

**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 March 31, 2012

or

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

For the transition period from to

Commission file number 000-30941

AXCELIS TECHNOLOGIES, INC.

(Exact name of registrant as specified in its charter)

Delaware

(State or other jurisdiction of incorporation or organization)

34-1818596

(IRS Employer Identification No.)

108 Cherry Hill Drive

Beverly, Massachusetts 01915

(Address of principal executive offices, including zip code)

(978) 787-4000

(Registrant's telephone number, including area code)

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

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

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

Large accelerated filer

Accelerated filer

Non-accelerated filer

Smaller reporting company

(Do not check if a smaller reporting company)

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 April 30, 2012 there were 107,618,138 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 March 31,	
	2012	2011
Revenue		
Product	\$ 47,538	\$ 86,603
Service	7,468	6,567
Total revenue	<u>55,006</u>	<u>93,170</u>
Cost of revenue		
Product	29,284	56,873
Service	5,186	5,216
Total cost of revenue	<u>34,470</u>	<u>62,089</u>
Gross profit	20,536	31,081
Operating expenses		
Research and development	11,669	11,818
Sales and marketing	6,583	7,819
General and administrative	7,799	9,055
Restructuring charges	2,881	—
Total operating expenses	<u>28,932</u>	<u>28,692</u>
Income (loss) from operations	(8,396)	2,389
Other income (expense)		
Interest income	9	6
Other, net	(924)	(450)
Total other expense	<u>(915)</u>	<u>(444)</u>
Income (loss) before income taxes	(9,311)	1,945
Income taxes	717	133
Net income (loss)	<u>\$ (10,028)</u>	<u>\$ 1,812</u>
Net income (loss) per share		
Basic and diluted net income (loss) per share	<u>\$ (0.09)</u>	<u>\$ 0.02</u>
Shares used in computing basic and diluted net income (loss) per share		
Basic weighted average common shares	<u>107,067</u>	<u>105,936</u>
Diluted weighted average common shares	<u>107,067</u>	<u>110,791</u>

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

	Three months ended March 31,	
	2012	2011
Net income (loss)	\$ (10,028)	\$ 1,812
Other comprehensive income:		
Foreign currency translation adjustments	56	1,325
Comprehensive income (loss)	<u>\$ (9,972)</u>	<u>\$ 3,137</u>

See accompanying Notes to these Consolidated Financial Statements

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Axcelis Technologies, Inc.
Consolidated Balance Sheets
(In thousands)
(Unaudited)

	March 31, 2012	December 31, 2011
ASSETS		
Current assets		
Cash and cash equivalents	\$ 37,218	\$ 46,877
Accounts receivable, net	30,464	35,071
Inventories, net	128,719	120,023
Prepaid expenses and other current assets	10,532	10,062
Total current assets	<u>206,933</u>	<u>212,033</u>
Property, plant and equipment, net	36,507	37,204
Long-term restricted cash	107	104
Other assets	12,263	19,904
Total assets	<u>\$ 255,810</u>	<u>\$ 269,245</u>
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities		
Accounts payable	\$ 17,861	\$ 19,551
Accrued compensation	9,087	8,285
Warranty	3,110	3,556
Income taxes	576	495
Deferred revenue	7,216	10,786
Other current liabilities	4,298	4,799
Total current liabilities	<u>42,148</u>	<u>47,472</u>
Long-term deferred revenue	1,241	1,488
Other long-term liabilities	6,000	5,730
Total liabilities	<u>49,389</u>	<u>54,690</u>
Commitments and contingencies (Note 10)		
Stockholders' equity		
Preferred stock	—	—
Common stock	108	107
Additional paid-in capital	501,169	499,332
Treasury stock	(1,218)	(1,218)
Accumulated deficit	(298,471)	(288,443)
Accumulated other comprehensive income	4,833	4,777
Total stockholders' equity	<u>206,421</u>	<u>214,555</u>
Total liabilities and stockholders' equity	<u>\$ 255,810</u>	<u>\$ 269,245</u>

See accompanying Notes to these Consolidated Financial Statements

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

	Three months ended	
	March 31,	
	2012	2011
Cash flows from operating activities:		
Net income (loss)	\$ (10,028)	\$ 1,812
Adjustments to reconcile net income (loss) to net cash used for operating activities:		
Depreciation and amortization	1,896	1,882
Deferred taxes	378	33
Stock-based compensation expense	1,082	1,222
Provision for excess inventory	248	246
Changes in operating assets & liabilities:		
Accounts receivable	4,810	8,245
Inventories	(8,277)	(13,350)
Prepaid expenses and other current assets	(385)	4,404
Accounts payable & other current liabilities	(2,162)	3,168
Deferred revenue	(3,818)	(2,996)
Income taxes	76	3
Other assets and liabilities	6,483	(5,875)
Net cash used for operating activities	(9,697)	(1,206)
Cash flows from investing activities:		
Expenditures for property, plant, and equipment	(141)	(610)
Increase in restricted cash	(3)	(6)
Net cash used for investing activities	(144)	(616)
Cash flows from financing activities:		
Proceeds from exercise of stock options	802	197
Proceeds from Employee Stock Purchase Plan	175	239
Net cash provided by financing activities	977	436
Effect of exchange rate changes on cash	(795)	425
Net decrease in cash and cash equivalents	(9,659)	(961)
Cash and cash equivalents at beginning of period	46,877	45,743
Cash and cash equivalents at end of period	\$ 37,218	\$ 44,782

See accompanying Notes to these Consolidated Financial Statements

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Axcelis Technologies, Inc.

Notes To Consolidated Financial Statements (Unaudited)

Note 1. Nature of Business and Basis of Presentation

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

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, 2011 has been derived from the audited financial statements at that date but does not include all of the information and footnotes required by generally accepted accounting principles for complete financial statements. For further information, refer to the consolidated financial statements and footnotes thereto included in Axcelis Technologies, Inc.'s Annual Report on Form 10-K for the year ended December 31, 2011.

Note 2. Stock-Based Compensation

The Company maintains the Axcelis Technologies, Inc. 2000 Stock Plan (the "2000 Plan"), a stock award and incentive plan which permits the issuance of options, restricted stock, restricted stock units and performance awards to selected employees, directors and consultants of the Company. The

Company also maintains the Axcelis Technologies, Inc. Employee Stock Purchase Plan (the "ESPP"), an Internal Revenue Code Section 423 plan. The 2000 Plan and the ESPP are more fully described in Note 12 to the consolidated financial statements in the Company's 2011 Annual Report on Form 10-K.

The Company recognized stock-based compensation expense of \$1.1 million and \$1.2 million for the three months ended March 31, 2012 and 2011, respectively. These amounts include compensation expense related to restricted stock units, non-qualified stock options and stock expected to be issued under the ESPP.

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Note 3. Net Income (Loss) 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 to include incremental common shares that would have been outstanding if the potentially dilutive common shares had been issued. Because the Company had net losses for the three-month period ended March 31, 2012, any potentially diluted common shares related to outstanding stock options and restricted stock units have been excluded from the calculation of net loss per share for that period because the effect would be anti-dilutive.

	Three months ended March 31,	
	2012	2011
(in thousands, except per share data)		
Income (loss)	\$ (10,028)	\$ 1,812
Weighted average common shares outstanding used in computing basic net income (loss) per share	107,067	105,936
Incremental shares	—	4,855
Weighted average common shares outstanding used in computing diluted net income (loss) per share	107,067	110,791
Net income (loss) per share:		
Basic	\$ (0.09)	\$ 0.02
Diluted	\$ (0.09)	\$ 0.02

Note 4. Inventories

The components of inventories are as follows:

	March 31, 2012	December 31, 2011
	(in thousands)	
Raw materials	\$ 86,561	\$ 85,829
Work in process	27,401	25,639
Finished goods (completed systems)	14,757	8,555
	<u>\$ 128,719</u>	<u>\$ 120,023</u>

When recorded, reserves reduce the carrying value of inventories to their net realizable value. The Company establishes inventory reserves when conditions exist that indicate inventories 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: forecasted sales or usage, estimated product end-of-life dates, estimated current and future market value and new product introductions. Purchasing and usage alternatives are also explored to mitigate inventory exposure. As of March 31, 2012 and December 31, 2011, inventories are stated net of inventory reserves of \$23.8 million and \$22.8 million, respectively.

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Note 5. Restructuring Charges

In the three months ended March 31, 2012, the Company implemented a reduction in force related to planned actions taken by management to control costs and improve the focus of its operations in order to sustain future profitability and conserve cash. This reduction in force resulted in a total charge to restructuring expense of \$2.9 million related to severance and related costs for the three months ended March 31, 2012. Total expense related to this action is expected to be approximately \$3.3 million, the remainder of which will be incurred in the second quarter of 2012. The accrual at March 31, 2012 of \$1.0 million is expected to be paid in the periods extending through the remainder of 2012.

Changes in the Company's restructuring liability, which consists primarily of severance and related costs, included in amounts reported as other current liabilities, were as follows:

	(in thousands)
Balance at December 31, 2011	\$ 171
Severance and related costs	2,881
Cash payments	(1,724)

Noncash payments (accelerated vesting of certain stock options)	(279)
Balance at March 31, 2012	<u>\$ 1,049</u>

Note 6. 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.

Changes in the Company's product warranty liability are as follows:

	Three months ended March 31,	
	2012	2011
	(in thousands)	
Balance at December 31	\$ 3,697	\$ 2,713
Warranties issued during the period	842	1,331
Settlements made during the period	(1,078)	(946)
Changes in estimate of liability for pre-existing warranties during the period	(225)	163
Balance at March 31	<u>\$ 3,236</u>	<u>\$ 3,261</u>
Amount classified as current	\$ 3,110	\$ 3,060
Amount classified as long-term	126	201
Total Warranty Liability	<u>\$ 3,236</u>	<u>\$ 3,261</u>

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Note 7. Financial Arrangements

Bank Credit Facility

On April 25, 2011, the Company amended its existing revolving credit facility with a bank. The amended agreement provides for borrowings up to \$30 million, based primarily on accounts receivable. The facility has certain financial covenants requiring the Company to maintain minimum levels of operating results and liquidity. The agreement will terminate on April 10, 2015. The Company uses the facility to support letters of credit and for short term borrowing as needed.

On March 5, 2012, the Company entered into a modification agreement relating to this facility which revised the covenants to set minimum quarterly ratios of current assets to current liabilities and minimum trailing six month adjusted net income to conform to the Company's current forecasts. The calculation of these covenants are set forth in the Amended and Restated Loan and Security Agreement dated as of April 25, 2011 filed as Exhibit 10.1 to the Company's report on Form 10-Q for the quarter ended March 31, 2011, as modified by the First Loan Modification Agreement dated as of December 27, 2011 filed as Exhibit 10.16 to the Company's report on Form 10-K for the year ended December 31, 2011 and by the Second Loan Modification Agreement dated as of March 5, 2012 filed as Exhibit 10.1 to this Form 10-Q.

At March 31, 2012 the Company's available borrowing capacity under the credit facility was \$20.0 million and the Company was compliant with all covenants of the loan agreement.

Note 8. Income Taxes

Income tax expense relates principally to operating results of foreign entities in jurisdictions, primarily in Europe and Asia, where the Company earns taxable income. The Company has significant net operating losses in the United States and certain jurisdictions and, as a result, does not pay significant income taxes in those jurisdictions. In the first quarter of 2012, the Company recorded a non-cash tax expense of \$0.4 million related to a write-off of a deferred tax asset in one of its European jurisdictions.

Note 9. Significant Customers

For the three months ended March 31, 2012, two customers accounted for approximately 24.6% and 14.4% of consolidated revenue. For the three months ended March 31, 2011, three customers accounted for approximately 19.2%, 14.6% and 12.2% of consolidated revenue.

At March 31, 2012, one customer accounted for 19.0% of consolidated accounts receivable. At March 31, 2011, two customers accounted for 15.8% and 10.9% of consolidated accounts receivable.

Note 10. Contingencies

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.

Indemnifications

The Company's system sales agreements typically include provisions under which the Company agrees to 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 11. New Accounting Guidance Recently Adopted — Comprehensive Income

Effective January 1, 2012 the Company adopted Accounting Standards Update, or ASU, No. 2011-05, *Comprehensive Income (Topic 220)*. This newly issued accounting standard requires the Company to report comprehensive income either in a single continuous statement or in two separate but consecutive financial statements. As this update only required enhanced disclosure, the adoption of this update did not impact our financial position or results of operations.

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

Certain statements in "Management's Discussion and Analysis of Financial Condition and Results of Operations" and elsewhere in this Form 10-Q 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 or referred to under "Liquidity and Capital Resources" and "Risk Factors" and others discussed elsewhere in this Form 10-Q. 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

The semiconductor capital equipment industry is subject to significant cyclical swings in capital spending by semiconductor manufacturers. Capital spending is influenced by demand for semiconductors and the products using them, the utilization rate and capacity of existing semiconductor manufacturing facilities and changes in semiconductor technology, all of which are outside of our control. As a result, our revenue and gross margins fluctuate from year to year and period to period. Our operating expense base is largely fixed and does not vary significantly with changes in volume. Therefore, we experience fluctuations in operating results and cash flows depending on our revenue as driven by the level of capital expenditures by semiconductor manufacturers.

The sizable expense of building, upgrading or expanding a semiconductor fabrication facility is increasingly causing semiconductor companies to contract with foundries to manufacture their semiconductors. In addition, consolidation and partnering within the semiconductor manufacturing industry is increasing.

The market for our products steadily improved during the first half of 2011, but during the second half of 2011, deterioration within the industry environment decreased our revenues as compared with the first half of the year. In addition, we had delays in key penetrations in the second half of 2011. These delays were a function of poor market conditions and prioritization of our product development activities. However, in 2011 we continued to penetrate new customers with our Optima implant products which we expect will lead to additional future sales. In 2011 we also gained market share with our Integra dry strip products. Weak industry conditions continued during the first quarter of 2012 resulting in a further decline in our revenues as compared with the prior quarter. Although future market conditions are difficult to predict, we anticipate our business will see growth and improving financial results in 2012.

Operating results for the periods presented are not necessarily indicative of the results that may be expected for future interim periods or years as a whole.

Critical Accounting Estimates

Management's discussion and analysis of our financial condition and results of operations 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, including those related to revenue recognition, income taxes, accounts receivable, inventory and warranty obligations. 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.

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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, 2011.

Results of Operations

The following table sets forth our results of operations as a percentage of revenue for the periods indicated:

Axcelis Technologies, Inc.
Consolidated Statements of Operations
Percentage of Revenue

(Unaudited)

	Three months ended March 31,	
	2012	2011
Revenue		
Product	86.4%	93.0%
Service	13.6	7.0
Total revenue	100.0	100.0
Cost of revenue		
Product	53.2	61.0
Service	9.5	5.6
Total cost of revenue	62.7	66.6
Gross profit	37.3	33.4
Operating expenses		
Research and development	21.2	12.7
Sales and marketing	12.0	8.4
General and administrative	14.2	9.7
Restructuring charges	5.2	—
Total operating expenses	52.6	30.8
Income (loss) from operations	(15.3)	2.6
Other income (expense)		
Other, net	(1.6)	(0.5)
Total other expense	(1.6)	(0.5)
Income (loss) before income taxes	(16.9)	2.1
Income taxes	1.3	0.1
Net income (loss)	(18.2)%	2.0%

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Three months ended March 31, 2012 in comparison to the three months ended March 31, 2011

Revenue

Product

Product revenue, which includes systems sales, sales of spare parts and product upgrades, was \$47.5 million or 86.4% of revenue for the three months ended March 31, 2012, compared with \$86.6 million, or 93.0% of revenue for the three months ended March 31, 2011. The decrease in product revenue in the three-month period ended March 31, 2012 is attributable to the weakening of the semiconductor market and a related decrease in capital spending by semiconductor manufacturers.

A portion of our revenue from system sales is deferred until installation and other services related to future deliverables are performed. The total amount of deferred revenue at March 31, 2012 and 2011 was \$8.5 million and \$13.3 million, respectively. The decrease was mainly due to the decline in systems sales during the second half of 2011 and the first quarter of 2012.

Service

Service revenue, which includes the labor component of maintenance and service contracts and fees for service hours provided by on-site service personnel, was \$7.5 million, or 13.6% of revenue for the three months ended March 31, 2012, compared with \$6.6 million, or 7.0% of revenue, for the three months ended March 31, 2011. Service revenue is affected by the expansion of the installed base of off-warranty systems and can fluctuate from period to period based on capacity utilization at customers' manufacturing facilities. The increase in service revenue for the three months ended March 31, 2012 compared to the comparable period one year ago was due to a higher service value component for supporting service contracts and time and material engagements.

Revenue Categories used by Management

As an alternative to the line item revenue categories discussed above, management also uses revenue categorizations which look at revenue by product line (the most significant of which is ion implant) and by aftermarket, as described below.

Ion Implant

Included in total revenue of \$55.0 million is revenue from sales of ion implantation products and service which accounted for \$40.4 million, or 73.5% of total revenue in the three months ended March 31, 2012, compared with \$64.4 million, or 69.3%, of total revenue for the three months ended March 31, 2011. The dollar decrease was due to the factors discussed above for product revenues.

Aftermarket

The Company's product revenues include sales of spare parts and product upgrades as well as complete systems. We refer to the business of selling spare parts and product upgrades, combined with the sale of maintenance labor and service contracts and service hours, as the "aftermarket" business. Included in total revenue of \$55.0 million is revenue from our aftermarket business of \$32.1 million for the three months ended March 31, 2012, compared to \$38.3 million for the three months ended March 31, 2011. Aftermarket revenue generally increases with expansion of the installed base of systems but can fluctuate period to period based on capacity utilization at customers' manufacturing facilities which affects the sale of spare parts and demand for equipment service. The decrease of \$6.2 million in aftermarket revenue for the three months ended March 31, 2012 compared to March 31, 2011 was primarily due to a 21.1% decrease in spare parts and upgrade revenue which is directly related lower tool utilization at our customers' fabrication facilities and decreased upgrade installations which allow our customers to maximize the technological and throughput capabilities of our tools.

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Gross Profit

Product

Gross profit from product revenue was 38.4% for the three months ended March 31, 2012, compared to gross profit of 34.3% for the three months ended March 31, 2011. The increase in gross profit of 4.1 percentage points is due to a 10.1 percentage point increase in gross profit resulting from the favorable impact of an increased mix of parts and upgrade revenue at higher margins, offset by lower systems sales volumes which reduced gross profit by 6.0 percentage points.

Service

Gross profit from service revenue was 30.6% for the three months ended March 31, 2012, compared to 20.6% for the three months ended March 31, 2011. The increase in gross profit is attributable to higher volumes and the favorable absorption of fixed service costs.

Research and Development

Research and development expense was \$11.7 million in the three months ended March 31, 2012, a decrease of \$0.1 million, or 0.8%, compared with \$11.8 million in the three months ended March 31, 2011. The net decrease was due to slight increased payroll costs (\$0.1 million) offset by decreased project material and consulting (\$0.2 million).

Sales and Marketing

Sales and marketing expense was \$6.6 million in the three months ended March 31, 2012, a decrease of \$1.2 million, or 15.4%, compared with \$7.8 million for the three months ended March 31, 2011. The decrease was due to decreased payroll costs (\$0.5 million) and decreased commission expense (\$0.6 million) due to lower systems sales volume.

General and Administrative

General and administrative expense was \$7.8 million for the three months ended March 31, 2012, a decrease of \$1.3 million, or 14.3%, compared with \$9.1 million in the three months ended March 31, 2011. The decrease was due to lower compensation expense (\$1.0 million), a majority of which was associated with the retirement of a former executive of the Company in March of 2011, and decreased other miscellaneous expenses (\$0.3 million).

Restructuring Charges

In the three months ended March 31, 2012, the Company implemented a reduction in force related to planned actions taken by management to control costs and improve the focus of its operations in order to sustain future profitability and conserve cash. This reduction in force resulted in a total charge to restructuring expense of \$2.9 million related to severance and related costs for the three months ended March 31, 2012. Total expense related to this action is expected to be approximately \$3.3 million, the remainder of which will be incurred in the second quarter of 2012.

Other Income (Expense)

Other income (expense) was \$0.9 million for three months ended March 31, 2012 compared to \$0.4 million for the three months ended March 31, 2011. Other income (expense) for both periods primarily consisted of foreign exchange losses attributed to fluctuations of the U.S. dollar against the local currencies of certain of the countries in which we operate and bank fees associated with maintaining our credit facility.

Income Taxes

We incur income tax expense relating principally to operating results of foreign entities in Europe and Asia, where we earn taxable income. We have significant net operating loss carryforwards in the United States and certain European tax jurisdictions, and, as a result, we do not currently pay significant income taxes in those jurisdictions. Additionally we do not recognize the tax benefit for losses in the United States and certain European tax jurisdictions. In the first quarter of 2012, we recorded a non-cash tax expense of \$0.4 million related to a write-off of a deferred tax asset in one of our European jurisdictions.

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Liquidity and Capital Resources

We believe that based on our current market, revenue, expense and cash flow forecasts, our existing cash and cash equivalents will be sufficient to satisfy our anticipated cash requirements in the short and long-term. Our liquidity is affected by many factors. Some of these factors relate specifically to the

operations of our business, for example, the rate of sale of our Optima and Integra products, and others relate to the uncertainties of global economies, including the availability of credit and the condition of the overall semiconductor equipment industry.

During the three months ended March 31, 2012, \$9.7 million of cash was used, in line with the Company's 2012 plan, to support operating activities, including increased levels of inventories in anticipation of future period system sales. Cash and cash equivalents at March 31, 2012 were \$37.2 million, compared to \$46.9 million at December 31, 2011. In the event that demand for Axcelis' products declines in future periods, the Company believes it can align manufacturing and operating spending levels to the changing business conditions and provide sufficient liquidity to support operations.

On April 25, 2011, the Company amended its existing revolving credit facility with a bank. The amended agreement provides for borrowings up to \$30 million based primarily on accounts receivable. The facility has certain financial covenants requiring us to maintain minimum levels of operating results and liquidity. The agreement will terminate on April 10, 2015. The Company uses the facility to support letters of credit and for short term borrowing as needed.

On March 5, 2012, the Company entered into a modification agreement relating to this facility which revised the covenants to set minimum quarterly ratios of current assets to current liabilities and minimum trailing six month adjusted net income to conform to the Company's current forecasts. The calculation of these covenants are set forth in the Amended and Restated Loan and Security Agreement dated as of April 25, 2011 filed as Exhibit 10.1 to the Company's report on Form 10-Q for the quarter ended March 31, 2011, as modified by the First Loan Modification Agreement dated as of December 27, 2011 filed as Exhibit 10.16 to the Company's report on Form 10-K for the year ended December 31, 2011 and by the Second Loan Modification Agreement dated as of March 5, 2012 filed as Exhibit 10.1 to this Form 10-Q.

At March 31, 2012 the Company's available borrowing capacity under the credit facility was \$20.0 million and the Company was compliant with all covenants of the loan agreement.

Commitments and Contingencies

Significant commitments and contingencies at March 31, 2012 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, 2011.

Item 3. Quantitative and Qualitative Disclosures about Market Risk.

As of March 31, 2012, there have been no material changes to the quantitative information about market risk disclosed in Item 7A to our annual report Form 10-K for the year ended December 31, 2011.

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 first quarter of 2012 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

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PART II—OTHER INFORMATION

Item 1. Legal Proceedings.

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

Item 1A. Risk Factors.

As of March 31, 2012, 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, 2011.

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

None.

Item 3. Defaults Upon Senior Securities.

None.

Item 4. Mine Safety Disclosures

Item 5. Other Information.

None.

[Table of Contents](#)**Item 6. Exhibits.**

The following exhibits are filed herewith:

Exhibit No	Description
3.1	Amended and Restated Certificate of Incorporation of the Company adopted May 6, 2009. Incorporated by reference to Exhibit 3.1 of the Company's Current Report on Form 8-K filed with the Commission on May 11, 2009.
3.2	Bylaws of the Company, as amended as of August 8, 2007. Incorporated by reference to Exhibit 3.2 of the Company's Form 10-Q for the quarterly period ended June 30, 2007, filed with the Commission on August 9, 2007.
10.1	Second Loan Modification Agreement dated as of March 5, 2012 between the Company and Axcelis Technologies CCS Corporation, as borrowers, and Silicon Valley Bank. Filed herewith.
10.2	Executive Retirement Agreement between the Company and Matthew P. Flynn, dated February 10, 2012. Incorporated by reference to Exhibit 10.1 of the Company's Current report on Form 8-K filed with the Commission on February 24, 2012.
31.1	Certification of the Principal Executive Officer under Exchange Act Rule 13a-14(a)/15d-14(a) (Section 302 of the Sarbanes-Oxley Act), dated May 4, 2012. Filed herewith.
31.2	Certification of the Principal Financial Officer under Exchange Act Rule 13a-14(a)/15d-14(a) (Section 302 of the Sarbanes-Oxley Act), dated May 4, 2012. Filed herewith.
32.1	Certification of the Principal Executive Officer pursuant to Section 1350 of Chapter 63 of title 18 of the United States Code (Section 906 of the Sarbanes-Oxley Act), dated May 4, 2012. Filed herewith.
32.2	Certification of the Principal Financial Officer pursuant to Section 1350 of Chapter 63 of title 18 of the United States Code (Section 906 of the Sarbanes-Oxley Act), dated May 4, 2012. Filed herewith.
101	The following materials from the Company's Form 10-Q for the quarter ended March 31, 2012, 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).

Exhibit 101 includes:

101.INS	XBRL Instance Document. Filed herewith.
101.SCH	XBRL Taxonomy Extension Schema Document. Filed herewith.
101.DEF	XBRL Taxonomy Definition Linkbase Document. Filed herewith.
101.CAL	XBRL Taxonomy Calculation Linkbase Document. Filed herewith.
101.LAB	XBRL Taxonomy Label Linkbase Document. Filed herewith.
101.PRE	XBRL Taxonomy Presentation Linkbase Document. Filed herewith.

[Table of Contents](#)**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: May 4, 2012

AXCELIS TECHNOLOGIES, INC.

By: /s/ JAY ZAGER

Jay Zager
 Executive Vice President and Chief Financial Officer
 Duly Authorized Officer and Principal Financial Officer

SECOND LOAN MODIFICATION AGREEMENT

This Second Loan Modification Agreement (this "Loan Modification Agreement") is entered into as of March 5, 2012 by and among (a) **SILICON VALLEY BANK**, a California corporation, with its principal place of business at 3003 Tasman Drive, Santa Clara, California 95054 and with a loan production office located at 275 Grove Street, Suite 2-200, Newton, Massachusetts 02466 ("Bank"), and (b) **AXCELIS TECHNOLOGIES, INC.**, a Delaware corporation ("ATI") and **AXCELIS TECHNOLOGIES CCS CORPORATION**, a Delaware corporation ("ATCC"), each with offices located at 108 Cherry Hill Drive, Beverly, Massachusetts 01915 (ATI and ATCC are referred to herein, individually and collectively, jointly and severally, as "Borrower").

1. **DESCRIPTION OF EXISTING INDEBTEDNESS AND OBLIGATIONS.** Among other indebtedness and obligations which may be owing by Borrower to Bank, Borrower is indebted to Bank pursuant to a loan arrangement dated as of April 25, 2011, evidenced by, among other documents, a certain Second Amended and Restated Loan and Security Agreement dated as of April 25, 2011, between Borrower and Bank, as amended by a certain First Loan Modification Agreement dated as of December 27, 2011, between Borrower and Bank (as amended, supplemented, restated or otherwise modified from time to time, the "Loan Agreement"). Capitalized terms used but not otherwise defined herein shall have the same meaning as in the Loan Agreement.

2. **DESCRIPTION OF COLLATERAL.** Repayment of the Obligations is secured by the Collateral as described in the Loan Agreement and the intellectual property as described in a certain Amended and Restated Intellectual Property Security Agreement dated as of March 12, 2010, between ATI and Bank, as amended by a certain First Amendment to Amended and Restated Intellectual Property Security Agreement dated as of April 25, 2011, between ATI and Bank, and as further amended by a certain Second Amendment to Intellectual Property Security Agreement (the "Second Amendment to IP Agreement") dated of even date herewith, between ATI and Bank (as amended, supplemented, restated or otherwise modified, the "IP Security Agreement") (together with the Loan Agreement and any other documents granting collateral security to Bank, the "Security Documents"). Hereinafter, the Security Documents, together with all other documents evidencing or securing the Obligations, shall be referred to as the "Existing Loan Documents".

3. **DESCRIPTION OF CHANGE IN TERMS.**

A. Modifications to Loan Agreement.

1 The Loan Agreement shall be amended by deleting the following appearing as Section 6.9 thereof (entitled "Financial Covenants"):

“6.9 Financial Covenants.

(a) **Adjusted Quick Ratio.** Borrower and its Subsidiaries, on a consolidated basis, shall maintain at all times (other than the period commencing April 1, 2011 through and including April 30, 2011), to be tested as of the last day of each calendar quarter commencing with the calendar quarter ended March 31, 2011, a ratio of Quick Assets to Current Liabilities minus Deferred Revenue of at least 1.4:1.0.

(b) **Minimum Adjusted Net Income.** Borrower and its Subsidiaries, on a consolidated basis, shall achieve Adjusted Net Income of at least (i) \$3,000,000 for the trailing six (6) month period ending on the last day of

the fiscal quarter ending March 31, 2011; (ii) \$5,000,000 for each trailing six (6) month period ending on the last day of the fiscal quarters ending June 30, 2011 and September 30, 2011; (iii) (\$3,000,000.00) for the trailing six month period ending on the last day of the fiscal quarter ending December 31, 2011; and (iv) \$7,500,000 for the trailing six (6) month period ending on the last day of the fiscal quarter ending March 31, 2012 and for each trailing six (6) month period ending on the last day of each fiscal quarter thereafter.”

and inserting in lieu thereof the following:

“6.9 Financial Covenants.

(a) **Adjusted Quick Ratio.** Borrower and its Subsidiaries, on a consolidated basis, shall maintain at all times (other than the period commencing April 1, 2011 through and including April 30, 2011), to be tested (i) prior to the 2012 Effective Date, as of the last day of each calendar quarter commencing with the calendar quarter ended March 31, 2011, and (ii) on and after the 2012 Effective Date, as of the last day of each month, a ratio of Quick Assets to Current Liabilities minus Deferred Revenue of at least 1.4:1.0.

(b) **Minimum Adjusted Net Income.** Borrower and its Subsidiaries, on a consolidated basis, shall achieve Adjusted Net Income of at least (i) \$3,000,000 for the trailing six (6) month period ending on the last day of the fiscal quarter ending March 31, 2011; (ii) \$5,000,000 for each trailing six (6) month period ending on the last day of the fiscal quarters ending June 30, 2011 and September 30, 2011; (iii) (\$3,000,000.00) for the trailing six month period ending on the last day of the fiscal quarter ending December 31, 2011; (iv) (\$6,000,000.00) for the trailing six (6) month period ending on the last day of the fiscal quarter ending March 31, 2012; (v) (\$9,000,000.00) for the trailing six (6) month period ending on the last day of the fiscal quarter ending June 30, 2012; (vi) \$1.00 for the trailing six (6) month period ending on the last day of the fiscal quarter ending September 30, 2012; (vii) \$2,500,000.00 for the trailing six (6) month period ending on the last day of the fiscal quarter ending December 31, 2012; and (viii) for the trailing six (6) month period ending on March 1, 2013, and for each trailing six month period ending on the last day of each fiscal quarter thereafter, an amount that is \$1,000,000.00 greater than the required minimum Adjusted Net Income for the immediately preceding trailing six (6) month period ending on the last day of the immediately preceding calendar quarter.”

2 The Loan Agreement shall be amended by inserting the following new definition to appear alphabetically in Section 13.1 thereof:

““**2012 Effective Date**” is March 5, 2012.”

3 The Compliance Certificate appearing as Exhibit B to the Loan and Security Agreement shall be amended by deleting the following text appearing in Schedule 1 thereof:

“II. Minimum Adjusted Net Income (Section 6.9(b))

Required: at least (a) \$3,000,000 for the trailing six (6) month period ending on the last day of the fiscal quarter ending March 31, 2011; (b)

\$5,000,000 for each trailing six (6) month period ending on the last day of the fiscal quarters ending June 30, 2011 and September 30, 2011; (c) (\$3,000,000.00) for the trailing six month period ending on the last day of the fiscal quarter ending December 31, 2011; and (d) \$7,500,000 for the trailing six (6) month period ending on the last day of the fiscal quarter ending March 31, 2012 and for each trailing six (6) month period ending on the last day of each fiscal quarter thereafter”

and inserting in lieu thereof the following:

“II. Minimum Adjusted Net Income (Section 6.9(b))

Required: at least (i) \$3,000,000 for the trailing six (6) month period ending on the last day of the fiscal quarter ending March 31, 2011; (ii) \$5,000,000 for each trailing six (6) month period ending on the last day of the fiscal quarters ending June 30, 2011 and September 30, 2011; (iii) (\$3,000,000.00) for the trailing six month period ending on the last day of the fiscal quarter ending December 31, 2011; (iv) (\$6,000,000.00) for the trailing six (6) month period ending on the last day of the fiscal quarter ending March 31, 2012; (v) (\$9,000,000.00) for the trailing six (6) month period ending on the last day of the fiscal quarter ending June 30, 2012; (vi) \$1.00 for the trailing six (6) month period ending on the last day of the fiscal quarter ending September 30, 2012; (vii) \$2,500,000.00 for the trailing six (6) month period ending on the last day of the fiscal quarter ending December 31, 2012; and (viii) for the trailing six (6) month period ending on March 1, 2013, and for each trailing six month period ending on the last day of each fiscal quarter thereafter, an amount that is \$1,000,000.00 greater than the required minimum Adjusted Net Income for the immediately preceding trailing six (6) month period ending on the last day of the immediately preceding calendar quarter”

4. FEES. Borrower shall pay to Bank a modification fee equal to Five Thousand Dollars (\$5,000.00), which fee shall be due on the date hereof and shall be deemed fully earned as of the date hereof. Borrower shall also reimburse Bank for all legal fees and expenses incurred in connection with this amendment to the Existing Loan Documents.

5. RATIFICATION OF IP SECURITY AGREEMENT. ATI hereby ratifies, confirms and reaffirms, all and singular, the terms and conditions of the IP Security Agreement, and acknowledges, confirms and agrees that said IP Security Agreement contains an accurate and complete listing of all registered intellectual property as described in said IP Security Agreement, and remains in full force and effect.

6. RATIFICATION OF PERFECTION CERTIFICATE. Each Borrower hereby ratifies, confirms and reaffirms, all and singular, the terms and disclosures contained in a certain Perfection Certificate dated as of April 25, 2011 delivered by such Borrower in favor of Bank (individually and collectively, the “Perfection Certificate”), and acknowledges, confirms and agrees the disclosures and information each Borrower provided to Bank in the Perfection Certificate have not changed as of the date hereof, except for changes reflected in the Second Amendment to IP Agreement and other immaterial changes in the ordinary course of business.

7. CONSISTENT CHANGES. The Existing Loan Documents are hereby amended wherever necessary to reflect the changes described above.

8. RATIFICATION OF LOAN DOCUMENTS. Borrower hereby ratifies, confirms, and reaffirms all terms and conditions of all security or other collateral granted to the Bank, and confirms that the indebtedness secured thereby includes, without limitation, the Obligations.

9. NO DEFENSES OF BORROWER. Borrower hereby acknowledges and agrees that Borrower has no offsets, defenses, claims, or counterclaims against Bank with respect to the Obligations, or otherwise, and that if Borrower now has, or ever did have, any offsets, defenses, claims, or counterclaims against Bank, whether known or unknown, at law or in equity, all of them are hereby expressly WAIVED and Borrower hereby RELEASES Bank from any liability thereunder.

10. CONTINUING VALIDITY. Borrower understands and agrees that in modifying the existing Obligations, Bank is relying upon Borrower’s representations, warranties, and agreements, as set forth in the Existing Loan Documents. Except as expressly modified pursuant to this Loan Modification Agreement, the terms of the Existing Loan Documents remain unchanged and in full force and effect. Bank’s agreement to modifications to the existing Obligations pursuant to this Loan Modification Agreement in no way shall obligate Bank to make any future modifications to the Obligations. Nothing in this Loan Modification Agreement shall constitute a satisfaction of the Obligations. It is the intention of Bank and Borrower to retain as liable parties all makers of Existing Loan Documents, unless the party is expressly released by Bank in writing. No maker will be released by virtue of this Loan Modification Agreement.

11. COUNTERSIGNATURE. This Loan Modification Agreement shall become effective only when it shall have been executed by Borrower and Bank.

[The remainder of this page is intentionally left blank]

This Loan Modification Agreement is executed as a sealed instrument under the laws of the Commonwealth of Massachusetts as of the date first written above.

BORROWER:

AXCELIS TECHNOLOGIES, INC.

By: /s/ Mary G. Puma

Name: Mary G. Puma

Title: Chairman, CEO and President

AXCELIS TECHNOLOGIES CCS CORPORATION

By: /s/ Mary G. Puma

Name: Mary G. Puma

Title: President

The undersigned, Fusion Technology International, Inc., ratifies, confirms and reaffirms, all and singular, the terms and conditions of a certain Amended and Restated Unconditional Guaranty dated March 12, 2010 (the "FTI Guaranty") and acknowledges, confirms and agrees that the FTI Guaranty shall remain in full force and effect and shall in no way be limited by the execution of this Loan Modification Agreement, or any other documents, instruments and/or agreements executed and/or delivered in connection herewith.

BANK:

SILICON VALLEY BANK

By: /s/ Michael Quinn

Name: Michael Quinn

Title: Vice President

FUSION TECHNOLOGY INTERNATIONAL, INC.

By: /s/ Mary G. Puma

Name: Mary G. Puma

Title: President

The undersigned, Fusion Investments, Inc., ratifies, confirms and reaffirms, all and singular, the terms and conditions of a certain Amended and Restated Unconditional Guaranty dated March 12, 2010 (the "FI Guaranty") and acknowledges, confirms and agrees that the FI Guaranty shall remain in full force and effect and shall in no way be limited by the execution of this Loan Modification Agreement, or any other documents, instruments and/or agreements executed and/or delivered in connection herewith.

FUSION INVESTMENTS, INC.

By: /s/ Mary G. Puma

Name: Mary G. Puma

Title: President

The undersigned, High Temperature Engineering Corporation, ratifies, confirms and reaffirms, all and singular, the terms and conditions of a certain Amended and Restated Unconditional Guaranty dated March 12, 2010 (the "HTEC Guaranty") and acknowledges, confirms and agrees that the HTEC Guaranty shall remain in full force and effect and shall in no way be limited by the execution of this Loan Modification Agreement, or any other documents, instruments and/or agreements executed and/or delivered in connection herewith.

HIGH TEMPERATURE ENGINEERING CORPORATION

By: /s/ Mary G. Puma

Name: Mary G. Puma

Title: President

The undersigned, Axcelis Technologies (Israel), Inc., ratifies, confirms and reaffirms, all and singular, the terms and conditions of a certain Amended and Restated Unconditional Guaranty dated March 12, 2010 (the "ATI Guaranty") and acknowledges, confirms and agrees that the ATI Guaranty shall remain in full force and effect and shall in no way be limited by the execution of this Loan Modification Agreement, or any other documents, instruments and/or agreements executed and/or delivered in connection herewith.

AXCELIS TECHNOLOGIES (ISRAEL), INC.

By: /s/ Mary G. Puma

Name: Mary G. Puma

Title: President

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: May 4, 2012

/s/ MARY G. PUMA

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

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

I, Jay Zager, 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: May 4, 2012

/s/ JAY ZAGER

Jay Zager,
Executive Vice President and Chief Financial Officer

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

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

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

IN WITNESS WHEREOF, the undersigned has executed this Certification as of May 4, 2012.

/s/ MARY G. PUMA

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

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

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

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

IN WITNESS WHEREOF, the undersigned has executed this Certification as of May 4, 2012.

/s/ JAY ZAGER

Jay Zager
*Executive Vice President and Chief Financial Officer of Axcelis
Technologies, Inc.*
