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): July 28, 2004

Axcelis Technologies, Inc.

(Exact name of registrant as specified in charter)

Delaware

(State or other jurisdiction of incorporation)

000-30941

(Commission File Number)

34-1818596

(IRS Employer Identification No.)

108 Cherry Hill Drive, Beverly, Massachusetts

(Address of principal executive offices)

01915 (Zip Code)

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

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

Item 12. Disclosure of Results of Operations and Financial Condition.

On July 28, 2004, Axcelis Technologies, Inc. (the "Company") issued a press release regarding its financial results for the quarter ended June 30, 2004. The Company's press release is attached as Exhibit 99.1 to this Current Report on Form 8-K and incorporated by reference herein.

The information in this Current Report on Form 8-K and the Exhibit attached hereto shall not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934 (the "Exchange Act") or otherwise subject to the liabilities of that section, nor shall it be deemed incorporated by reference in any filing under the Securities Act of 1933 or the Exchange Act, regardless of any general incorporation language in such filing.

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: July 28, 2004 Axcelis Technologies, Inc.

By: /S/ STEPHEN G. BASSETT

Stephen G. Bassett Chief Financial Officer

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EXHIBIT INDEX

Press release dated July 28, 2004

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AXCELIS ANNOUNCES FINANCIAL RESULTS FOR THE SECOND QUARTER 2004

Company Achieves Near Record Financial Performance

Beverly, MA, July 28, 2004 – Axcelis Technologies, Inc. (Nasdaq: ACLS) today announced financial results for its second quarter ended June 30, 2004. Highlights for the period include:

- 1. The Company reported net revenues of \$151.3 million, a 13% increase over the first quarter of 2004, and net income of \$34.5 million (\$0.33 per diluted share) compared with \$13.6 million (\$0.13 per diluted share) for the first quarter of 2004. Net income for the quarter includes a favorable income tax adjustment of \$4.0 million or \$0.04 per diluted share.
- 2. Gross margins during the second quarter were above expectations at 45.2% due to a favorable product mix and improved manufacturing efficiencies.
- 3. Positive cash flow of \$37.0 million during the second quarter highlights the company's continued focus on working capital management.
- 4. Systems bookings increased 12%, compared to the first quarter of 2004, to \$122.1 million as demand continues for both 200mm and 300mm process equipment at the 130 nanometer and 90 nanometer technology nodes.

Mary Puma, president and Chief Executive Officer stated, "Our performance in the second quarter exceeded expectations, with profitability and positive cash flow achieving near record levels. Our pre-tax margins of 22% are approaching 2000 quarterly peak levels, demonstrating that Axcelis can deliver a high rate of profitability on a lower revenue base. This performance level is a testament to the improvements we have incorporated into our business model that create sustainable operating leverage."

Puma continued, "Our business remains strong. Systems bookings increased another 12% for the quarter, marking the fourth consecutive quarter of double-digit growth. Customers' fab projects are still moving forward, with tool shipments planned for later this year and into the beginning of 2005."

Worldwide revenues for the second quarter, including revenues of the Company's 50% owned joint venture in Japan, Sumitomo Eaton Nova Corporation ("SEN"), were \$226.7 million, an increase of 9% compared to the first quarter of 2004, and net revenues (excluding SEN revenues) for the first quarter were \$151.3 million, an increase of 13% compared with the first quarter of 2004. Net income for the quarter was \$34.5 million (\$0.33 per diluted share) compared with net income of \$13.6 million (\$0.13 per diluted share) in the first quarter of 2004. Net income for the quarter was positively affected by the reversal of prior years' income tax accruals (\$4.0 million or \$0.04 per diluted share) related to income tax matters that were resolved during the second quarter of 2004.

Axcelis believes that the information regarding the aggregate quarterly revenues of SEN, a 50% owned unconsolidated subsidiary of Axcelis, combined with Axcelis' own revenues for the quarter, is useful to investors. SEN's ion implant products are covered by a license from Axcelis and therefore the combined revenue of the two companies indicates the full market penetration of Axcelis' technology.

Third Quarter 2004 Outlook

Worldwide revenues (including SEN) are expected to increase to \$250 million to \$260 million. Net revenues (excluding SEN) are anticipated to increase to \$155 million to \$165 million. Gross margins will be approximately 45%. Net income is expected to be \$31 to \$35 million (\$0.30 to \$0.34 per diluted share). The Company also expects to generate \$10 million to \$15 million of cash during the third quarter.

Second Quarter Detail

Shipments

Shipments for the second quarter on a worldwide basis, including SEN, totaled \$241.4 million with net shipments, excluding SEN, totaling \$155.8 million. Worldwide shipments were up 10% from the first quarter of 2004 and net shipments were up 8%.

Service revenue (service labor, spare parts and consumables) was \$41.2 million for the quarter, up 5% from the first quarter of 2004, driven by continuing high utilization rates in our customers' factories. Geographically, systems shipments (excluding SEN) were to: Asia 78%, Europe 8% and North America 14%. Including SEN, 86% of worldwide systems shipments were to Asia, with 39% of shipments to Japan.

The ion implantation business (excluding SEN) accounted for 80% of total revenues in the second quarter while the complementary products (RTP, Dry Strip and Curing) accounted for 20%. Growth of ion implantation market continues to outpace that of dry strip, RTP and curing products due to large capacity oriented shipments. The ratio of implanter sales to complementary product sales does fluctuate quarter to quarter and is not indicative of a long-term trend.

Orders and Backlog

Net orders (systems and service), excluding SEN, received for the second quarter totaled \$163.3 million, up 11% from the first quarter of 2004. System bookings amounted to \$122.1 million, up

12% from first quarter of 2004. Worldwide orders, including SEN, were \$252.5 million, up 13% compared with the first quarter of 2004, driven by continuing strength in demand for new equipment worldwide.

Geographically, net system orders were split as follows: Asia 66%, Europe 8% and North America 26%. Logic manufacturers (Integrated Device Manufacturers and Foundries) comprised 32% of systems orders while memory manufacturers made up 68%. Book to bill ratio for the quarter was 1.07.

Backlog plus deferred systems revenue for the quarter ended at \$145.2 million, an increase of 11% since the end of the first quarter of 2004. Reported backlog consists of systems only (e.g. excluding service contracts) that are generally scheduled to ship within six months.

Gross Margin

Gross margin for the quarter was above expectations at 45.2%. The increase in gross margin during the quarter was due to a favorable mix of products (200mm vs. 300mm) and improved manufacturing efficiencies and costs.

Operating Expenses

Total operating expenses for the second quarter (excluding restructuring costs and amortization of intangible assets) were \$40.4 million, up 6% sequentially from the first quarter of 2004 primarily due to increased variable compensation costs. Compared to the first quarter of 2004, SG&A expense increased 8% to \$24.4 million and R&D expense increased 3% to \$15.9 million.

SEN Contribution

Contribution from SEN (royalties and Axcelis' 50% share of net income) for the second quarter was \$10.7 million. The Japanese market continues to remain strong with SEN's revenues remaining at high levels, above \$70 million, for the second consecutive quarter.

Balance Sheet

Axcelis ended the second quarter with \$163.7 million in cash, cash equivalents and short-term investments compared with \$126.7 million at the end of the first quarter of 2004. The Company generated \$37.0 million in cash during the quarter due to increased profitability, effective working capital management, and increased customer collections. Positive cash flow for the third quarter is expected to be lower due to timing of scheduled shipments.

Second Quarter 2004 Conference Call

Please join us for our second quarter conference call on July 28, 2004 at 5:00 pm EDT. 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 1-800-262-1292 (1-719-457-2680 outside North America). Participants calling into the conference call will be requested to provide the company name: Axcelis Technologies, the conference leader: Mark Namaroff, and pass code: Axcelis Q2. A telephone replay will be available from 8:00 pm EDT on July 28, 2004 until 11.59 pm EDT on August 4, 2004. Dial 1-888-203-1112 (1-719-457-0820 outside North America), and enter conference ID code #397404. A webcast replay will be available from 8:00 pm EDT on July 28, 2004 until 5:00 pm EDT August 27, 2004.

Safe Harbor Statement

This document contains forward-looking statements under the SEC safe harbor provisions. These statements 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 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, rapid thermal processing, and cleaning and curing systems. Axcelis Technologies has key technology centers in Beverly, Massachusetts, and Rockville, Maryland as well as in Toyo, Japan through its joint venture, SEN. The company's Internet address is: www.axcelis.com.

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

Civ. Months Ended

Three Months Ended

	Three Months Ended June 30,			Six Months Ended June 30,				
		2004		2003		2004		2003
Revenue								
Systems	\$	106,834	\$	53,910	\$	198,590	\$	106,477
Services		41,178		30,761		80,270		60,599
Royalties, primarily Sumitomo Eaton Nova Corporation		3,336		1,258		6,713		3,023
		151,348		85,929		285,573		170,099
Cost of Revenue		82,948		57,655		166,997		112,385
Gross profit		68,400		28,274		118,576		57,714
Operating expenses								
Research & development		15,927		15,927		31,364		32,103

Selling	12,836	11,509	24,435	23,607
General and administrative	11,607	9,099	22,702	19,542
Amortization of intangible assets	612	365	1,224	730
	40,982	36,900	79,725	 75,982
Income (loss) from operations	27,418	(8,626)	38,851	(18,268)
Other income (expense)				
Equity income of Sumitomo Eaton Nova Corporation	7,578	1,298	13,147	4,493
Interest income	338	523	634	1,054
Interest expense	(1,702)	(1,571)	(3,374)	(3,111)
Other-net	(55)	(557)	(646)	(678)
	6,159	(307)	9,761	1,758
Income (loss) before income taxes	33,577	(8,933)	48,612	(16,510)
Income taxes (credit)	(894)	69,945	560	68,694
Net income (loss)	\$ 34,471	\$ (78,878)	\$ 48,052	\$ (85,204)
Basic net income (loss) per share	\$ 0.35	\$ (0.80)	\$ 0.48	\$ (0.87)
Diluted net income (loss) per share	\$ 0.33	\$ (0.80)	\$ 0.47	\$ (0.87)
Shares used in computing:				
Basic net income (loss) per share	99,286	98,289	99,247	98,284
Diluted net income (loss) per share	107,763	98,289	107,724	98,284

Note: Income taxes for the three and six months ended June 30, 2003 include a non-cash charge of \$69.7 million (\$0.70 per diluted share) to reduce the carrying value of deferred tax assets to zero.

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

June 30,

December 31,

	_	2004	_	2003
Assets				
1155005				
Current assets				
Cash and cash equivalents	\$	139,095	\$	93,249
Restricted cash		3,370		3,800
Short-term investments		18,616		14,972
Accounts receivable, net		106,756		73,751
Inventories		122,259		123,985
Other Current Assets		16,356		20,102
Total current assets	_	406,452		329,859
Property, plant & equipment, net		77,604		80,927
Investment in Sumitomo Eaton Nova Corporation		85,455		73,327
Goodwill		46,773		46,774
Intangible assets		18,895		20,119
Restricted cash, long-term portion		2,616		2,616
Other assets		27,783		31,973
Total assets	\$	665,578	\$	585,595
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Liabilities and stockholders' equity				
Current liabilities		40 =04		0.000
Accounts payable	\$	-, -	\$	36,335
Accrued compensation		19,224		15,061
Warranty		15,762		17,000
Income taxes		5,694		7,109
Deferred revenue		30,923		14,441
Other current liabilities	_	14,218		11,925
Total current liabilities		126,552		101,871
Long-term debt		125,000		125,000
Other long-term liabilities		10,683		5,474
Stockholders' equity				
Common stock		100		99

Additional paid-in capital	454,550	451,389
Deferred compensation	(590)	(811)
Treasury stock - at cost	(1,218)	(1,218)
Retained earnings deficit	(53,455)	(101,507)
Accumulated other comprehensive income	3,956	5,298
	403,343	353,250
Total liabilities and stockholders' equity	\$ 665,578 \$	585,595