UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 8-K

CURRENT REPORT Pursuant to Section 13 OR 15(d) of The Securities Exchange Act of 1934

Date of Report (Date of earliest event reported): January 31, 2008

Axcelis Technologies, Inc.

(Exact name of registrant as specified in its charter)

Delaware (State or other jurisdiction of incorporation) **000-30941** (Commission File Number) **34-1818596** (IRS Employer Identification No.)

01915

(Zip Code)

108 Cherry Hill Drive, Beverly, Massachusetts

(Address of principal executive offices)

Registrant's telephone number, including area code: (978) 787-4000

(Former name or former address, if changed since last report.)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

o Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)

o Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)

o Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))

o Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Item 2.02 Results of Operations and Financial Condition

On January 31, 2008, Axcelis Technologies, Inc. (the "Company") issued a press release regarding its financial results for the quarter ended December 31, 2007. The Company's press release is attached as Exhibit 99.1 to this Current Report on Form 8-K and incorporated by reference herein.

Item 9.01 Financial Statements and Exhibits

(c) Exhibits

 Exhibit No.
 Description

 99.1
 Press Release dated January 31, 2008

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SIGNATURE

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 hereunto duly authorized.

Date: January 31, 2008

Axcelis Technologies, Inc.

By: /s/ STEPHEN G. BASSETT

Stephen G. Bassett Executive Vice President and Chief Financial Officer Exhibit No. 99.1

Press Release dated January 31, 2008

Exhibit Index

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AXCELIS ANNOUNCES FINANCIAL RESULTS FOR FOURTH QUARTER AND FULL YEAR 2007

BEVERLY, Mass.—(Prime Newswire)—Jan. 31, 2008—Axcelis Technologies, Inc. (Nasdaq: ACLS) today announced financial results for the fourth quarter and full year ended December 31, 2007. The Company reported revenues of \$89.6 million, compared to \$107.6 million for the third quarter of 2007. Net loss for the fourth quarter was \$10.6 million, or \$0.10 per share, of which \$0.02 was attributable to restructuring charges. This compares to a net loss for the third quarter of 2007 of \$8.2 million, or \$0.08 per share. In the corresponding quarter for the previous year, the Company reported revenues of \$123.3 million, and net income of \$15.6 million, or \$0.15 per share.

For the full year 2007, the Company reported revenues of \$404.8 million compared with \$461.7 million in 2006. Net loss for the year was \$11.4 million, or \$0.11 per share, of which \$ 4.7 million (\$0.05 per share) was attributable to a write-down of goodwill and \$2.5 million (\$0.02 per share) was attributable to restructuring charges. In 2006, the Company reported net income of \$40.8 million, or \$0.40 per share.

Commenting on the Company's performance, Chairman and CEO Mary Puma said, "The past year was clearly a challenging one for Axcelis, particularly given the downturn in the semiconductor industry. While market conditions are expected to continue to be weak in 2008, we are well positioned to compete with our complete platform of Optima single wafer implanters. Optima HDs are in volume manufacturing at customer fabs and we are encouraged by the production and process advantages our customers are reporting. We expect these successes to continue and translate into opportunities for capacity orders."

Fourth Quarter Detail

Shipments and Margins

Shipments, including aftermarket business, before provision for deferred revenue for the fourth quarter totaled \$89.2 million. Geographically, Axcelis' systems shipments were to: Asia, 70%; North America, 18%; and Europe, 12%. The ion implantation business accounted for 80% of total shipments in the fourth quarter. Gross margin for the fourth quarter was 35.4%.

Orders and Backlog

Orders (new systems bookings and aftermarket) received for the fourth quarter totaled \$85.9 million. New systems bookings, excluding aftermarket, amounted to \$43.9 million. Backlog plus deferred systems revenue at quarter end was \$60.7 million. Backlog consists of systems orders (aftermarket orders are excluded) that are generally scheduled to ship within six months.

Balance Sheet

Cash, cash equivalents and marketable securities were \$100.9 million at December 31, 2007. The Company ended the quarter with working capital of \$284.7 million.

SEN Corporation, an SHI and Axcelis Company ("SEN")

Axcelis owns 50% of SEN, a Japanese company that is licensed by Axcelis to manufacture and sell certain implant products in Japan. SEN's revenue for the fourth quarter totaled \$51.7 million.

Business Outlook

Axcelis' financial outlook for the first quarter of 2008 includes revenues in the range of \$80 million to \$95 million. The Company also forecasts a first quarter loss per share in the range of \$0.04 to \$0.08 per share. Axcelis assumes no responsibility to update guidance. Axcelis will only confirm or update guidance via a press release.

Fourth Quarter 2007 Conference Call

The Company will be hosting a conference call today, Thursday, January 31, 2008, beginning at 5:00 pm ET. The purpose of the call is to discuss fourth quarter and year end results for 2007 and to provide guidance for the first quarter of 2008.

The call will be available to interested listeners via an audio webcast that can be accessed through Axcelis' home page at www.axcelis.com, or by dialing 1-800-479-1628 (1-719-457-2729 outside North America). Participants calling into the conference call will be requested to provide the company name: Axcelis Technologies, the conference leader: David Snyder, and pass code:#1116422. A webcast replay will be available from 8:00 pm ET on January 31, 2008 until 5:00 pm ET March 1, 2008.

Safe Harbor Statement

This document contains forward-looking statements under the SEC safe harbor provisions. These statements, which include our guidance for future financial performance, are based on management's current expectations and should be viewed with caution. They are subject to various risks and uncertainties, many of which are outside the control of the Company, including the timing of orders and shipments, the conversion of orders to revenue in any particular quarter, or at all, our ability to implement successfully our profit plans, the continuing demand for semiconductor equipment, relative market growth, continuity of business relationships with and purchases by major customers, competitive pressure on sales and pricing, increases in material and other production costs that cannot be recouped in product pricing and global economic, political and financial conditions. These risks and other risk factors relating to Axcelis are described more fully in the most recent Form 10-K filed by Axcelis and in other documents filed from time to time with the Securities and Exchange Commission.

About Axcelis Technologies, Inc.

Axcelis Technologies, Inc., headquartered in Beverly, Massachusetts, provides innovative, high-productivity solutions for the semiconductor industry. Axcelis is dedicated to developing enabling process applications through the design, manufacture and complete life cycle support of ion implantation and cleaning systems. Axcelis also licenses its 50% owned joint venture, SEN Corporation, an SHI and Axcelis Company, to manufacture and sell certain implant products in Japan. The company's Internet address is: www.axcelis.com.

axcelis

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

| | Dec | cember 31, 2007 | December 31, 2006 | |
|--------------------------------------------------|-----|--------------------|----------------------|---------|
| Assets | | | | |
| Current assets | | | | |
| Cash and cash equivalents | \$ | 83,877 | \$ | 140,451 |
| Marketable securities | Ų. | 05,077 | Ψ | 63,200 |
| Restricted cash | | 17,018 | | 11,019 |
| Accounts receivable, net | | 76,067 | | 73,635 |
| Inventories, net | | 169,278 | | 160,107 |
| Prepaid expenses and other current assets | | 32,442 | | 26,639 |
| Total current assets | | 378,682 | | 475,051 |
| | | 3/8,682 | | 475,051 |
| Property, plant and equipment, net | | 68,101 | | 66,678 |
| Investment in SEN | | 132,911 | | 126,688 |
| Goodwill | | 42,115 | | 46,773 |
| Intangible assets | | 10,925 | | 13,549 |
| Restricted cash, long-term portion | | _ | | 1,137 |
| Other assets | | 37,195 | | 24,117 |
| | \$ | 669,929 | \$ | 753,993 |
| Liabilities and stockholders' equity | | | | |
| | | | | |
| Current liabilities | | | | |
| Accounts payable | \$ | 27,054 | \$ | 37,312 |
| Accrued compensation | | 17,003 | | 26,996 |
| Warranty | | 5,011 | | 5,229 |
| Income taxes | | 531 | | 3,906 |
| Deferred revenue | | 35,827 | | 28,811 |
| Current portion of convertible subordinated debt | | | | 74,217 |
| Other current liabilities | | 8,577 | | 13,670 |
| Total current liabilities | | 94,003 | | 190,141 |
| Convertible subordinated debt | | 79,923 | | 76,887 |
| Long-term deferred revenue | | 4,704 | | 5,054 |
| Other long-term liabilities | | 5,293 | | 4,349 |
| | | 5,235 | | 4,545 |
| Stockholders' equity | | | | |
| Preferred Stock | | | | — |
| Common stock | | 103 | | 101 |
| Additional paid-in capital | | 478,725 | | 469,967 |
| Treasury stock | | (1,218) | | (1,218) |
| Retained earnings (deficit) | | (1,814) | | 9,583 |
| Accumulated other comprehensive income (loss) | | 10,210 | | (871) |
| | | 486,006 | | 477,562 |
| | \$ | 669,929 | \$ | 753,993 |



Axcelis Technologies, Inc. Consolidated Statement of Operations In thousands, except per share amounts (Unaudited)

| | | December 31, | | | December 31, | | | |
|------------------------------------------------------|----|--------------|----|---------|--------------|-------------|---------|--|
| | | 2007 | | 2006 | | 2007 | 2006 | |
| Revenue | \$ | 89,649 | \$ | 123,339 | \$ | 404,800 \$ | 461,717 | |
| Cost of Revenue | | 57,896 | | 72,075 | | 251,939 | 270,203 | |
| Gross profit | | 31,753 | | 51,264 | | 152,861 | 191,514 | |
| Operating expenses | | | | | | | | |
| Research & development | | 17,930 | | 18,384 | | 72,044 | 72,384 | |
| Sales and marketing | | 11,479 | | 11,617 | | 49,974 | 45,536 | |
| General and administrative | | 10,680 | | 12,362 | | 41,718 | 46,620 | |
| Impairment of Goodwill | | — | | — | | 4,658 | — | |
| Amortization of intangible assets | | 656 | | 656 | | 2,624 | 2,551 | |
| Restructuring charges | | 2,506 | | 535 | | 2,506 | 682 | |
| | | 43,251 | | 43,554 | | 173,524 | 167,773 | |
| Income (loss) from operations | | (11,498) | | 7,710 | | (20,663) | 23,741 | |
| Other income (expense) | | | | | | | | |
| Equity income of SEN | | 2,077 | | 8,532 | | 10,416 | 19,266 | |
| Interest income | | 1,195 | | 2,567 | | 5,019 | 8,383 | |
| Interest expense | | (1,605) | | (2,428) | | (6,427) | (9,085) | |
| Other-net | | (659) | | (359) | | (153) | 478 | |
| | | 1,008 | | 8,312 | | 8,855 | 19,042 | |
| Income (loss) before income taxes | | (10,490) | | 16,022 | | (11,808) | 42,783 | |
| Income taxes (credits) | | 127 | | 461 | | (410) | 2,013 | |
| Net income (loss) | \$ | (10,617) | \$ | 15,561 | \$ | (11,398) \$ | 40,770 | |
| Net income (loss) per share | | | | | | | | |
| Basic | \$ | (0.10) | ¢ | 0.15 | ¢ | (0.11) \$ | 0.40 | |
| Diluted | \$ | (0.10) | | 0.15 | | (0.11) \$ | 0.40 | |
| | φ | (0.10) | ψ | 0.15 | Ψ | (0.11) \$ | 0.40 | |
| Shares used in computing net income (loss) per share | | | | | | | | |
| Basic | | 102,247 | | 101,221 | | 101,891 | 101,058 | |
| Diluted | | 102,247 | | 101,874 | | 101,891 | 101,361 | |
| | | | | | | | | |