Revenue Recognition*, or ASC 605.

In accordance with the new revenue standard requirements, the disclosure of the impact of adoption on our consolidated statement of operations for the three and nine months ended September 30, 2018 and consolidated balance sheet as of September 30, 2018 was as follows (in thousands):

Consolidated Statement of Operations	Three months ended September 30, 2018			Nine months ended September 30, 2018		
	As	ASC 606	Pro Forma	As	ASC 606	Pro Forma
	Reported	Adjustments	Under ASC 605	Reported	Adjustments	Under ASC 605
Revenue:						
Product	\$ 88,496	\$ 556	\$ 89,052	\$ 317,039	\$ (1,280)	\$ 315,759
Total revenue	95,374	556	95,930	336,892	(1,280)	335,612
Gross profit	39,913	556	40,469	136,069	(1,280)	134,789
Income from operations	10,668	556	11,224	48,437	(1,280)	47,157
Income before income taxes	9,346	556	9,902	44,458	(1,280)	43,178
Income tax provision	508	121	629	7,036	(277)	6,759
Net income	\$ 8,838	\$ 435	\$ 9,273	\$ 37,422	\$ (1,003)	\$ 36,419
Net income per share:						
Basic	\$ 0.27	\$ 0.01	\$ 0.28	\$ 1.16	\$ (0.03)	\$ 1.13
Diluted	\$ 0.26	\$ 0.01	\$ 0.27	\$ 1.10	\$ (0.03)	\$ 1.07

Consolidated Balance Sheet	September 30, 2018		
	As	ASC 606	Pro Forma
	Reported	Adjustments	Under ASC 605
Deferred income taxes	\$ 76,382	\$ 277	\$ 76,659
Total assets	\$ 519,232	\$ 277	\$ 519,509
Deferred revenue	\$ 17,774	\$ 2,880	\$ 20,654
Total current liabilities	66,272	2,880	69,152
Total liabilities	122,158	2,880	125,038
Accumulated deficit	(165,723)	(2,603)	(168,326)
Total stockholders' equity	397,074	(2,603)	394,471
Total liabilities and stockholders' equity	\$ 519,232	\$ 277	\$ 519,509

The impact of the adoption of ASC 606 on consolidated statements of comprehensive income and cash flows for the nine months ended September 30, 2018 was not material.

Upon adoption of ASC 606, we changed our accounting policy for the installation performance obligation included in all system sales. Previously under ASC 605, the Company deferred revenue for the greater of the fair value of the installation or the portion of contract consideration for which collection was contingent upon installation completion (the “retention”). The concept of contingent consideration is no longer relevant under ASC 606 and therefore we will only defer the portion of the transaction price allocated to the installation performance obligation. As a result of this change, we recorded a cumulative effect adjustment to increase retained earnings and decrease deferred revenue on January 1, 2018 by \$1.6 million. Upon the adoption, all new contracts will be accounted for under ASC 606. Disclosures related to the nature, amount and timing of revenue and cash flows arising from contracts with customers are included in Note 3.

**(b) Accounting Standard Update 2016-15 on Cash Receipts Adopted January 1, 2018**

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 relating to specific cash flow 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, and is to be applied retrospectively for each period presented. Adoption of ASU 2016-15 had no material effect on our consolidated financial statements and disclosures.

**(c) Accounting Standard Update 2017-07 on Retirement Benefits Adopted January 1, 2018**

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. Adoption of ASU 2017-07 had no material effect on the consolidated financial statements and disclosures.

**(d) Accounting Standard Update 2016-02 on Leases to be Effective January 1, 2019**

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. In July 2018, the FASB issued ASU No. 2018-11 “*Leases (Topic 842)*”, that provides targeted improvements relating to the transition method options with which to adopt the new standard. Under this additional and optional transition method, an entity initially applies the new lease standard at the adoption date and recognizes a cumulative-effect adjustment to the opening balance of retained earnings in the period of adoption. An entity that elects this transition method must provide the required Topic 840 disclosures for all periods that continue to be in accordance with Topic 840. We are currently implementing procedures and controls in anticipation of our adoption as well as evaluating the impact of ASUs 2016-02 and 2018-11 on the consolidated financial statements and disclosures. The Company anticipates adopting the new standard on January 1, 2019 using the modified retrospective approach under the ASU 2018-11 transition method with the primary effect to be the recognition of additional right-of-use assets and corresponding liabilities related to operating leases. The adoption is not expected to have a material impact on the Company’s results of operations and cash flows.

**(e) Accounting Standard Update 2018-13 on Fair Value Measurements to be Effective January 1, 2020**

In August 2018, the FASB issued ASU No. 2018-13 “*Fair Value Measurement (Topic 820).*” The amendments in ASU No. 2018-13 modify the disclosure requirements on fair value measurements in Topic 820, removing disclosure requirements for transfers between Level 1 and Level 2 within the fair value hierarchy, as well as modifying the disclosure requirement relating to the timing of liquidation for investments calculated on net asset value. The ASU also requires the disclosure of unrealized gains and losses for the period included in other comprehensive income for Level 3 instruments. The amendments in this Update are effective for all entities for fiscal years, and interim periods within those years, beginning after December 15, 2019. The amendments on changes for unrealized gains and losses should be applied prospectively for only the most recent interim or annual period presented in the initial fiscal year of adoption. Early adoption is permitted. We are currently evaluating the impact of ASU 2018-13 on the consolidated financial statements and disclosures.

## **Item 2. Management’s Discussion and Analysis of Financial Condition and Results of Operations.**

*Certain statements within "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" below and under "Risk Factors" in Part II, Item 1A to our annual report on Form 10-K for the year ended December 31, 2017, 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 producer of ion implantation and other processing equipment used in the fabrication of semiconductor chips in the United States, Europe and Asia. In addition, we provide extensive worldwide aftermarket service and support, including spare parts, equipment upgrades and maintenance services to the semiconductor industry. 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 76.4% of total revenue for the nine months ended September 30, 2018.

Our product development and manufacturing activities occur primarily in the United States. Our 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 first quarter of 2018, we signed an agreement with Screen Semiconductor Solutions Co., Ltd., a Japanese semiconductor equipment company, to establish a sales and service network to distribute Purion products to customers in Japan.

In the third quarter of 2018, we delivered solid financial results driven by improved gross margin performance.

### **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, 2017 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, revenues 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, 2017.

## Results of Operations

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

	Three months ended September 30,		Nine months ended September 30,	
	2018	2017	2018	2017
<b>Revenue:</b>				
Product	92.8 %	94.0 %	94.1 %	94.1 %
Services	7.2	6.0	5.9	5.9
Total revenue	100.0	100.0	100.0	100.0
<b>Cost of revenue:</b>				
Product	51.6	55.6	53.9	55.3
Services	6.6	6.4	5.8	6.2
Total cost of revenue	58.2	62.0	59.7	61.5
Gross profit	41.8	38.0	40.3	38.5
<b>Operating expenses:</b>				
Research and development	13.5	10.5	11.2	10.9
Sales and marketing	8.3	6.5	7.5	7.3
General and administrative	8.9	7.8	7.3	7.8
Total operating expenses	30.7	24.8	26.0	26.0
Income from operations	11.1	13.2	14.3	12.5
<b>Other (expense) income:</b>				
Interest income	0.6	0.2	0.5	0.1
Interest expense	(1.4)	(1.3)	(1.1)	(1.3)
Other, net	(0.6)	0.1	(0.5)	—
Total other expense	(1.4)	(1.0)	(1.1)	(1.2)
Income before income taxes	9.7	12.2	13.2	11.3
Income tax provision (benefit)	0.5	1.0	2.1	(0.5)
Net income	9.2 %	11.2 %	11.1 %	11.8 %

## Revenue

The following table sets forth our revenue:

	Three months ended September 30,		Period-to-Period Change		Nine months ended September 30,		Period-to-Period Change	
	2018	2017	\$	%	2018	2017	\$	%
(dollars in thousands)								
<b>Revenue:</b>								
Product	\$88,496	\$ 98,161	\$(9,665)	(9.8)%	\$317,039	\$276,678	\$40,361	14.6 %
Percentage of revenue	92.8 %	94.0 %			94.1 %	94.1 %		
Services	6,878	6,321	557	8.8 %	19,853	17,487	2,366	13.5 %
Percentage of revenue	7.2 %	6.0 %			5.9 %	5.9 %		
Total revenue	\$95,374	\$104,482	\$(9,108)	(8.7)%	\$336,892	\$294,165	\$42,727	14.5 %

Three months ended September 30, 2018 Compared with Three months ended September 30, 2017

### Product

Product revenue, which includes system sales, sales of spare parts, product upgrades and used systems was \$88.5 million, or 92.8% of revenue during the three months ended September 30, 2018, compared with

\$98.2 million, or 94.0% of revenue for the three months ended September 30, 2017. The \$9.7 million decrease in product revenue for the three month period ending September 30, 2018, in comparison to the same period in 2017, was primarily driven by the mix of tool types sold.

A portion of our revenue from system sales is deferred until installation and other services related to future performance obligations are performed. The total amount of deferred revenue at September 30, 2018 and December 31, 2017 was \$17.8 million and \$18.1 million, respectively. The net decrease in deferred revenue is primarily due to the reclassification of \$1.6 million relating to our adoption of ASC 606 as well as timing of system acceptances.

#### *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 \$6.9 million, or 7.2% of revenue for the three months ended September 30, 2018, compared with \$6.3 million, or 6.0% of revenue for the three months ended September 30, 2017. 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.

#### *Nine months ended September 30, 2018 Compared with Nine ended September 30, 2017*

#### *Product*

Product revenue, was \$317.0 million, or 94.1% of revenue during the nine months ended September 30, 2018, compared with \$276.7 million, or 94.1% of revenue for the nine months ended September 30, 2017. The \$40.4 million increase in product revenue for the nine month period ending September 30, 2018, in comparison to the same period in 2017, was primarily driven by an increase in the number of Purion systems sold and to a lesser extent, an increase in upgrade revenue.

#### *Services*

Services revenue, was \$19.9 million, or 5.9% of revenue for the nine months ended September 30, 2018, compared with \$17.5 million, or 5.9% of revenue for the nine months ended September 30, 2017.

### **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 September 30, 2018 Compared with Three months ended September 30, 2017*

#### *New Systems*

Included in total revenue of \$95.4 million during the three months ended September 30, 2018 is revenue from sales of new systems of \$56.4 million, or 59.1% of total revenue, compared with \$69.2 million, or 66.2%, of total revenue for the three months ended September 30, 2017.

#### *Aftermarket*

Included in total revenue of \$95.4 million during the three months ended September 30, 2018 is revenue from our aftermarket business of \$39.0 million, compared to \$35.3 million for the three months ended September 30, 2017. 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.

Nine months ended September 30, 2018 Compared with Nine months ended September 30, 2017

*New Systems*

Included in total revenue of \$336.9 million during the nine months ended September 30, 2018 is revenue from sales of new systems of \$215.8 million, or 64.0% of total revenue, compared with \$186.9 million, or 63.6%, of total revenue for the nine months ended September 30, 2017. The increase was due to higher sales of our Purion systems sold.

*Aftermarket*

Included in total revenue of \$336.9 million during the nine months ended September 30, 2018 is revenue from our aftermarket business of \$121.1 million, compared to \$107.3 million for the nine months ended September 30, 2017.

**Gross Profit / Gross Margin**

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

	Three months ended September 30,		Period-to-Period Change		Nine months ended September 30,		Period-to-Period Change	
	2018	2017	\$	%	2018	2017	\$	%
(dollars in thousands)								
<b>Gross Profit:</b>								
Product	\$ 39,360	\$ 40,105	\$ (745)	(1.9)%	\$ 135,616	\$ 114,136	\$ 21,480	18.8 %
Product gross margin	44.5 %	40.9 %			42.8 %	41.3 %		
Services	553	(354)	907	256.2 %	453	\$ (609)	1,062	174.4 %
Services gross margin	8.0 %	(5.6)%			2.3 %	(3.5)%		
Total gross profit	\$ 39,913	\$ 39,751	\$ 162	0.4 %	\$ 136,069	\$ 113,527	\$ 22,542	19.9 %
Gross margin	41.8 %	38.0 %			40.3 %	38.5 %		

Three months ended September 30, 2018 Compared with Three months ended September 30, 2017

*Product*

Gross margin from product revenue was 44.5% for the three months ended September 30, 2018, compared to 40.9% for the three months ended September 30, 2017. The increase in gross margin of 3.6 percentage points resulted from an increase in higher margin parts and upgrade revenue.

*Services*

Gross margin from services revenue was 8.0% for the three months ended September 30, 2018, compared to (5.6)% for the three months ended September 30, 2017. The increase in gross margin is attributable to changes in the mix of service contracts.

Nine months ended September 30, 2018 Compared with Nine months ended September 30, 2017

*Product*

Gross margin from product revenue was 42.8% for the nine months ended September 30, 2018, compared to 41.3% for the nine months ended September 30, 2017. The increase in gross margin of 1.5 percentage points resulted from an increase in higher margin parts and upgrade revenue.

*Services*

Gross margin from services revenue was 2.3% for the nine months ended September 30, 2018, compared to (3.5)% for the nine months ended September 30, 2017. The increase in gross margin is attributable to changes in the mix of service contracts.

**Operating Expenses**

The following table sets forth our operating expenses:

	Three months ended September 30,		Period-to-Period Change		Nine months ended September 30,		Period-to-Period Change	
	2018	2017	\$	%	2018	2017	\$	%
	(dollars in thousands)							
Research and development	\$ 12,845	\$ 11,003	\$ 1,842	16.7 %	\$ 37,631	\$ 32,154	\$ 5,477	17.0 %
Percentage of revenue	13.5 %	10.5 %			11.2 %	10.9 %		
Sales and marketing	7,923	6,801	1,122	16.5 %	25,246	21,335	3,911	18.3 %
Percentage of revenue	8.3 %	6.5 %			7.5 %	7.3 %		
General and administrative	8,477	8,112	365	4.5 %	24,755	22,960	1,795	7.8 %
Percentage of revenue	8.9 %	7.8 %			7.3 %	7.8 %		
Total operating expenses	\$ 29,245	\$ 25,916	\$ 3,329	12.8 %	\$ 87,632	\$ 76,449	\$ 11,183	14.6 %
Percentage of revenue	30.7 %	24.8 %			26.0 %	26.0 %		

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 \$18.1 million or 61.8% of our total operating expenses for the three month period ended September 30, 2018, compared to \$16.7 million or 64.5% of our total operating expenses for the three month period ended September 30, 2017. Personnel costs were \$54.7 million or 62.5%, of our total operating expenses for the nine month period ended September 30, 2018, compared to \$47.9 million or 62.7% of our total operating expenses. The higher personnel costs for the three and nine month periods ended September 30, 2018 are primarily due to increased headcount to support growth.

**Research and Development**

	Three months ended September 30,		Period-to-Period Change		Nine months ended September 30,		Period-to-Period Change	
	2018	2017	\$	%	2018	2017	\$	%
	(dollars in thousands)							
Research and development	\$12,845	\$11,003	\$1,842	16.7 %	\$ 37,631	\$ 32,154	5,477	17.0 %
Percentage of revenue	13.5 %	10.5 %			11.2 %	10.9 %		

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 provide customers with competitive performance advantages.



Three months ended September 30, 2018 Compared with Three months ended September 30, 2017

Research and development expense was \$12.8 million during the three months ended September 30, 2018; a \$1.8 million, or 16.7%, increase from \$11.0 million during the three months ended September 30, 2017. The increase is primarily due to increased headcount and project materials cost to support the development of new Purion products.

Nine months ended September 30, 2018 Compared with Nine months ended September 30, 2017

Research and development expense was \$37.6 million during the nine months ended September 30, 2018; a \$5.5 million, or 17.0%, increase from \$32.2 million during the nine months ended September 30, 2017. The increase is primarily due to increased headcount and project costs to support the development of new Purion products.

**Sales and Marketing**

	Three months ended September 30,		Period-to-Period Change		Nine months ended September 30,		Period-to-Period Change	
	2018	2017	\$	%	2018	2017	\$	%
	(dollars in thousands)							
Sales and marketing	\$7,923	\$6,801	\$1,122	16.5 %	\$25,246	\$21,335	\$3,911	18.3 %
Percentage of revenue	8.3 %	6.5 %			7.5 %	7.3 %		

Our sales and marketing expenses result primarily from the sale of our equipment and services through our direct sales force. Moving forward, we will incur expenses associated with implementing the agreement with Screen Semiconductor Solutions Co. Ltd., to distribute Purion products to customers in Japan.

Three months ended September 30, 2018 Compared with Three months ended September 30, 2017

Sales and marketing expense was \$7.9 million during the three months ended September 30, 2018; an increase of \$1.1 million, or 16.5%, compared with \$6.8 million during the three months ended September 30, 2017. The increase is primarily due to increased headcount to support growth.

Nine months ended September 30, 2018 Compared with Nine months ended September 30, 2017

Sales and marketing expense was \$25.2 million during the nine months ended September 30, 2018; an increase of \$3.9 million, or 18.3%, compared with \$21.3 million during the nine months ended September 30, 2017. The increase is primarily due to increased headcount and travel to support growth.

**General and Administrative**

	Three months ended September 30,		Period-to-Period Change		Nine months ended September 30,		Period-to-Period Change	
	2018	2017	\$	%	2018	2017	\$	%
	(dollars in thousands)							
General and administrative	\$8,477	\$8,112	\$ 365	4.5 %	\$24,755	\$22,960	1,795	7.8 %
Percentage of revenue	8.9 %	7.8 %			7.3 %	7.8 %		

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 September 30, 2018 Compared with Three months ended September 30, 2017

General and administrative expense was \$8.5 million during the three months ended September 30, 2018; an increase of \$0.4 million, or 4.5%, compared with \$8.1 million during the three months ended September 30, 2017. The increase is primarily due to stock based compensation expense.

Nine months ended September 30, 2018 Compared with Nine months ended September 30, 2017

General and administrative expense was \$24.8 million during the nine months ended September 30, 2018; an increase of \$1.8 million, or 7.8%, compared to \$23.0 million during the nine months ended September 30, 2017. The increase is primarily due to increases in salary, stock based compensation expense and outside services.

**Other (Expense) Income**

	Three months ended September 30,		Period-to-period change		Nine months ended September 30,		Period-to-period change	
	2018	2017	\$	%	2018	2017	\$	%
	(dollars in thousands)							
Other (expense) income	\$ (1,322)	\$ (980)	\$ (342)	(34.9)%	\$ (3,979)	\$ (3,385)	\$ (594)	(17.5)%
Percentage of revenue	(1.4)%	(1.0)%			(1.1)%	(1.2)%		

Other (expense) income consists primarily of interest relating to the lease obligation we incurred in connection with the 2015 sale of our headquarters facility (“sale leaseback”) and other financing obligations, foreign exchange gains and losses attributable to fluctuations of the U.S dollar against local currencies of certain of the countries in which we operate as well as interest earned on our invested cash balances.

Other expense was \$1.3 million for the three months ended September 30, 2018, compared with \$1.0 million for the three months ended September 30, 2017. The increase in other expense for the three month period ended September 30, 2018 compared to the three month period ended September 30, 2017, was primarily due to fluctuations in currency exchange. Other expense was \$4.0 million for the nine months ended September 30, 2018, compared with \$3.4 million for the nine months ended September 30, 2017. The increase in other expense for the nine month period ended September 30, 2018 compared to the nine month period ended September 30, 2017, was primarily due to fluctuations in currency exchange, offset by increased interest earned on our investments.

During the three and nine month periods ended September 30, 2018 and 2017, 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 hedging arrangements.

**Income Tax Provision (Benefit)**

	Three months ended September 30,		Period-to-period change		Nine months ended September 30,		Period-to-period change	
	2018	2017	\$	%	2018	2017	\$	%
	(dollars in thousands)							
Income tax provision (benefit)	\$ 508	\$ 1,014	\$ (506)	(49.9)%	\$ 7,036	\$ (1,586)	\$ 8,622	543.6 %
Percentage of revenue	0.5 %	1.0 %			2.1 %	(0.5)%		

During the three months ended September 30, 2018 we recorded an income tax provision of \$0.5 million. During the nine months ended September 30, 2018 we recorded an income tax provision of \$7.0 million. Included in the income tax provision for the three and nine months ended September 30, 2018 is a tax benefit of \$1.4 million relating to the calculation of transition tax under the TCJA. This tax benefit reduced by 15.2% and 3.1% the otherwise effective tax rate for the three and nine months ended September 30, 2018, respectively. Also included in the income tax provision for the nine months ended September 30, 2018 is a tax benefit of \$0.3 million recognized upon the expiration of the statute of limitations regarding an uncertain tax position previously recorded. The related interest and penalties previously accrued were reversed resulting in a reduction to interest expense of \$0.2 million.

During the three months ended September 30, 2017, the Company recorded a tax expense of approximately \$0.8 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 expense of \$1.0 million for the three months ended September 30, 2017. The income tax benefit of \$1.6 million for the nine months ended September 30, 2017 includes a \$2.0 million tax benefit related to the excess tax benefit on the exercise of non-qualified stock options and the vesting of restricted stock.

At December 31, 2017, the Company had \$90.3 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. Management considered the weight of all available evidence in determining whether a valuation allowance was required against its deferred tax assets at December 31, 2017. After consideration of both positive and negative evidence, management concluded in 2017 that it is more likely than not that a substantial portion of the Company's deferred tax assets will be realized. The positive evidence considered was three year U.S. historical cumulative profitability, projected future taxable income and length of carry-forward periods of net operating losses and tax credits. The primary negative evidence considered is the volatility of the semiconductor industry in which the Company operates. The Company has continued to maintain a \$7.1 million valuation allowance in the U.S. against certain tax credits and state net operating losses due to the uncertainty of their realization based on long-term Company forecasts and the expiration dates on these attributes.

### **Liquidity and Capital Resources**

The Company had \$148.7 million in unrestricted cash and cash equivalents at September 30, 2018, in addition to \$6.9 million in restricted cash, primarily comprised of the \$5.9 million security deposit for the lease of our corporate 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. Additionally, we have begun efforts to identify both organic and inorganic opportunities to drive future growth, for which cash resources will be necessary.

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 nine months ended September 30, 2018, the Company generated \$17.2 million of cash from operating activities. This was predominately driven by net income of \$37.4 million. In comparison, during the nine months ended September 30, 2017, the Company generated \$40.3 million of cash in operating activities.

Investing activities for the nine months ended September 30, 2018 and 2017 resulted in cash outflows of \$3.9 million and \$6.9 million, respectively, used for capital expenditures.

Financing activities for the nine months ended September 30, 2018 provided net cash proceeds of \$0.3 million, primarily relating to exercise of stock options as well as purchases under the ESPP, partially offset by cash payments made to government tax authorities for income tax withholding on restricted stock unit vesting, where shares are withheld by the Company. Financing activities for the nine months ended September 30, 2017 provided net cash of \$10.3 million primarily relating to the proceeds from the exercise of stock options.

We believe that based on our current market, revenue, expense and cash flow forecasts, our existing cash, cash equivalents and borrowing capacity 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 September 30, 2018 are consistent with those discussed in Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations," and Note 14 to the consolidated financial statements in our Annual Report on Form 10-K for the fiscal year ended December 31, 2017.

**Item 3. Quantitative and Qualitative Disclosures about Market Risk.**

As of September 30, 2018, 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, 2017.

**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 September 30, 2018 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 September 30, 2018, 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, 2017.

### **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:

<b>Exhibit No</b>	<b>Description</b>
3.1	<a href="#">Restated Certificate of Incorporation of the Company filed November 2, 2017. Incorporated by reference to Exhibit 3.1 of the Company's Form 10-Q filed with the Commission on November 3, 2017.</a>
3.2	<a href="#">Bylaws of the Company, as amended as of May 13, 2014. Incorporated by reference to Exhibit 3.1 of the Company's Form 8-K filed with the Commission on May 19, 2014.</a>
31.1	<a href="#">Certification of the Principal Executive Officer under Exchange Act Rule 13a-14(a)/15d-14(a) (Section 302 of the Sarbanes-Oxley Act), dated November 2, 2018. Filed herewith.</a>
31.2	<a href="#">Certification of the Principal Financial Officer under Exchange Act Rule 13a-14(a)/15d-14(a) (Section 302 of the Sarbanes-Oxley Act), dated November 2, 2018. Filed herewith.</a>
32.1	<a href="#">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 November 2, 2018. Filed herewith.</a>
32.2	<a href="#">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 November 2, 2018. Filed herewith.</a>
101	The following materials from the Company's Form 10-Q for the quarter ended September 30, 2018, formatted in eXtensible Business Reporting Language (XBRL): (i) Consolidated Statements of Operations, (ii) Consolidated Statements of Comprehensive Income, (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: November 2, 2018

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*

**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: November 2, 2018

/s/ MARY G. PUMA

Mary G. Puma,  
*President and Chief Executive Officer*

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**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: November 2, 2018

/s/ KEVIN J. BREWER

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

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**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 November 2, 2018.

/s/ MARY G. PUMA

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

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**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 November 2, 2018.

/s/ KEVIN J. BREWER

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

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