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, 2022

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	**34-1818596**
(State or other jurisdiction of incorporation or organization)	(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)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading symbol	Name of each exchange on which registered
Common Stock, $0.001 par value	ACLS	Nasdaq Global Select Market

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, a 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, 2022, there were 32,848,622 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,	
	2022	2021	2022	2021
Revenue:				
Product	$ 221,540	$ 169,151	$ 631,998	$ 435,916
Services	7,635	7,543	21,949	20,828
Total revenue	229,175	176,694	653,947	456,744
Cost of revenue:				
Product	118,992	93,201	342,387	240,223
Services	6,862	6,981	19,291	19,560
Total cost of revenue	125,854	100,182	361,678	259,783
Gross profit	103,321	76,512	292,269	196,961
Operating expenses:				
Research and development	20,563	16,707	56,267	49,015
Sales and marketing	14,573	11,415	38,567	33,979
General and administrative	14,983	11,996	41,163	33,226
Total operating expenses	50,119	40,118	135,997	116,220
Income from operations	53,202	36,394	156,272	80,741
Other (expense) income:				
Interest income	1,111	51	1,558	124
Interest expense	(1,333)	(1,269)	(4,101)	(3,572)
Other, net	(7,971)	(963)	(14,640)	(2,131)
Total other expense	(8,193)	(2,181)	(17,183)	(5,579)
Income before income taxes	45,009	34,213	139,089	75,162
Income tax provision	4,726	6,698	13,002	12,261
Net income	$ 40,283	$ 27,515	$ 126,087	$ 62,901
Net income per share:				
Basic	$ 1.22	$ 0.82	$ 3.81	$ 1.87
Diluted	$ 1.21	$ 0.81	$ 3.75	$ 1.83
Shares used in computing net income per share:				
Basic weighted average common shares	33,011	33,537	33,116	33,643
Diluted weighted average common shares	33,389	34,089	33,638	34,339

See accompanying Notes to these Consolidated Financial Statements (Unaudited)

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

	Three months ended September 30,		Nine months ended September 30,	
	2022	2021	2022	2021
Net income	$ 40,283	$ 27,515	$ 126,087	$ 62,901
Other comprehensive loss:				
Foreign currency translation adjustments	(3,690)	(949)	(7,561)	(1,769)
Amortization of actuarial net gain/(loss) and other adjustments from pension plan, net of tax	8	30	25	84
Total other comprehensive loss	(3,682)	(919)	(7,536)	(1,685)
Comprehensive income	$ 36,601	$ 26,596	$ 118,551	$ 61,216

See accompanying Notes to these Consolidated Financial Statements (Unaudited)

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

	September 30, 2022	December 31, 2021
ASSETS		
Current assets:		
Cash and cash equivalents	$ 308,552	$ 294,923
Short-term investments	33,576	—
Accounts receivable, net	173,893	104,410
Inventories, net	226,507	194,984
Prepaid expenses and other current assets	32,614	24,929
Total current assets	775,142	619,246
Property, plant and equipment, net	38,778	34,972
Operating lease assets	11,893	9,242
Finance lease assets, net	18,265	19,238
Long-term restricted cash	749	757
Deferred income taxes	28,372	35,454
Other assets	33,062	34,331
Total assets	$ 906,261	$ 753,240
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 54,020	$ 38,025
Accrued compensation	28,557	30,732
Warranty	8,482	6,424
Income taxes	540	887
Deferred revenue	101,169	60,454
Current portion of finance lease obligation	1,164	979
Other current liabilities	13,924	12,639
Total current liabilities	207,856	150,140
Long-term finance lease obligation	45,508	46,415
Long-term deferred revenue	21,420	7,982
Other long-term liabilities	16,587	9,744
Total liabilities	291,371	214,281
Commitments and contingencies (Note 17)		
Stockholders' equity:		
Common stock, $0.001 par value, 75,000 shares authorized; 32,937 shares issued and outstanding at September 30, 2022; 33,240 shares issued and outstanding at December 31, 2021	33	33
Additional paid-in capital	549,735	559,883
Retained earnings (accumulated deficit)	70,893	(22,722)
Accumulated other comprehensive (loss) income	(5,771)	1,765
Total stockholders' equity	614,890	538,959
Total liabilities and stockholders' equity	$ 906,261	$ 753,240

See accompanying Notes to these Consolidated Financial Statements (Unaudited)

Axcelis Technologies, Inc.
Consolidated Statements of Stockholders' Equity
(In thousands)
(Unaudited)

	Common Stock		Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive Income (Loss)	Total Stockholders' Equity
	Shares	Amount				
Balance at December 31, 2020	33,633	$ 34	$ 570,102	$ (91,969)	$ 3,435	$ 481,602
Net income	—	—	—	16,480	—	16,480
Foreign currency translation adjustments	—	—	—	—	(1,372)	(1,372)
Change in pension obligation	—	—	—	—	20	20
Exercise of stock options	268	—	2,512	—	—	2,512
Issuance of common shares on restricted stock units, net of shares withheld	81	—	(2,354)	—	—	(2,354)
Stock-based compensation expense	—	—	2,407	—	—	2,407
Repurchase of common stock	(303)	—	(5,468)	(6,167)	—	(11,635)
Balance at March 31, 2021	33,679	$ 34	$ 567,199	$ (81,656)	$ 2,083	$ 487,660
Net income	—	—	—	18,906	—	18,906
Foreign currency translation adjustments	—	—	—	—	552	552
Change in pension obligation	—	—	—	—	34	34
Exercise of stock options	72	—	563	—	—	563
Issuance of shares under Employee Stock Purchase Plan	15	—	509	—	—	509
Issuance of common shares on restricted stock units, net of shares withheld	214	—	(4,141)	—	—	(4,141)
Stock-based compensation expense	—	—	3,377	—	—	3,377
Repurchase of common stock	(323)	—	(5,827)	(7,531)	—	(13,358)
Balance at June 30, 2021	33,657	$ 34	$ 561,680	$ (70,281)	$ 2,669	$ 494,102
Net income	—	—	—	27,515	—	27,515
Foreign currency translation adjustments	—	—	—	—	(949)	(949)
Change in pension obligation	—	—	—	—	30	30
Exercise of stock options	34	—	344	—	—	344
Issuance of common shares on restricted stock units, net of shares withheld	6	—	(48)	—	—	(48)
Stock-based compensation expense	—	—	3,186	—	—	3,186
Repurchase of common stock	(291)	(1)	(5,249)	(7,251)	—	(12,501)
Balance at September 30, 2021	33,406	$ 33	$ 559,913	$ (50,017)	$ 1,750	$ 511,679

See accompanying Notes to these Consolidated Financial Statements (Unaudited)

Axcelis Technologies, Inc.
Consolidated Statements of Stockholders' Equity
(In thousands)
(Unaudited)

	Common Stock		Additional Paid-in Capital	(Accumulated Deficit) Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Total Stockholders' Equity
	Shares	Amount				
Balance at December 31, 2021	33,240	$ 33	$ 559,883	$ (22,722)	$ 1,765	$ 538,959
Net income	—	—	—	41,614	—	41,614
Foreign currency translation adjustments	—	—	—	—	(1,186)	(1,186)
Change in pension obligation	—	—	—	—	9	9
Exercise of stock options	41	—	491	—		491
Issuance of common shares on restricted stock units, net of shares withheld	67	—	(3,315)	—	—	(3,315)
Stock-based compensation expense	—	—	2,701	—	—	2,701
Repurchase of common stock	(284)	—	(5,127)	(14,873)	—	(20,000)
Balance at March 31, 2022	33,064	$ 33	$ 554,633	$ 4,019	$ 588	$ 559,273
Net income	—	—	—	44,189	—	44,189
Foreign currency translation adjustments	—	—	—	—	(2,685)	(2,685)
Change in pension obligation	—	—	—	—	8	8
Exercise of stock options	25	—	298	—	—	298
Issuance of shares under Employee Stock Purchase Plan	15	—	711	—	—	711
Issuance of common shares on restricted stock units, net of shares withheld	205	—	(5,896)	—	—	(5,896)
Stock-based compensation expense	—	—	3,527		—	3,527
Repurchase of common stock	(215)	—	(3,872)	(8,626)	—	(12,498)
Balance at June 30, 2022	33,094	$ 33	$ 549,401	$ 39,582	$ (2,089)	$ 586,927
Net income	—	—	—	40,283	—	40,283
Foreign currency translation adjustments	—	—	—	—	(3,690)	(3,690)
Change in pension obligation	—	—	—	—	8	8
Exercise of stock options	30	—	367	—	—	367
Issuance of common shares on restricted stock units, net of shares withheld	8	—	(70)	—	—	(70)
Stock-based compensation expense	—	—	3,562	—	—	3,562
Repurchase of common stock	(195)	—	(3,525)	(8,972)	—	(12,497)
Balance at September 30, 2022	32,937	$ 33	$ 549,735	$ 70,893	$ (5,771)	$ 614,890

See accompanying Notes to these Consolidated Financial Statements (Unaudited)

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

	Nine months ended September 30,	
	2022	**2021**
Cash flows from operating activities		
Net income	$ 126,087	$ 62,901
Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation and amortization	8,614	7,993
Deferred income taxes	6,416	11,558
Stock-based compensation expense	9,790	8,970
Provision for excess and obsolete inventory	3,292	2,773
Changes in operating assets and liabilities:		
Accounts receivable	(77,449)	8,133
Inventories	(49,699)	(39,595)
Prepaid expenses and other current assets	(4,861)	(4,879)
Accounts payable and other current liabilities	17,695	17,933
Deferred revenue	54,814	35,189
Income taxes	(274)	(24)
Other assets and liabilities	(1,202)	1,129
Net cash provided by operating activities	93,223	112,081
Cash flows from investing activities		
Expenditures for property, plant and equipment and capitalized software	(6,876)	(5,701)
Purchase of short-term investments	(33,576)	—
Net cash used in investing activities	(40,452)	(5,701)
Cash flows from financing activities		
Net settlement on restricted stock grants	(9,281)	(6,543)
Repurchase of common stock	(44,995)	(37,493)
Proceeds from Employee Stock Purchase Plan purchases	711	509
Principal payments on finance lease obligation	(728)	(562)
Proceeds from exercise of stock options	1,156	3,419
Net cash used in financing activities	(53,137)	(40,670)
Effect of exchange rate changes on cash and cash equivalents	13,987	1,899
Net increase in cash, cash equivalents and restricted cash	13,621	67,609
Cash, cash equivalents and restricted cash at beginning of period	295,680	204,232
Cash, cash equivalents and restricted cash at end of period	$ 309,301	$ 271,841

See accompanying Notes to these Consolidated Financial Statements (Unaudited)

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 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, 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, 2021 has been derived from the audited consolidated financial statements at that date but does not include all 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, 2021.

Note 2. Summary of Significant Accounting Policies

(a) Cash, Cash Equivalents and Short-term investments

Cash and cash equivalents consist of cash on hand and highly liquid investments with original maturities of ninety days or less. Cash equivalents consist primarily of money market funds, U.S. Government and Agency Securities and deposit accounts. Cash equivalents are carried on the balance sheet at fair market value. Short-term investments are highly liquid investments with original maturities of greater than 90 days but less than one year from date of purchase and are carried on the balance sheet at fair market value. Our short-term investments consist primarily of U.S. Government and Agency securities and are classified as held-to-maturity based on our positive intent and ability to hold the securities to maturity. Income related to these securities is recorded in interest income in the Consolidated Statements of Operations.

Note 3. Stock-Based Compensation

We maintain the Axcelis Technologies, Inc. 2012 Equity Incentive Plan, as amended (the “2012 Equity Plan”), an Internal Revenue Code Section 423 plan, which became effective on May 2, 2012, and permits the issuance of options, restricted stock, restricted stock units (“RSUs”) and performance awards to selected employees, directors and consultants of the Company.

The 2012 Equity Plan is more fully described in Note 13 to the consolidated financial statements in our Annual Report on Form 10-K for the year ended December 31, 2021.

We recognized stock-based compensation expense of $3.6 million and $3.2 million for the three-month periods ended September 30, 2022 and 2021, respectively. We recognized stock-based compensation expense of $9.8 million and $9.0 million for the nine-month periods ended September 30, 2022 and 2021, respectively. These amounts include compensation expense related to RSUs, non-qualified stock options and stock to be issued to participants under the 2020 Employee Stock Purchase Plan (the “2020 ESPP”).

In the three-month periods ended September 30, 2022 and 2021, we issued 38.0 thousand and 40.0 thousand shares of common stock, respectively, upon stock option exercises and vesting of RSUs. In the three-month periods ended

September 30, 2022 and 2021, we received proceeds of $0.4 million and $0.3 million, respectively, in connection with the exercise of stock options.

In the nine-month periods ended September 30, 2022 and 2021, we issued 0.4 million and 0.7 million shares of common stock, respectively, upon stock option exercises, purchases under the 2020 ESPP and vesting of RSUs. In the nine-month periods ended September 30, 2022 and 2021, we received proceeds of $1.9 million and $3.9 million, respectively, in connection with the exercise of stock options and purchases under the 2020 ESPP.

Note 4. Leases

We have operating leases for office space, warehouse space, a manufacturing plant, computer and office equipment as well as vehicles used in our business operations. We have a finance lease as a result of the 2015 sale-leaseback of our corporate headquarters in Beverly, Massachusetts. All new agreements are reviewed to determine if they contain a lease component. A lease is a contract, or part of a contract, that conveys the right to control the use of identified property, plant or equipment over a period of time in exchange for consideration. We recognize the lease obligation on a discounted basis using the explicit or implicit discount rate stated within the agreement. We recognize a corresponding right-of-use asset, which is initially determined based upon the net present value of the associated liability and is adjusted for deferred costs and possible impairment, if any. For those lease agreements that do not indicate the applicable discount rate, we use our incremental borrowing rate. We have made the following policy elections: (i) operating leases with an initial term of 12 months or less are not recorded on the consolidated balance sheet; (ii) we recognize lease expense for operating leases on a straight-line basis over the lease term; and (iii) we account for lease components and non-lease components that are fixed payments as one component. Some of our operating leases include one or more options to renew, with renewal terms that can extend the respective lease term one to five years. The exercise of lease renewal options is at our sole discretion. For lease extensions that are reasonably certain to occur, we have included these renewal periods in our calculation of the net present value of the lease obligation and related right-of-use asset. Certain leases also include options to purchase the leased property. The depreciable life of certain assets and leasehold improvements is limited by the expected lease term, unless there is a transfer of title or purchase option reasonably certain of exercise. Our lease agreements do not contain any material residual value guarantees or material restrictive covenants. The amounts of operating and finance lease right-of-use assets and related lease obligations recorded within our consolidated balance sheets are as follows:

Leases	**Classification**	**September 30, 2022**	**December 31, 2021**
Assets		**(in thousands)**	
Operating leases	Operating lease assets	$ 11,893	$ 9,242
Finance lease	Finance lease assets *	18,265	19,238
Total leased assets		$ 30,158	$ 28,480
Liabilities			
Current			
Operating	Other current liabilities	$ 5,071	$ 4,716
Finance	Current portion of finance lease obligation	1,164	979
Noncurrent			
Operating	Other long-term liabilities	6,810	4,357
Finance	Finance lease obligation	45,508	46,415
Total lease liabilities		$ 58,553	$ 56,467

*Finance lease assets are recorded net of accumulated depreciation of $49.4 million and includes $0.6 million of prepaid financing costs as of September 30, 2022. Finance lease assets are recorded net of accumulated depreciation of $48.6 million and includes $0.7 million of prepaid financing costs as of December 31, 2021.

All of our operating lease office locations support selling and servicing functions. Our Axcelis Asia Operations Center facility in South Korea brings production capability closer to our Asia-based customers. Operating lease expense and depreciation and interest expense relating to our finance lease obligation are recognized within our consolidated statement of operations for the three and nine months ended September 30, 2022 and 2021 as follows:

Lease cost	Classification	Three months ended September 30, 2022	Three months ended September 30, 2021	Nine months ended September 30, 2022	Nine months ended September 30, 2021
Operating lease cost		(in thousands)			
Product / Services*	Cost of revenue	$ 1,462	$ 790	$ 3,978	$ 2,074
Research and development	Operating expenses	54	114	186	366
Sales and marketing*	Operating expenses	369	414	1,155	1,169
General and administrative*	Operating expenses	253	254	773	714
Total operating lease cost		$ 2,138	$ 1,572	$ 6,092	$ 4,323
Finance lease cost					
Depreciation of leased assets	Cost of revenue, R&D, Sales and marketing and G&A	$ 325	$ 326	$ 973	$ 981
Interest on lease liabilities	Interest expense	1,245	1,269	3,754	3,822
Total finance lease cost		$ 1,570	$ 1,595	$ 4,727	$ 4,803
Total lease cost		$ 3,708	$ 3,167	$ 10,819	$ 9,126

* Product / services, sales and marketing and general and administrative expense also includes short-term lease and variable lease costs of approximately $0.4 million and $1.4 million for the three and nine months ended September 30, 2022, respectively, and includes short-term and variable lease costs of approximately $0.6 million and $1.4 million for the three and nine months ended September 30, 2021, respectively.

The lease of our corporate headquarters, shown below under finance leases, had an original lease term of 22 years, beginning in January 2015 and expiring in January 2037, with renewal options. All other locations are treated as operating leases, with lease terms ranging from one to ten years. The tables below reflect the minimum cash outflow regarding our current lease obligations as well as the weighted-average remaining lease term and weighted-average discount rates used in our calculation of our lease obligations and right-of-use assets as of September 30, 2022:

Maturity of Lease Liabilities	Finance Leases	Operating Leases	Total Leases
		(in thousands)	
2022	$ 1,498	$ 2,193	$ 3,691
2023	6,114	5,769	11,883
2024	6,252	2,641	8,893
2025	5,930	1,761	7,691
2026	6,008	1,404	7,412
Thereafter	67,715	758	68,473
Total lease payments	$ 93,517	$ 14,526	$ 108,043
Less interest portion*	(46,845)	(2,645)	(49,490)
Finance lease and operating lease obligations	$ 46,672	$ 11,881	$ 58,553

* Finance lease interest calculated using the implied interest rate; operating lease interest calculated using estimated corporate borrowing rate.

Lease term and discount rate	September 30, 2022
Weighted-average remaining lease term (years):	
Operating leases	3.2
Finance leases	14.3
Weighted-average discount rate:	
Operating leases	4.5%
Finance leases	10.5%

Our cash outflows from our operating leases include rent expense and other charges associated with these leases. These cash flows are included within the operating activities section of our statement of cash flows. Our cash flows from our finance lease include both an interest component and a principal component. The table below shows our cash outflows, by lease type and related section of our statement of cash flows, as well as the non-cash amount capitalized on our balance sheet in relation to our operating lease right-of-use assets for the nine months ending September 30, 2022 and 2021, respectively:

Cash paid for amounts included in the measurement of lease liabilities	Nine months ended September 30, 2022	2021
	(in thousands)	
Operating cash outflows from operating leases	$ 6,092	$ 4,323
Operating cash outflows from finance leases	3,754	3,821
Financing cash outflows from finance leases	728	562
Operating lease assets obtained in exchange for operating lease liabilities	5,494	6,396
Finance lease assets obtained in exchange for new finance lease liabilities	—	—

Note 5. Revenue

To reflect the organization of our business operations, we divide 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.”

Revenue by categories used by management are as follows:

	Three months ended September 30, 2022	2021	Nine months ended September 30, 2022	2021
	(in thousands)			
Systems	$ 171,092	$ 126,166	$ 488,243	$ 307,295
Aftermarket	58,083	50,528	165,704	149,449
Total Revenue	$ 229,175	$ 176,694	$ 653,947	$ 456,744

We also consider revenue by geography. Revenue is allocated to geographic markets based upon the location to which our products are shipped and in which our services are performed. Revenue in our principal geographic markets is as follows:

	Three months ended September 30,		Nine months ended September 30,	
	2022	2021	2022	2021
	(in thousands)			
North America	$ 36,036	$ 11,847	$ 95,633	$ 31,560
Asia Pacific	166,342	137,870	484,286	357,903
Europe	26,797	26,977	74,028	67,281
Total Revenue	$ 229,175	$ 176,694	$ 653,947	$ 456,744

Our system sales revenue transactions give rise to contract liabilities (in the case of pre-payments and the fair value of goods and services to be delivered after the system delivery, such as installation and certain warranty obligations).

Contract liabilities are as follows:

	September 30, 2022	December 31, 2021
	(in thousands)	
Contract liabilities	$ 122,589	$ 68,436

Contract liabilities are reflected as deferred revenue on the consolidated balance sheet and 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.

	Three months ended September 30,		Nine months ended September 30,	
	2022	2021	2022	2021
	(in thousands)			
Balance, beginning of the period	$ 71,549	$ 35,518	$ 68,436	$ 23,058
Deferral of revenue	70,706	38,867	108,472	55,011
Recognition of deferred revenue	(19,666)	(16,145)	(54,319)	(19,829)
Balance, end of the period	$ 122,589	$ 58,240	$ 122,589	$ 58,240

The majority of our system transactions have payment terms of 90% due upon shipment of the system and 10% due upon acceptance. Aftermarket transaction payment terms usually provide that payment is due either within 30 or 60 days after the service is provided or parts delivered.

Note 6. Receivables and Allowances for Credit Losses

All trade receivables are reported on the Consolidated Balance Sheets at their amortized cost adjusted for any write-offs and net of allowances for credit losses.

Axcelis maintains an allowance for credit losses, which represent an estimate of expected losses over the remaining contractual life of our receivables, considering current market conditions and estimates for supportable forecasts when appropriate. The estimate is a result of the Company's ongoing assessments and evaluations of collectability, historical loss experience, and future expectations in estimating credit losses in our receivable portfolio. Axcelis uses historical loss experience rates and applies them to a related aging analysis while also considering customer and/or economic risk where appropriate. Determination of the proper amount of allowances requires management to exercise judgment about the timing, frequency and severity of credit losses that could materially affect the provision for credit losses and, as a result, net earnings. The allowance takes into consideration numerous quantitative and qualitative factors that include receivable type, historical loss experience, loss migration, delinquency trends, collection experience, current economic conditions, trade restrictions, estimates for supportable forecasts, when appropriate, and credit risk characteristics.

Axcelis evaluates the credit risk of the customer when extending credit based on a combination of various financial and qualitative factors that may affect our customers' ability to pay. These factors may include the customer's financial condition, past payment experience, and credit bureau report, as well as the value of the underlying collateral.

Management performs detailed reviews of Axcelis' receivables on a quarterly basis to assess the adequacy of the allowances and to determine if any impairment has occurred. Amounts determined to be uncollectable are charged directly against the allowances, while amounts recovered on previously written-off accounts increase the allowances. Changes to the allowances for credit losses are maintained through adjustments to the provision for credit losses, which are charged to current period earnings.

The following table shows changes of the allowances for credit losses related to trade receivables for the three and nine months ended September 30, 2022 and 2021, respectively:

	Three months ended September 30,		Nine months ended September 30,	
	2022	2021	2022	2021
	(in thousands)			
Balance, beginning of period	$ —	$ —	$ —	$ —
Provision for credit losses	—	—	—	—
Charge-offs	—	—	—	—
Recoveries	—	—	—	—
Balance, end of period	$ —	$ —	$ —	$ —

Note 7. 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 on exercise of stock options and vesting of RSUs 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,	
	2022	2021	2022	2021
	(in thousands, except per share amounts)			
Net income available to common stockholders	$ 40,283	$ 27,515	$ 126,087	$ 62,901
Weighted average common shares outstanding used in computing basic income per share	33,011	33,537	33,116	33,643
Incremental options and RSUs	378	552	522	696
Weighted average common shares used in computing diluted net income per share	33,389	34,089	33,638	34,339
Net income per share				
Basic	$ 1.22	$ 0.82	$ 3.81	$ 1.87
Diluted	$ 1.21	$ 0.81	$ 3.75	$ 1.83

Diluted weighted average common shares outstanding does not include 5,046 and 347 common equivalent shares issuable with respect to outstanding equity awards for the three-month periods ended September 30, 2022 and 2021, respectively, or 6,692 and 413 common equivalent shares issuable with respect to outstanding equity awards for the nine-month periods ended September 30, 2022 and 2021, respectively, as their effect would have been anti-dilutive.

Note 8. Accumulated Other Comprehensive (Loss) Income

The following table presents the changes in accumulated other comprehensive (loss) income, net of tax, by component, for the nine months ended September 30, 2022:

	Foreign currency	Defined benefit pension plan	Total
		(in thousands)	
Balance at December 31, 2021	$ 2,064	$ (299)	$ 1,765
Other comprehensive loss and pension reclassification	(7,561)	25	(7,536)
Balance at September 30, 2022	$ (5,497)	$ (274)	$ (5,771)

Note 9. Cash, cash equivalents and restricted cash

The following table provides a reconciliation of cash, cash equivalents, and restricted cash reported within the consolidated balance sheets to the total of the amounts shown in the statement of cash flows:

	September 30, 2022	December 31, 2021
	(in thousands)	
Cash and cash equivalents	$ 308,552	$ 294,923
Long-term restricted cash	749	757
Total cash, cash equivalents and restricted cash	$ 309,301	$ 295,680

As of September 30, 2022, we had $0.8 million in restricted cash representing the total of (i) cash collateral for a $0.7 million letter of credit relating to workers' compensation insurance and (ii) a $0.1 million deposit relating to customs activity.

Note 10. Inventories, net

The components of inventories are as follows:

	September 30, 2022	December 31, 2021
	(in thousands)	
Raw materials	$ 165,568	$ 133,784
Work in process	43,641	43,164
Finished goods (completed systems)	17,298	18,036
Inventories, net	$ 226,507	$ 194,984

When recorded, inventory reserves reduce the carrying value of inventories to their net realizable value. We establish 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. We regularly evaluate 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 11. Product Warranty

We generally offer a one-year warranty for all of our systems, the terms and conditions of which vary depending upon the product sold. For all systems sold, we accrue a liability for the estimated cost of standard warranty at the time of system shipment and defer 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 our warranty liability include the number of installed units, historical and anticipated product failure rates, material usage and service labor costs. We periodically assess the adequacy of our recorded liability and adjust the amount as necessary.

The changes in our standard product warranty liability are as follows:

	Nine months ended September 30,	
	2022	2021
	(in thousands)	
Balance at January 1 (beginning of year)	$ 6,924	$ 4,612
Warranties issued during the period	7,454	5,277
Settlements made during the period	(4,633)	(3,099)
Changes in estimate of liability for pre-existing warranties during the period	(78)	(452)
Balance at September 30 (end of period)	$ 9,667	$ 6,338
Amount classified as current	$ 8,482	$ 5,741
Amount classified as long-term	1,185	597
Total warranty liability	$ 9,667	$ 6,338

Note 12. Fair Value Measurements

Certain assets on our balance sheets are reported at their fair value. Fair value is defined as the 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

Our money market funds and short-term investments with initial maturities of three months or less are included in cash and cash equivalents in the consolidated balance sheets. Other investments have a maturity of greater than three months but less than one year are included within short-term investments in the consolidated balance sheets.

The following table sets forth our assets by level within the fair value hierarchy:

	September 30, 2022 Fair Value Measurements			
	Level 1	Level 2	Level 3	Total
	(in thousands)			
Assets				
Cash equivalents and other short-term investments:				
Cash equivalents (money market funds, U.S. Government Securities and Agency Investments)	$ 272,667	$ —	$ —	$ 272,667
Short-term investments (U.S. Government Securities and Agency Investments)	33,576	—	—	33,576
Total	$ 306,243	$ —	$ —	$ 306,243

	December 31, 2021 Fair Value Measurements			
	Level 1	Level 2	Level 3	Total
	(in thousands)			
Assets				
Cash equivalents:				
Money market funds, U.S. Government Securities and Agency Investments	$ 261,090	$ —	$ —	$ 261,090

(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 13. Financing Arrangements

On January 30, 2015, we sold our corporate headquarters facility in Beverly, Massachusetts for $48.9 million. As part of the sale, we also entered into a 22-year lease agreement of our headquarters facility. This sale-leaseback is accounted for as a financing lease under generally accepted accounting principles and, as such, we have recorded a financing obligation of $46.7 million as of September 30, 2022. The associated lease payments include both an interest component and payment of principal, with the remaining liability being extinguished at the end of the original lease term. We 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 reduces our availability under our credit facility, as described in the next paragraph.

On July 31, 2020, we entered into a Senior Secured Credit Facilities Credit Agreement (the “Credit Agreement”) with Silicon Valley Bank, in its capacity as administrative agent and collateral agent for itself and as a lender, and such other banks and financial institutions or entities that from time to time join as lenders under the Credit Agreement. The Credit Agreement provides for a revolving credit facility in an aggregate principal amount not to exceed $40.0 million. Our obligations under the Credit Agreement are secured by a security interest, senior to any current and future debts and to any security interest, in all of our rights, title, and interest in, to and under substantially all of our assets, subject to limited exceptions, including permitted liens. The revolving credit facility terminates on July 31, 2023. As of September 30, 2022, we were in compliance with all covenant requirements of the Credit Agreement. As of such date, no borrowings had been made under the Credit Agreement, although a letter of credit for $5.9 million reduces the funds available for borrowing under the credit line. We entered into a First Amendment to the Credit Agreement with Silicon Valley Bank in March 2021 to (i) align the covenants with our stock repurchase program, and (ii) establish terms to transition from a Eurodollar based interest rate option to an interest rate benchmark using a secured overnight financing rate (known as “SOFR”) published by the Federal Reserve Bank of New York.

Note 14. Income Taxes

Income tax expense was $4.7 million for the three months ended September 30, 2022, compared to $6.7 million for the three months ended September 30, 2021. The $2.0 million decrease was primarily due to the Foreign Derived Intangible Income (“FDII”) deduction on export sales. Income tax expense was $13.0 million during the nine months ended September 30, 2022, compared with $12.3 million for the nine months ended September 30, 2021. The $0.7 million increase was primarily due to a $63.9 million increase in pretax income offset by the FDII deduction on export sales.

The effective tax rate for the three and nine months ended September 30, 2022 was less than the U.S. statutory rate of 21% due to forecasted FDII, Federal research and development tax credits and a favorable discrete item related to equity compensation that reduces the annual tax rate. The effective tax rate for the three and nine months ended September 30, 2021 was less than the U.S. statutory rate of 21% due to favorable discrete items related to equity compensation in the period and Federal research and development tax credits that reduce the annual tax rate.

The deferred income taxes of $28.4 million and $35.5 million as of September 30, 2022 and December 31, 2021, respectively, reflect the net tax effect of temporary differences between the carrying amount of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes, as well as the tax effect of carryforwards. We have recorded a $9.3 million valuation allowance in the U.S. against certain tax credits and state net operating losses due to the uncertainty of their realization. Realization of our net deferred tax assets is dependent on future taxable income. We believe it is more likely than not that such assets will be realized; however, ultimate realization could be impacted by market conditions and other variables not known or anticipated at this time.

Note 15. Concentration of Risk

For the three months ended September 30, 2022, one customer accounted for 13.8% of total revenue. For the three months ended September 30, 2021, one customer accounted for 26.7% of total revenue.

For the nine months ended September 30, 2022, one customer accounted for 14.8% of total revenue. For the nine months ended September 30, 2021, two customers accounted for 18.5% and 14.1% of total revenue, respectively.

At September 30, 2022, one customer accounted for 13.2% of accounts receivable. At December 31, 2021, two customers accounted for 29.1% and 13.6% of accounts receivable, respectively.

Note 16. Share Repurchase

In February 2022, our Board of Directors approved stock repurchases of up to $100 million of our common stock, beginning in March 2022. During the nine months ended September 30, 2022, we purchased 0.7 million shares at an average cost of $64.85 per share. The timing and actual number of shares repurchased under this program will depend on various factors including price, corporate and regulatory requirements, alternative investment opportunities and other market conditions.

Shares repurchased by us are accounted for when the transaction is settled. Shares repurchased are returned to the status of authorized but unissued shares. Accordingly, the repurchases are deducted from common stock for par value and from additional paid-in capital for the excess over par value. If additional paid-in capital has been exhausted, the excess over par value is deducted from retained earnings. Direct costs incurred to acquire the shares are included in the total cost of the shares.

Note 17. Contingencies

(a) Litigation

We are from time to time a party to litigation that arises in the normal course of our business operations. We are not presently a party to any litigation that we believe might have a material adverse effect on our business operations.

(b) Indemnifications

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

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 I, Item 1A to our annual report on Form 10-K for the year ended December 31, 2021, 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

We are primarily a producer of ion implantation 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. Our product development and manufacturing activities currently occur primarily in the United States and South Korea. Our equipment and service products are highly technical and are sold through a direct sales force in the United States, Europe and Asia. 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 60.7% of total revenue for the nine months ended September 30, 2022.

For Axcelis and the rest of our industry, the first nine months of 2022 has been a continuation of the unprecedented demand for chips and the capital equipment required to produce them. At the same time, supply chain challenges also continued during the first nine months of 2022. Axcelis' strong results in the first nine months of 2022 demonstrate our ability to meet demand and manage supply chain difficulties. The growing mature process technology market continues to be an area of strength for Axcelis, with 84% of shipments during the first nine months of 2022 going to mature foundry/logic customers.

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, 2021 are based upon our 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 ongoing 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 Condition and Results of Operations included in our Annual Report on Form 10-K for the year ended December 31, 2021.

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,	
	2022	2021	2022	2021
Revenue:				
Product	96.7 %	95.7 %	96.6 %	95.4 %
Services	3.3	4.3	3.4	4.6
Total revenue	100.0	100.0	100.0	100.0
Cost of revenue:				
Product	51.9	52.7	52.4	52.6
Services	3.0	4.0	2.9	4.3
Total cost of revenue	54.9	56.7	55.3	56.9
Gross profit	45.1	43.3	44.7	43.1
Operating expenses:				
Research and development	9.0	9.4	8.6	10.7
Sales and marketing	6.4	6.5	5.9	7.4
General and administrative	6.5	6.8	6.3	7.3
Total operating expenses	21.9	22.7	20.8	25.4
Income from operations	23.2	20.6	23.9	17.7
Other (expense) income:				
Interest income	0.5	—	0.2	—
Interest expense	(0.6)	(0.7)	(0.6)	(0.8)
Other, net	(3.5)	(0.5)	(2.2)	(0.4)
Total other expense	(3.6)	(1.2)	(2.6)	(1.2)
Income before income taxes	19.6	19.4	21.3	16.5
Income tax provision	2.0	3.8	2.0	2.7
Net income	17.6 %	15.6 %	19.3 %	13.8 %

Revenue

The following table sets forth our product and services revenue:

	Three months ended September 30,		Period-to-Period Change		Nine months ended September 30,		Period-to-Period Change	
	2022	2021	$	%	2022	2021	$	%
	(dollars in thousands)							
Revenue:								
Product	$ 221,540	$ 169,151	*$ 52,389*	*31.0 %*	$ 631,998	$ 435,916	$ 196,082	*45.0 %*
Percentage of revenue	*96.7 %*	*95.7 %*			*96.6 %*	*95.4 %*		
Services	7,635	7,543	*92*	*1.2 %*	21,949	20,828	1,121	*5.4 %*
Percentage of revenue	*3.3 %*	*4.3 %*			*3.4 %*	*4.6 %*		
Total revenue	$ 229,175	$ 176,694	$ 52,481	*29.7 %*	$ 653,947	$ 456,744	$ 197,203	*43.2 %*

Three months ended September 30, 2022 Compared with Three months ended September 30, 2021

Product

Product revenue, which includes systems sales, sales of spare parts, product upgrades and used systems was $221.5 million, or 96.7% of revenue during the three months ended September 30, 2022, compared with $169.2 million, or 95.7% of revenue for the three months ended September 30, 2021. The $52.4 million increase in product revenue for the three-month period ending September 30, 2022, in comparison to the same period in 2021, was primarily driven by an increase in the number of systems sold.

Deferred revenue includes payments received in advance of system sales as well as deferral of revenue from systems sales for installation and other future performance obligations. The total amount of deferred revenue at September 30, 2022 and December 31, 2021 was $122.6 million and $68.4 million, respectively. The increase in deferred revenue was primarily due to the number of systems sold and payments received in advance of sales.

Services

Services revenue, which includes the labor component of maintenance and service contracts and fees for service hours provided by on-site service personnel, was $7.6 million, or 3.3% of revenue for the three months ended September 30, 2022, compared with $7.5 million, or 4.3% of revenue for the three months ended September 30, 2021. 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, 2022 Compared with Nine months ended September 30, 2021

Product

Product revenue was $632.0 million, or 96.6% of revenue during the nine months ended September 30, 2022, compared with $435.9 million, or 95.4% of revenue for the nine months ended September 30, 2021. The $196.1 million increase in product revenue for the nine-month period ending September 30, 2022, in comparison to the same period in 2021, was primarily driven by an increase in the number of systems sold.

Services

Services revenue was $21.9 million, or 3.4% of revenue for the nine months ended September 30, 2022, compared with $20.8 million, or 4.6% of revenue for the nine months ended September 30, 2021.

Revenue Categories used by Management

In addition to the line item revenue categories discussed above, management also regularly disaggregates revenue in the following categories, which it finds relevant and useful:

- Systems and Aftermarket revenues, in which "Aftermarket" is:
  A. The portion of Product revenue relating to spare parts, product upgrades and used equipment, combined with
  B. Services revenue, which is the labor component of Aftermarket revenues

  (Aftermarket purchases reflect current fab utilization as opposed to Systems purchases which reflect capital investment decisions by our customers, which have differing economic drivers);

- Revenue by geographic regions, since economic factors impacting customer purchasing decisions may vary by geographic region; and

- Revenue by our customer market segments, since they can be subject to different economic drivers at different periods of time, impacting a customer's likelihood of purchasing capital equipment during any particular period. Currently, management references three customer market segments: memory, mature process technology and leading edge foundry and logic.

Aftermarket and Systems Revenue

Three months ended September 30, 2022 Compared with Three months ended September 30, 2021

Included in total revenue of $229.2 million during the three months ended September 30, 2022 is revenue from our Aftermarket business of $58.1 million, compared with $50.5 million of aftermarket revenue for the three months ended September 30, 2021. 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 equipment. The remaining $171.1 million of revenue for the three months ended September 30, 2022 was from system sales, compared with $126.2 million of systems revenue for the three months ended September 30, 2021. Systems revenue fluctuates from period to period based on our customers' capital spending.

Nine months ended September 30, 2022 Compared with Nine months ended September 30, 2021

Included in total revenue of $653.9 million during the nine months ended September 30, 2022 is revenue from our Aftermarket business of $165.7 million, compared with $149.4 million of aftermarket revenue for the nine months ended September 30, 2021. The remaining $488.2 million of revenue for the nine months ended September 30, 2022 was from system sales, compared with $307.3 million of systems revenue for the nine months ended September 30, 2021.

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	
	2022	2021	$	%	2022	2021	$	%
	(dollars in thousands)							
Gross Profit:								
Product	$ 102,548	$ 75,950	$ 26,598	*35.0 %*	$ 289,611	$ 195,693	$ 93,918	*48.0 %*
Product gross margin	*46.3 %*	*44.9 %*			*45.8 %*	*44.9 %*		
Services	773	562	211	*37.5 %*	2,658	1,268	1,390	*109.6 %*
Services gross margin	*10.1 %*	*7.5 %*			*12.1 %*	*6.1 %*		
Total gross profit	$ 103,321	$ 76,512	$ 26,809	*35.0 %*	$ 292,269	$ 196,961	$ 95,308	*48.4 %*
Gross margin	*45.1 %*	*43.3 %*			*44.7 %*	*43.1 %*		

Three months ended September 30, 2022 Compared with Three months ended September 30, 2021

Product

Gross margin from product revenue was 46.3% for the three months ended September 30, 2022, compared to 44.9% for the three months ended September 30, 2021. The increase in gross margin resulted from improved margins on Purion systems.

Services

Gross margin from services revenue was 10.1% for the three months ended September 30, 2022, compared to 7.5% for the three months ended September 30, 2021. The increase in gross margin is attributable to changes in the mix of service contracts.

Nine months ended September *30, 2022 Compared with Nine months ended* September *30, 2021*

Product

Gross margin from product revenue was 45.8% for the nine months ended September 30, 2022, compared to 44.9% for the nine months ended September 30, 2021. The increase in gross margin resulted from improved margins on Purion systems.

Services

Gross margin from services revenue was 12.1% for the nine months ended September 30, 2022, compared to 6.1% for the nine months ended September 30, 2021. 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	
	2022	2021	$	%	2022	2021	$	%
	(dollars in thousands)							
Research and development	$ 20,563	$ 16,707	$ 3,856	*23.1 %*	$ 56,267	$ 49,015	$ 7,252	*14.8 %*
Percentage of revenue	*9.0 %*	*9.4 %*			*8.6 %*	*10.7 %*		
Sales and marketing	14,573	11,415	3,158	*27.7 %*	38,567	33,979	4,588	*13.5 %*
Percentage of revenue	*6.4 %*	*6.5 %*			*5.9 %*	*7.4 %*		
General and administrative	14,983	11,996	2,987	*24.9 %*	41,163	33,226	7,937	*23.9 %*
Percentage of revenue	*6.5 %*	*6.8 %*			*6.3 %*	*7.3 %*		
Total operating expenses	$ 50,119	$ 40,118	$ 10,001	*24.9 %*	$ 135,997	$ 116,220	$ 19,777	*17.0 %*
Percentage of revenue	*21.9 %*	*22.7 %*			*20.8 %*	*25.4 %*		

Our operating expenses consist primarily of personnel costs, including salaries, commissions, incentive-based compensation, 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 $31.4 million or 62.6% of our total operating expenses for the three months ended September 30, 2022, compared to $24.9 million or 62.1% of our total operating expenses for the three months ended September 30, 2021. Personnel costs were $83.0 million or 61.0% of our total operating expenses for the nine months ended September 30, 2022, compared to $72.3 million or 62.2% of our total operating expenses for the nine months ended September 30, 2021. The higher personnel costs for the three and nine months ended September 30, 2022 are primarily due to increases in personnel-related expenses to support growth as well as an increase in incentive-based pay expense due to strong financial performance.

Research and Development

	Three months ended September 30,		Period-to-Period Change		Nine months ended September 30,		Period-to-Period Change	
	2022	2021	$	%	2022	2021	$	%
	(dollars in thousands)							
Research and development	$ 20,563	$ 16,707	$ 3,856	*23.1 %*	$ 56,267	$ 49,015	$ 7,252	*14.8 %*
Percentage of revenue	*9.0 %*	*9.4 %*			*8.6 %*	*10.7 %*		

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 solve customers' high value, high impact, ion implantation challenges.

Three months ended September 30, 2022 Compared with Three months ended September 30, 2021

Research and development expense was $20.6 million during the three months ended September 30, 2022, an increase of $3.9 million, or 23.1%, compared with $16.7 million during the three months ended September 30, 2021. The increase is primarily due to higher personnel expenses including an increase in incentive-based pay expense as well as an increase in project materials and related services for ongoing projects.

Nine months ended September 30, 2022 Compared with Nine months ended September 30, 2021

Research and development expense was $56.3 million during the nine months ended September 30, 2022, an increase of $7.3 million, or 14.8%, compared with $49.0 million during the nine months ended September 30, 2021. The increase is primarily due to higher personnel expenses including an increase in incentive-based pay expense as well as an increase in project materials and related services for ongoing projects.

Sales and Marketing

	Three months ended September 30,		Period-to-Period Change		Nine months ended September 30,		Period-to-Period Change	
	2022	2021	$	%	2022	2021	$	%
	(dollars in thousands)							
Sales and marketing	$ 14,573	$ 11,415	$ 3,158	*27.7* %	$ 38,567	$ 33,979	$ 4,588	*13.5* %
Percentage of revenue	*6.4* %	*6.5* %			*5.9* %	*7.4* %		

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

Three months ended September 30, 2022 Compared with Three months ended September 30, 2021

Sales and marketing expense was $14.6 million during the three months ended September 30, 2022, an increase of $3.2 million, or 27.7%, compared with $11.4 million during the three months ended September 30, 2021. The increase is primarily due to higher personnel expenses including an increase in incentive-based pay expense and freight expense.

Nine months ended September 30, 2022 Compared with Nine months ended September 30, 2021

Sales and marketing expense was $38.6 million during the nine months ended September 30, 2022, an increase of $4.6 million, or 13.5%, compared with $34.0 million during the three months ended September 30, 2021. The increase is primarily due to higher personnel expenses including an increase in incentive-based pay expense and freight expense.

General and Administrative

	Three months ended September 30,		Period-to-Period Change		Nine months ended September 30,		Period-to-Period Change	
	2022	2021	$	%	2022	2021	$	%
	(dollars in thousands)							
General and administrative	$ 14,983	$ 11,996	$ 2,987	*24.9* %	$ 41,163	$ 33,226	$ 7,937	*23.9* %
Percentage of revenue	*6.5* %	*6.8* %			*6.3* %	*7.3* %		

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

Three months ended September 30, 2022 Compared with Three months ended September 30, 2021

General and administrative expense was $15.0 million during the three months ended September 30, 2022, an increase of $3.0 million, or 24.9%, compared with $12.0 million during the three months ended September 30, 2021. The increase is primarily due to an increase in personnel expenses and professional fees.

Nine months ended September 30, 2022 Compared with Nine months ended September 30, 2021

General and administrative expense was $41.2 million during the nine months ended September 30, 2022, an increase of $7.9 million, or 23.9%, compared with $33.2 million during the nine months ended September 30, 2021. The increase is primarily due to an increase in personnel expenses and professional fees.

Other (Expense) Income

	Three months ended September 30,		Period-to-period change		Nine months ended September 30,		Period-to-period change	
	2022	2021	$	%	2022	2021	$	%
	(dollars in thousands)							
Other expense	$ (8,193)	$ (2,181)	$ 6,012	*(275.7)%*	$ (17,183)	$ (5,579)	$ 11,604	*(208.0)%*
Percentage of revenue	*(3.6)%*	*(1.2)%*			*(2.6)%*	*(1.2)%*		

Other (expense) income consists primarily of interest expense relating to the finance lease obligation we incurred in connection with the 2015 sale of our headquarters facility 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 $8.2 million for the three months ended September 30, 2022, compared with $2.2 million for the three months ended September 30, 2021. The increase in other expense was primarily due to an increase in foreign currency exchange losses. Other expense was $17.2 million for the nine months ended September 30, 2022, compared with $5.6 million for the nine months ended September 30, 2021. The increase in other expense was primarily due to an increase in foreign currency exchange losses.

During the nine-month periods ended September 30, 2022 and 2021, we had no significant off-balance-sheet risk such as exchange contracts, option contracts or other hedging arrangements.

Income Tax Provision

	Three months ended September 30,		Period-to-period change		Nine months ended September 30,		Period-to-period change	
	2022	2021	$	%	2022	2021	$	%
	(dollars in thousands)							
Income tax provision	$ 4,726	$ 6,698	$ (1,972)	*(29.4)%*	$ 13,002	$ 12,261	$ 741	*6.0 %*
Percentage of revenue	*2.0 %*	*3.8 %*			*2.0 %*	*2.7 %*		

Income tax expense was $4.7 million for the three months ended September 30, 2022, compared to $6.7 million for the three months ended September 30, 2021. The $2.0 million decrease was primarily due to the FDII deduction on export sales. Income tax expense was $13.0 million for the nine months ended September 30, 2022, compared to $12.3 million for the nine months ended September 30, 2021. The $0.7 million increase was primarily due to a $63.9 million increase in pretax income offset by the FDII deduction on export sales.

The effective tax rate for the three and nine months ended September 30, 2022 was less than the U.S. statutory rate of 21% due to forecasted FDII deductions, Federal research and development tax credits and a favorable discrete item related to equity compensation that reduces the annual tax rate. The effective tax rate for the three and nine months ended

September 30, 2021 was less than the U.S. statutory rate of 21% due to favorable discrete items related to equity compensation in the period and Federal research and development tax credits that reduce the annual tax rate.

The deferred income taxes of $28.4 million and $35.5 million as of September 30, 2022 and December 31, 2021, respectively, reflect the net tax effect of temporary differences between the carrying amount of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes, as well as the tax effect of carryforwards. We have recorded a $9.3 million valuation allowance in the U.S. against certain tax credits and state net operating losses due to the uncertainty of their realization. Realization of our net deferred tax assets is dependent on future taxable income. We believe it is more likely than not that such assets will be realized; however, ultimate realization could be impacted by market conditions and other variables not known or anticipated at this time.

Liquidity and Capital Resources

We had $308.6 million in unrestricted cash and cash equivalents at September 30, 2022 and $33.6 million in short-term investments, in addition to $0.8 million in restricted cash. Management believes that maintaining a strong cash balance is necessary to fund a continuing ramp in our business which can require significant cash investment to meet sudden demand. Additionally, we are using cash in our stock repurchase program and are considering 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 economic conditions, including the availability of credit and the condition of the overall semiconductor equipment industry. Our industry requires ongoing investments in operations and research and development that are not easily adjusted to reflect changes in revenue. As a result, profitability and cash flows can fluctuate more widely than revenue. Stock repurchases, as discussed below, also reduce our cash balances.

During the nine months ended September 30, 2022 and 2021, we generated $93.2 million and $112.1 million, respectively, of cash related to operating activities.

Investing activities for the nine months ended September 30, 2022 resulted in cash outflows of $40.5 million, $6.9 million of which was used for capital expenditures and $33.6 million used to purchase short-term investments. Investing activities for the nine months ended September 30, 2021 resulted in cash outflows of $5.7 million used for capital expenditures.

Financing activities for the nine months ended September 30, 2022 resulted in a cash usage of $53.1 million. During the first nine months of 2022, $45.0 million in cash was used to repurchase our common stock and $9.3 million was used for payments to government tax authorities for income tax withholding on employee compensation arising from the vesting of RSUs, where units are withheld by the Company for taxes, as well as $0.7 million relating to the reduction of the liability under the finance lease of our corporate headquarters. These amounts were partially offset by $1.9 million of proceeds from the exercise of stock options and purchase of shares under our 2020 ESPP during the first nine months of 2022. In comparison, financing activities for the nine months ended September 30, 2021 resulted in cash usage of $40.7 million, $37.5 million of which related to the repurchase of our common stock and $6.5 million related to payments made to government tax authorities for income tax withholding on employee compensation arising from the vesting of RSUs, as well as $0.6 million relating to the reduction of our financing lease liability. These amounts were partially offset by $3.9 million of proceeds related to the exercise of stock options during the first nine months of 2021.

Under the rules of the U.S. Securities and Exchange Commission (the “SEC”), we qualify as a “well-known seasoned issuer,” which allows us to file shelf registration statements to register an unspecified amount of securities that are effective upon filing. On May 29, 2020, we filed such a shelf registration statement with the SEC for the issuance of an unspecified amount of common stock, preferred stock, various series of debt securities and/or warrants to purchase any of such securities, either individually or in units, from time to time at prices and on terms to be determined at the time of any such offering. This registration statement was effective upon filing and will remain in effect for up to three years from filing, prior to which time we may file another shelf registration statement to maintain the availability of this financing option.

On July 31, 2020, we entered into a Senior Secured Credit Facilities Credit Agreement (the "Credit Agreement") with Silicon Valley Bank. The Credit Agreement provides for a revolving credit facility in an aggregate principal amount not to exceed $40.0 million. Our obligations under the Credit Agreement are secured by a security interest, senior to any current and future debts and to any security interest, in all of our rights, title, and interest in, to and under substantially all of our assets, subject to limited exceptions, including permitted liens. The revolving credit facility terminates on July 31, 2023. As of September 30, 2022, we were in compliance with all covenant requirements of the Credit Agreement. As of such date, no borrowings had been made under the Credit Agreement, although a letter of credit for $5.9 million reduces the funds available for borrowing under the credit line. We have no immediate plans to borrow under the Credit Agreement, but we will use the facility for letters of credit, for ongoing working capital needs and to fund general corporate purposes, as desired. We entered into a First Amendment to the Credit Agreement with Silicon Valley Bank in March 2021 to (i) align the covenants with our stock repurchase program, and (ii) establish terms to transition from a Eurodollar based interest rate option to an interest rate benchmark using a secured overnight financing rate (known as "SOFR") published by the Federal Reserve Bank of New York.

We believe that based on our current market, revenue, expense and cash flow forecasts, our existing cash, cash equivalents and equity and debt financing capacity will be sufficient to satisfy our anticipated cash requirements for the short and long-term.

Commitments and Contingencies

Significant commitments and contingencies at September 30, 2022 are consistent with those discussed in Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations," and Note 16 to the consolidated financial statements in our Annual Report on Form 10-K for the fiscal year ended December 31, 2021.

Item 3. Quantitative and Qualitative Disclosures about Market Risk.

As of September 30, 2022, 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, 2021.

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, 2022 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.

We are, from time to time, a party to litigation that arises in the normal course of our business operations. We are not presently a party to any litigation that we believe might have a material adverse effect on our business operations.

Item 1A. Risk Factors.

As of September 30, 2022, 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, 2021. We note that on October 7, 2022, the U.S. Department of Commerce issued new regulations that impact both sales of U.S. goods to China and sourcing from China. The Company is engaged in an on-going assessment of these new regulations on our business, but does not currently anticipate a material impact.

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

In February 2022, our Board of Directors authorized a share repurchase program for up to $100 million of the Company's common stock.

The following table summarizes the stock repurchase activity, based upon settlement date, for the three months ended September 30, 2022 as well as the approximate dollar value of shares that may yet be purchased pursuant to our stock repurchase program:

	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Program	Approximate Dollar Value of Shares that May Yet Be Purchased Under the Program
	(in thousands except per share amounts)			
July 1, 2022 through July 31, 2022	90	$56.47	90	$ 62,419
August 1, 2022 through August 31, 2022	79	$72.38	79	56,701
September 1, 2022 through September 30, 2022	26	$64.39	26	$ 55,005
Total	195		195	

Item 3. Defaults Upon Senior Securities.

None.

Item 4. Mine Safety Disclosures.

Not Applicable.

Item 5. Other Information.

In connection with his retirement, William Bintz, Executive Vice President, Product Development, has submitted his resignation as an executive officer of the Company, effective December 31, 2022. Greg Redinbo has assumed the title of Executive Vice President, Marketing and Applications, and has been leading those functions. To facilitate the transition, Mr. Bintz will continue to serve as a senior advisor to the Company for a period following his retirement.

Item 6. Exhibits.

The following exhibits are filed herewith:

Exhibit No	Description
3.1	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.
3.2	Bylaws of the Company, as amended as of May 11, 2022. Incorporated by reference to Exhibit 3.2 of the Company's Form 8-K filed with the Commission on May 11, 2022.
10.1	Axcelis Technologies, Inc. 2012 Equity Incentive Plan as Amended by Board of Directors August 2022. Filed herewith.
31.1	Certification of the Principal Executive Officer under Exchange Act Rule 13a-14(a)/15d-14(a) (Section 302 of the Sarbanes-Oxley Act), dated November 3, 2022. 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 November 3, 2022. 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 November 3, 2022. 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 November 3, 2022. Filed herewith.
101	The following materials from the Company's Form 10-Q for the quarter ended September 30, 2022, formatted in inline eXtensible Business Reporting Language (iXBRL): (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.
104	Cover Page Interactive Data File (formatted as iXBRL and contained in Exhibit 101).

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.

	AXCELIS TECHNOLOGIES, INC.
DATED: November 3, 2022	By: /s/ KEVIN J. BREWER
	Kevin J. Brewer *Executive Vice President and Chief Financial Officer* *Duly Authorized Officer and Principal Financial Officer*

AXCELIS TECHNOLOGIES, INC.

2012 EQUITY INCENTIVE PLAN

As approved by the Stockholders on May 2, 2012, May 14, 2013, May 13, 2014, May 13, 2015, and May 4, 2016; as adjusted for the reverse stock split on June 30, 2016; as amended by the Board of Directors on February 15, 2017 (Stockholder approval not required); as approved by the Stockholders on May 16, 2017; as amended by the Board of Directors on February 13, 2018 (Stockholder approval not required); as amended by the Stockholders on May 14, 2019; and as amended by the Board of Directors on August 11, 2022 (Stockholder approval not required)

1. Purpose.

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

2. Administration.

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

3. Eligibility.

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

4. Stock Available for Awards.

(a) *Amount.* Subject to adjustment under subsection 4(b), up to an aggregate of 7,762,500 shares of Common Stock may be issued pursuant to Awards, including Incentive Stock Options, under the Plan. For the purposes of counting shares hereunder:

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

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

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

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

v. Shares issued under this Plan as a result of the assumption or substitution of outstanding grants from an acquired company shall not reduce the number of shares available for issuance under the Plan

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

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

5. Awards under the Plan.

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

(b) Terms and Conditions of Awards.

(i) *Participants; Terms.* The Committee shall select the Participants to receive Awards and determine the terms and conditions of each Award. Without limiting the foregoing but subject to the other provisions of the Plan and applicable law, the Committee shall determine (A) the number of shares of Common Stock subject to each Award or the manner in which such number shall be determined, (B) the price, if any, a Participant shall pay to receive or exercise an Award or the manner in which such price shall be determined, (C) the time or times when an Award may vest or be exercised, settled, or transferred, (D) any Performance Goals, restrictions or other conditions to vesting, exercise, settlement, or transferability of an Award, (E) whether an Award may be settled in the form of cash, Common Stock or other securities of the Company, Awards or other property, and the manner of calculating the amount or value thereof, (F) the duration of any Restricted Period or any other circumstances in which an Award may be forfeited to the Company, (G) the effect on an Award of the disability, death, retirement or other termination of employment or other service of a Participant, and (H) the extent to which, and the period during which, the Participant or the Participant's legal representative, guardian or Designated Beneficiary may receive payment of an Award or exercise rights thereunder. Except as otherwise provided hereby or in a particular Award, any determination or action with respect to an Award may be made or taken by the Committee at the time of grant or at any time thereafter.

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

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

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

(A) the first vesting, settlement, or lapse of forfeiture restrictions that is solely based on continued employment, service or the passage of time shall occur not sooner than one year after the date of grant; and

(B) in the case of employee grant recipients, the completion of vesting, settlement, or lapse of forfeiture restrictions that is solely based on continued employment, service or the passage of time shall occur over not less than four years from the date of grant with respect to the full number of shares subject to such Award; and

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

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

(v) *Payment of Exercise Price.* The Committee shall determine the form of consideration and manner of payment of the exercise price, if any, of any Award. Without limiting the foregoing, the Committee may, subject to applicable law, permit such payment to be made in whole or in part in cash or by surrender of shares of Common Stock (which may be shares retained from the respective Award or any other Award) valued at their Fair Market Value on the date of surrender, or such other lawful consideration, including a payment commitment of a financial or brokerage institution, as the Committee may determine. The Company may accept, in lieu of actual delivery of stock certificates, an attestation by the Participant in form acceptable to the Committee that he or she owns of record the shares to be tendered free and clear of claims and other encumbrances.

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

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

(viii) *Certain Extraordinary Transactions.* The Committee may in its discretion provide, at the time of grant or at any time thereafter, that in the case of any recapitalization, stock acquisition, merger, consolidation or other form of corporate transaction in which a company other than the

Company is the surviving, continuing, successor or purchasing entity (a "Transaction"), the surviving, continuing, successor or purchasing entity or a parent or subsidiary of such entity may, without the consent of the Participant, assume the Company's rights and obligations under any Award or portion thereof outstanding immediately before the Transaction or substitute for any such outstanding Award or portion thereof a substantially equivalent award with respect to such entity's own stock or other property or cash, in either case with equitable adjustments in the number and type of shares or other assets subject to the Awards and the exercise, purchase or conversion price with respect to any Award, in light of the consideration received by the Company's stockholders in the Transaction. Any such Award that is not so assumed or substituted for shall terminate upon the consummation of such Transaction on such terms, if any, as the Committee shall provide. Notwithstanding the foregoing, if the stockholders of the Company receive consideration that is all or predominantly cash in exchange for their shares of common Stock in a Transaction, then, in order to preserve the Participants' rights under outstanding Awards, the Committee shall, without the need for consent of any Participant, either (A) cause any unexercisable or unvested portion of an Award outstanding immediately before the Transaction to become fully exercisable and vested prior to such Transaction (but effective only on consummation of the Transaction), and any Options and Stock Appreciation Rights that have not been exercised as of the consummation of the Transaction shall thereupon terminate or (B) provide for payment to the Participant of cash, stock of another entity party to the Transaction, or other property with a Fair Market Value equal to the amount, if any, that would have been received upon the vesting, exercise, settlement, or transferability of the Award had any unexercisable or unvested portion of the Award become fully exercisable and vested and the Award been exercised or paid in connection with the Transaction, reduced (but not below zero) by the exercise or purchase price per share, if any, under such Award, whereupon the Award shall terminate. If any portion of such consideration may be received by Company's stockholders in the Transaction on a contingent or delayed basis, the Committee may, in its sole discretion, determine such Fair Market Value per share as of the time of the Transaction on the basis of the Committee's good faith estimate of the present value of the probable amount of future payment of such consideration.

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

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

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

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

6. General Provisions.

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

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

(c) *Non-US Participants.* Awards may be made to Participants who are non-US nationals or employed outside the United States on such terms and conditions different from those specified herein as the Committee considers necessary or advisable to achieve the purposes of the Plan or to comply with applicable laws. To the extent necessary or desirable, the Committee may adopt sub-plans under this Plan, addressing Awards to non-US nationals or employees.

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

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

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

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

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

7. Certain Definitions. As used in this Plan:

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

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

"Board" means the Board of Directors of the Company.

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

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

"Common Stock" means the Common Stock, $0.001 par value, of the Company.

"Company" means Axcelis Technologies, Inc., a Delaware corporation.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

8. Miscellaneous.

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

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

(c) *Amendment of Plan.* The Board may amend, supplement via a sub-plan adopted under Section 6(c), suspend or terminate the Plan or any portion thereof at any time, subject to such stockholder approval as the Board determines to be necessary or advisable to comply with any tax or regulatory requirement.

Exhibit 31.1

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 3, 2022

/s/ MARY G. PUMA

Mary G. Puma,
President and Chief Executive Officer

Exhibit 31.2

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 3, 2022

/s/ KEVIN J. BREWER

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

EXHIBIT 32.1

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 3, 2022.

/s/ MARY G. PUMA

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

EXHIBIT 32.2

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 3, 2022.

/s/ KEVIN J. BREWER

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