

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**
Washington, D.C. 20549

FORM 10-K/A

(Mark One)

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

For the fiscal year ended December 31, 2014

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

For the transition period from _____ to _____
Commission file number 000-30941

AXCELIS TECHNOLOGIES, INC.

(Exact name of registrant as specified in its charter)

Delaware

(State or other jurisdiction
of incorporation or organization)

34-1818596

(IRS Employer Identification No.)

108 Cherry Hill Drive

Beverly, Massachusetts 01915

(Address of principal executive offices) (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 | Name of each exchange on which registered |
|--------------------------------|--|
| Common Stock, \$.001 par value | The Nasdaq Stock Market LLC |

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

None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes No

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

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

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

Large accelerated filer

Accelerated filer

Non-accelerated filer

Smaller reporting company
(Do not check if a smaller reporting company)

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

Aggregate market value of the voting stock held by non-affiliates of the registrant as of June 30, 2014: \$219,360,386

Number of shares outstanding of the registrant's Common Stock, \$0.001 par value, as of March 6, 2015: 113,466,753.

Documents incorporated by reference:

Portions of the definitive Proxy Statement for Axcelis Technologies, Inc.'s Annual Meeting of Stockholders to be held on May 13, 2015 are incorporated by reference into Part III of this Form 10-K.

Explanatory Note

This Form 10-K/A for Axcelis Technologies, Inc.'s fiscal year ended December 31, 2014 is being filed to include the Interactive Data Files in Exhibit 101, which were inadvertently omitted from Axcelis' Form 10-K filed on March 11, 2015.

No other changes have been made to the Form 10-K as previously filed. This amendment speaks as of the original filing date of the Form 10-K, does not reflect events that may have occurred since the original filing date, and does not modify or update the disclosures made in the Form 10-K.

Signatures

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this amended report to be signed on its behalf by the undersigned, thereunto duly authorized.

AXCELIS TECHNOLOGIES, INC.

By: /s/ MARY G. PUMA

Dated: March 12, 2015

Mary G. Puma, *Chief Executive Officer*

Exhibit Index

| Exhibit No. | Description |
|-------------|--|
| 2.1 | Real Estate Sale Agreement dated as of October 3, 2014 between the Company and Middleton Beverly Investors LLC. Incorporated by reference to Exhibit 2. 1 to the Company's Form 10-Q filed with the Commission on November 6, 2014. |
| 2.2 | Sixth Amendment to Real Estate Sale Agreement between the Company and Middleton Beverly Investors LLC dated as of January 30, 2015.(1) |
| 3.1 | Amended and Restated Certificate of Incorporation of the registrant, as adopted May 6, 2009. Incorporated by reference to Exhibit 3.1 of the Company's Form 8-K filed with the Commission on May 11, 2009. |
| 3.2 | Bylaws of the Company, as amended and restated as of May 13, 2014.Incorporated by reference to Exhibit 3.2 of the Company's Form 8-K filed with the Commission on May 19, 2014. |
| 4.1 | Specimen Stock Certificate. Incorporated by reference to Exhibit 4.1 of the Company's Registration Statement on Form S-1 (Registration No. 333-36330). |
| 10.1* | Axcelis Technologies, Inc. 2000 Stock Plan, as amended through November 13, 2014.(1) |
| 10.2* | Axcelis Technologies, Inc. 2012 Equity Incentive Plan, as amended through November 13, 2014.(1) |
| 10.3* | Axcelis Management Incentive Plan, as amended and restated by the Compensation Committee of the Board of Directors on February 11, 2010. Incorporated by reference to Exhibit 10.2 of the Company's report on Form 10-K for the year ended December 31, 2009 filed with the Commission on March 15, 2010. |
| 10.4* | Form of Indemnification Agreement approved by the Board of Directors of the Company on February 9, 2012 for use with each of its directors and officers. Incorporated by reference to Exhibit 10.4 of the Company's report on Form 10-K for the year ended December 31, 2011 filed with the Commission on February 29, 2012. |
| 10.5* | Form of Change in Control Agreement, as amended, as approved by the Board of Directors on April 27, 2012 between the Company and each of its executive officers. Incorporated by reference to Exhibit 10.5 of the Company's report on Form 10-Q for the quarter ended June 30, 2012 filed with the Commission on August 7, 2012. |
| 10.6* | Form of Employee non-qualified stock option grant under the 2000 Stock Plan, updated as of April 5, 2002. Incorporated by reference to Exhibit 10.1 of the Company's report on Form 10-Q filed with the Commission on November 9, 2004. |
| 10.7* | Form of Non-Employee Director stock non-qualified stock option grant under the 2000 Stock Plan, updated as of July 12, 2004. Incorporated by reference to Exhibit 10.2 of the Company's report on Form 10-Q filed with the Commission on November 9, 2004. |
| 10.8* | Form of Restricted Stock Unit Award Agreement for use under the 2000 Stock Plan. Incorporated by reference to Exhibit 10.3 to the Company's Current Report on Form 8-K filed with the Commission on June 28, 2005. |
| 10.9* | Form of Employee Non-Qualified Stock Option Certificate under the 2012 Equity Incentive Plan, adopted June 18, 2012. Incorporated by reference to Exhibit 10.2 of the Company's report on Form 10-Q for the quarter ended June 30, 2012 filed with the Commission on August 7, 2012. |

| <u>Exhibit No.</u> | <u>Description</u> |
|--------------------|---|
| 10.10* | Form of Non-Employee Director Non-Qualified Stock Option Certificate under the 2012 Equity Incentive Plan, adopted June 18, 2012. Incorporated by reference to Exhibit 10.3 of the Company's report on Form 10-Q for the quarter ended June 30, 2012 filed with the Commission on August 7, 2012. |
| 10.11* | Form of Restricted Stock Unit Award Agreement under the 2012 Equity Incentive Plan, adopted June 18, 2012. Incorporated by reference to Exhibit 10.4 of the Company's report on Form 10-Q for the quarter ended June 30, 2012 filed with the Commission on August 7, 2012. |
| 10.12* | Named Executive Officer Base Compensation at March 5, 2015.(1) |
| 10.13* | Non-Employee Director Cash Compensation at March 5, 2015.(1) |
| 10.14* | Amended and Restated Employment Agreement between the Company and Mary G. Puma dated November 6, 2007. Incorporated by reference to Exhibit 10.3 of the Company's report on Form 10-Q for the quarter ended September 30, 2007 filed with the Commission on November 8, 2007. |
| 10.15* | Form of Executive Separation Pay Agreement between the Company and each of Kevin J. Brewer, William Bintz, John E. Aldeborgh, Lynnette C. Fallon and Douglas A. Lawson dated March 5, 2015.(1) |
| 10.19 | License Agreement dated as of March 30, 2009 between the Company and SEN Corporation. Incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed with the Commission on April 3, 2009. |
| 10.20 | Loan and Security Agreement dated as of October 31, 2013 between the Company and Silicon Valley Bank. Incorporated by reference to Exhibit 10.4 to the Company's report on Form 10-Q filed with the Commission on November 8, 2013. |
| 10.21 | Waiver and First Amendment dated August 1, 2014 to the Loan and Security Agreement dated as of October 31, 2013 between the Company and Silicon Valley Bank. Incorporated by reference to Exhibit 10.3 to the Company's Form 10-Q filed with the Commission on November 6, 2014. |
| 10.23 | Second Amendment to the Loan and Security Agreement between the Company and Silicon Valley Bank., effective February 2, 2015.(1) |
| 10.24 | Lease Agreement between the Company and Beverly Property Owner LLC, effective January 30, 2015.(1) |
| 14.1 | Ethical Business Conduct at Axcelis, revised through January 2003. Incorporated by reference to Exhibit 14.1 of the Company's report on Form 10-K filed with the Commission on March 28, 2003. |
| 21.1 | Subsidiaries of the Company.(1) |
| 23.1 | Consent of Ernst & Young LLP, Independent Registered Public Accounting Firm.(1) |
| 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 March 11, 2015.(1) |
| 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 March 11, 2015.(1) |
| 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 March 11, 2015.(1) |

| <u>Exhibit No.</u> | <u>Description</u> |
|--------------------|--|
| 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 March 11, 2015.(1) |
| 101 | The following materials from the Company's Form 10-K for the year ended December 31, 2014, formatted in eXtensible Business Reporting Language (XBRL): (i) Consolidated Statements of Operations, (ii) Consolidated Statement of Comprehensive Income (iii) Consolidated Balance Sheets, (iv) Consolidated Statements of Equity, (v) Consolidated Statements of Cash Flows, and (vi) Notes to Consolidated Financial Statements. Filed herewith. |

* Indicates a management contract or compensatory plan.

(1) Filed with the original Form 10-K on March 11, 2015.

You may obtain a copy of any of these exhibits free of charge either on our website at <http://www.axcelis.com> or by contacting Investor Relations at Axcelis Technologies, Inc., 108 Cherry Hill Drive, Beverly, MA 01915-1053.

QuickLinks

[Documents incorporated by reference](#)

[Explanatory Note](#)

[Signatures](#)

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