

SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

SCHEDULE 13G/A

Under the Securities Exchange Act of 1934
(Amendment No. 1)*

Axcelis Technologies, Inc.

(Name of Issuer)

Common Stock, \$0.001 par value

(Title of Class of Securities)

054540109

(CUSIP Number)

December 31, 2015

(Date of Event Which Requires Filing of this Statement)

Check the appropriate box to designate the rule pursuant to which this Schedule is filed:

- Rule 13d-1(b)
- Rule 13d-1(c)
- Rule 13d-1(d)

(Page 1 of 7 Pages)

*The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter the disclosures provided in a prior cover page.

The information required in the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 ("Act") or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).

| | | |
|---|---|---------------------------------------|
| 1 | NAME OF REPORTING PERSON Senvest Management, LLC | |
| 2 | CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input type="checkbox"/> (b) <input type="checkbox"/> | |
| 3 | SEC USE ONLY | |
| 4 | CITIZENSHIP OR PLACE OF ORGANIZATION Delaware | |
| NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH | 5 | SOLE VOTING POWER 0 |
| | 6 | SHARED VOTING POWER 7,928,993 |
| | 7 | SOLE DISPOSITIVE POWER 0 |
| | 8 | SHARED DISPOSITIVE POWER 7,928,993 |
| 9 | AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 7,928,993 | |
| 10 | CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES <input type="checkbox"/> | |
| 11 | PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 6.85% | |
| 12 | TYPE OF REPORTING PERSON OO, IA | |

| | | |
|---|--|---------------------------------------|
| 1 | NAME OF REPORTING PERSON Richard Mashaal | |
| 2 | CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input type="checkbox"/> (b) <input type="checkbox"/> | |
| 3 | SEC USE ONLY | |
| 4 | CITIZENSHIP OR PLACE OF ORGANIZATION Canada | |
| NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH | 5 | SOLE VOTING POWER 0 |
| | 6 | SHARED VOTING POWER 7,928,993 |
| | 7 | SOLE DISPOSITIVE POWER 0 |
| | 8 | SHARED DISPOSITIVE POWER 7,928,993 |
| 9 | AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 7,928,993 | |
| 10 | CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES <input type="checkbox"/> | |
| 11 | PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 6.85% | |
| 12 | TYPE OF REPORTING PERSON IN, HC | |

Item 1(a). Name of Issuer.

Axcelis Technologies, Inc. (the "Issuer")

Item 1(b). Address of Issuer's Principal Executive Offices.

108 Cherry Hill Drive
Beverly, Massachusetts 01915

Item 2(a). Name of Person Filing.

This statement is filed by Senvest Management, LLC and Richard Mashaal.

The reported securities are held in an account of Senvest Master Fund, L.P. and in a separately managed account (the "Investment Vehicles").

Senvest Management, LLC may be deemed to beneficially own the securities held by the Investment Vehicles by virtue of Senvest Management, LLC's position as investment manager of each of the Investment Vehicles. Mr. Mashaal may be deemed to beneficially own the securities held by the Investment Vehicles by virtue of Mr. Mashaal's status as the managing member of Senvest Management, LLC. None of the foregoing should be construed in and of itself as an admission by any Reporting Person as to beneficial ownership of the securities reported herein.

Item 2(b). Address of Principal Business Office.

Senvest Management, LLC
540 Madison Avenue, 32nd Floor
New York, New York 10022

Richard Mashaal
c/o Senvest Management, LLC
540 Madison Avenue, 32nd Floor
New York, New York 10022

Item 2(c). Place of Organization.

Senvest Management, LLC – Delaware
Richard Mashaal – Canada

Item 2(d). Title of Class of Securities.

Common Stock, \$0.001 par value

Item 2(e). CUSIP Number.

054540109

- Item 3.** **If this Statement is Filed Pursuant to §§ 240.13d-1(b) or 240.13d-2(b), or (c), check whether the Person Filing is a:**
- (a) Broker or dealer registered under section 15 of the Act (15 U.S.C. 78o);
 - (b) Bank as defined in section 3(a)(6) of the Act (15 U.S.C. 78c);
 - (c) Insurance company as defined in section 3(a)(19) of the Act (15 U.S.C. 78c);
 - (d) Investment company registered under section 8 of the Investment Company Act of 1940 (15 U.S.C. 80a-8);
 - (e) An investment adviser in accordance with § 240.13d-1(b)(1)(ii)(E);
 - (f) An employee benefit plan or endowment fund in accordance with § 240.13d-1(b)(1)(ii)(F);
 - (g) A parent holding company or control person in accordance with §240.13d-1(b)(1)(ii)(G);
 - (h) A savings association as defined in Section 3(b) of the Federal Deposit Insurance Act (12 U.S.C.1813);
 - (i) A church plan that is excluded from the definition of an investment company under section 3(c)(14) of the Investment Company Act of 1940 (15 U.S.C. 80a-3);
 - (j) A non-U.S. institution in accordance with §240.13d-1(b)(1)(ii)(J);
 - (k) Group, in accordance with §240.13d-1(b)(1)(ii)(K). If filing as a non-U.S. institution in accordance with §240.13d-1(b)(1)(ii)(J), please specify the type of institution.

Item 4. **Ownership.**

The information required by Items 4(a) – (c) is set forth in Rows (5) – (11) of the cover page for each Reporting Person hereto and is incorporated herein by reference for each such Reporting Person. The percentages set forth in this Schedule 13G are calculated based upon an aggregate of 115,712,016 shares of Common Stock outstanding as of October 30, 2015 as reported in the Issuer's Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2015 filed on November 5, 2015.

Item 5. **Ownership of Five Percent or Less of a Class.**

Not applicable.

Item 6. Ownership of More Than Five Percent on Behalf of Another Person.

The Investment Vehicles have the right to receive and the power to direct the receipt of dividends from, and the proceeds from the sale of, the securities reported herein.

Item 7. Identification and Classification of the Subsidiary Which Acquired the Security Being Reported on by the Parent Holding Company or Control Person.

Not applicable.

Item 8. Identification and Classification of Members of the Group.

Not applicable.

Item 9. Notice of Dissolution of Group.

Not applicable.

Item 10. Certification.

By signing below each Reporting Person certifies that, to the best of his or its knowledge and belief, the securities referred to above were not acquired and are not held for the purpose of or with the effect of changing or influencing the control of the issuer of the securities and were not acquired and are not held in connection with or as a participant in any transaction having that purpose or effect.

SIGNATURE

After reasonable inquiry and to the best of my knowledge and belief, each of the undersigned certifies that the information set forth in this statement is true, complete and correct.

Date: February 12, 2016

SENVEST MANAGEMENT, LLC

By: /s/ George Malikotsis
Name: George Malikotsis
Title: Chief Financial Officer

/s/ Richard Mashaal
RICHARD MASHAAL