

Securities and Exchange Commission, Washington, D.C. 20549

Schedule 13D

Under the Securities Exchange Act of 1934

Axcelis Technologies Inc.

(Name of Issuer)

Common Stock (\$.001 par value)

(Title of Class of Securities)

054540109

(CUSIP Number)

Kenneth R. Cotner

Sterling Capital Management LLC

4064 Colony Road, Suite 300

Charlotte, NC 28211

704-372-8670

(Name, Address and Telephone Number of Person Authorized to Receive Notices and Communications)

February 28, 2008

(Date of Event Which Requires Filing of This Statement) (Title of Class of Securities)

If the filing person has previously filed a statement on Schedule 13G to report the acquisition that is the subject of this Schedule 13D, and is filing this schedule because of ??240.13d-1(e), 240.13d-1(f) or 240.13d-1(g), check the following box. X

Note: Schedules filed in paper format shall include a signed original and five copies of the schedule, including all exhibits. See Rule 13d-7 for other parties to whom copies are to be sent.

*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 disclosures provided in a prior cover page.

The information required on 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).

CUSIP No. 054540109

(1) Names of reporting persons.

Sterling Capital Management

42-1658828

(2) Check the appropriate box if a member of a group

(a)

(b)

(3) SEC use only

(4) Source of funds (see instructions)

00. Funds of investment advisory clients.

(5) Check if disclosure of legal proceedings is required pursuant to Items 2(d) or 2(e).

Not applicable.

(6) Citizenship or place of organization

North Carolina

Number of shares beneficially owned by each reporting person with:

(7) Sole voting power

12,212,573 shares

(8) Shared voting power

None

(9) Sole dispositive power

12,212,573 shares

(10) Shared dispositive power

None

(11) Aggregate amount beneficially owned by each reporting person

12,212,573 shares

(12) Check if the aggregate amount in Row (11) excludes certain shares (see instructions).

Not applicable

(13) Percent of class represented by amount in Row (11)
11.9%

(14) Type of reporting person (see instructions)
IA

Item 1. Security and Issuer.

This Schedule 13D relates to the common stock, \$.001 par value (the "Securities"), of Axcelis Technologies Inc. (the "Issuer"). The principal executive office of the Issuer is located at 108 Cherry Hill Drive; Beverly, MA 01915.

Item 2. Identity and Background.

(a), (b), (c) and (f). This statement is being filed by Sterling Capital Management LLC ("Sterling").

Sterling is an investment adviser registered with the Securities & Exchange Commission under the Investment Advisers Act of 1940. The address of its principal office is 4064 Colony Road, Suite 300, Charlotte, NC 28211. Sterling serves as an investment adviser to individual and institutional clients. The Securities of the Issuer reported in Item 5 were acquired on behalf of the investment advisory clients of Sterling, under discretionary authority granted to Sterling.

(d) and (e). None of the entities or persons identified in this Item 2 has during the past five years been convicted in any criminal proceeding, nor been a party to a civil proceeding of a judicial or administrative body of competent jurisdiction and as a result of such proceeding was or is subject to a judgment, decree or final order enjoining future violations of, or prohibiting or mandating activities subject to, federal or state securities laws or finding any violation with respect to such laws.

Item 3. Source and Amount of Funds or Other Consideration.

The respective investment advisory clients of Sterling used approximately \$70,071,823 in the aggregate to purchase the Securities reported in this filing. All assets used to purchase Securities were assets of these respective clients and none were assets of Sterling. In addition, none of the proceeds used to purchase the Securities were provided through borrowings of any nature.

Item 4. Purpose of Transaction.

On February 25, 2008 Axcelis Technologies issued a press release indicating that its board had rejected the purchase offer from Sumitomo Heavy Industries. Although we agree with the board's conclusion that the initial bid from SHI was too low, Sterling continues to believe that full engagement of SHI and other potentially interested parties is in the best interest of shareholders. In a correspondence sent today, we provided to the board our perspective on the appropriate value for Axcelis. Additionally, we encouraged the board to instruct their advisor to proactively solicit other potential bidders for the firm. A copy of this correspondence is attached.

The Securities reported in this filing have been acquired for investment purposes on behalf of client accounts over which Sterling has discretionary investment authority.

In pursuing such investment purposes, Sterling may further purchase, hold, vote, trade, dispose or otherwise deal in the Securities at times, and in such manner, as they deem advisable to benefit from changes in market prices of such Securities, changes in the Issuer's operations, business strategy or prospects, or from sale or merger of the Issuer. To evaluate such alternatives, Sterling will routinely monitor the Issuer's operations, prospects, business development, management, competitive and strategic matters, capital structure, and prevailing market conditions, as well as alternative investment opportunities and other investment considerations. Consistent with its investment research methods and evaluation criteria, Sterling may discuss such matters with management or directors of the Issuer, other shareholders, industry analysts, existing or potential strategic partners or competitors, investment and financing professionals, sources of credit and other investors. Such factors and discussions may materially affect, and result in, Sterling modifying its clients' ownership of the Securities, exchanging information with the Issuer pursuant to appropriate confidentiality or similar agreements, proposing changes in the Issuer's operations, governance or capitalization, or in proposing one or more of the other actions described in subsections (a) through (j) of Item 4 of Schedule 13D.

Transactions shown below primarily resulted from cash flows within client portfolios. Generally, Sterling responds to such flows by executing transactions to maintain holdings at approximately the same percentages of the portfolio as prior to the cash flow.

Sterling reserves the right to formulate other plans and/or make other proposals, and take such actions with respect to their investment in the Issuer, including any or all of the actions set forth in paragraphs (a) through (j) of Item 4 of Schedule 13D.

Item 5. Interest in Securities of the Issuer.

(a) and (b). The aggregate number and percentage of Securities to which this Schedule 13D relates is 12,212,573 shares of the common stock of the Issuer, constituting approximately 11.9% of the 102,250,365 shares outstanding.

(c). The following transactions in the Issuer's Securities were effected by Sterling during the sixty days preceding the date of this report. On certain days, multiple transactions may have been executed at different times. The data below include the total shares and average price for all buy or sell transactions effected for each day. All such transactions represent open market transactions.

Transaction	Trade Date	Shares	Average Price
Buy	1/3/2008	3,525	\$4.69
Buy	1/7/2008	4,600	\$4.53
Buy	1/9/2008	82,575	\$4.19
Buy	1/10/2008	80,800	\$4.35
Buy	1/17/2008	7,025	\$4.14
Buy	1/23/2008	9,625	\$3.88
Buy	1/25/2008	10,250	\$4.14
Buy	1/31/2008	950	\$4.03
Buy	2/4/2008	13,000	\$4.33
Buy	2/15/2008	1,800	\$5.18

Sell	12/31/2007	7,000	\$4.87
Sell	1/3/2008	2,700	\$4.60
Sell	1/4/2008	13,150	\$4.37
Sell	1/7/2008	750	\$4.55
Sell	1/10/2008	150	\$4.35
Sell	1/11/2008	17,300	\$4.31
Sell	1/18/2008	250	\$4.04
Sell	1/23/2008	8,800	\$3.84
Sell	1/28/2008	1,600	\$4.02
Sell	1/30/2008	2,400	\$4.06
Sell	2/1/2008	16,425	\$4.17
Sell	2/12/2008	7,990	\$5.19
Sell	2/21/2008	400	\$5.06
Sell	2/22/2008	10,250	\$5.00

(d). The investment advisory clients of Sterling have the sole right to receive and, subject to notice, to withdraw the proceeds from the sale of the Securities. Such clients may also terminate the investment advisory agreements without penalty upon appropriate notice.

(e). Not applicable.

Item 6. Contracts, Arrangements, Understandings or Relationships With Respect to Securities of the Issuer.

The powers of disposition with respect to Securities owned by discretionary accounts of Sterling are established in written investment advisory agreements between clients and Sterling, which are entered into in the normal and usual course of the business of Sterling as a registered investment adviser and which are generally applicable to all securities purchased for the benefit of each such discretionary account. There are no special or different agreements relating to the Securities of the Issuer.

The written investment advisory agreements with clients do not contain provisions relating to borrowing of funds to finance the acquisition of the Securities, acquisition of control, transfer of securities, joint ventures, or any of the other transactions listed in the instructions to Item 7 of Schedule 13D other than voting of proxies. In connection with voting, Sterling may be allowed or directed to vote the proxies received by discretionary accounts.

Signature.

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

Date: February 28, 2008

STERLING CAPITAL MANAGEMENT LLC

By /s/ Brian R. Walton

Brian R. Walton
Managing Director

February 28, 2008

Mr. Stephen R. Hardis
Lead Director
c/o Corporate Secretary
Axcelis Technologies, Inc.
108 Cherry Hill Drive
Beverly, MA 01915

Dear Mr. Hardis:

We continue to believe that with open negotiations a fair price for Axcelis can be achieved either with Sumitomo Heavy Industries or with another interested party. SHI has clearly stated its willingness to offer a higher price if additional information is provided. Such information would no doubt include the data the board currently is using to assign a higher value to Axcelis.

The initial bid of \$5.20 per share for Axcelis is clearly too low. Even with strong industry headwinds and lack of traction to-date, it is appropriate to value Axcelis assuming some modest level of Optima success. Our analysis would indicate that a fair price for Axcelis under this scenario would approximate \$7.00 to \$7.50 per share. This valuation target incorporates 2009 fundamental metrics and is based on a blend of two widely utilized valuation parameters and comparables within the semiconductor capital equipment universe. Importantly, it is our opinion that a purchase price in this stated range provides a fair premium for Axcelis shareholders while affording the buyer an opportunity to earn an adequate return on its investment.

We are disappointed that the board of Axcelis has chosen to not engage SHI and work immediately towards identifying a fair price for the company. The obvious path to us would be for the board to instruct Goldman Sachs to conduct a process of proactive solicitation of interest. This process would include but not be limited to SHI.

Sterling remains a large owner of Axcelis and will explore all alternatives available to us in an effort to drive shareholder value.

Sincerely,

STERLING CAPITAL MANAGEMENT LLC

Brian R. Walton, CFA
Managing Director

cc: Board of Directors

Axcelis Income Statement Under Moderate Optima Success Scenario

(\$ in millions, except per share data)

	2009E
Implant Product Revenue	\$180
Other Product Revenue	60
Service Revenue	170
Royalty	0
Total Revenue	\$410
Operating Income	\$ 41
SEN Equity Income	15
Net Interest Expense	(2)
Taxes	(3)
Net Income	\$ 51
2009 Est. EPS	\$0.50
Shares Outstanding	102
Tangible Book Value	\$4.25

Implied 2009 Valuation of Axcelis Technologies

1. P/Sales Ratio	\$8.84
2. P/E Ratio	\$7.80

Average Implied 2009 Value per Share	\$8.32
Present Value of Implied Value	\$7.23

(15% Discount)

Notes:

- * Lehman Brothers 2009 implant market assumption of \$1.2 billion is utilized
- * ACLS is assumed to capture approximately 20% market share
- * SEN arbitration remains outstanding
- * SEN market share is assumed to be 15%
- * Operating margins are assumed to increase to 10%
- * Tax rate is just 5% as NOLs are utilized

Front End Semicap Equipment Universe Comparables

Price to Sales (2008E) 2.2X
Price to Earnings (2008E) 15.6X

Company	Market Cap	Price	P/S	P/E	
Applied Materials		\$27,271	\$19.68	2.9	18.5
ASML	\$10,821	\$24.84	1.9	10.8	
KLA-Tencor	\$7,659	\$42.54	3.0	15.0	
Lam Research	\$5,029	\$40.31	2.0	9.7	
Mattson Technologies		\$306	\$6.00	1.3	24.4
Novellus	\$2,679	\$23.07	2.0	17.0	
Varian Semi	\$2,449	\$32.87	2.4	13.9	
Group Average				2.2	15.6

Source: Lehman Brothers and First Call Consensus Data
Prices as of 2/22/08