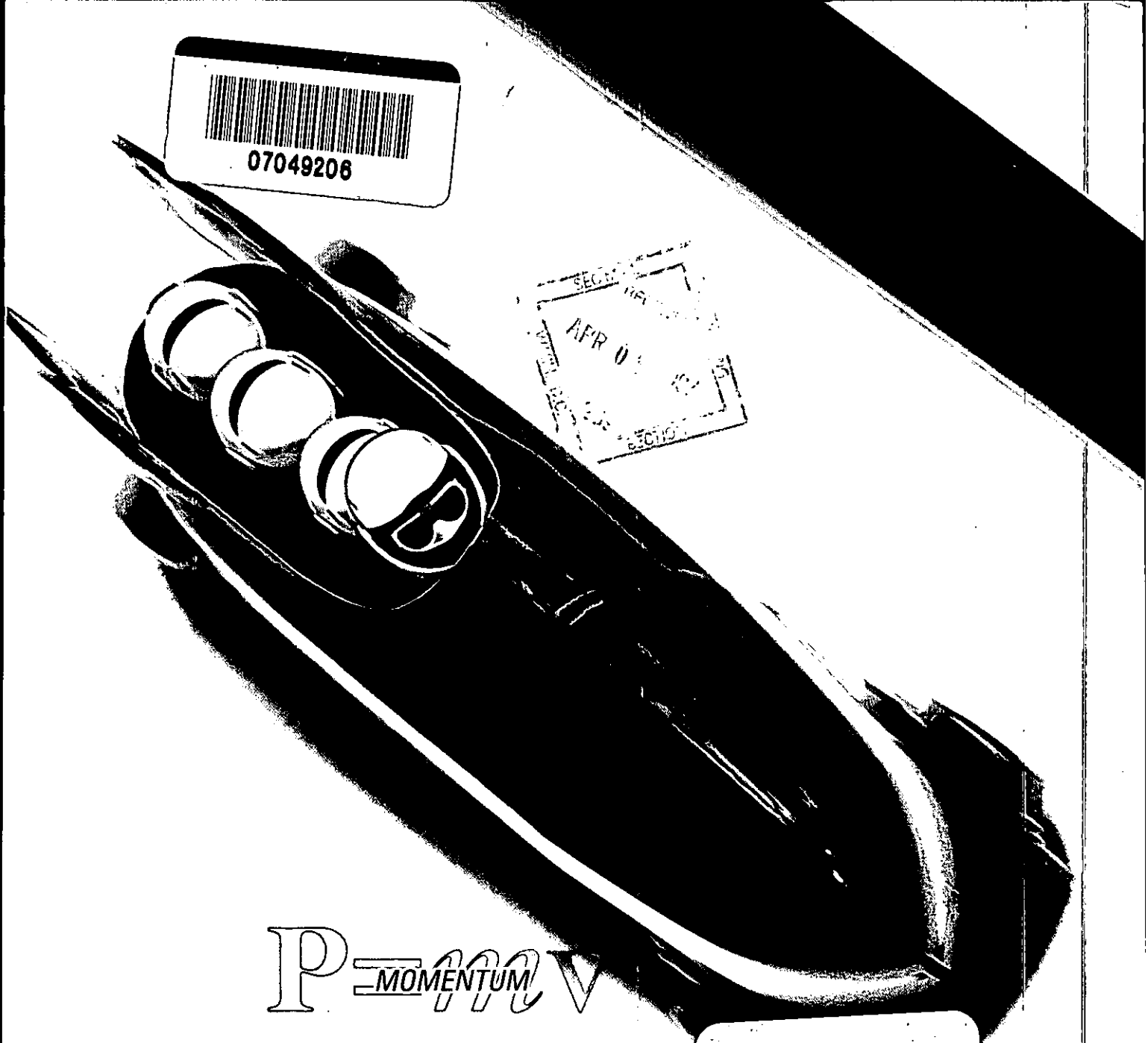

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2006 Annual Report

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To Our Shareholders,

2006 was an outstanding year for Axcelis. We exceeded our financial targets, achieved strong momentum with the introduction of several new innovative products and achieved robust growth in our core businesses. Our plan for 2007 is to leverage these significant accomplishments into a new chapter of growth for the company.

Momentum Achieved

2006 was a year of transition for our new Optima HD implant platform, as we achieved significant momentum with strategic design wins and next-generation applications development. Our customers continue to tell us that this platform delivers compelling productivity and technology-enabling benefits.

In 2006, we strengthened this portfolio with the introduction of the Optima HD Imax™, the industry's first high dose implanter to deliver the power of molecular implants for advanced memory and logic devices. This innovative new system enables users to dramatically increase productivity and reduce process times by implanting boron molecules, instead of individual atoms. Due to the strong differentiation of the Optima HD platform, we expect our revenues and market share to grow significantly in this space in 2007.

A Platform for Growth

Axcelis has many strengths - one of which is the robustness of its core businesses. In 2006 we maintained our dominant lead in high energy implantation, with more than 80% market share. In a testament to our high energy product's superior productivity and extendibility, in 2007 Axcelis and its joint venture SEN Corporation, an SHI and Axcelis Company, will ship their 700th high energy implanter. Building on this leadership position, this year we plan to launch our new high energy single wafer platform, the Optima HE.

Our service business also performed exceptionally well in 2006. In fact, we generated record service revenues through increased penetration at existing customers and our expanding installed base, enhancing our overall margin performance. We continue to focus on growing this business with new upgrade product offerings and enhanced customer portal services. For example, by offering complete spare parts support, our new Axcelis Managed Inventory program provides customers increased productivity and enhanced efficiency by improving cycle time and reducing order fulfillment costs.

We are also proud of the performance of Axcelis' dry strip product line, which nearly doubled its market share in 2006. We forged new partnerships and existing customers continued to add significant capacity throughout the year. Building on this success, in 2007 we will focus our energy on developing new applications with customers for critical cleans at the 32nm node.

During the year, we exceeded our expectations for our curing product line, securing several strategic design wins in the US and throughout Asia for both logic and memory applications. UV curing continues to emerge as an enabling technology for a wide range of established and potential applications for front and back end of line. Axcelis is the only supplier to offer an application-specific, microwave-driven UV light source that delivers significant competitive advantages to our valued customers. Its flexibility makes it ideally suited for many of today's most sophisticated UV-based applications, including low-k and silicon nitride film curing, charge neutralization and charge erasure.

Manufacturing Excellence

With every step down in transistor size, technologists are inspired to build manufacturing equipment that was once considered impossible. The Axcelis manufacturing team is similarly inspired with the joint challenges of driving continuous acceleration while maintaining consistent excellence in our manufacturing process. We recognize the importance of speed and agility in responding to market requirements, and reducing business cycles so our customers can achieve faster time to market and faster time to revenue. In addition, we are acutely focused on quality and reliability to ensure the highest levels of customer satisfaction. Achieving both these goals will allow us to maintain a competitive advantage in the market.

Our focus on operational excellence is driven by lean principles that run throughout the organization. Initiatives in 2006 included driving product commonality across platforms, implementing a next generation ship from cell program, continued rigorous reliability and quality testing, and expanded strategic sourcing. We will continue to innovate this model for productivity gains, improved efficiencies and continued cost reductions in 2007.

Looking Forward

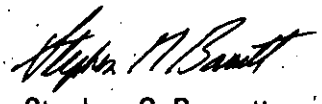
We have significant opportunities for growth in 2007 and beyond. As integrated circuit content continues to proliferate in both traditional and nontraditional applications, the demand for devices and semiconductor manufacturing equipment will continue to grow.

Our implant product portfolio is now stronger than ever. With the introduction of the Optima HE in 2007, we will be uniquely positioned to provide the industry's first full suite of complementary single wafer tools designed for both existing and emerging applications, down to the 32nm node. As the Optima becomes the platform of choice for implant customers, we expect to see significant growth in both market share and revenues. Additionally, we are implementing programs to accelerate innovations in dry strip and curing for advanced applications development to ensure continued gains in these markets.

We are certainly proud of our operational and financial success in 2006. And because of that success, we are better positioned than ever to grow market share, increase sales and profitability, and enhance shareholder value. On behalf of everyone at Axcelis, we thank you for your support.

Sincerely,

Mary G. Puma
Chairman of the Board,
Chief Executive Officer and President



Stephen G. Bassett
Executive Vice President, Finance and
Chief Financial Officer

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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

(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, 2006

☐ **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	**34-1818596**
(State or other jurisdiction of incorporation or organization)	(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
Preferred Share Purchase Rights	

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 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 large accelerated filer, an accelerated filer, or a non-accelerated filer. See definition of "accelerated filer and large accelerated filer" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer ☐ Accelerated filer ☒ Non-accelerated filer ☐

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, 2006: $511,545,240.

Number of shares outstanding of the registrant's Common Stock, $0.001 par value, as of March 13, 2007: 101,543,129.

Documents incorporated by reference:

Portions of the definitive Proxy Statement for Axcelis Technologies, Inc.'s Annual Meeting of Stockholders to be held on May 9, 2007 are incorporated by reference into Part III of this Form 10-K.

Forward Looking Statements

Certain information contained or incorporated by reference in this Annual Report on Form 10-K is forward-looking in nature. All statements included or incorporated by reference in this Annual Report on Form 10-K or made by management of Axcelis Technologies, Inc., other than statements of historical fact, are forward-looking statements. Examples of forward-looking statements include statements regarding Axcelis' future financial results, operating results, business strategies, projected costs, product development or future sales, competitive positions and plans and objectives of management for future operations. We use terminology such as "anticipates," "believes," "plans," "expects," "future," "intends," "may," "will," "should," "estimates," "predicts," "potential," "continue," and similar expressions to identify such forward-looking statements. Our actual results could differ materially from the results contemplated by these forward-looking statements due to a number of important factors, including those discussed in Item 1A. of this Form 10-K and elsewhere in this Form 10-K. This Form 10-K also contains forward-looking statements attributed to third parties relating to their estimates regarding the growth of our markets. Forward-looking statements are subject to known and unknown risks, uncertainties, and other factors that may cause our actual results, as well as those of the markets we serve, levels of activity, performance, achievements and prospects to be materially different from those expressed or implied by the forward-looking statements. The Company undertakes no obligation to update publicly any forward-looking statements, whether as a result of new information, future events or otherwise.

PART I

Item 1. Business.

Overview of Our Business

Axcelis Technologies, Inc. ("Axcelis," "we," "us," or "our") designs, manufactures and services ion implantation, dry strip, thermal processing and curing equipment used in the fabrication of semiconductor chips. We sell to all of the top 20 semiconductor chip manufacturers worldwide. The ion implantation business comprised approximately 74.3% of our revenues in 2006 with the remaining 25.7% of revenues derived from dry strip, thermal processing and curing businesses. In addition to equipment, we provide extensive aftermarket service and support, including spare parts, equipment upgrades, maintenance services and customer training. We also own 50% of the equity of SEN Corporation, an SHI and Axcelis Company, or "SEN", the leading producer of ion implantation equipment in Japan, based on market data reported by Gartner Dataquest. SEN licenses technology from us for certain ion implantation products and has exclusive rights to market these products in the territory of Japan.

Axcelis is headquartered in Beverly, Massachusetts. We maintain an Internet site at http://www.axcelis.com. We make available free of charge on and through this website our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act as soon as reasonably practicable after we electronically file such material with, or furnish it to, the Securities and Exchange Commission. Our website and the information contained therein or connected thereto shall not be deemed to be incorporated into this Form 10-K.

Industry Overview

Semiconductor chips, also known as integrated circuits, are used in personal computers, telecommunication equipment, digital consumer electronics, wireless communication products and other applications. Types of semiconductor chips include memory chips (which store and retrieve information), microprocessors (logic devices which process information) and "system on chip" devices (which have both logic and memory features). Most semiconductor chips are built on a wafer of silicon ranging from 200mm (8 inches) to 300mm (12 inches) in diameter. Each semiconductor chip is made up of millions of tiny transistors or "switches" to control the functions of the device. Transistors are created in the silicon wafer by introducing various precisely placed impurities into the silicon in specific patterns. The process steps where transistors are formed are traditionally referred to as "Front-End-of-Line" (FEOL). The "Back-End-of-Line" (BEOL) process steps connect the transistors and other components together through several overlapping layers of metal wires, known as interconnect, creating a complete circuit. Each layer of metal interconnect must be separated by a non-conductive or insulating material called inter-level dielectric. Each layer that is added is selectively patterned to all previous layers through a process called photolithography.

Semiconductor chip manufacturers utilize many different types of process tools in the making of integrated circuits. There are over 300 process steps utilizing over 50 different types of process tools required in the making of a single device like a microprocessor. Semiconductor chip manufacturers seek efficiency improvements through increased throughput, equipment utilization and higher manufacturing yields. Capacity is added by increasing the amount of manufacturing equipment in existing fabrication facilities and by constructing new fabrication facilities. Periodically, and historically every seven or eight years, the semiconductor industry adopts a larger silicon wafer size to achieve lower manufacturing costs. Semiconductor manufacturers can produce more chips on a larger wafer, thus reducing the overall manufacturing cost per chip. The majority of wafer fabrication facilities today are using wafers with a diameter of 200mm (8 inches). Certain newer fabrication facilities process 300mm wafers. In 2006, Axcelis derived 58% of total systems revenue from sales of 300mm equipment.

The customer base is also changing. Given the magnitude of the investment needed to build a new wafer fabrication facility (often referred to as a "fab"), which today exceeds $1 billion and can be as high as $3 billion for a new 300mm fab, many customers are entering into partnerships to offset the cost of technology development and manufacturing. In addition, many chip developers source all or part of their chip manufacturing requirements to contract manufacturers, otherwise known as foundries. Foundries are predominantly located in Asia (historically Taiwan and Singapore) and are significant purchasers of semiconductor manufacturing equipment. China has seen the construction of many new foundries, which is expected to continue.

Traditionally, the semiconductor industry has grown about 9% annually. However, due to the nature of the industry, cyclicality is inherent. Chip manufacturers' periodic aggressive capitalization has historically led to overcapacity, excess chip inventories, softening chip prices and finally muted capitalization, which in turn results in lower demand for equipment. Therefore, a successful semiconductor equipment manufacturer must not only provide some of the most technically complex products manufactured in the world, but also must design its business to thrive during the inevitable low points in the cycle.

Axcelis' Strategy

Our mission and vision is to:

- Ensure our customers' success by providing enabling semiconductor manufacturing and support solutions and services that deliver the best performance at the lowest total cost of ownership.
- Achieve and maintain market share leadership (#1 or #2) in all served product market segments.
- Deliver profitability and positive cash flow through the industry cycles to maximize shareholder and employee value.

In the late 1990s, Axcelis expanded its product offering beyond implant. In addition to implant, Axcelis offers dry strip, curing, and thermal processing systems. Our revenues from these products and related services represented 25.7% of our total 2006 revenues. We intend to continue to maximize the opportunity for these additional product lines, while maintaining our leadership position in ion implantation. Our dry strip, curing and thermal processing products serve process steps in both the FEOL and BEOL semiconductor manufacturing. We believe the use of new materials for interconnects, such as copper conductors and new insulating materials called low-k dielectrics, will increase the demand for our dry strip and curing products for back-end-of-line applications.

Operationally, we manage our business based on three main tenets:

- technology leadership,
- operational excellence, and
- customer partnerships.

We have continued to invest in research and development through the industry cycles to assure our products meet the needs of our customers. We continue to add to our portfolio of patents and unpatented proprietary technology to ensure that our investment in technology leadership is translated into unique product advantages. We take pride in our staff of scientists and engineers that comprise over one-third of our workforce. We strive for operational excellence by focusing on ways to lower our manufacturing and design costs and to improve our delivery times to our customers. Finally, we have grown and improved our customer support infrastructure and have established Global Customer Teams and a focused account management structure to strengthen our customer relationships and increase customer satisfaction.

Ion Implantation Systems

Ion implantation is a principal step in the transistor formation cycle of the semiconductor manufacturing process. An ion implanter is a large, technically advanced machine that injects dopants such as arsenic, boron or phosphorus, into a silicon wafer. These dopants are ionized and therefore have electric charges. With an electric charge they can be manipulated, moved and accelerated with electric and magnetic fields. Ion implanters use these fields to create a beam of ions with a precisely defined amount of energy (ranging between several hundred and three million electron-volts) and with a precisely defined amount of beam current (ranging from microamps to milliamps). Certain areas of the silicon wafer are blocked off by a polymer material known as photoresist which acts as a "stencil" to pattern devices so that the dopants will only enter the wafer where needed. The dopants change the electrical properties of the silicon wafer to create the active components of a chip, called the transistors. Typical process flows require twenty implant steps with the most advanced processes requiring thirty or more. Each implant step is characterized by four key parameters: dopant type, dose (amount of dopant), energy (depth into the silicon) and tilt (angle of wafer relative to the ion beam).

In order to cover the required range of implant steps, traditionally three different types of implanters have been developed, designed to cover a specific range of applications, primarily defined by dose and energy. The three traditional implanter types are referred to as medium current, high current and high energy:

- Medium current (mid dose) implanters are the original model of ion implanter, with mid-range energy and dose capability. These implanters are single wafer systems in which only one wafer at a time is slowly moved in front of the ion beam.
- High current (high dose) implanters were the second type of implanter to emerge, having low energy capability and high dose range. High current implanters were initially designed as "multi-wafer" or "batch" tools for maximum productivity. In these tools, thirteen wafers are placed on a high speed spinning disk, which is exposed to the ion beam. To address smaller geometries and provide high tilt, single wafer high current implanters have been introduced in recent years. We expect that single wafer high current implanters will be used for most leading edge chip production in the future.
- High energy implanters emerged to address the need for deeper implants, with a high energy range and low dose. High energy implanters are available in both multi-wafer and single wafer architectures.

Axcelis is the only company to offer a complete line of high energy, high dose (high current) and mid dose (medium current) implanters for all application requirements. Axcelis has been a market leader with its multi-wafer high current and high energy ion implanters and will continue to sell these tools for many years. The years 2005 and 2006 were transition years in implant products and technology. While customers continue to buy multi-wafer tools, many customers have shifted primarily to single wafer tools for high current applications. Because we did not have a single wafer high current product we experienced a significant loss of market share in 2005. We introduced our single wafer Optima MD product in 2005 and our single wafer Optima HD product in 2006. Throughout 2005 and 2006 we began shipping these products for medium and high current applications. Our single wafer tool for high energy applications is scheduled to be released in the second half of 2007. We expect these new single wafer products to enable us to regain market share in 2007 and future years.

As mentioned above, Axcelis introduced in 2005 a new line of single wafer implanters, known as the Optima platform. Optima products are designed to meet current and future application requirements of our customers by combining high productivity, excellent process performance, technical extendibility and maximum applications overlap. The three Optima products are:

- **The Optima MD**, which was released in 2005. We refer to this product as "mid dose" or "MD," because it has energy and dose capabilities which extend beyond the traditional medium current space into traditional high current and high energy spaces. With the introduction of the Optima MD, Axcelis re-entered the medium current market segment, in which we had not participated since 2001.
- **The Optima HD**, which was released in early 2006. We use the term "high dose" or "HD" in connection with this product because the Optima HD fulfills all traditional high current requirements while extending beyond traditional high current energy and dose ranges. In order to maximize utilization and flexibility, the Optima HD can process some traditional mid current implants. In addition, the Optima HD is extendable into ultra-low energy applications to satisfy future process requirements. The Optima HD also supports molecular and hydrogen implants for emerging dual poly gate and silicon-on-insulator applications to improve device speed and performance.
- **The Optima HE** is scheduled for release in 2007. Our multi-wafer high energy tools continue to meet the current market demand, but we anticipate that interest in a single wafer high energy tool will emerge.

We believe the Optima products will meet customer demand for advantages in productivity, simplicity, process performance and technical extendibility. As a result, we expect that the Optima products will supplement Axcelis' multi-wafer implanters to continue Axcelis' leadership in ion implant.

Dry Strip and Curing Systems

In the process steps prior to ion implantation, a light sensitive, polymer-based liquid, called photoresist is spread in a uniformly thin film on the wafer. Through a process known as photolithography, the photoresist is developed into a pattern like a stencil. Curing (also known as photostabilization) uses ultraviolet light to harden, or "cure," the photoresist so that it is more effective in maintaining the desired pattern during the subsequent implant processes and etch steps (in which the top layer of the surface of the wafer not covered by photoresist is removed). After these steps, the photoresist is no longer necessary and must be removed. The primary means of removing photoresist and residue is a process called "dry strip" or "ashing." Our dry strip machines, also called ashers, use microwave and rf energy to turn process gases into plasma, which then acts to "clean" the surface of the wafer by removing the photoresist and unwanted residue.

Stripping photoresist during the front-end-of-line transistor sequence is relatively simple and, therefore, the equipment required is characterized by high throughput and low cost. Our dry strip tools are capable of removing bulk photoresist from the wafer, as well as the residue left behind after bulk strip. In addition to its use prior to the front-end-of-line implant and etch processes, photoresist is also applied and removed during back-end-of-line processes. Stripping photoresist in the back-end-of-line interconnect sequence requires more complicated tools and cleaning chemistries due to the advanced materials being used at smaller geometries. One key process is the stripping of the photoresist lying on top of the low-k dielectric film used between copper lines. Since the low-k materials are easily damaged during the photoresist removal process, tools must be designed to minimize this damage. We believe that Axcelis offers the only no damage low-k dry strip solution and that the advantages of our technology will drive growth for Axcelis' dry strip tools in this important application space. Our front-end photo resist removal

capabilities coupled with our technology for back-end photoresist removal provides a complete solution for our customers.

Our curing systems are used by integrated circuit manufacturers worldwide because of our proprietary ultraviolet light source. Through several joint development efforts with third parties our curing systems also have been used for several applications in the interconnect processes such as for hardening and drying low-k dielectric materials. We believe that as the adoption rate for low-k accelerates, this film curing application provides a growth opportunity for Axcelis.

Thermal Processing Systems

At a number of points during the manufacturing process, silicon wafers need to be heated rapidly, often to 900 degrees centigrade or higher, in order to complete chemical or electronic reactions. This heating process is referred to as rapid thermal processing, or RTP. This step is used in both the transistor formation and interconnect formation processes of semiconductor manufacturing.

Our thermal processing machine employs a patented design to process a single wafer in a hot wall vertical reactor. The reactor has three zones that are heated by resistive coils, as well as an actively cooled base, which create a uniform temperature gradient from top to bottom. Rapid heating and cooling of the wafer is achieved by simply adjusting the vertical position of the wafer within the reactor through the use of a lifter. The technology in our thermal processing system differs from most other thermal processing equipment, which regulates temperature through a lamp-based system.

Our Summit series of thermal processing systems has a flexible design, offering both single and dual chamber systems. Its engineering incorporates recent developments in furnace design, temperature measurement, emission correction techniques and wafer handling. The machine is suited particularly well for lower temperature processing where lamp-based systems may have difficulty controlling the temperature. One of the trends in this market segment is the migration to lower temperature nickel silicide formation for advanced devices at 90 nanometers and below. Most logic customers now are looking to migrate to nickel silicide processes from standard cobalt silicide processes over the next couple of years.

Aftermarket Support and Services

We offer our customers extensive aftermarket service and support throughout the lifecycle of the equipment we manufacture. We believe that more than 4,400 of our products, including products shipped by SEN, are in use in 50 countries worldwide. The service and support that we provide include spare parts, equipment upgrades, and maintenance services. We offer service out of 51 field offices in sixteen countries. Revenues generated through our service and support business represented about 38.2% of revenue in 2006 and 42.3% of revenue in 2005.

Our customer support network consists of over 600 staff, including sales and marketing personnel, field service engineers, and spare parts and applications engineers as well as employees located at our manufacturing facilities who work with our customers to provide customer training and documentation, product, process and applications support.

Most of our customers maintain spare parts inventories for our machines. In addition to our web-based spare parts management and replenishment tracking program, we offer a number of Business-to-Business options to support our customers' parts management requirements. AMI (Axcelis Managed Inventory) provides the customer with full spares support through which Axcelis takes responsibility for the complete supply chain. The expansion of these services provides ease of use alternatives that help us reduce order fulfillment costs and improve cycle time, resulting in an expanded customer base for this service offering.

Sales and Marketing

We primarily sell our equipment and services through our direct sales force. We have 16 sales offices in ten countries. Aftermarket service and support is also offered at all of these offices. In the United States, we conduct sales and marketing activities from seven locations. Outside of the United States, our sales offices are located in Taiwan, South Korea, China, Japan, Germany, Singapore, Netherlands, France and Italy. In addition, isolated sales are made in smaller markets through distributors and manufacturing representatives.

In Japan, we exclusively license specified ion implant products to our joint venture, SEN, which manufactures and sells its machines and services directly to semiconductor manufacturers (see "SEN Corporation, an SHI and Axcelis Company" below). We sell our curing systems, dry strip and thermal processing products in Japan through Toda Technologies Service Co., Ltd., an unaffiliated company, which provides sales and support services for these products in the Japanese market.

International revenues, including export sales from our U.S. manufacturing facilities to foreign customers, sales by foreign subsidiaries and branches, and royalties accounted for 67.1% of total revenue in 2006, 70.4% in 2005, and 77.0% in 2004. Substantially all of our sales are denominated in U.S. dollars. SEN's sales are denominated in Japanese yen. See Note 18 to our Consolidated Financial Statements contained in Item 15 of this Form 10-K for a breakdown of our revenues and long-lived assets in the United States, Europe and Asia.

Customers

In 2006, the top 20 semiconductor manufacturers accounted for approximately 79.0% of total semiconductor industry capital spending, up slightly from 77.4% in 2005. These manufacturers are from the four largest semiconductor manufacturing regions in the world: the United States, Asia Pacific (Taiwan, South Korea, Singapore, and China), Japan and Europe. The Company and SEN together serve all of the 20 largest semiconductor manufacturers. We believe that more than 4,400 of our products, including products shipped by SEN, are in use worldwide.

Revenues from our ten largest customers accounted for 54.9%, 60.2%, and 55.4% of revenue in 2006, 2005, and 2004, respectively. We expect that sales of our products to relatively few customers will continue to account for a high percentage of revenue for the foreseeable future. In 2006, no single customer accounted for greater than 10% of revenue or consolidated accounts receivable at December 31, 2006. However, in 2005, one customer, Samsung, accounted for 17.5% of revenue and 11.2% of consolidated accounts receivable at December 31, 2005. In 2004, one customer, ST Microelectronics, accounted for 14.9% of revenue.

SEN Corporation, an SHI and Axcelis Company

Since 1983, we have exclusively licensed our Japanese joint venture, SEN Corporation, an SHI and Axcelis Company (formerly known as Sumitomo Eaton Nova Corporation), to manufacture and sell specific ion implanter systems covered by our technology in Japan. As of year end 2006, SEN had 506 employees and 324 temporary staff based in Tokyo and Saijo, Japan. We own 50% of the equity of SEN and our senior managers serve as half of the members of SEN's Board of Directors. Sumitomo Heavy Industries, Ltd., a Japanese corporation, holds the other 50% of the equity of SEN.

We have granted to SEN an exclusive license to use our patented and unpatented technology to manufacture, use and sell specified ion implant products in Japan. SEN has granted us a royalty-free worldwide (except for Japan) license to use any technology SEN develops that is an improvement to our technology. Axcelis has not licensed SEN to sell the Optima MD, Optima HD and Optima HE, which are available in Japan directly from Axcelis. SEN pays royalties on its net sales of licensed ion implantation

products in accordance with the rates set forth in the license agreement between SEN and Axcelis. The royalty rates vary depending on the type of implanter sold. These royalty amounts were $9.2 million, $8.7 million and $13.0 million in 2006, 2005 and 2004, respectively. The current license agreement between SEN and Axcelis will continue in effect until terminated. The license agreement may be terminated by Axcelis or by SEN, with the approval of the Axcelis representatives on the SEN Board, on twelve months notice. Axcelis does not expect to terminate the SEN license agreement.

We have in the past allowed, and may in the future allow, SEN to sell implanters outside of Japan. We have allowed these sales when we believe that a SEN product, rather than an Axcelis product, is more likely to be successful at a particular customer. When these sales are allowed, we receive commissions in addition to royalties from SEN on these extra-territorial sales and assume most of the post-installation warranty responsibility. The financial benefit to Axcelis from the sale of a SEN implanter is less than the financial benefit of a sale of an Axcelis implanter, so such extra-territorial sales may have an adverse effect on our revenues. For this reason, Axcelis has, on occasion, denied permission to SEN to sell products to particular customers outside of Japan. In several instances, SEN has engaged in selling activities outside of Japan that have not been authorized by Axcelis. To date, these unauthorized sales by SEN have not had a material negative impact on Axcelis' results of operations. See Item 1A. Risk Factors—"Our inability to control our Japanese joint venture may adversely affect our results."

Until recently, Axcelis has requested, but has not received material cash dividends from SEN. In the past, SEN has paid token annual dividends of ¥10,000 per share, resulting in Axcelis' receipt of approximately $500,000 annually. After several years of negotiation, in 2006 Axcelis and Sumitomo Heavy Industries, Ltd., the other shareholder of SEN, agreed to instruct SEN to dividend 40% of SEN's net earnings for SEN's fiscal year ended March 31, 2006. On January 31, 2007, Axcelis received a payment of approximately $5.7 million, representing its 50% share of the dividend. Axcelis and Sumitomo Heavy Industries have an understanding that dividends will be paid for SEN's fiscal years ending March 31, 2007 and March 31, 2008 at the level of 40% of SEN's net earnings. Thereafter, future dividends will be subject to mutual agreement between Axcelis and Sumitomo Heavy Industries.

Until October 1, 2005, we received royalties from SEN for SEN's use of the names "Eaton" and "Nova." Axcelis does not receive royalties for the use of "Axcelis" in the joint venture's new name.

Research and Development

Our industry continues to experience rapid technological change, requiring us to frequently introduce new products and enhancements. Our ability to remain competitive in this market will depend in part upon our ability to develop new and enhanced systems and to introduce these systems at competitive prices on a timely and cost effective basis.

We devote a significant portion of our personnel and financial resources to research and development programs and seek to maintain close relationships with our customers to remain responsive to their product needs. We have also sought to reduce the development cycle for new products through a collaborative process whereby our engineering, manufacturing and marketing personnel work closely together with one another and with our customers at an earlier stage in the process. We also use 3D, computer-aided design, finite element analysis and other computer-based modeling methods to test new designs.

Our expenditures for research and development were $72.4 million, $70.9 million and $63.2 million in 2006, 2005, and 2004, respectively, or 15.7%, 19.0% and 12.4% of revenues, respectively. We expect in future years that research and development expenditures will continue to represent a substantial investment.

Manufacturing

We manufacture ion implant, dry strip, curing, and thermal processing products at our 417,000 sq. ft. facility in Beverly, Massachusetts. In addition, SEN manufactures ion implant and flat panel products at its 300,000 square foot facility in Saijo, Japan. Our manufacturing facilities employ advanced manufacturing methods and technologies, including lean manufacturing, Six Sigma controls and processes, and web-enabled inventory purchase systems. We manufacture our products in clean room environments that are similar to the clean rooms used by semiconductor manufacturers for wafer fabrication.

Our Beverly facility is also the location of our Advanced Technology Center, which houses an advanced process development laboratory with 12,500 sq. ft of class 10/100/1000 clean room space for product demonstration and process development and a 34,000 sq. ft. customer training center. These demonstration facilities are used to facilitate sales and to allow customers to test their processing steps on our systems under conditions that substantially replicate the customer's production environment. These environmental conditions include power requirements, toxic gas usage, air handling requirements including humidity and temperature, equipment bay configuration, wafer characteristics and other factors. These procedures are intended to reduce installation and production qualification times and the amount of particulates and other contaminants in the assembled system, which in turn improves yield and reduces downtime for the customer.

Most ion implant systems are assembled in five separate modules. The modules are then tested individually using specially developed software and are shipped directly to the customer, bypassing the integration of the modules into a complete implanter. As a result, the implanter system is integrated for the first time on the customer's factory floor and tested for quality assurance. We refer to this process as "ship from cell." Ship from cell manufacturing allows us to more quickly and efficiently ship and install ion implant systems than the traditional manufacturing method involving a full integration of the system in our factory. Ship from cell saves an average of 4 weeks in our manufacturing cycle time, thus improving product margins and lead-times for our customers. In 2006, 71% of our ion implantation tools were manufactured using the ship from cell technique, compared with 73% and 71% of our tools shipped from cell for the years ended December 31, 2005 and 2004, respectively. All of our 200mm and 300mm implanters are qualified for ship from cell manufacturing with the exception of the Optima product line, which we expect to be available for ship from cell in 2007. Ship from cell has become our standard method of implantation manufacturing.

Each system module is packaged to maintain clean room standards during shipment. Installation is itself not a complex process and does not require specialized skills. A team of assemblers from the customer and Axcelis typically performs the installation. The process includes placing and leveling the equipment at its installation site, connecting it to sources of gas, water and electricity and recalibrating it to specifications that had previously been met during module testing.

We purchase materials, components and sub-assemblies, such as pumps, machine components, power supplies and other electrical components, from various suppliers. These items are either standard products, or built to our specifications. Some of the components and sub-assemblies included in our products are obtained either from a sole source or a limited group of suppliers. Disruption to our source could affect our ability to deliver products to our customers. We have installed a web-based supply chain system in order to increase efficiency and cut costs associated with obtaining materials and components. This system electronically exchanges information with our vendors as to purchase orders, forecasts and automatic delivery updates.

We outsource many of our major sub-assemblies and components. We have several large outsourcing partners that provide this service for assemblies like the frames, power distribution systems, wafer handling systems and vacuum systems. Axcelis will continue to aggressively pursue outsourcing opportunities where the economics are justified, with a goal of enabling factory capacity, quality and margin improvement. We

outsource complex assemblies up to and including module build. Critical assemblies will continue to be manufactured in house due to the high level of expertise required. See Item 1a. Risk Factors—"Our dependence upon a limited number of suppliers for many components and sub-assemblies could result in increased cost or delays in the manufacture and sale of our products."

Competition

The semiconductor wafer fabrication equipment market is highly competitive and is characterized by a small number of medium to large size participants. We compete in four principal product markets in both the front-end and back-end of the semiconductor wafer fabrication process: ion implantation, dry strip, curing and thermal processing. We believe that preexisting relationships have a significant influence on a customer's choice of equipment supplier. Other significant competitive factors in the semiconductor equipment market include price, cost of ownership, equipment performance, customer support, breadth of product line, distribution and financial viability.

Ion Implantation. In ion implantation, our major competitors are Varian Semiconductor Equipment Associates, Inc. and Applied Materials, Inc. In the high-energy equipment segment, where we hold a leading share, we compete with Varian. In the high current segment we compete with both Applied Materials and Varian. In the medium current equipment segment, we compete with Nissin Electric Co., Ltd. and Varian. SEN faces the same competitors in the Japanese market.

On February 13, 2007 Applied Materials announced its intention to cease future development of beamline implant products. The impact this will have on future implant market opportunities is uncertain at this time.

Dry Strip and Curing Systems. Our principal competitors in the dry strip product market are Mattson Technology Inc. and Novellus Systems, Inc. Our principal competitors in curing are Applied Materials, Inc. and Novellus Systems, Inc.

Thermal Processing Systems. Our chief competitors in the thermal processing equipment market are Applied Materials, Inc. and Mattson Technology, Inc.

Intellectual Property

We rely on patent, copyright, trademark and trade secret protection, as well as contractual restrictions, in the United States and in other countries to protect our proprietary rights in our products and our business. As of January 1, 2007, we had 281 patents issued in the United States and 581 patents granted in other countries, as well as 805 patent applications (106 in the United States and 699 in other countries) on file with various patent agencies worldwide.

We intend to file additional patent applications and grow our intellectual property portfolio as appropriate. Although patents are important to our business, we do not believe that we are substantially dependent on any single patent or any group of patents.

We have trademarks, both registered and unregistered, that are maintained to provide customer recognition for our products in the marketplace.

From time to time, we enter into license agreements with third parties under which we obtain or grant rights to patented or proprietary technology. Except for our license agreement with SEN (described above under "SEN Corporation, an SHI and Axcelis Company"), we do not believe that any of our licenses are currently material to us.

There has been substantial litigation regarding patent and other intellectual property rights in semiconductor-related industries. We do not have any currently pending patent litigation.

We can give no assurance that we, our licensors, licensees, customers or suppliers will not be subject to claims of patent infringement or claims to invalidate our patents, or that any such claims will not be successful, requiring us to pay substantial damages or delete certain features from our products or both.

Backlog

As of December 31, 2006, our systems backlog (excluding deferred systems revenue) was $91.7 million, as compared to $47.3 million and $78.0 million as of December 31, 2005 and 2004, respectively. Systems backlog including deferred systems revenue was $124.8 million, $88.3 million, and $118.4 million as of December 31, 2006, 2005, and 2004, respectively. We believe it is meaningful to investors to include deferred systems revenue as part of our backlog. Deferred systems revenue represents revenue that will be recognized in future periods based on prior shipments. Our policy is to include in backlog only those system orders for which we have accepted purchase orders and typically are due to ship within 6 months. Backlog does not include orders received for our service business (spare parts, consumables and service contracts) due to the turn rate associated with that business. Generally, orders for service or parts revenue received during the quarter are performed or shipped within the same quarter. All orders are subject to cancellations or rescheduling by customers with limited or no penalties. Due to possible changes in system delivery schedules, cancellations of orders, and delays in systems shipments, our backlog at any particular date is not necessarily indicative of our actual sales for any succeeding period. In addition, our backlog at the beginning of a quarter typically does not include all orders required to achieve our sales objectives for that quarter and is not a reliable indicator of our future sales.

Employees

As of December 31, 2006, we had 1,632 employees and 123 temporary staff worldwide, of which 1,370 work in North America, 272 in Asia and 113 in Europe. We consider our relationship with our employees to be good. Our employees are not represented by a labor union and are not subject to a collective bargaining agreement. Some of our European locations have formed work councils, which have certain information and discussion rights under applicable law.

Environmental

We are subject to environmental laws and regulations in the countries in which we operate that regulate, among other things: air emissions; water discharges; and the generation, use, storage, transportation, handling and disposal of solid and hazardous wastes produced by our manufacturing, research and development and sales activities. As with other companies engaged in like businesses, the nature of our operations exposes us to the risk of environmental liabilities, claims, penalties and orders. We believe, however, that our operations are in substantial compliance with applicable environmental laws and regulations and that there are no pending environmental matters that would have a material impact on our business. We are ISO-14001 certified at our Beverly, MA facility.

Executive Officers

Mary G. Puma, 49, has been our President and Chief Executive Officer since January 2002 and Chairman since 2005. From May 2000 until January 2002, Ms. Puma was our President and Chief Operating Officer, prior to which she served as a Vice President of Axcelis from February 1999. In 1998, she became General Manager and Vice President of the Implant Systems Division of Eaton Corporation, a global diversified industrial manufacturer. In May 1996, she joined Eaton as General Manager of the Commercial Controls Division. Prior to joining Eaton, Ms. Puma spent 15 years in various marketing and general management positions for General Electric Company. Ms. Puma is a director of Nordson Corporation, North Shore Medical Center and Semiconductor Equipment and Materials International (SEMI).

Stephen G. Bassett, 59, has been our Chief Financial Officer since April 2004 and Executive Vice President, Finance since May 2005, prior to which he was Senior Vice President, Finance since 2004. Prior to that, Mr. Bassett had served as interim Chief Financial Officer for Axcelis beginning in June 2003. From 1999 to 2002, Mr. Bassett served as Chief Financial Officer of Ezenia! Inc., a provider of real-time voice, video and data collaboration solutions for corporate networks and the Internet. From 1996 to 1999, Mr. Bassett worked as an independent financial consultant. From 1981 until 1996, Mr. Bassett served as an audit partner at Ernst & Young LLP, where he managed auditing services for a variety of organizations, ranging from multinational Fortune 500 companies to emerging businesses.

Kevin J. Brewer, 48, is our Senior Vice President, Manufacturing Operations, a position he has held since May 2005, prior to which he had been Vice President of Manufacturing Operations since October 2002 and Director of Operations from 1999 to 2002. Prior to joining Axcelis in 1999, Mr. Brewer was Director of Operations, Business Jets at Raytheon Aircraft Company, a leading manufacturer of business and special mission aircraft owned by Raytheon Company, a manufacturer of defense, government and commercial electronics, as well as aircraft. Prior to that, Mr. Brewer held various management positions in operations and strategic planning in Raytheon Company's Electronic Systems and Missile Systems groups.

Lynnette C. Fallon, 47, has been our General Counsel and corporate Secretary since 2001 and Executive Vice President, Human Resources/Legal since May 2005. Prior to that, Ms. Fallon was Senior Vice President HR/Legal since 2002, and Senior Vice President since 2001. Before joining Axcelis, Ms. Fallon was a partner in the Boston law firm of Palmer & Dodge LLP since 1992, where she was head of the Business Law Department from 1997 to 2001.

Matthew P. Flynn, 50, is our Senior Vice President, Global Customer Operations, a position he has held since May 2005, prior to which he was Vice President Global Customer Operations since October 2002. Before then, Mr. Flynn was Director of Sales, Ion Implant and RTP systems. Prior to joining Axcelis in 1996, Mr. Flynn held executive and management roles at Cherry Semiconductor, an integrated circuit manufacturer, and at Teledyne Inc., in its microelectronics business.

Craig Halterman, 43, has been our Chief Information Officer since July 2000 and a Senior Vice President since May 2005, before which he was a Vice President since July 2000 and our Director of Information Technology since the beginning of 2000. Prior to joining us, Mr. Halterman was Information Technology Director at Honeywell/AlliedSignal in its defense and space systems business since 1997. Before that, Mr. Halterman held various information technology positions at The Dow Chemical Co., Thompson Consumer Electronics, General Electric Co. and RCA Consumer Electronics.

Marc S. Levine, 48, has been our Senior Vice President, Product Development since August 2005. From 1980 until he joined Axcelis, Mr. Levine held executive and management roles at Teradyne Inc., a manufacturer of semiconductor test and interconnection products, most recently as Vice President,

Worldwide Field Operations, and including Vice President, Enabling Technology Group and Vice President and Division Manager, ITD.

Mark J. Namaroff, 43, has been our Senior Vice President of Strategic Marketing since August 2006, prior to which he was Senior Vice President of Marketing since May 2005 and Vice President of Marketing since January 2005. Prior to that, Mr. Namaroff was Director of Product Marketing for Ion Implantation products since September 2004 and Director of Investor Relations and Corporate Development from May 2001. Before then, Mr. Namaroff held various marketing positions since 1996, when he joined Axcelis. Before joining Axcelis, Mr. Namaroff held marketing and engineering positions at Materials Research Corporation, a manufacturer of semiconductor processing equipment, from 1990–1996.

Donald W. Palette, 49, is our Senior Vice President, Finance and Controller. He has held the position of Controller since 1999, Treasurer since 2003 and Senior Vice President since May 2005. Prior to that, Mr. Palette was our Vice President since June 2003, prior to which he was Director of Finance since August 2000. Before joining Axcelis in 1999, Mr. Palette was Controller of Financial Reporting/Operations for Simplex, a leading manufacturer of fire protection and security systems. Prior to that, Mr. Palette was Director of Finance for Bell & Howell's Mail Processing Company, a leading manufacturer of high speed mail insertion and sorting equipment.

Item 1A. Risk Factors.

Some of the matters discussed in this filing contain forward-looking statements regarding future events that are subject to risks and uncertainties. From time to time, we may also make other forward-looking public statements, such as statements concerning our then expected future revenues or earnings or concerning the prospects for our markets or our product development, projected plans, performance, order procurement as well as other estimates relating to future operations. Forward-looking statements may be in reports filed under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), in registration statements filed under the Securities Act of 1933, as amended (the "Securities Act"), in press releases or informal statements made with the approval of an authorized executive officer. The words or phrases "will likely result," "are expected to," "will continue," "is anticipated," "estimate," "project," or similar expressions are intended to identify "forward-looking statements" within the meaning of Section 21E of the Exchange Act and Section 27A of the Securities Act, as enacted by the Private Securities Litigation Reform Act of 1995.

We wish to caution you not to place undue reliance on these forward-looking statements. These statements speak only as of the date on which they are made and represent management's expectations based on information available to them at that time. The factors listed below, as well as other factors that we may or may not have not currently identified, could affect our financial or other performance and could cause our actual results for future periods to differ materially from any opinions or statements expressed with respect to future periods or events in any current statement.

We will not undertake and specifically decline any obligation to publicly release revisions to these forward-looking statements to reflect either circumstances after the date of the statements or the occurrence of events that may cause us to re-evaluate our forward-looking statements.

Important factors that could cause our actual results to differ materially from those projected in forward-looking statements in this Form 10-K or that may otherwise be made by us or on our behalf include, but are not limited to: the cyclical nature of the semiconductor industry, our ability to keep pace with rapid technological changes in the semiconductor manufacturing processes, the highly competitive nature of the semiconductor equipment industry, quarterly fluctuations in operating results attributable to the timing and amount of orders for our products and services, dependence on SEN (our Japanese joint venture) for access to the Japanese semiconductor equipment market, and those risk factors contained in the section titled "Outlook" and below. If any of those risk factors actually occurs, our business, financial

condition and results of operations could be seriously harmed and the trading price of our common stock could decline.

If semiconductor manufacturers do not make sufficient capital expenditures, our sales and profitability will be harmed.

Almost all of our new orders will depend upon demand from semiconductor manufacturers who build or expand fabrication facilities. If the rate of construction or expansion of fabrication facilities declines, demand for our systems will decline, reducing our revenues. This would also hurt our profitability, because our fixed cost structure and our continued investments in engineering, research and development and marketing necessary to develop new products and to maintain extensive customer service and support capabilities limit our ability to reduce expenses in proportion to declining sales.

Our financial results may fluctuate significantly.

We derive most of our revenues from the sale of a relatively small number of expensive products to a small number of customers. The list prices on these products range from $200,000 to over $5.0 million. At our current sales level, each sale, or failure to make a sale, could have a material effect on us in a particular quarter. In a given quarter, a number of factors can adversely affect our revenues and results, including changes in our product mix, increased fixed expenses per unit due to reductions in the number of products manufactured, and higher fixed costs due to increased levels of research and development and expansion of our worldwide sales and marketing organization. Axcelis' financial results also fluctuate based on gross profit realized on sales. A variety of factors may cause gross profit as a percentage of revenue to vary, including the mix and average selling prices of products sold, costs to manufacture and customize systems and warranty costs. New product introductions may also affect our gross margins. Due to the foregoing factors, we believe that investors should not rely on period-to-period comparisons of our operating results as an indicator of our future performance.

Our financial results may fall short of anticipated levels; forecasting revenues and profitability is complex and may be inaccurate.

Management typically provides financial forecasts for the subsequent quarter in the earnings release for each quarter. These forecasts when made are based on assumptions believed to be reasonable when made of shipment timing and contract terms. However, in some cases, the final customer terms may not have been agreed and documented at the time the forecast is made, so the level of revenues recognizable in a particular quarter may vary from the forecast. Our lengthy sales cycle, coupled with customers' competing capital budget considerations, make the timing of customer orders uneven and difficult to predict. In addition, our backlog at the beginning of a quarter typically does not include all orders required to achieve our sales objectives for that quarter and is not a reliable indicator of our future sales. As a result, our revenues and operating results for a quarter depend on our shipping orders as scheduled during that quarter, receiving customer acceptance of shipped products during the quarter, and obtaining new orders for products to be shipped in that same quarter. Any delay in, or cancellation of, scheduled shipments and customer acceptances or in shipments from new orders could materially and adversely affect our financial results.

The SEC's Staff Accounting Bulletin 104, addressing revenue recognition, has added additional complexity in forecasting quarterly revenues and profitability. Orders for our products usually contain multiple delivery elements that result in revenue deferral under generally accepted accounting principles. Due to the foregoing factors, investors should understand that our actual financial results for a quarter may vary significantly from our forecasts of financial performance for that quarter. Failure to meet forecast financial performance may have an adverse effect on the price of our common stock.

The semiconductor industry is highly cyclical and we expect that demand for our products will regularly increase and decrease, making it difficult to manage the business and potentially causing harm to our sales and profitability.

The semiconductor business is highly cyclical, experiencing upturns when the demand for our products is high and downturns when our customers are not investing in new or expanded fabrication facilities. Our revenues can vary significantly from one point in the cycle to another, making it difficult to manage the business, both when revenues are increasing and when they are decreasing. In addition, a substantial portion of our operating expenses are fixed and do not fluctuate with changes in volume. Significant decreases in revenues can therefore have a disproportionate effect on profitability.

Oversupply in the semiconductor industry reduces demand for capital equipment, including our products.

From time to time, inventory buildups in the semiconductor industry, resulting in part from periodic downturns, produce an oversupply of semiconductors. This will cause semiconductor manufacturers to revise capital spending plans, resulting in reduced demand for capital equipment such as our products. If an oversupply is not reduced by increasing demand from the various electronics industries that use semiconductors, which we cannot accurately predict, our sales and profitability will be harmed.

If we fail to develop and introduce reliable new or enhanced products and services that meet the needs of semiconductor manufacturers, our results will suffer.

Rapid technological changes in semiconductor manufacturing processes require us to respond quickly to changing customer requirements. Our future success will depend in part upon our ability to develop, manufacture and successfully introduce new systems and product lines with improved capabilities and to continue to enhance existing products, including products that process 300 millimeter wafers using a single wafer platform. This will depend upon a variety of factors, including new product selection, timely and efficient completion of product design and development and of manufacturing and assembly processes, product performance in the field and effective sales and marketing. In particular:

- We must develop the technical specifications of competitive new systems, or enhancements to our existing systems, and manufacture and ship these systems or enhancements in volume in a timely manner.
- We will need to accurately predict the schedule on which our customers will be ready to transition to new products, in order to accurately forecast demand for new products while managing the transition from older products.
- We will need to effectively manage product reliability or quality problems that often exist with new systems, in order to avoid reduced orders, higher manufacturing costs, delays in acceptance and payment and additional service and warranty expenses.
- Our new products must be accepted in the marketplace.

Our failure to meet any of these requirements will have a material adverse effect on our operating results and profitability.

If we are unable to gain market share in the 300 millimeter single wafer high current ion implant market, in a timely way, our results will suffer.

Our future success will depend in large part upon our ability to successfully introduce and gain market share with our new single wafer ion implant system, the Optima HD. The Optima HD will serve the 300 millimeter high current (high dose) market segment of ion implant, which is a substantial portion of the total market opportunity available to Axcelis. Our success will depend upon a variety of factors, including

the existence of customer opportunities for the Optima HD to be selected, timely and efficient completion of product reliability and development and of manufacturing and assembly processes, product performance in the field and effective sales and marketing. In particular:

- The technical specifications of the Optima HD system must be competitive;
- The Optima HD must be manufactured and shipped in volume in a timely manner;
- We must effectively manage any product reliability or quality problems that often exist with new systems, in order to avoid reduced orders, higher manufacturing costs, delays in acceptance and payment and additional service and warranty expenses; and
- The Optima HD must be accepted in the marketplace.

Our failure to meet any of these requirements will have a material adverse effect on our operating results and profitability.

We are late to market with the Optima HD system, so we must compete against established competitive offerings for the high current 300 millimeter ion implant market. Some of our competitors have substantial financial, engineering, manufacturing, marketing and customer service and support resources. In addition, there are smaller, emerging semiconductor equipment companies that are offering or developing single wafer 300 millimeter high current implant systems. We expect our competitors to continue to improve the design and performance of their existing products and processes and to introduce new products and processes with improved price and performance characteristics.

If we fail to compete successfully in the highly competitive semiconductor equipment industry, our sales and profitability will decline.

The market for semiconductor manufacturing equipment is highly competitive and includes companies with substantially greater financial, engineering, manufacturing, marketing and customer service and support resources than we have that may be better positioned to compete successfully in the industry. In addition, there are smaller, emerging semiconductor equipment companies that provide innovative systems with technology that may have performance advantages over our systems. We expect our competitors to continue to improve the design and performance of their existing products and processes and to introduce new products and processes with improved price and performance characteristics. If we are unable to improve or introduce competing products when demanded by the markets, our business will be harmed. In addition, if competitors enter into strategic relationships with leading semiconductor manufacturers covering products similar to those sold or being developed by us, our ability to sell products to those manufacturers may be adversely affected. Finally, if we must lower prices to remain competitive without commensurate cost of goods savings, our gross margins and profitability will be adversely affected.

We have been dependent on sales to a limited number of large customers; the loss of any of these customers or any reduction in orders from them could materially affect our sales.

Historically, we have sold a significant portion of our products and services to a limited number of fabricators of semiconductor products. For example, in 2006, our top ten customers accounted for 54.9% of our net sales. None of our customers has entered into a long-term agreement requiring it to purchase our products. Although the composition of the group comprising our largest customers has varied from year to year, the loss of a significant customer or any reduction or delays in orders from any significant customer could adversely affect us. The ongoing consolidation of semiconductor manufacturers may also increase the harmful effect of losing one or more significant customers.

Our inability to control our Japanese joint venture may adversely affect our results.

We own 50% of the equity of a Japanese corporation called SEN Corporation, an SHI and Axcelis Company, to which we have granted an exclusive license to manufacture and sell certain multi-wafer and single wafer ion implanters in Japan. Sumitomo Heavy Industries, Ltd., a Japanese manufacturer of industrial machinery and ships, owns the remaining 50% of the equity. SEN's business is subject to the same risks as our business.

Neither Axcelis nor SHI has the right to buy out the other's interest in SEN and the SEN joint venture is perpetual (although SEN's license to use our technology could be terminated by Axcelis or SEN with the approval of Axcelis representatives on the SEN Board, on twelve months notice). Our joint venture agreement with SHI gives both owners veto rights, so that neither of us alone can effectively control SEN. As a result of this joint venture structure, we have less control over SEN management than over our own management. For example, SEN has, from time to time, engaged in unauthorized selling activities outside of Japan in contravention of the license agreement with Axcelis. In addition, given the equal balance of ownership, it is possible that the SEN Board may be unable to reach consensus from time to time, which could delay important decisions or create a deadlock, which could lead to the liquidation of SEN.

In addition, SEN and Axcelis are engaged in an arbitration initiated by Axcelis to establish a basis for setting the royalty for a single wafer, high current ion implant system known as the SHX. In response to Axcelis' arbitration claim, SEN has filed counter claims which Axcelis believes have no merit. In December 2006, SEN and Axcelis jointly appointed a sole arbitrator. The schedule for this arbitration is not yet fixed. We believe that this proceeding will lead to a mutually acceptable royalty-bearing license in favor of Axcelis at a rate similar to that paid by SEN under the existing license agreement. To date, the amount of royalty due to Axcelis for sales of the SHX, computed at such a rate, is not material and, given royalty rates on other SEN products, is not expected to have a material impact on Axcelis' results of operations in future periods.

Historically, Japan has represented approximately 20% of the annual worldwide market for ion implanters. Royalties and income from SEN have been a substantial contribution to our earnings, and a substantial decline in SEN's sales and net income, or a failure of SEN to pay royalties to Axcelis, could have a material adverse effect on our net income. See Item 1. Business—"SEN Corporation, an SHI and Axcelis Company."

Axcelis is subject to the risks of operating internationally and we derive a substantial portion of our revenues from outside the United States, especially from Asia.

We are substantially dependent on sales of our products and services to customers outside the United States. International sales, including export sales from our U.S. manufacturing facilities to non-U.S. customers and sales by our non-U.S. subsidiaries and branches, accounted for 67.1% of total revenue in 2006, 70.4% in 2005, and 77.0% in 2004. System shipments to Asian customers represented 53% of total shipment dollars in 2006 in comparison to 68% of total shipment dollars in 2005. We anticipate that international sales will continue to account for a significant portion of our revenue. Because of our dependence upon international sales, our results and prospects may be adversely affected by a number of factors, including:

- unexpected changes in laws or regulations resulting in more burdensome governmental controls, tariffs, restrictions, embargoes or export license requirements;
- difficulties in obtaining required export licenses;
- volatility in currency exchange rates;
- political and economic instability, particularly in Asia;

- difficulties in accounts receivable collections;
- extended payment terms beyond those customarily offered in the United States;
- difficulties in managing distributors or representatives outside the United States;
- difficulties in staffing and managing foreign subsidiary and branch operations; and
- potentially adverse tax consequences.

We may not be able to maintain and expand our business if we are not able to hire, retain and integrate qualified personnel.

Our business depends on our ability to attract and retain qualified, experienced employees. There is substantial competition for experienced engineering, technical, financial, sales and marketing personnel in our industry. In particular, we must attract and retain highly skilled design and process engineers. Competition for such personnel is intense, particularly in the Boston metropolitan area, as well as in other locations around the world. If we are unable to retain our existing key personnel, or attract and retain additional qualified personnel, we may from time to time experience levels of staffing inadequate to develop, manufacture and market our products and perform services for our customers. As a result, our growth could be limited or we could fail to meet our delivery commitments or experience deterioration in service levels or decreased customer satisfaction, all of which could adversely affect our financial results.

Our dependence upon a limited number of suppliers for many components and sub-assemblies could result in increased costs or delays in the manufacture and sale of our products.

We rely to a substantial extent on outside vendors to manufacture many of the components and sub-assemblies of our products. We obtain many of these components and sub-assemblies from either a sole source or a limited group of suppliers. Accordingly, we may be unable to obtain an adequate supply of required components on a timely basis, on price and other terms acceptable to us; or at all.

In addition, we often quote prices to our customers and accept customer orders for our products before purchasing components and sub-assemblies from our suppliers. If our suppliers increase the cost of components or sub-assemblies, we may not have alternative sources of supply and may not be able to raise the price of our products to cover all or part of the increased cost of components.

The manufacture of some of these components and sub-assemblies is an extremely complex process and requires long lead times. As a result, we have in the past and may in the future experience delays or shortages. If we are unable to obtain adequate and timely deliveries of our required components or sub-assemblies, we may have to seek alternative sources of supply or manufacture these components internally. This could delay our ability to manufacture or to ship our systems on a timely basis, causing us to lose sales, incur additional costs, delay new product introductions and suffer harm to our reputation.

Our international operations involve currency risk.

Substantially all of our sales are billed in U.S. dollars, thereby reducing the impact of fluctuations in foreign exchange rates on our results. Operating margins of certain foreign operations can fluctuate with changes in foreign exchange rates to the extent revenues are billed in U.S. dollars and operating expenses are incurred in the local functional currency. During the year ended December 31, 2006, approximately 67.1% of our revenues were derived from foreign operations with this inherent risk. In addition, at December 31, 2006, our operations outside of the United States accounted for approximately 29% of our total assets, the majority of which was denominated in currencies other than the U.S. dollar. Our investment in SEN and our royalty and equity income from SEN are subject to foreign currency exchange

risks. We use forward contracts to hedge the risk of currency fluctuation with respect to SEN royalties for which payment is received in Japanese yen.

We may be unable to obtain needed additional capital.

Our capital requirements may vary widely from quarter to quarter, depending on, among other things, capital expenditures, fluctuations in our operating results, financing activities, acquisitions and investments and inventory and receivables management. At December 31, 2006, we held outstanding convertible debt in the principal amount of approximately $150 million, of which $74.2 million was repaid in January 2007, and $76.9 million becomes due in January 2009. We believe that our existing cash and cash equivalents and marketable securities will be sufficient to satisfy our anticipated cash requirements through the end of 2007. This, of course, depends on the accuracy of our assumptions about levels of sales and expenses, and a number of factors, including those described in these "Risk Factors," could cause us to require additional capital from external sources. In addition, in the future, we may require or choose to obtain additional debt or equity financing in order to finance acquisitions or other investments in our business. Depending on market conditions, future debt or equity financings may not be possible on attractive terms or at all. In addition, future debt or equity financings could be dilutive to the existing holders of our common stock and convertible notes.

Our stock price could be volatile and you could lose the value of your investment.

Our stock price has been volatile and has fluctuated significantly to date. The trading price of our stock is likely to continue to be highly volatile and subject to wide fluctuations. Your investment in our stock could lose value. Some of the factors that could significantly affect the market price of our stock include:

- actual or anticipated variations in results;
- analyst reports or recommendations;
- changes in interest rates; and
- other events and factors, many of which are beyond our control.

The stock market in general and Nasdaq and technology companies in particular have experienced extreme price fluctuations.

Our proprietary technology may be vulnerable to efforts by competitors to challenge or design around, potentially reducing our market share.

We rely on a combination of patents, copyrights, trademark and trade secret laws, non-disclosure agreements and other intellectual property protection methods to protect our proprietary technology. Despite our efforts to protect our intellectual property, our competitors may be able to legitimately ascertain the non-patented proprietary technology embedded in our systems. If this occurs, we may not be able to prevent their use of this technology. Our means of protecting our proprietary rights may not be adequate and our patents may not be sufficiently broad to prevent others from using technology that is similar to or the same as our technology. In addition, patents issued to us have been, or might be challenged, and might be invalidated or circumvented and any rights granted under our patents may not provide adequate protection to us. Our competitors may independently develop similar technology, duplicate features of our products or design around patents that may be issued to us. As a result of these threats to our proprietary technology, we may have to resort to costly litigation to enforce or defend our intellectual property rights. Finally, all patents expire after a period of time (in the U.S., patents expire 20 years from the date of filing of the patent application). Our market share could be negatively impacted by the expiration of a patent which had created a barrier for our competitors.

Axcelis also has agreements with third parties for licensing of patented or proprietary technology with Axcelis as the licensor or the licensee. These agreements include royalty-bearing licenses and technology cross-licenses. Termination of license agreements could have an adverse impact on our financial performance or ability to ship products with existing configurations.

We or customers that we indemnify might face intellectual property infringement claims or patent disputes that may be costly to resolve and, if resolved against us, could be very costly to us and prevent us from making and selling our systems.

From time to time, claims and proceedings have been or may be asserted against us relative to patent validity or infringement matters. We typically agree to indemnify our customers from liability to third parties for intellectual property infringement arising from the use of our products in their intended manner. Therefore, we occasionally receive notification from customers who believe that we owe them indemnification or other obligations related to infringement claims made against the customers by third parties. Our involvement in any patent dispute or other intellectual property dispute or action to protect trade secrets, even if the claims are without merit, could be very expensive to defend and could divert the attention of our management. Adverse determinations in any litigation could subject us to significant liabilities to third parties, require us to seek costly licenses from third parties and prevent us from manufacturing and selling our systems. In addition, infringement indemnification clauses in system sale agreements may require us to take other actions or require us to provide certain remedies to customers who are exposed to indemnified liabilities. Any of these situations could have a material adverse effect on our business results.

If operations were disrupted at Axcelis' primary manufacturing facility it would have a negative impact on our business.

We have one primary manufacturing facility, located in Massachusetts. Its operations could be subject to disruption for a variety of reasons, including, but not limited to natural disasters, work stoppages, operational facility constraints and terrorism. Such disruption could cause delays in shipments of products to our customers and could result in cancellation of orders or loss of customers, which could seriously harm our business.

Item 1B. Unresolved Staff Comments.

None.

Item 2. Properties.

We have a total of 56 properties, of which 18 are located in the United States and the remainder are located in Asia and Europe, including offices in Taiwan, Singapore, South Korea, China, Japan, Malaysia, Italy, Netherlands, Germany and France. Of these properties, one is owned and 55 are leased.

Our principal facilities are listed below:

Facility Location	Principal Use	Square Footage (Owned/Leased)
Beverly, Massachusetts	Manufacturing, research and development, sales/marketing, customer support, advanced process development, product demonstration, customer-training center and corporate headquarters.	417,000 (owned)
Rockville, Maryland	Research and development, marketing and customer support.	89,000 (leased)

Our Japanese joint venture manufactures ion implantation products in a 300,000 square foot owned facility located in Saijo, Japan.

During 2005, we consolidated the administrative offices, development, and customer support operations of our Cleaning and Curing product group, based in Rockville, Maryland, into our headquarters and manufacturing facility located in Beverly, Massachusetts. The consolidation was part of our ongoing initiative to reduce our fixed cost infrastructure and to enhance profitability and cash flow. We continue to occupy approximately 22,000 square feet of the Rockville, Maryland facility. At December 31, 2006, approximately 9,000 square feet of the Rockville, Maryland facility has been subleased and 58,000 square feet is unoccupied. This Rockville lease and sublease will expire in 2007.

We believe that there is no material long-term, excess capacity in our manufacturing facilities, although utilization is subject to change based on customer demand. We believe that our manufacturing facilities and equipment generally are well maintained, in good operating condition, suitable for our purposes, and adequate for our present operations. Our Beverly, Massachusetts and Rockville, Maryland facilities are ISO 9001 and ISO 14001 certified and all locations are ISO 9001 certified.

Item 3. Legal Proceedings.

We are not a party to any material legal proceedings.

Item 4. Submission of Matters to a Vote of Security Holders.

None.

PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities.

Our common stock trades on the Nasdaq stock market under the symbol ACLS. The following table sets forth the high and low closing sale prices as reported on the Nasdaq stock market during each of the quarters for the two most recent years. As of March 13, 2007, we had approximately 6,455 stockholders of record. We have not paid any cash dividends in the past five years and do not anticipate paying cash dividends in the future.

	Common Stock Price	
	High	Low
2005		
First quarter	$9.35	$6.79
Second quarter	7.96	5.49
Third quarter	7.48	5.12
Fourth quarter	5.87	4.12
2006		
First quarter	$8.00	$4.78
Second quarter	7.02	5.31
Third quarter	7.04	5.21
Fourth quarter	7.71	5.70

Item 6. Selected Financial Data.

The following selected consolidated statements of operations data for each of the three years ended December 31, 2006, 2005, and 2004 and the consolidated balance sheet data as of December 31, 2006 and 2005 have been derived from the audited consolidated financial statements contained in Item 15 of Part IV of this Form 10-K. The selected consolidated balance sheet data as of December 31, 2004 and 2003, and the statement of operations data for the years ended December 31, 2003 and 2002, has been derived from the audited financial statements contained in our Form 10-K filed on March 15, 2005. The consolidated balance sheet data as of December 31, 2002 has been derived from the audited financial statements contained in our Form 10-K filed on March 28, 2003.

The historical financial information set forth below may not be indicative of our future performance and should be read together with "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our historical consolidated financial statements and notes to those statements included in Item 7 of Part II and Item 15 of Part IV, respectively of this Form 10-K.

	Years ended December 31,				
	2006	2005	2004	2003	2002
	(in thousands, except per share amounts)				
Consolidated statements of operations data					
Revenue	$461,717	$372,540	$507,976	$ 327,990	$318,084
Gross profit	191,514	154,431	211,528	110,368	112,344
Equity income of SEN	19,266	15,751	30,531	8,954	4,806
Income (loss) before income taxes	42,783	(1,982)	75,139	(44,341)	(49,743)
Net income (loss)	40,770	(3,855)	74,175	(113,876)	(26,150)
Net income (loss) per share					
Basic	$ 0.40	$ (0.04)	$ 0.75	$ (1.16)	$ (0.27)
Diluted	$ 0.40	$ (0.04)	$ 0.73	$ (1.16)	$ (0.27)
Shares used in computing basic and diluted per share amounts					
Basic	101,058	100,301	99,528	98,514	97,920
Diluted	101,361	100,301	101,205	98,514	97,920
Consolidated balance sheet data					
Cash and cash equivalents	$140,451	$ 71,417	$108,295	$ 65,749	$146,298
Working capital	284,910	301,143	298,184	231,537	293,340
Total assets	753,993	661,443	688,862	585,244	668,752
Long-term liabilities	86,290	141,176	137,994	134,023	135,063
Stockholders' equity	477,562	426,041	443,473	353,250	452,508

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations.

Certain statements in "Management's Discussion and Analysis of Financial Condition and Results of Operations" are forward-looking statements that involve risks and uncertainties. Words such as may, will, should, would, anticipates, expects, intends, plans, believes, seeks, estimates and similar expressions identify such forward-looking statements. The forward-looking statements contained herein are based on current expectations and entail various risks and uncertainties that could cause actual results to differ materially from those expressed in such forward-looking statements. Factors that might cause such a difference include, among other things, those set forth under "Liquidity and Capital Resources" and "Risk Factors" and those appearing elsewhere in this Form 10-K. Readers are cautioned not to place undue reliance on these forward-looking statements, which reflect management's analysis only as of the date hereof. We assume no obligation to update these forward-looking statements to reflect actual results or changes in factors or assumptions affecting forward-looking statements.

Overview

Axcelis Technologies, Inc. ("Axcelis," "we," "us," or "our"), is a worldwide producer of ion implantation, dry strip, thermal processing and curing equipment used in the fabrication of semiconductors. In addition, we provide extensive aftermarket service and support, including spare parts, equipment upgrades, and maintenance services. We own 50% of the equity of a joint venture known as SEN Corporation, an SHI and Axcelis Company, or "SEN" with Sumitomo Heavy Industries, Ltd. in Japan. SEN licenses technology from us relating to the manufacture of specified ion implantation products and has exclusive rights to manufacture and sell these products in the territory of Japan. SEN is the leading producer of ion implantation equipment in Japan.

The semiconductor capital equipment industry has in the past been subject to significant cyclical swings in capital spending by semiconductor manufacturers. Capital spending is influenced by demand for semiconductors and the products using them, the utilization rate and capacity of existing semiconductor manufacturing facilities and changes in semiconductor technology, all of which are outside of our control. As a result, our revenues and gross margins, to the extent affected by increases or decreases in volume, could fluctuate from year to year and period to period. Our gross margins are also affected by the introduction of new products. We typically become more efficient in manufacturing products as they mature. For example, our gross margins in 2002, 2003 and 2004 were adversely affected in part as a result of the increased proportion of relatively new systems sold to process 300mm wafers. We expect gross margins to continue to be under substantial pressure in 2007 due to sales of our new single wafer implant products. Our expense base is largely fixed and does not vary significantly with changes in volume. Therefore, we could experience fluctuations in operating results and cash flows depending on our revenues as driven by the level of capital expenditures by semiconductor manufacturers.

The sizable expense of building, upgrading or expanding a semiconductor fabrication facility is increasingly causing semiconductor companies to contract with foundries to manufacture their semiconductors. In addition, consolidation and partnering within the semiconductor manufacturing industry is increasing. We expect these trends to continue to reduce the number of our potential customers. This growing concentration of Axcelis' customers may increase competitive pricing as higher percentages of our total revenues are tied to the buying decisions of a particular customer or a small number of customers.

The years 2005 and 2006 were transition years in implant products and technology. While customers continue to buy multi-wafer tools, many customers have shifted primarily to single wafer tools for high current applications. Because we did not have a single wafer high current product we experienced a significant loss of market share in 2005. We introduced our single wafer Optima MD product in 2005 and our single wafer Optima HD product in 2006. Throughout 2005 and 2006, we began shipping these

products for medium and high current applications. Our single wafer tool for high energy applications is scheduled to be released in the second half of 2007. These new single wafer products are expected to enable us to regain market share in 2007 and future years.

Axcelis accesses the important Japanese market for certain ion implant systems through a joint venture (known as "SEN") with Sumitomo Heavy Industries, Ltd. that we do not control. The joint venture agreement gives both owners veto rights, so that neither owner alone can effectively control SEN. SEN's business is subject to the same risks as our business. Royalties and equity income from SEN have made a substantial contribution to our earnings, and a substantial decline in SEN's sales and net income could have a material adverse effect on our operating results. As a result of this joint venture structure, we have less control over SEN management than over our own management and may not have timely knowledge of factors affecting SEN's business. In addition, given the equal ownership, it is possible that the SEN Board may be unable to reach consensus on important matters from time to time which could delay important decisions or create a deadlock, which could lead to the liquidation of SEN. See Item 1. Business—"SEN Corporation, an SHI and Axcelis Company."

In addition, SEN and Axcelis are engaged in an arbitration initiated by Axcelis to establish a basis for setting the royalty for a single wafer, high current ion implant system known as the SHX. See Item 1. Business—"SEN Corporation, an SHI and Axcelis Company." In response to Axcelis' arbitration claim, SEN has filed counter claims which Axcelis believes have no merit. In December 2006, SEN and Axcelis jointly appointed a sole arbitrator. The schedule for this arbitration is not yet fixed. We believe that this proceeding will lead to a mutually acceptable royalty-bearing license in favor of Axcelis at a rate similar to that paid by SEN under the existing license agreement. To date, the amount of royalty due to Axcelis for sales of the SHX, computed at such a rate, is not material and, given royalty rates on other SEN products, is not expected to have a material impact on Axcelis' results of operations in future periods.

Operating results for the future years presented are not necessarily indicative of the results that may be expected for other interim periods or for the year as a whole.

Critical Accounting Estimates

Management's discussion and analysis of our financial condition and results of operations are based upon Axcelis' consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States. The preparation of these financial statements requires management to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses, and related disclosure of contingent assets and liabilities. On an on-going basis, we evaluate our estimates, including those related to revenue recognition, income taxes, accounts receivable, inventory and warranty obligations. Management's estimates are based on historical experience and on various other assumptions that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

We believe the following accounting policies are critical in the portrayal of our financial condition and results of operations and require management's most significant judgments and estimates in the preparation of our consolidated financial statements.

Revenue Recognition

Axcelis' revenue recognition policy involves significant judgment by management. As described in detail below, we consider a broad array of facts and circumstances in determining when to recognize revenue, including contractual obligations to the customer, the complexity of the customer's post delivery acceptance provisions, payment history, customer creditworthiness and the installation process. In the

future, if the post delivery acceptance provisions and installation process become more complex or result in a materially lower rate of acceptance, we may have to revise our revenue recognition policy, which could delay the timing of revenue recognition.

Axcelis' revenue transactions include sales of products under multiple element arrangements. Revenue under these arrangements is allocated to each element, except systems, based upon its estimated fair market value. The amount of revenue allocated to systems is calculated on a residual method. Under this method, the total value of the arrangement is allocated first to the undelivered elements, with the residual amount being allocated to systems revenue. The value of the undelivered elements includes (a) the greater of (i) the fair value of the installation or (ii) the portion of the sales price that will not be received until the installation is completed (the "retention") plus (b) the fair value of all other undelivered elements. The amount allocated to installation is based upon the fair value of the service performed, including labor, which is based upon the estimated time to complete the installation at hourly rates, and material components. The fair value of all other undelivered elements is based upon the price charged when these elements are sold separately. System revenue is generally recognized upon shipment provided title and risk of loss has passed to the customer, evidence of an arrangement exists, prices are contractually fixed or determinable, collectibility is reasonably assured through historical collection results and regular credit evaluations, and there are no uncertainties regarding customer acceptance. Revenue from installation services is recognized at the time formal acceptance is received from the customer or, for certain customers, when both the formal acceptance and retention payment have been received. Revenue for other elements is recognized at the time products are shipped or the related services are performed.

Management continues to believe recognition of systems revenue at the time of shipment is appropriate because the customer's post delivery acceptance provisions and installation process have been established to be routine, commercially inconsequential and perfunctory. The majority of Axcelis' systems are designed and tailored to meet the customer's specifications, as outlined in the contract between the customer and Axcelis, which may be the Axcelis standard specification. To ensure that the customer's specifications are satisfied, many customers request that newer systems be tested at Axcelis' facilities prior to shipment, normally with the customer present, under conditions that substantially replicate the customer's production environment and the customer's criteria are confirmed to have been met. Customers of mature products generally do not require pre-shipment testing. We believe the risk of failure to complete a system installation is remote. Should an installation not be completed successfully, the contractual provisions do not provide for forfeiture, refund or other purchase price concession beyond those prescribed by the provisions of the Uniform Commercial Code applicable generally to such transactions.

In the small number of instances where Axcelis is unsure of meeting the customer's specifications or obtaining customer acceptance upon shipment of the system or for initial shipments of systems with new technologies, Axcelis will defer the recognition of systems revenue and related costs until written customer acceptance of the system is obtained. This deferral period is generally within twelve months of shipment.

Services revenue includes revenue from spare parts, equipment upgrades and maintenance services. Revenue related to maintenance and service contracts is recognized ratably over the duration of the contracts, or based on parts usage, where appropriate. Revenue related to time and material services is recognized when the services are performed. Revenue related to spare parts sales and equipment upgrades is recognized upon the later of shipment or when the title and risk of loss passes to the customer.

Goodwill and Other Intangible Assets

We account for acquisitions under the purchase method of accounting pursuant to Statement of Financial Accounting Standard (SFAS) No. 141, "Business Combinations." Goodwill represents the excess of cost over net assets, including all identifiable intangible assets, of acquired businesses. Pursuant to SFAS

No. 142, "Goodwill and Other Intangible Assets," goodwill is not amortized. Other intangible assets that are separable from goodwill and have determinable useful lives are valued separately and amortized over their useful lives. Such other identifiable intangible assets consist mainly of developed technology and are generally amortized over periods ranging from five to ten years.

We perform an annual impairment review of goodwill. Impairment reviews may be performed more frequently if there are other indicators of impairment. The annual impairment test consists of determining the fair market value of the business unit through a discounted cash flow analysis. Management's best judgments are employed in determining future market conditions that impact this discounted cash flow analysis. As a result of our annual review conducted as of December 31, 2006, we determined that there was no impairment of our goodwill. If we determine through the impairment review process that goodwill has been impaired, we would record the impairment charge in our statement of operations as a non-cash charge to earnings.

We assess the impairment of intangible assets, other than goodwill, whenever events or changes in circumstances indicate that the carrying value may not be recoverable. Factors we consider important that could trigger an impairment review include the following:

- a significant underperformance relative to expected operating results;
- a significant change in the manner of our use of the acquired asset or the strategy for our overall business;
- a significant negative industry or economic trend; and
- a significant decrease in our market capitalization relative to net book value.

As part of this assessment, we review the expected future undiscounted cash flows to be generated by the assets. If we determine that the carrying value of intangibles may not be recoverable, we measure any impairment based on a projected discounted cash flow method using a discount rate determined by our management to be commensurate with the risk inherent in our current business model.

Accounts Receivable—Allowance for Doubtful Accounts

Axcelis records an allowance for doubtful accounts for estimated losses resulting from the inability of its customers to make required payments. If the financial condition of Axcelis' customers were to deteriorate, resulting in an impairment of their ability to make payments, additional allowances may be necessary.

Inventory—Allowance for Excess and Obsolescence

Axcelis records an allowance for estimated excess and obsolete inventory. The allowance is determined using management's assumptions of materials usage, based on estimates of forecasted and historical demand and market conditions. If actual market conditions become less favorable than those projected by management, additional inventory write-downs may be required.

Product Warranty

Axcelis offers a one to three year product warranty, the terms and conditions of which vary depending upon the product sold. For all systems sold, we accrue a liability for the estimated cost of standard warranty at the time of system shipment and defer the portion of systems revenue attributable to the fair value of non-standard warranty. Costs for non-standard warranty are expensed as incurred. Factors that affect our warranty liability include the number of installed units, historical and anticipated product failure rates, material usage and service labor costs. We periodically assess the adequacy of our recorded liability and adjust the amount as necessary.

Results of Operations

The following table sets forth our results of operations as a percentage of total revenues for the periods indicated:

	Years Ended December 31,		
	2006	2005	2004
Revenue			
Systems	59.8%	55.3%	64.3%
Services	38.2	42.3	32.9
Royalties, primarily from SEN	2.0	2.4	2.8
	100.0	100.0	100.0
Cost of revenue	58.5	58.5	58.4
Gross profit	41.5	41.5	41.6
Operating expenses			
Research and development	15.7	19.0	12.4
Sales and marketing	9.9	12.0	9.4
General and administrative	10.1	12.2	9.1
Amortization of intangible assets	0.5	0.7	0.5
Restructuring charges	0.1	1.7	0.2
	36.3	45.7	31.6
Income (loss) from operations	5.2	(4.3)	10.1
Other income (expense)			
Equity income of SEN	4.2	4.2	6.0
Interest income	1.8	1.5	0.4
Interest expense	(1.9)	(1.8)	(1.3)
Other—net	(0.1)	(0.2)	(0.4)
	4.0	3.7	4.7
Income (loss) before income taxes	9.2	(0.5)	14.8
Income taxes	0.4	0.5	0.2
Net income (loss)	8.8%	(1.0)%	14.6%

Year ended December 31, 2006 in comparison to the year ended December 31, 2005

Revenue

Systems revenue was $276.3 million, or 59.8% of revenue in 2006, compared with $206.1 million, or 55.3% of revenue, in 2005. The increase in sales of systems compared with 2005 was primarily attributable to stronger market demand resulting from higher levels of chip production by our semiconductor manufacturing customers. While overall systems revenue increased in 2006, the shift by semiconductor manufacturers from our multi-wafer high current ion implant systems to single wafer high current ion implant systems had an adverse, though not quantifiable, impact on systems revenue. The high current

segment constitutes approximately fifty percent of the worldwide ion implant market. Our first shipment of our new single wafer high dose ion implant system occurred in 2006. We began shipping our new mid dose single wafer ion implant system in 2005, and recognized revenue on multiple shipments during the year.

Approximately 42.2% of systems revenue in 2006 was from sales of 200mm products and 57.8% was from sales of 300mm products, compared with 42.3% and 57.7% for sales of 200mm products and 300mm products in 2005, respectively. Market trends for the past several years highlight the growth in sales toward 300mm products and the decrease in expansion of facilities using 200mm products.

Revenue from sales of ion implantation products and services accounted for $342.9 million or 74.3% of total revenue in 2006, compared with $297.3 million, or 79.8%, of total revenue in 2005. Ion implantation continues to be our largest product category.

As described above in "Revenue Recognition," a portion of our systems revenue is deferred until installation and other services related to future deliverables are performed. The total amount of deferred revenue at December 31, 2006 and 2005 was $33.9 million and $41.3 million, respectively.

Services revenue, which includes spare parts, equipment upgrades, and maintenance services, was $176.2 million, or 38.2% of revenue for 2006, compared with $157.6 million, or 42.3% of revenue for 2005. Services revenue fluctuates with capacity utilization by our customers, and the increase in services revenue for 2006 is attributable to a continually expanding installed base of our products and increasing utilization by semiconductor manufacturers.

Royalty revenue was $9.2 million, or 2.0% of revenue for 2006, compared with $8.8 million, or 2.4% of revenue for 2005. Royalties are primarily earned under the terms of our license agreement with SEN. Revenue changes are mainly attributed to fluctuations in SEN sales volume based on demand for equipment by Japanese semiconductor manufacturers and the timing of shipments in Japan.

Gross Profit

Gross profit was 41.5% of revenue in 2006 compared with 41.5% of revenue in 2005. The gross profit performance compared to 2005 was the result of favorable systems volume, mix and deferrals (approximately 1.9 percentage points), favorable operating overheads (approximately 1.7 percentage points), offset by proportionately lower 100% margin SEN royalties (approximately 0.4 percentage points), proportionately lower parts and service volume (approximately 2.5 percentage points), and lower margins associated with new products (approximately 0.7 percentage points).

Research and Development

Research and development expense was $72.4 million in 2006, an increase of $1.5 million, or 2.1%, as compared with $70.9 million in 2005. The increase was driven primarily by expenses associated with an increase of project-driven headcount ($3.7 million), variable compensation payouts ($2.2 million) and stock option expense ($0.8 million). These cost increases were partially offset by lower costs associated with project material ($2.2 million), development asset amortization and depreciation ($1.8 million) and in-process research and development expense in 2005 related to the Diamond Semiconductor Group acquisition ($1.5 million). Increases in overall research and development expenses in 2006 compared with 2005 are attributable principally to development efforts related to our single wafer Optima platform.

Research and development expense involved the following activities in 2006; 63% for new product development, 25% for improvement of existing products, and 12% for product testing.

Sales and Marketing

Sales and marketing expense was $45.5 million in 2006, an increase of $0.7 million, or 1.6%, as compared with $44.8 million in 2005. This increase was driven primarily by higher commission ($1.6 million) and variable compensation ($0.9 million) expenses. These cost increases were partially offset by lower payroll ($1.1 million) and amortization/depreciation ($.8 million) expenses.

General and Administrative

General and administrative expense was $46.6 million in 2006, an increase of $1.0 million, or 2.2%, as compared with $45.6 million in 2005. This increase was driven primarily by higher costs associated with variable compensation ($3.6 million) and stock compensation ($1.9 million) offset by reduced costs associated with the consolidation of our Rockville, Maryland operations into our headquarters and manufacturing facility located in Beverly, Massachusetts ($2.3 million) and lower lease, travel, utilities, sales tax and insurance expense ($1.6 million).

Stock-based Compensation Expense

During the first quarter of fiscal 2006, we adopted the Financial Accounting Standards Board's Statement of Financial Accounting Standards No. 123 (revised 2004), *Share-Based Payment,* or SFAS 123R, using the modified prospective application method. The effect of adopting SFAS 123R was to reduce net income for the year ended December 31, 2006 by $3.3 million ($0.03 on basic and diluted earnings per share).

Total stock-based compensation expense related to stock options, restricted stock, restricted stock units and the Employee Stock Purchase Plan for the year ended December 31, 2006 was $5.5 million. Stock-based compensation expense recognized for restricted stock and restricted stock units for the year ended December 31, 2005 was $1.1 million.

See Note 15 to our Consolidated Financial Statements contained in Item 15 of this Annual Report on Form 10-K for further information regarding our adoption of SFAS 123R.

Restructuring

For the year ended December 31, 2006, the Company recorded restructuring charges of $0.7 million, primarily related to a reevaluation of the assumptions used in determining the fair value of certain lease obligations related to facilities abandoned in a previous restructuring. The revised assumptions, including lower estimates of expected sub-rental income over the remainder of the lease terms and expected lease termination costs associated with exiting a portion of the facilities, are based on management's evaluation of the commercial rental market. The above mentioned charges are net of a credit of $0.3 million to previously recognized restructuring charges relating primarily to the adjustment for severance and other one-time termination benefits associated with reduction in force actions and the consolidation of the Company's Rockville, Maryland operations into its headquarters and manufacturing facility located in Beverly, Massachusetts. In addition to the amounts reported as restructuring charges, $0.3 million of relocation and other incremental expenses related to the consolidation of the Rockville, Maryland operations are included in general and administrative expense for the year ended December 31, 2006.

In total, the Company incurred approximately $13.4 million in restructuring and general and administrative expenses related to these actions, all of which has been recognized in the statement of income since the fourth quarter of 2004. Of the total cost related to these actions, approximately $12.4 million is expected to result in cash expenditures, of which $11.3 million has been paid through December 31, 2006. Leases are expected to be paid over the remaining lease periods extending to 2007.

The impact of these cost reductions on our liquidity has not been significant, as management estimates these actions have yielded equivalent cash savings.

Changes in the Company's restructuring liability are as follows:

	Severance	Retention	Leases	Total
		(in thousands)		
Balance at December 31, 2005	$ 636	$120	$ 1,264	$ 2,020
Restructuring expense (credit)	(287)	(51)	1,020	682
Cash payments	(349)	(69)	(1,160)	(1,578)
Balance at December 31, 2006	$ —	$ —	$ 1,124	$ 1,124

Other Income (Expense)

Equity income attributable to SEN was $19.3 million in 2006 compared to $15.8 million in 2005. Fluctuations in equity contributions from SEN reflect changes in its sales volume and net income resulting from demand changes in the Japanese semiconductor market, and the timing of shipments in Japan.

Interest income of $8.4 million primarily relates to interest earned on cash, cash equivalents and short-term investments. Interest income increased by $2.9 million from 2005 due primarily to higher interest rates earned on invested balances and an increase in average cash balances compared to 2005, most of which came from the issuance of an additional $24.2 million of convertible senior subordinated notes on May 2, 2006.

Interest expense of $9.1 million in 2006 and $6.6 million in 2005 primarily relates to our long-term debt issued in January 2002. The increase of $2.5 million relates primarily to our issuance of an additional $24.2 million of convertible senior subordinated notes on May 2, 2006 which contain an effective yield to maturity of approximately 8%.

Income Taxes

Income tax expense for 2006 was $2.0 million. Income tax expense relates principally to operating results of foreign entities in jurisdictions, principally in Asia, where we earn taxable income. We have significant net operating losses in the United States and certain foreign tax jurisdictions, principally Europe, and, as a result, do not pay significant income taxes in those jurisdictions nor have the ability to obtain tax benefit for such losses. Accordingly, our effective income tax rate is not meaningful.

Year ended December 31, 2005 in comparison to the year ended December 31, 2004

Revenue

Systems revenue was $206.1 million, or 55.3% of revenue in 2005, compared with $326.5 million, or 64.3% of revenue, in 2004. The decrease in sales of systems compared with 2004 was primarily attributable to weaker market demand resulting from lower levels of chip production by our semiconductor manufacturing customers. Also, while the effect is not yet quantifiable, systems revenue also declined because semiconductor manufacturers shifted away from our multi-wafer high current ion implant systems to single wafer high current ion implant systems.

Approximately 42.3% of systems revenue in 2005 was from sales of 200mm products and 57.7% were from sales of 300mm products, compared with 61.6% and 38.4% for sales of 200mm products and 300mm products in 2004, respectively.

Services revenue, which includes spare parts, equipment upgrades, and maintenance services, was $157.6 million, or 42.3% of revenue for 2005, compared with $167.0 million, or 32.9% of revenue for 2004.

Services revenue fluctuates with capacity utilization by our customers, and the decline in services revenue for 2005 is attributable to declining utilization by semiconductor manufacturers.

As described above in "Revenue Recognition," a portion of our systems revenue is deferred until installation and other services related to future deliverables are performed. The total amount of deferred revenue at December 31, 2005 and 2004 was $41.3 million and $41.7 million, respectively.

Royalty revenue was $8.8 million, or 2.4% of revenue for 2005, compared with $14.4 million, or 2.8% of revenue for 2004. Royalties are primarily earned under the terms of our license agreement with SEN. Revenue changes are mainly attributed to fluctuations in SEN sales volume based on demand for equipment by Japanese semiconductor manufacturers and the timing of shipments in Japan.

Revenue from sales of ion implantation products and services accounted for $297.3 million, or 79.8% of total revenue in 2005, compared with $412.3 million, or 81.2%, of total revenue in 2004.

Gross Profit

Gross profit was 41.5% of revenue in 2005 compared with 41.6% of revenue in 2004. The gross profit decrease of .1 percentage points was the result of unfavorable systems cost and product mix (approximately 2.5 percentage points), unfavorable systems volume (approximately 1.6 percentage points) and 100% margin SEN royalties (approximately .5 percentage points), offset by an increased percentage of parts and service volume and margins (approximately 4.3 percentage points), and lower warranty costs (approximately .3 percentage points).

Research and Development

Research and development expense was $70.9 million in 2005, an increase of $7.7 million, or 12.2%, as compared with $63.2 million in 2004. The increase was driven primarily by expenses associated with the timing of project material usage, supplies and contract labor ($9.4 million) and increased amortization related to manufactured products used in research and development ($1.4 million). These cost increases were partially offset by lower costs associated with variable compensation ($2.2 million) and lower payroll and payroll related expenses ($0.8 million). Increases in overall research and development expenses in 2005 compared with 2004 are attributable to development efforts related to our single wafer Optima platform. Research and development expense was attributable to the following activities in 2005; 60% for new product development, 22% for improvement of existing products, and 18% for product testing.

Sales and Marketing

Sales and marketing expense was $44.8 million in 2005, a decrease of $2.8 million, or 5.9%, as compared with $47.6 million in 2004. This decrease was driven primarily by lower payroll and payroll related expenses associated with reduction in force actions ($2.0 million) and lower commission expense ($0.9 million).

General and Administrative

General and administrative expense was $45.6 million in 2005, a decrease of $0.5 million, or 1.1%, as compared with $46.1 million in 2004. This decrease was driven primarily by lower costs associated with variable compensation ($3.3 million), reduced salary expense ($0.6 million) and reduced supplies costs ($0.8 million) offset by costs associated with the consolidation of our Rockville, Maryland operations into our headquarters and manufacturing facility located in Beverly, Massachusetts ($4.4 million).

Restructuring

Restructuring expense of $6.5 million in 2005 consists primarily of severance and other one-time termination benefits related to reduction in force actions and the consolidation of our Rockville, Maryland operations into our headquarters and manufacturing facility located in Beverly, Massachusetts. We expect to incur $12.4 million in restructuring and general and administrative expenses related to these actions. $12.4 million had been recognized as expense since the fourth quarter of 2004. Of the total cost related to these actions, $9.6 million in cash expenditures had been paid through December 31, 2005.

Changes in our restructuring liability are as follows:

	Severance	Retention	Leases	Leasehold Improvements	Total
			(in thousands)		
Balance at December 31, 2004 ...	$ 724	$ 44	$ —	$ —	$ 768
Restructuring expense	3,263	585	1,924	725	6,497
Cash payments	(3,351)	(509)	(660)	—	(4,520)
Non-cash impairment	—	—	—	(725)	(725)
Balance at December 31, 2005 ...	$ 636	$ 120	$1,264	$ —	$ 2,020

Other Income (Expense)

Equity income attributable to SEN was $15.8 million in 2005 compared to $30.5 million in 2004. Fluctuations in equity contributions from SEN reflect changes in its sales volume and net income resulting from demand changes in the Japanese semiconductor market, and the timing of shipments in Japan.

Interest income of $5.5 million primarily relates to interest earned on cash, cash equivalents and short-term investments. Interest income increased by $3.5 million from 2004 due primarily to higher interest rates earned on invested balances.

Interest expense of $6.6 million in 2005 and $6.7 million in 2004 primarily relates to our long-term debt issued in January 2002.

Income Taxes

Income tax expense for 2005 was $1.9 million. Income tax expense relates principally to operating results of foreign entities in jurisdictions, principally in Asia, where we earn taxable income. We have significant net operating losses in the United States and certain foreign tax jurisdictions, principally Europe, and, as a result, do not pay significant income taxes in those jurisdictions nor have the ability to obtain tax benefit for such losses. Accordingly, our effective income tax rate is not meaningful.

Liquidity and Capital Resources

Cash, cash equivalents, and marketable securities at December 31, 2006 were $203.7 million, compared to $165.2 million at December 31, 2005. The $38.5 million increase in cash and cash equivalents and short-term investments is mainly attributable to $19.0 million in cash generated by operations, $24.2 million from issuance of convertible debt and $3.5 million in proceeds from the exercise of stock options and stock purchases under the Employee Stock Purchase Plan, partially offset by $6.9 million in capital expenditures and a $0.9 million increase of restricted cash balances.

Capital expenditures were $6.9 million and $7.8 million for the years ended December 31, 2006 and 2005, respectively. The decrease was primarily due to the completion of the consolidation of our Rockville, Maryland operations into our headquarters and manufacturing facility in Beverly, Massachusetts during 2005. We have no significant capital projects planned for 2007 and total capital expenditures for 2007 are

projected to be less than $10.0 million. Future capital expenditures beyond 2007 will depend on a number of factors, including the timing and rate of expansion of our business.

We have no off-balance sheet arrangements other than foreign exchange contracts used to hedge amounts receivable from SEN ($1.1 million at December 31, 2006).

We have net operating loss and tax credit carryforwards the tax effect of which aggregate $75.8 million at December 31, 2006. These carryforwards, which expire principally between 2018 and 2025, are available to reduce future income tax liabilities in the United States and certain foreign jurisdictions.

We had a $50.0 million revolving credit facility that expired in October 2006. We are currently evaluating the need for a new credit facility and anticipate entering into a similar arrangement in 2007.

As discussed in Note 13 to the consolidated financial statements, on May 2, 2006, we entered into an exchange and purchase agreement pursuant to which the holder of an aggregate of approximately $50.8 million of our existing 4.25% Convertible Subordinated Notes due January 15, 2007 (the "Old Notes"), agreed to exchange its Old Notes for $50.8 million in aggregate principal amount of our newly issued 4.25% Convertible Senior Subordinated Notes due January 15, 2009 (the "New Notes"), plus accrued and unpaid interest on the Old Notes through but excluding May 2, 2006, the closing date of the exchange. At maturity, the Company is required to repay the outstanding principal of the New Notes, plus a maturity premium of 11.125% of such principal, resulting in an effective annual yield to maturity of approximately 8.0%. In addition, we issued an additional $24.2 million of New Notes, resulting in an aggregate of $75 million of New Notes outstanding. We repaid the remaining $74.2 million of outstanding Old Notes in January 2007. We believe that our existing cash balances and expected positive cash flows for 2007 and 2008 will allow us to repay the New Notes when they mature without causing a liquidity issue.

We have outstanding standby letters of credit, bank guarantees and surety bonds in the amount of $17.3 million to support certain operating lease obligations, workers' compensation insurance, and certain value added tax claims in Europe. In addition, at December 31, 2006, $12.2 million of cash was pledged as collateral for certain outstanding standby letters of credit and bank guarantees and is reflected as restricted cash on the consolidated balance sheet.

The following represents our contractual obligations and commercial commitments as of December 31, 2006 (in thousands):

		Payments Due by Period			
Contractual Obligations	Total	2007	2008-2009	2010-2011	Thereafter
Long-term debt (including interest)	$167,107	$ 78,982	$88,125	$ —	$—
Purchase order commitments	50,518	50,518			—
Operating leases	8,721	5,311	3,267	143	—
	$226,346	$134,811	$91,392	$143	$—

		Amount of Commitment Expiration by Period			
Other Commercial Commitments	Total	2007	2008-2009	2010-2011	Thereafter
Standby letters of credit	$ 9,352	$ 9,352	$ —	$ —	$—
Guarantees	7,971	2,703	5,268	—	—
	$ 17,323	$ 12,055	$ 5,268	$ —	$—

Axcelis' liquidity is affected by many factors. Some of these factors are based on normal operations of the business and others relate to the uncertainties of global economies and the semiconductor equipment industry. Although our cash requirements fluctuate based on the timing and extent of these factors, we

believe that our existing cash, cash equivalents, and marketable securities will be sufficient to satisfy our anticipated cash requirements for at least the next twelve months.

Recent Accounting Pronouncements

SFAS 158

In September 2006, the Financial Accounting Standards Board (FASB) issued Statement of Financial Accounting Standard (SFAS) No. 158, *Employers' Accounting for Defined Benefit Pension and Other Postretirement Plans—An Amendment of FASB Statements No. 87, 88, 106, and 132R* (SFAS 158). SFAS 158 requires companies to recognize the funded status of pension and other postretirement benefit plans on sponsoring employers' balance sheets and to recognize changes in the funded status in the year the changes occur. It also requires the measurement date of plan assets and obligations to occur at the end of the employers' fiscal year. SFAS 158 is effective for the Company at the end of fiscal 2006, except for the change in measurement date, which is effective for the Company in fiscal 2007. The adoption of SFAS 158 did not impact the Company's financial condition, results of operations or liquidity and is not expected to have a material impact in future periods.

FIN 48

In June 2006, the FASB issued FASB Interpretation No. 48, *Accounting for Uncertainty in Income Taxes—an interpretation of FASB Statement No. 109* (FIN 48). FIN 48 clarifies the accounting for uncertainty in income taxes recognized in an enterprise's financial statements in accordance with SFAS 109, *Accounting for Income Taxes.* FIN 48 prescribes a recognition threshold and measurement attribute for the financial statement recognition and measurement of a tax position taken or expected to be taken in a tax return. FIN 48 also provides guidance on derecognition, classification, interest and penalties, accounting in interim periods, disclosure, and transition. FIN 48 is effective for fiscal years beginning after December 15, 2006. The adoption of FIN 48 is not expected to have a material impact on the Company's financial condition, results of operations or liquidity.

SFAS 151

In November 2004, the FASB issued SFAS No. 151, *Inventory Costs, an amendment of Accounting Research Bulletin (ARB) No. 43, Chapter 4* (SFAS 151). SFAS 151 amends the guidance in ARB No. 43, Chapter 4, "Inventory Pricing," to clarify that abnormal amounts of idle facility expense, freight, handling costs, and wasted material (spoilage) should be recognized as current-period charges. In addition, SFAS 151 requires that allocation of fixed production overhead to the costs of conversion be based on the normal capacity of the production facilities. The provisions of SFAS 151 are effective for fiscal years beginning after June 15, 2005. The adoption of SFAS 151 in the first quarter of fiscal 2006 did not impact the Company's financial condition, results of operations or liquidity.

SFAS 154

In May 2005, the FASB issued SFAS No. 154, *Accounting Changes and Error Corrections* (SFAS 154) which supersedes APB Opinion No. 20, *Accounting Changes* and SFAS No. 3, *Reporting Accounting Changes in Interim Financial Statements.* SFAS 154 provides guidance on the accounting for and reporting of accounting changes and error corrections. It establishes, unless impracticable, retrospective application as the required method for reporting a change in accounting principle in the absence of explicit transition requirements specific to the newly adopted accounting principle. The correction of an error in previously issued financial statements is not an accounting change. However, the reporting of an error correction involves adjustments to previously issued financial statements similar to those generally applicable to reporting an accounting change retroactively. Therefore, the reporting of a

correction of an error by restating previously issued financial statements is also addressed by this statement. SFAS 154 is effective for accounting changes and corrections of errors made in fiscal years beginning after December 15, 2005. The adoption of SFAS 154 in fiscal 2006 did not impact the Company's financial condition, results of operations or liquidity.

SFAS No. 157

In September 2006, the FASB issued SFAS No. 157, *Fair Value Measurements*, which defines fair value, establishes a framework for measuring fair value, and expands disclosures about fair value measurements. Where applicable, this Statement simplifies and codifies related guidance within generally accepted accounting principles (GAAP). This statement is effective for financial statements issued for fiscal years beginning after November 15, 2007, and interim periods within those fiscal years. The Company is currently analyzing the expected impact from adopting this statement on its financial statements, but currently does not believe its adoption will have a significant impact on the financial position or results of operations of the Company.

Outlook

Our performance is directly related to semiconductor manufacturers' levels of capital expenditures to open new fabrication facilities and expand existing ones, as well as operational improvements we have implemented over the past several years. The level of capital expenditures by these manufacturers depends upon the current and anticipated market demand for semiconductors and the products utilizing them, the available manufacturing capacity in manufacturers' fabrication facilities, and the ability of manufacturers to increase productivity in existing facilities without incurring additional capital expenditures.

On January 31, 2007, we announced that net revenues (excluding SEN) for the first quarter of 2007 are forecast in the range of $90 million to $100 million. Gross margins are projected in the 42% to 43% range. We expect results of operations to be in the range of $0.02 to $0.06 per share.

In addition, we provided a summary of expectations for the 2007 total year. Revenues are anticipated to increase 15% to 20% over 2006 levels with revenues from sales of our single wafer Optima products to contribute the majority of the increase. Gross margins are expected to remain in the low 40% range.

It is difficult to predict our customers' capital spending plans since they can change very quickly. At our current sales level, each sale, or failure to make a sale, could have a material effect on our results of operations in a particular quarter.

Item 7A. Quantitative and Qualitative Disclosures about Market Risk.

Interest Rate Sensitivity

Axcelis' exposure to market risk for changes in interest rates relates primarily to our investment portfolio, which consists entirely of cash-equivalents and short-term investments at December 31, 2006. The primary objective of our investment activities is to preserve principal while maximizing yields without significantly increasing risk. This is accomplished by investing in marketable high investment grade securities and limiting exposure to any one issue or issuer. We do not use derivative financial instruments in managing our investment portfolio and, due to the nature of our investments, we do not expect our operating results or cash flows to be affected to any significant degree by any change in market interest rates.

Foreign Currency Exchange Risk

Substantially all of our sales are billed in U.S. dollars, thereby reducing the impact of fluctuations in foreign exchange rates on our results. Operating margins of certain foreign operations can fluctuate with

changes in foreign exchange rates to the extent revenues are billed in U.S. dollars and operating expenses are incurred in the local functional currency. During the years ended December 31, 2006 and 2005, approximately 9% and 11% of our revenues, respectively, were derived from foreign operations with this inherent risk. In addition, at both December 31, 2006 and 2005, our operations outside of the United States accounted for approximately 29.2% of our total assets, the majority of which was denominated in currencies other than the U.S. dollar.

Our investment in SEN and our royalty and equity income from SEN are subject to foreign currency exchange risks. For royalties to be received in cash and certain other accounts receivable from SEN ($1.1 million at December 31, 2006) we hedge our exposure to currency fluctuation through the use of forward contracts. The effect of a 10% depreciation of the Japanese Yen compared to the U.S. dollar would result in a write-down in our investment in SEN and a corresponding decrease in accumulated other comprehensive income (included in stockholders' equity) of $11.4 million at December 31, 2006.

Item 8. Financial Statements and Supplementary Data.

Response to this Item is submitted as a separate section of this report immediately following Item 15.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure.

None.

Item 9A. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures.

Our management, with the participation of our principal executive officer and principal financial officer, has evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) under the Securities Exchange Act of 1934, as amended (the "Exchange Act")) as of the end of the period covered by this annual report (the "Evaluation Date"). Based on this evaluation, our principal executive officer and principal financial officer concluded that, as of the Evaluation Date, these disclosure controls and procedures are effective.

Internal Control Over Financial Reporting

Management's Annual Report on Internal Control over Financial Reporting

Management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Rule 13a-15(f) under the Exchange Act. Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. A control system, no matter how well designed and operated, can provide only reasonable assurance with respect to financial statement preparation and presentation. Projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Management assessed the effectiveness of our internal control over financial reporting as of December 31, 2006. In making this assessment, management used the criteria set forth in the Committee of Sponsoring Organizations of the Treadway Commission (COSO) Internal Control-Integrated Framework.

Based on this assessment, management has concluded that, as of December 31, 2006, our internal control over financial reporting is effective based on those criteria.

Ernst & Young LLP, an independent registered public accounting firm that audited our financial statements for the year ended December 31, 2006 included in this annual report, has issued an attestation report on management's assessment of our internal control over financial reporting. This report is provided as follows:

Report of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders of Axcelis Technologies, Inc.

We have audited management's assessment, included in the accompanying Management's Annual Report on Internal Control Over Financial Reporting, that Axcelis Technologies, Inc. (the Company) maintained effective internal control over financial reporting as of December 31, 2006, based on criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (the COSO criteria). Axcelis Technologies Inc.'s management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting. Our responsibility is to express an opinion on management's assessment and an opinion on the effectiveness of the company's internal control over financial reporting based on our audit.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, evaluating management's assessment, testing and evaluating the design and operating effectiveness of internal control, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the Company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

In our opinion, management's assessment that Axcelis Technologies, Inc. maintained effective internal control over financial reporting as of December 31, 2006, is fairly stated, in all material respects, based on the COSO criteria. Also, in our opinion, Axcelis Technologies, Inc. maintained, in all material respects, effective internal control over financial reporting as of December 31, 2006, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the consolidated balance sheets of Axcelis Technologies as of December 31, 2006 and 2005, and the related consolidated statements of operations, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2006 of Axcelis Technologies, Inc. and our report dated March 13, 2007 expressed an unqualified opinion thereon.

/s/ Ernst & Young LLP

Boston, Massachusetts
March 13, 2007

Changes in Internal Control over Financial Reporting

There was no change in our internal control over financial reporting (as defined in Rules 13a-15(f) under the Exchange Act) identified in connection with the evaluation of our internal control that occurred during our fourth quarter that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information.

None.

PART III

Item 10. Directors, Executive Officers and Corporate Governance.

A portion of the information required by Item 10 of Form 10-K is incorporated by reference from the information responsive thereto contained in the sections in Axcelis' Proxy Statement for the Annual Meeting of Stockholders to be held May 9, 2007 (the "Proxy Statement") captioned:

- "Proposal 1: Election of Directors,"
- "Corporate Governance," and
- "Other Matters—Section 16(a) Beneficial Ownership Reporting Compliance."

The remainder of such information is set forth under the heading "Executive Officers" at the end of Item 1 in Part I of this report.

Item 11. Executive Compensation.

The information required by Item 11 of Form 10-K is incorporated by reference from the information responsive thereto contained in the sections in the Proxy Statement captioned:

- "Executive Compensation," and
- "Other Matters—Compensation Committee Interlocks and Insider Participation."

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters.

A portion of the information required by Item 12 of Form 10-K is incorporated by reference from the information responsive thereto contained in the sections in the Proxy Statement captioned:

- "Share Ownership of 5% Stockholders," and
- "Share Ownership of Directors and Executive Officers."

The remainder of such information is set forth below:

Equity Plan Reserves Disclosure

We maintain two equity compensation plans, the 2000 Stock Plan and the Employee Stock Purchase Plan. The number of shares issuable upon exercise of outstanding options granted to employees and non-employee directors, as well as the number of shares remaining available for future issuance, under our equity compensation plans as of December 31, 2006 are summarized in the following table:

Plan category	(A) Number of shares to be issued upon exercise of outstanding options	(B) Weighted-average exercise price of outstanding options	(C) Number of shares remaining available for future issuance under equity compensation plans (excluding shares reflected in column (A))(1)
Equity compensation plans approved by stockholders	12,804,554	$ 5.98	21,547,105
Equity compensation plans not approved by stockholders	—	—	—
Total	12,804,554		21,547,105

(1) Represents the total shares available for issuance under our 2000 Stock Plan and our Employee Stock Purchase Plan, as of December 31, 2006, as follows:

(A) 17,440,944 shares were available for future issuance under the 2000 Stock Plan. Such amount represents the total number of shares reserved for issuance under the 2000 Stock Plan (33,173,367), less 207,643 outstanding shares issued under the plan as restricted stock, 1,760,894 shares issuable upon vesting of outstanding restricted stock units, 959,332 shares issued upon option exercises, and the outstanding options shown in column (A), all as of December 31, 2006. This plan is generally used for grants to employees and directors and was approved by our stockholders at our 2002 annual meeting.

(B) 4,106,161 shares were available under our Employee Stock Purchase Plan, which represents the total number of shares reserved for issuance under the plan (7,500,000) less 3,393,839 shares issued through December 31, 2006. The Employee Stock Purchase Plan was approved by Eaton Corporation, as our sole stockholder prior to our initial public offering, in compliance with Internal Revenue Code Section 423.

Item 13. Certain Relationships and Related Transactions and Director Independence.

The information required by Item 13 of Form 10-K is incorporated by reference from the information responsive thereto contained in the sections in the Proxy Statement captioned:

- "Executive Compensation,"
- "Corporate Governance—Board of Directors Independence and Meetings," and
- "Corporate Governance—Certain Relationships and Related Transactions."

Item 14. Principal Accounting Fees and Services

The information required by Item 14 of Form 10-K is incorporated by reference from the information responsive thereto contained in the section captioned "Proposal 2: Ratification of the Appointment of our Independent Registered Public Accounting Firm" in the Proxy Statement.

PART IV

Item 15. Exhibits, Financial Statement Schedules.

(a) The following documents are filed as part of this Report:

1) Financial Statements:

Report of Independent Registered Public Accounting Firm	F-1
Consolidated Statements of Operations—For the years ended December 31, 2006, 2005 and 2004	F-2
Consolidated Balance Sheets—December 31, 2006 and 2005	F-3
Consolidated Statements of Stockholders' Equity—For the years ended December 31, 2006, 2005 and 2004	F-4
Consolidated Statements of Cash Flows—For the years ended December 31, 2006, 2005 and 2004	F-5
Notes to Consolidated Financial Statements	F-6

2) Financial Statement Schedules:

Schedule II—Valuation and Qualifying Accounts for the years ended December 31, 2006, 2005 and 2004

All other schedules for which provision is made in the applicable regulation of the Securities and Exchange Commission are not required under the related instructions or are inapplicable, and therefore have been omitted.

(b) Exhibits

The exhibits filed as part of this Form 10-K are listed on the Exhibit Index immediately preceding such Exhibits, which Exhibit Index is incorporated herein by reference.

(c) Financial Statement Schedules

The response to this portion of Item 15 is submitted as a separate section of this report.

Report of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders of Axcelis Technologies, Inc.

We have audited the accompanying consolidated balance sheets of Axcelis Technologies, Inc. (the "Company") as of December 31, 2006 and 2005, and the related consolidated statements of operations, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2006. Our audits also included the financial statement schedule listed in the index at Item 15(a). These financial statements and schedule are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements and schedule based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the consolidated financial position of Axcelis Technologies, Inc. at December 31, 2006 and 2005, and the consolidated results of its operations and its cash flows for each of the three years in the period ended December 31, 2006, in conformity with U.S. generally accepted accounting principles. Also, in our opinion, the related financial statement schedule, when considered in relation to the basic financial statements taken as a whole, presents fairly in all material respects the information set forth therein.

As discussed in Note 2 to the consolidated financial statements, effective January 1, 2006, the Company adopted Statement of Financial Accounting Standards No. 123R *"Share-Based Payment."*

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the effectiveness of Axcelis Technologies, Inc.'s internal control over financial reporting as of December 31, 2006, based on criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated March 13, 2007 expressed an unqualified opinion thereon.

/s/ Ernst & Young LLP

Boston, Massachusetts
March 13, 2007

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

	Year Ended December 31,		
	2006	2005	2004
Revenue			
Systems	$276,311	$206,087	$326,521
Services	176,199	157,644	167,027
Royalties, primarily from SEN	9,207	8,809	14,428
	461,717	372,540	507,976
Cost of revenue	270,203	218,109	296,448
Gross profit	191,514	154,431	211,528
Operating expenses			
Research and development	72,384	70,908	63,209
Sales and marketing	45,536	44,826	47,593
General and administrative	46,620	45,631	46,149
Amortization of intangible assets	2,551	2,448	2,448
Restructuring charges	682	6,497	994
	167,773	170,310	160,393
Income (loss) from operations	23,741	(15,879)	51,135
Other income (expense)			
Equity income of SEN	19,266	15,751	30,531
Interest income	8,383	5,459	2,032
Interest expense	(9,085)	(6,634)	(6,673)
Other—net	478	(679)	(1,886)
	19,042	13,897	24,004
Income (loss) before income taxes	42,783	(1,982)	75,139
Income taxes	2,013	1,873	964
Net income (loss)	$ 40,770	$ (3,855)	$ 74,175
Net income (loss) per share			
Basic	$ 0.40	$ (0.04)	$ 0.75
Diluted	$ 0.40	$ (0.04)	$ 0.73
Shares used in computing basic and diluted net income (loss) per share			
Basic	101,058	100,301	99,528
Diluted	101,361	100,301	101,205

See accompanying Notes to Consolidated Financial Statements

Axcelis Technologies, Inc.
Consolidated Balance Sheets
(In thousands, except per share amounts)

	December 31, 2006	December 31, 2005
ASSETS		
Current assets		
Cash and cash equivalents	$140,451	$ 71,417
Marketable securities	63,200	93,797
Restricted cash	11,019	8,037
Accounts receivable, net	73,635	79,379
Inventories, net	160,107	109,972
Prepaid expenses and other current assets	26,639	32,767
Total current assets	475,051	395,369
Property, plant and equipment, net	66,678	71,443
Investment in SEN	126,688	108,815
Goodwill	46,773	46,773
Intangible assets	13,549	16,100
Restricted cash, long-term portion	1,137	3,195
Other assets	24,117	19,748
	$753,993	$661,443
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities		
Accounts payable	$ 37,312	$ 25,556
Accrued compensation	26,996	18,437
Warranty	5,229	5,739
Income taxes	3,906	3,021
Deferred revenue	28,811	30,140
Current portion, long term debt	74,217	—
Other current liabilities	13,670	11,333
Total current liabilities	190,141	94,226
Long-term debt	76,887	125,000
Long-term deferred revenue	5,054	11,177
Other long-term liabilities	4,349	4,999
Commitments and contingencies		
Stockholders' equity		
Preferred stock, $0.001 par value, 30,000 shares authorized; none issued or outstanding	—	—
Common stock, $0.001 par value, 300,000 shares authorized; 101,418 shares issued and 101,298 shares outstanding at December 31, 2006; 100,637 shares issued and 100,517 shares outstanding at December 31, 2005	101	101
Additional paid-in capital	469,967	466,454
Deferred compensation	—	(5,385)
Treasury stock, 120 shares at December 31, 2006 and 2005	(1,218)	(1,218)
Retained earnings (deficit)	9,583	(31,187)
Accumulated other comprehensive loss	(871)	(2,724)
	477,562	426,041
	$753,993	$661,443

See accompanying Notes to Consolidated Financial Statements

Axcelis Technologies, Inc.
Consolidated Statements of Stockholders' Equity
(In thousands)

	Common Stock							
	Shares	Amount	Additional Paid-in Capital	Deferred Compensation	Treasury Stock	Retained Earnings (Deficit)	Accumulated Other Comprehensive Income (Loss)	Total
Balance at December 31, 2003	99,114	$ 99	$451,389	$ (811)	$(1,218)	$(101,507)	$ 5,298	$353,250
Comprehensive loss								
Net income	—	—	—	—	—	74,175	—	74,175
Foreign currency translation adjustments	—	—	—	—	—	—	9,870	9,870
Unrealized loss on marketable securities	—	—	—	—	—	—	(14)	(14)
Total comprehensive income	—	—	—	—	—	—	—	84,031
Exercise of stock options	245	—	1,743	—	—	—	—	1,743
Issuance of shares under Employee Stock Purchase Plan	774	1	4,338	—	—	—	—	4,339
Forfeiture of restricted common shares	(23)	—	(135)	135	—	—	—	—
Stock-based compensation expense	—	—	—	110	—	—	—	110
Balance at December 31, 2004	100,110	100	457,335	(566)	(1,218)	(27,332)	15,154	443,473
Comprehensive loss								
Net loss	—	—	—	—	—	(3,855)	—	(3,855)
Foreign currency translation adjustments	—	—	—	—	—	—	(17,851)	(17,851)
Unrealized loss on marketable securities	—	—	—	—	—	—	(27)	(27)
Total comprehensive loss	—	—	—	—	—	—	—	(21,733)
Exercise of stock options	190	—	1,141	—	—	—	—	1,141
Issuance of shares under Employee Stock Purchase Plan	327	1	2,019	—	—	—	—	2,020
Forfeiture of restricted common shares	(34)	—	(201)	201	—	—	—	—
Issuance of restricted common shares	44	—	300	(300)	—	—	—	—
Issuance of restricted stock units	—	—	5,860	(5,860)	—	—	—	—
Stock-based compensation expense	—	—	—	1,140	—	—	—	1,140
Balance at December 31, 2005	100,637	101	466,454	(5,385)	(1,218)	(31,187)	(2,724)	426,041
Comprehensive income								
Net income	—	—	—	—	—	40,770	—	40,770
Foreign currency translation adjustments	—	—	—	—	—	—	1,816	1,816
Unrealized gain on marketable securities	—	—	—	—	—	—	37	37
Total comprehensive income	—	—	—	—	—	—	—	42,623
Reclassification of deferred compensation upon adoption of SFAS No. 123R	—	—	(5,385)	5,385	—	—	—	—
Exercise of stock options	265	—	1,586	—	—	—	—	1,586
Issuance of shares under Employee Stock Purchase Plan	470	—	2,266	—	—	—	—	2,266
Forfeiture of restricted common shares	(4)	—	(18)	—	—	—	—	(18)
Issuance of restricted common shares	50	—	—	—	—	—	—	—
Stock-based compensation expense	—	—	5,064	—	—	—	—	5,064
Balance at December 31, 2006	101,418	$ 101	$469,967	$ —	$(1,218)	$ 9,583	$ (871)	$477,562

See accompanying Notes to Consolidated Financial Statements

Axcelis Technologies, Inc.
Consolidated Statements of Cash Flows
(In thousands)

	Year Ended December 31,		
	2006	2005	2004
Operating activities			
Net income (loss)	$ 40,770	$ (3,855)	$ 74,175
Adjustments to reconcile net income (loss) to net cash provided by (used for) operating activities			
Undistributed income of SEN	(19,266)	(15,751)	(30,531)
Depreciation and amortization	17,586	21,284	20,533
Deferred income taxes	(209)	(828)	(4,974)
Amortization of intangible assets	2,551	2,448	2,448
Accretion of premium on long-term debt	1,887	—	—
Purchased in-process research and development	—	1,500	—
Stock-based compensation expense	5,475	1,140	110
Impairment of fixed assets	—	725	—
Changes in operating assets & liabilities			
Accounts receivable	6,704	3,133	(8,655)
Inventories	(47,335)	4,120	9,896
Prepaid expenses and other current assets	6,503	(17,987)	(781)
Accounts payable & other current liabilities	21,402	(7,280)	(7,004)
Deferred revenue	(7,452)	(328)	25,152
Income taxes	868	(1,291)	2,987
Other assets and liabilities	(10,466)	800	(11,710)
Net cash provided by (used for) operating activities	19,018	(12,170)	71,646
Investing activities			
Purchases of marketable securities	(72,329)	(108,125)	(105,158)
Sales and maturities of marketable securities	103,763	92,965	68,900
Proceeds from sale of building	—	—	5,958
Expenditures for property, plant and equipment	(6,924)	(7,794)	(5,541)
Acquisition of businesses	—	(1,500)	—
Decrease (increase) in restricted cash	(924)	(4,893)	77
Net cash provided by (used for) investing activities	23,586	(29,347)	(35,764)
Financing activities			
Proceeds from issuance of convertible debt	24,217	—	—
Proceeds from the exercise of stock options	1,586	1,141	1,743
Proceeds from Employee Stock Purchase Plan	1,930	2,463	3,129
Net cash provided by financing activities	27,733	3,604	4,872
Effect of exchange rate changes on cash	(1,303)	1,035	1,792
Net increase (decrease) in cash and cash equivalents	69,034	(36,878)	42,546
Cash and cash equivalents at beginning of period	71,417	108,295	65,749
Cash and cash equivalents at end of period	$140,451	$ 71,417	$ 108,295
Cash paid for interest	$ 5,802	$ 5,566	$ 5,597
Cash paid for income taxes	$ 2,867	$ 4,956	$ 3,066

See accompanying Notes to Consolidated Financial Statements

Note 1. Nature of Business and Basis of Presentation

Axcelis Technologies, Inc. ("Axcelis" or the "Company"), is a worldwide producer of ion implantation, dry strip, thermal processing and curing equipment used in the fabrication of semiconductors in the United States, Europe and Asia. In addition, the Company provides extensive aftermarket service and support, including spare parts, equipment upgrades, and maintenance services to the semiconductor industry. The Company owns 50% of the equity of a joint venture with Sumitomo Heavy Industries, Ltd. in Japan. This joint venture, which is known as SEN Corporation, an SHI and Axcelis Company ("SEN"), licenses technology from the Company relating to the manufacture of specified ion implantation products and has exclusive rights to manufacture and sell these products in the territory of Japan. SEN is the leading producer of ion implantation equipment in Japan.

Note 2. Significant Accounting Policies

Principles of Consolidation

The consolidated financial statements include the accounts of Axcelis and its subsidiaries. All significant intercompany balances and transactions are eliminated in consolidation. The equity method of accounting is used to account for the Company's 50% investment in SEN.

Use of Estimates

The preparation of consolidated financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect the amounts reported in the consolidated financial statements and accompanying notes. Actual results could differ from those estimates.

Foreign Currency

The functional currency for substantially all operations outside the United States is the local currency. Financial statements for these operations are translated into United States dollars at year-end rates as to assets and liabilities and average exchange rates during the year as to revenues and expenses. The resulting translation adjustments are recorded in stockholders' equity as an element of accumulated comprehensive income (loss). Foreign currency transaction gains and losses recorded in the consolidated statements of operations are not material for all periods presented.

Cash, Cash Equivalents and Marketable Securities

Cash and cash equivalents include all highly liquid investments with a remaining maturity of ninety days or less at the time of purchase. Cash equivalents consist primarily of money market securities, direct and indirect U.S. government obligations, commercial paper, and obligations of U.S. banks. Cash equivalents are carried on the balance sheet at fair market value.

Marketable securities comprise debt securities, primarily corporate notes, commercial paper, auction rate securities, and obligations of the U.S. government, which are classified as available-for-sale and recorded at fair market value.

Unrealized gains and losses on cash equivalents and marketable securities are included in Accumulated Other Comprehensive Income (Loss) in stockholders' equity until realized.

Inventories

Inventories are carried at lower of cost, determined using the first-in, first-out (FIFO) method, or market.

Axcelis records an allowance for estimated excess and obsolete inventory. The allowance is determined using management's assumptions of materials usage, based on estimates of demand and market conditions. If actual market conditions become less favorable than those projected by management, additional inventory write-downs may be required.

Property, Plant and Equipment

Property, plant and equipment are recorded at cost. Depreciation is computed using the straight-line method. The historical cost of buildings is depreciated over forty years and machinery and equipment principally over three to ten years. Expenditures for maintenance and repairs are expensed as incurred. Expenditures for renewals and betterments are capitalized.

Impairment of Long-Lived Assets

Long-lived assets (primarily property, plant and equipment and intangible assets) are reviewed for impairment losses whenever events or changes in circumstances (primarily sustained losses from operations or a significant change in the use of an asset) indicate the carrying amount may not be recoverable. An impairment loss would be recognized based on the amount by which the carrying value of the asset exceeds its fair value.

Intangible Assets

Intangible assets are amortized on a straight-line basis over their estimated useful lives as follows:

Developed technology	5 to 10 years
Customer list	10 years
Software licenses	5 years

Goodwill

In accordance with the provisions of Statement of Financial Accounting Standards ("SFAS") No. 142 "Goodwill and Other Intangible Assets" the Company tests for impairment of goodwill on an annual basis or whenever events and changes in circumstances suggest that the carrying amount may not be recoverable. This test is performed at the reporting unit level based on product line. As of December 31, 2006, the Company completed its annual assessment and determined that goodwill was not impaired.

Concentration of Risk

Financial instruments, which potentially expose Axcelis to concentrations of credit risk, consist principally of accounts receivable, cash equivalents and marketable securities. Axcelis' customers consist of semiconductor manufacturers located throughout the world. Axcelis' net sales to its ten largest customers accounted for 54.9%, 60.2%, and 55.4% of revenue in 2006, 2005, and 2004, respectively. Axcelis performs ongoing credit evaluations of its customers' financial condition and generally requires no collateral to secure accounts receivable. For selected overseas sales, Axcelis requires customers to obtain letters of credit before product is shipped. Axcelis maintains an allowance for doubtful accounts based on its assessment of the collectibility of accounts receivable.

Axcelis' exposure to market risk for changes in interest rates relates primarily to cash equivalents and marketable securities. The primary objective of the Company's investment activities is to preserve principal

while maximizing yields without significantly increasing risk. This is accomplished by investing in marketable high investment grade securities and limiting exposure to any one issue or issuer. The Company does not use derivative financial instruments to manage its investment portfolio and does not expect operating results or cash flows to be affected to any significant degree by any change in market interest rates.

Axcelis accesses the important Japanese market for ion implant systems through a joint venture (SEN) that the Company does not control. The joint venture agreement gives both owners veto rights, so that neither of the owners alone can effectively control SEN. SEN's business is subject to the same risks as the Company's business. The Company's investment in SEN represents more than 25% of its net assets and royalties and equity income from SEN have made a substantial contribution to the Company's operating results. A substantial decline in SEN's sales and net income could have a material adverse effect on the Company's operating results. For royalties to be received in cash and certain other accounts receivable from SEN ($1.1 million at December 31, 2006) the Company hedges its exposure to currency fluctuation through the use of forward contracts. Gains and losses recognized on these forward contracts are included in "Other income (expense)" in the Consolidated Statements of Operations. As a result of this joint venture structure, the Company has less control over SEN management than over the Company's own management and may not have timely knowledge of factors affecting SEN's business. In addition, given the equal ownership, it is possible that the SEN Board may be unable to reach consensus on important matters from time to time which could delay important decisions or lead to the liquidation of SEN.

Some of the components and sub-assemblies included in the Company's products are obtained either from a sole source or a limited group of suppliers. Disruption to the Company's supply source could affect its ability to deliver products to its customers.

Fair Value of Financial Instruments

SFAS No. 107, "Disclosures about Fair Value of Financial Instruments," requires that disclosure be made of estimates of the fair value of financial instruments. The carrying amounts of certain of the Company's financial instruments, including cash equivalents, accounts receivable, accounts payable and other accrued liabilities approximate fair value due to their short maturities. The fair value of the Company's notes payable and long-term liabilities is estimated based on quoted market prices for the same or similar issues or on current rates offered to the Company for debt of the same remaining maturities.

Revenue Recognition

The Company's revenue recognition policy involves significant judgment by management. As described below, the Company considers a broad array of facts and circumstances in determining when to recognize revenue, including contractual obligations to the customer, the complexity of the customer's post delivery acceptance provisions, payment history, customer creditworthiness and the installation process. In the future, if the post delivery acceptance provisions and installation process become more complex or result in a materially lower rate of acceptance, the Company may have to revise its revenue recognition policy, which could delay the timing of revenue recognition.

The Company recognizes revenue based on guidance provided in SEC Staff Accounting Bulletin No. 104, "Revenue Recognition". Axcelis' revenue transactions include sales of products under multiple element arrangements. Revenue under these arrangements is allocated to each element, except systems, based upon its estimated fair market value, in accordance with the provisions of EITF 00-21, "Accounting for Revenue Arrangements with Multiple Deliverables" ("EITF 00-21"). The amount of revenue allocated to systems is calculated on a residual method. Under this method, the total value of the arrangement is allocated first to the undelivered elements, with the residual amount being allocated to systems revenue.

The value of the undelivered elements includes (a) the greater of (i) the fair value of the installation or (ii) the portion of the sales price that will not be received until the installation is completed (the "retention") plus (b) the fair value of all other undelivered elements. The amount allocated to installation is based upon the fair value of the service performed, including labor, which is based upon the estimated time to complete the installation at hourly rates, and material components. The fair value of all other undelivered elements is based upon the price charged when these elements are sold separately. System revenue is generally recognized upon shipment provided title and risk of loss has passed to the customer, evidence of an arrangement exists, prices are contractually fixed or determinable, collectibility is reasonably assured through historical collection results and regular credit evaluations, and there are no uncertainties regarding customer acceptance. Revenue from installation services is recognized at the time formal acceptance is received from the customer or, for certain customers, when both the formal acceptance and retention payment have been received. Revenue for other elements is recognized at the time products are shipped or the related services are performed.

The Company generally recognizes systems revenue at the time of shipment because the customer's post delivery acceptance provisions and installation process have been established to be routine, commercially inconsequential and perfunctory. The majority of Axcelis' systems are designed and tailored to meet the customer's specifications, as outlined in the contract between the customer and Axcelis, which may be the Axcelis standard specification. To ensure that the customer's specifications are satisfied, many customers request that newer systems be tested at Axcelis' facilities prior to shipment, normally with the customer present, under conditions that substantially replicate the customer's production environment and the customer's criteria are confirmed to have been met. Customers of mature products generally do not require pre-shipment testing. The Company believes the risk of failure to complete a system installation is remote. Should an installation not be completed successfully, the contractual provisions do not provide for forfeiture, refund or other purchase price concession beyond those prescribed by the provisions of the Uniform Commercial Code applicable generally to such transactions.

In the small number of instances where Axcelis is unsure of meeting the customer's specifications or obtaining customer acceptance upon shipment of the system or for initial shipments of systems with new technologies, Axcelis will defer the recognition of systems revenue and related costs until written customer acceptance of the system is obtained. This deferral period is generally within twelve months of shipment.

Services revenue includes revenue from spare parts, equipment upgrades and maintenance services. Revenue related to maintenance and service contracts is recognized ratably over the duration of the contracts, or based on parts usage, where appropriate. Revenue related to time and material services is recognized when the services are performed. Revenue related to spare parts sales and equipment upgrades is recognized upon the later of shipment or when the title and risk of loss passes to the customer.

Shipping and Handling Costs

Shipping and handling costs are included in cost of revenue.

Stock-Based Compensation

In December 2004, the Financial Accounting Standards Board ("FASB") issued "SFAS" No. 123 (revised 2004) "Share-Based Payment" ("SFAS No. 123R"). SFAS No. 123R replaces SFAS No. 123 "Accounting for Stock-Based Compensation" ("SFAS No. 123"), supersedes Accounting Principles Board Opinion No. 25 "Accounting for Stock Issued to Employees" ("APB No. 25"), and amends SFAS No. 95 "Statement of Cash Flows". SFAS No. 123R requires entities to recognize compensation expense for all share-based payments to employees and directors, including grants of employee stock options, based on the grant-date fair value of those share-based payments (with limited exceptions), adjusted for expected forfeitures. Pro forma disclosure is no longer an alternative.

The Company adopted SFAS No. 123R, effective January 1, 2006 using the modified prospective transition method. Under that transition method, stock-based compensation expense recognized during the year ended December 31, 2006 includes: (a) stock options, restricted stock and restricted stock units granted prior to, but not yet vested, as of December 31, 2005, based on the grant-date fair value estimated in accordance with the original provisions of SFAS No. 123, and (b) shares issued in offerings under the Employee Stock Purchase Plan with offering periods commencing January 1, 2006 and stock options, restricted stock and restricted stock units granted subsequent to December 31, 2005, based on the grant-date fair value estimated using the Black-Scholes valuation model in accordance with the provisions of SFAS No. 123R. Expense is recognized ratably over the requisite service period. Under the modified prospective transition method, results for prior periods are not restated.

See Note 15 for additional information relating to stock-based compensation.

Deferred Income Taxes

The Company records income taxes using the asset and liability method. Deferred income tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective income tax bases, and operating loss and tax credit carryforwards. The Company's consolidated financial statements contain certain deferred tax assets which have arisen primarily as a result of operating losses, as well as other temporary differences between financial and tax accounting. SFAS No. 109 "Accounting for Income Taxes," requires the Company to establish a valuation allowance if the likelihood of realization of the deferred tax assets is reduced based on an evaluation of objective verifiable evidence. Significant management judgement is required in determining the Company's provision for income taxes, the Company's deferred tax assets and liabilities and any valuation allowance recorded against those net deferred tax assets. The Company evaluates the weight of all available evidence to determine whether it is more likely than not that some portion or all of the net deferred income tax assets will not be realized.

Net Income (Loss) Per Share

SFAS No. 128, "Earnings Per Share," requires two presentations of earnings per share, "basic" and "diluted." Basic earnings per share is computed by dividing income available to common stockholders (the numerator) by the weighted-average number of common shares outstanding (the denominator) for the period. The computation of diluted earnings per share is similar to basic earnings per share, except that the denominator is increased to include the number of additional common shares that would have been outstanding if the potentially dilutive common shares had been issued.

The Company has excluded 0.3 million incremental shares attributable to outstanding stock options and 0.5 million incremental shares attributable to restricted stock and restricted stock units, for the year ended December 31, 2005, all computed using the treasury stock method from the computation of diluted earnings per share as their effect would be anti-dilutive. In addition, for the assumed conversion of the Company's convertible debt to common stock, 7.5 million shares, 6.3 million shares, and 6.3 million shares were excluded from the computation of diluted earnings per share for years ended December 31, 2006, 2005, and 2004, respectively, as the effect of conversion would be anti-dilutive. This was computed using the if converted method. These stock options, restricted stock awards and conversions could, however, become dilutive in future periods.

The following table sets forth basic and diluted net income per share computational data for the years ended December 31:

	2006	2005	2004
	(in thousands, except per share data)		
Income (loss) available to common stockholders	$ 40,770	$ (3,855)	$ 74,175
Weighted average common shares outstanding used in computing basic net income (loss) per share	101,058	100,301	99,528
Incremental shares	303	—	1,677
Weighted average common shares outstanding used in computing diluted net income (loss) per share	101,361	100,301	101,205
Net income (loss) per share			
Basic	$ 0.40	$ (0.04)	$ 0.75
Diluted	$ 0.40	$ (0.04)	$ 0.73

Recent Accounting Pronouncements

SFAS 158

In September 2006, the Financial Accounting Standards Board (FASB) issued Statement of Financial Accounting Standard (SFAS) No. 158, *Employers' Accounting for Defined Benefit Pension and Other Postretirement Plans—An Amendment of FASB Statements No. 87, 88, 106, and 132R* (SFAS 158). SFAS 158 requires companies to recognize the funded status of pension and other postretirement benefit plans on sponsoring employers' balance sheets and to recognize changes in the funded status in the year the changes occur. It also requires the measurement date of plan assets and obligations to occur at the end of the employers' fiscal year. SFAS 158 is effective for the Company at the end of fiscal 2006, except for the change in measurement date, which is effective for the Company in fiscal 2007. The adoption of SFAS 158 did not impact the Company's financial condition, results of operations or liquidity and is not expected to have a material impact in future periods.

FIN 48

In June 2006, the FASB issued FASB Interpretation No. 48, *Accounting for Uncertainty in Income Taxes—an interpretation of FASB Statement No. 109* (FIN 48). FIN 48 clarifies the accounting for uncertainty in income taxes recognized in an enterprise's financial statements in accordance with SFAS 109, *Accounting for Income Taxes*. FIN 48 prescribes a recognition threshold and measurement attribute for the financial statement recognition and measurement of a tax position taken or expected to be taken in a tax return. FIN 48 also provides guidance on derecognition, classification, interest and penalties, accounting in interim periods, disclosure, and transition. FIN 48 is effective for fiscal years beginning after December 15, 2006. The adoption of FIN 48 is not expected to have a material impact on the Company's financial condition, results of operations or liquidity.

SFAS 151

In November 2004, the FASB issued SFAS No. 151, *Inventory Costs, an amendment of Accounting Research Bulletin (ARB) No. 43, Chapter 4* (SFAS 151). SFAS 151 amends the guidance in ARB No. 43, Chapter 4, "Inventory Pricing," to clarify that abnormal amounts of idle facility expense, freight, handling costs, and wasted material (spoilage) should be recognized as current-period charges. In addition, SFAS 151 requires that allocation of fixed production overhead to the costs of conversion be based on the normal capacity of the production facilities. The provisions of SFAS 151 are effective for fiscal years beginning after June 15, 2005. The adoption of SFAS 151 in the first quarter of fiscal 2006 did not impact the Company's financial condition, results of operations or liquidity.

SFAS 154

In May 2005, the FASB issued SFAS No. 154, *Accounting Changes and Error Corrections* (SFAS 154) which supersedes APB Opinion No. 20, *Accounting Changes* and SFAS No. 3, *Reporting Accounting Changes in Interim Financial Statements.* SFAS 154 provides guidance on the accounting for and reporting of accounting changes and error corrections. It establishes, unless impracticable, retrospective application as the required method for reporting a change in accounting principle in the absence of explicit transition requirements specific to the newly adopted accounting principle. The correction of an error in previously issued financial statements is not an accounting change. However, the reporting of an error correction involves adjustments to previously issued financial statements similar to those generally applicable to reporting an accounting change retroactively. Therefore, the reporting of a correction of an error by restating previously issued financial statements is also addressed by this statement. SFAS 154 is effective for accounting changes and corrections of errors made in fiscal years beginning after December 15, 2005. The adoption of SFAS 154 in fiscal 2006 did not impact the Company's financial condition, results of operations or liquidity.

SFAS No. 157

In September 2006, the FASB issued SFAS No. 157, *Fair Value Measurements*, which defines fair value, establishes a framework for measuring fair value, and expands disclosures about fair value measurements. Where applicable, this Statement simplifies and codifies related guidance within generally accepted accounting principles (GAAP). This statement is effective for financial statements issued for fiscal years beginning after November 15, 2007, and interim periods within those fiscal years. The Company is currently analyzing the expected impact from adopting this statement on its financial statements, but currently does not believe its adoption will have a significant impact on the financial position or results of operations of the Company.

Note 3. Cash and Cash Equivalents and Marketable Securities

Axcelis invests excess cash primarily in money market funds, commercial paper, corporate notes, direct and indirect U.S. government obligations, bank certificates of deposit, time deposits and auction rate securities. Investments purchased with a maturity of ninety days or less at the time of acquisition and considered highly liquid are classified as cash equivalents.

Axcelis' practice is to minimize investment risk by diversifying according to issuer, type and maturity. Except for auction rate securities, which have long-term underlying maturities, Axcelis generally intends to hold its investments until final maturity. In the case of auction rate securities, however, which have long-term underlying maturities, Axcelis' intent is not to hold them until final maturity. Rates on auction rate securities are reset at auction every 7, 28, or 35 days. Axcelis' practice is to take advantage of the rate reset feature for liquidity and enhanced yield relative to alternative short-term investments.

Axcelis classifies its investments in auction rate securities as marketable securities and accounts for all marketable securities as available-for-sale. Pursuant to SFAS No. 115, "Accounting for Certain Investments in Debt and Equity Securities," available-for-sale investments are carried on the balance sheet at fair market value. Unrealized gains and losses are excluded from earnings and included as a separate component of stockholders' equity, until realized. Realized gains and losses are included in earnings.

The following tables summarize the composition of marketable securities at December 31, 2006 and 2005, respectively. Fair value was determined based upon quoted market prices.

	Amortized Cost	Gross Unrealized Losses	Fair Value
		(in thousands)	
December 31, 2006:			
Auction rate securities	$63,200	$—	$63,200
	$63,200	$—	$63,200
December 31, 2005:			
Auction rate securities	$50,000	$—	$50,000
U.S. corporate debt	24,875	34	24,841
U.S. government agencies	9,905	7	9,898
Certificates of deposit	9,058	—	9,058
	$93,838	$41	$93,797

There were no realized gains or losses on sales of available-for-sale marketable securities for the years ended December 31, 2006, 2005 and 2004.

The following tables summarize the contractual maturities of short-term available for sale investments at December 31, 2006.

	Fair Value
	(in thousands)
Due in one year or less	$ —
Due after 10 years	63,200
	$63,200

Note 4. Restricted Cash

The components of restricted cash are as follows:

	December 31,	
	2006	2005
	(in thousands)	
Cash collateralizing standby letters of credit	$ 9,352	$ 8,629
Bank guarantees	2,804	2,603
	$12,156	$11,232

In addition to guarantees that are cash collateralized, the Company has guarantees and surety bonds related to value added tax claims and refunds in Europe of approximately $5.2 million at December 31, 2006.

Note 5. Accounts Receivable

The components of accounts receivable are as follows:

	December 31,	
	2006	2005
	(in thousands)	
Trade receivables	$76,576	$82,502
Allowance for doubtful accounts	(2,941)	(3,123)
	$73,635	$79,379

Note 6. Inventories

The components of inventories are as follows:

	December 31, 2006	December 31, 2005
	(in thousands)	
Raw materials	$ 93,197	$ 78,230
Work in process	44,587	22,073
Finished goods (completed systems)	22,323	9,669
	$160,107	$109,972

Note 7. Property, Plant and Equipment

The components of property, plant and equipment are as follows:

	December 31, 2006	December 31, 2005
	(in thousands)	
Land and buildings	$ 76,326	$ 71,875
Machinery and equipment	59,681	57,917
Construction in process	5,840	8,118
	141,847	137,910
Accumulated depreciation	(75,169)	(66,467)
	$ 66,678	$ 71,443

Depreciation expense was $8.9 million, $10.5 million, and $10.8 million, for the years ended December 31, 2006, 2005, and 2004, respectively.

Note 8. Intangible Assets

The components of intangible assets are as follows:

	December 31, 2006			December 31, 2005		
	Cost	Accumulated Amortization	Net Book Value	Cost	Accumulated Amortization	Net Book Value
	(in thousands)					
Developed technology	$48,030	$35,833	$12,197	$48,030	$33,474	$14,556
Customer list	903	326	577	903	236	667
Software licenses	877	102	775	877	—	877
	$49,810	$36,261	$13,549	$49,810	$33,710	$16,100

Amortization expense for intangible assets was $2.6 million, $2.4 million, and $2.4 million for the years ended December 31, 2006, 2005, and 2004, respectively.

Estimated future amortization expense for the intangible assets recorded by the Company as of December 31, 2006 is as follows:

Year ended December 31,	(in thousands)
2007	$2,624
2008	$2,624
2009	$2,428
2010	$2,428
2011	$2,325
Thereafter	$1,120

Note 9. Other Assets

Included in amounts reported as other assets are the net book value of products manufactured by the Company for internal use as follows:

	December 31,	
	2006	2005
	(in thousands)	
Cost	$ 63,560	$ 56,181
Accumulated amortization	(43,514)	(40,193)
	$ 20,046	$ 15,988

These products are used in-house for research and development, training, and customer demonstration purposes. Costs are amortized to expense over three to five years. Amortization expense was $7.6 million, $10.0 million, and $9.3 million, for the years ended December 31, 2006, 2005, and 2004, respectively.

Note 10. Acquisitions

On November 30, 2005 the Company acquired certain assets and intellectual property of Diamond Semiconductor Group for $1.5 million in cash. The purchase price was allocated to in-process research and development and included in research and development expense in the consolidated statement of operations.

Note 11. Restructuring Charges

For the year ended December 31, 2006, the Company recorded restructuring charges of $0.7 million primarily related to a reevaluation of the assumptions used in determining the fair value of certain lease obligations related to facilities abandoned in a previous restructuring. The revised assumptions, including lower estimates of expected sub-rental income over the remainder of the lease terms and expected lease termination costs associated with exiting a portion of the facilities, are based on management's evaluation of the commercial rental market. The above mentioned charges are net of a credit of $0.3 million to previously recognized restructuring charges relating primarily to the adjustment for severance and other one-time termination benefits associated with reduction in force actions and the consolidation of the Company's Rockville, Maryland operations into its headquarters and manufacturing facility located in Beverly, Massachusetts. In addition to the amounts reported as restructuring charges, $0.3 million of relocation and other incremental expenses related to the consolidation of the Rockville, Maryland operations are included in general and administrative expense for the year ended December 31, 2006.

In total, the Company incurred approximately $13.4 million in restructuring and general and administrative expenses related to these actions, all of which has been recognized in the statement of operations since the fourth quarter of 2004. Of the total cost related to these actions, approximately

$12.4 million is expected to result in cash expenditures, of which $11.3 million has been paid through December 31, 2006. Leases are expected to be paid over the remaining lease periods extending to 2007.

Changes in the Company's restructuring liability for the year ended December 31, 2006 are as follows:

	Severance	Retention	Leases	Total
		(in thousands)		
Balance at December 31, 2005	$ 636	$120	$ 1,264	$ 2,020
Restructuring expense (credit)	(287)	(51)	1,020	682
Cash payments	(349)	(69)	(1,160)	(1,578)
Balance at December 31, 2006	$ —	$ —	$ 1,124	$ 1,124

Restructuring expense of $6.5 million in 2005 consisted primarily of severance and other termination benefits associated with reduction in force actions and the consolidation of the Company's Rockville, Maryland operations into its headquarters and manufacturing facility located in Beverly, Massachusetts. In addition to amounts reported as restructuring expense, $4.9 million of relocation and other incremental expenses related to the consolidation of the Rockville, Maryland operations are included in general and administrative expense for the year ended December 31, 2005.

Changes in the Company's restructuring liability for the year ended December 31, 2005 are as follows:

	Severance	Retention	Leases	Leasehold Improvements	Total
			(in thousands)		
Balance at December 31, 2004	$ 724	$ 44	$ —	$ —	$ 768
Restructuring expense	3,263	585	1,924	725	6,497
Cash payments	(3,351)	(509)	(660)	—	(4,520)
Non-cash impairment	—	—	—	(725)	(725)
Balance at December 31, 2005	$ 636	$ 120	$1,264	$ —	$ 2,020

Restructuring expense of $1.0 million in 2004 consisted primarily of severance and other one-time termination benefits related to reduction in force actions and the consolidation of the Company's Rockville, Maryland operations into its headquarters and manufacturing facility located in Beverly, Massachusetts. As of December 31, 2006, all such benefits had been paid.

Note 12. Product Warranty

The Company offers a one to three year warranty for all of its products, the terms and conditions of which vary depending upon the product sold. For all systems sold, the Company accrues a liability for the estimated cost of standard warranty at the time of system shipment and defers the portion of systems revenue attributable to the fair value of non-standard warranty. Costs for non-standard warranty are expensed as incurred. Factors that affect the Company's warranty liability include the number of installed units, historical and anticipated product failure rates, material usage and service labor costs. The Company periodically assesses the adequacy of its recorded liability and adjusts the amount as necessary.

Changes in the Company's product warranty liability are as follows:

	Years Ended December 31,		
	2006	2005	2004
	(in thousands)		
Balance at January 1 (beginning of year)	$ 7,166	$10,924	$ 17,197
Warranties issued during the period	9,231	7,393	10,438
Settlements made during the period	(6,513)	(8,723)	(16,226)
Changes in estimate of liability for pre-existing warranties during the period	(3,412)	(2,428)	(485)
Balance at December 31 (end of year)	$ 6,472	$ 7,166	$ 10,924
Amount classified as current	$ 5,229	$ 5,739	$ 9,218
Amount classified as long-term	1,243	1,427	1,706
	$ 6,472	$ 7,166	$ 10,924

Note 13. Financing Arrangements

Convertible Subordinated Debt

In January 2002, the Company completed an offering of $125 million of 4.25% Convertible Subordinated Notes due January 15, 2007 (the "Old Notes"). Expenses associated with the offering of approximately $3.6 million were deferred and amortized over the term of the Old Notes to interest expense using the straight-line method, which approximates the effective interest rate method.

On May 2, 2006, the Company entered into an exchange and purchase agreement pursuant to which the holder of an aggregate of approximately $50.8 million of the Old Notes, agreed to exchange its Old Notes for $50.8 million in aggregate principal amount of the Company's newly issued 4.25% Convertible Senior Subordinated Notes due January 15, 2009 (the "New Notes"), plus accrued and unpaid interest on the Old Notes through but excluding May 2, 2006, the closing date of the exchange. In addition, the Company issued an additional $24.2 million of New Notes, resulting in an aggregate of $75 million of New Notes outstanding.

The New Notes are unsecured senior indebtedness of the Company and bear interest at the rate of 4.25% per annum. Interest is payable on January 15 and July 15 of each year, commencing July 15, 2006. The New Notes mature on January 15, 2009. At maturity, the Company is required to repay the outstanding principal of the New Notes, plus a maturity premium of 11.125% of such principal, resulting in an effective annual yield to maturity of approximately 8.0%.

The principal amount of the New Notes, together with the accreted portion of the maturity premium, which increases over the term of the notes, as of the conversion date, are convertible at the option of the holder, at any time on or prior to maturity, into shares of the Company's common stock at a conversion price equal to $20.00 per share, which also was the conversion price of the Old Notes, subject to adjustment in certain circumstances.

In accordance with the Financial Accounting Standards Board's Emerging Issues Task Force Issue No. 96-19, "Debtor's Accounting for a Modification or Exchange of Debt Instruments", the Company considered the terms of the New Notes to be "substantially different" from the terms of the Old Notes. As such, the Company wrote off approximately $0.2 million of debt issuance costs related to the Old Notes to interest expense during the year ended December 31, 2006. In addition, debt issuance costs of approximately $0.2 million related to the New Notes are being amortized to interest expense over the term of the New Notes.

On January 15, 2007, the Company made payment of $74.2 million to redeem the remaining Old Notes.

Note 14. Defined Contribution Plan

The Company maintains the Axcelis Long-Term Investment Plan, a defined contribution plan. All regular employees are eligible to participate and may contribute up to 35% of their compensation on a before-tax basis subject to IRS limitations. Highly compensated employees may contribute up to 16% of their compensation on a before-tax basis subject to IRS limitations. The Company matches employee contributions in an amount equal to the greater of (A) 100% of the employee's pre-tax contributions up to one thousand dollars or (B) 50% of the employee's pre-tax contributions, up to the first 6% of eligible compensation. Under this plan, approximately $2.2 million, $2.2 million, and $2.5 million was recognized as expense for the years ended December 31, 2006, 2005, and 2004, respectively.

Note 15. Stock Award Plans and Stock-Based Compensation

In December 2004, the FASB issued SFAS No. 123R. SFAS No. 123R replaces SFAS No. 123 "Accounting for Stock-Based Compensation" ("SFAS No. 123"), supersedes APB No. 25, and amends SFAS No. 95 "Statement of Cash Flows". SFAS No. 123R requires entities to recognize compensation expense for all share-based payments to employees and directors, including grants of employee stock options, based on the grant-date fair value of those share-based payments (with limited exceptions), adjusted for expected forfeitures. Pro forma disclosure is no longer an alternative.

The Company adopted SFAS No. 123R, effective January 1, 2006 using the modified prospective transition method. Under that transition method, stock-based compensation expense recognized during the year ended December 31, 2006 includes: (a) stock options, restricted stock and restricted stock units granted prior to, but not yet vested, as of December 31, 2005, based on the grant-date fair value estimated in accordance with the original provisions of SFAS No. 123, and (b) shares issued in offerings under the Employee Stock Purchase Plan with offering periods commencing January 1, 2006 and stock options, restricted stock and restricted stock units granted subsequent to December 31, 2005, based on the grant-date fair value estimated using the Black-Scholes valuation model in accordance with the provisions of SFAS No. 123R. Expense is recognized ratably over the requisite service period. Under the modified prospective transition method, results for prior periods are not restated.

2000 Stock Plan

The Company maintains the Axcelis Technologies, Inc. 2000 Stock Plan (the "2000 Plan"), a stock award and incentive plan which permits the issuance of options, stock appreciation rights, restricted stock, restricted stock units, and performance awards to selected employees, directors and consultants of the Company. The 2000 Plan originally reserved 18.5 million shares of common stock for future grant, which amount was subsequently increased to 33.2 million shares of common stock. The 2000 Plan expires in 2012. At December 31, 2006 there were 17.4 million shares of common stock available for future grant. At December 31, 2006, stock awards outstanding under the 2000 Plan included stock options, restricted stock and restricted stock units.

Expiration of non-qualified stock options or stock appreciation rights is based on award agreements. Non-qualified stock options typically expire ten years from date of grant, but, if approved by the Board of Directors, may have a stated term in excess of ten years. Incentive stock option awards expire ten years from the date of grant. Generally, options granted to employees terminate upon termination of employment. Under the terms of the 2000 Plan, the exercise price, determined by the Board of Directors, may not be less than the fair market value of a share of the Company's common stock on the date of grant. Stock options granted to employees generally vest over a period of four years, while stock options granted to non-employee members of the Company's Board of Directors generally vest over a period of 6 months and, once vested, are not affected by the director's termination of service to the Company. The Company settles stock option exercises with newly issued common shares.

Generally, unvested restricted stock and restricted stock unit awards expire upon termination of service to the Company. Restricted stock or restricted stock unit awards granted to employees generally vest over a period of four years, while restricted stock or restricted stock units granted to members of the Company's Board of Directors generally vest over a period of six months. The Company plans to settle restricted stock units upon vesting with newly issued common shares.

Under the 2000 Plan, fair market value is defined as the closing price of a share of the common stock on the Nasdaq Global Market as of any applicable date, as long as the Company's shares are traded on such exchange.

Grant-Date Fair Value

For the purpose of valuing stock options, the Company uses the Black-Scholes option pricing model to calculate the grant-date fair value of an award. The fair values of options granted were calculated using the following estimated weighted-average assumptions:

	Years ended December 31,		
	2006	2005	2004
Weighted-average expected volatility	58.4%	74%	51.0%
Weighted-average expected term (in years)	4.2	4.0	4.0
Risk-free interest rate	4.3-5.1%	3.4-4.3%	2.6-3.5%
Expected dividend yield	0%	0%	0%

Expected volatility—The Company is responsible for estimating volatility and has considered a number of factors, when estimating volatility. For options granted prior to fiscal 2006, the Company used historical volatility to estimate the grant-date fair value of stock options. The Company changed its method of estimating expected volatility for all stock options granted after fiscal 2005 from exclusively relying on historical volatility to relying on a combination of historical and implied volatility. This change was the result of a thorough review the Company undertook. The Company currently believes that the use of this blended volatility results in a more accurate estimate of the grant-date fair value of employee stock options because it more appropriately reflects the market's current expectations of future volatility.

Expected term—Weighted average expected term was calculated using a forward looking lattice model of the Company's stock price incorporating a suboptimal exercise factor and a projected post-vest forfeiture rate. Prior to the adoption of SFAS No. 123R, the Company used the estimated option life (typically four years) as the basis for its expected term assumption.

Risk-free interest rate—The yield on zero-coupon U.S. Treasury securities for a period that is commensurate with the expected term assumption is used as the risk-free interest rate.

Expected dividend yield—Expected dividend yield was not considered in the option pricing formula since the Company does not pay dividends and has no current plans to do so in the future.

Stock-Based Compensation Expense

The Company estimates the fair value of stock options using the Black-Scholes valuation model, consistent with the provisions of SFAS No. 123R, SEC SAB No. 107 and the Company's prior period pro forma disclosures of net earnings, including stock-based compensation (determined under a fair value method as prescribed by SFAS No. 123).

The Company used the graded attribution method to recognize expense for all stock-based awards prior to the adoption of SFAS 123R. Upon adoption of SFAS 123R on January 1, 2006, the Company changed to the straight-line attribution method to recognize expense for stock-based awards granted after December 31, 2005. The change to the straight-line attribution method was made so that the expense

associated with each stock-based award is recognized evenly over the vesting period. The expense associated with the unvested portion of the pre-adoption grants will continue to be expensed using the graded attribution method.

The amount of stock-based compensation recognized during a period is based on the value of the portion of the awards that are ultimately expected to vest. SFAS 123R requires forfeitures to be estimated at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differ from those estimates. The term "forfeitures" is distinct from "cancellations" or "expirations" and represents only the unvested portion of the surrendered stock-based award. The Company currently expects, based on a historical analysis, a forfeiture rate of 10% per year, except for executive officer awards, which are expected to forfeit at a rate of 5% per year.

Under SFAS No. 123R the Company recognized stock-based compensation expense of $5.5 million for the year ended December 31, 2006. Adoption of SFAS No. 123R reduced income before income taxes and net income by approximately $3.3 million ($0.03 per basic and diluted share) for the year ended December 31, 2006. The Company would have recognized $2.1 million of stock-based compensation expense for the year ended December 31, 2006, related to its outstanding and additional issuances of restricted stock and restricted stock units prior to the adoption of SFAS No. 123R. For 2006, the Company used restricted stock units in its annual share-based payment program for employees, while continuing to use stock options for new hire grants. As a result, restricted stock units comprised the majority of equity grants in 2006.

SFAS No. 123R also requires the benefits of tax deductions in excess of recognized compensation cost to be reported as a financing cash flow, rather than as an operating cash flow. Because the Company does not recognize the benefit of tax deductions in excess of recognized compensation cost due to its cumulative net operating loss position, this change had no impact on the Company's consolidated statement of cash flows as of and for the year ended December 31, 2006.

Accounting Prior to Adoption of SFAS No. 123R

Prior to January 1, 2006, as permitted under SFAS No. 123, as amended by SFAS No. 148 "Accounting for Stock-Based Compensation Transition and Disclosure," Axcelis elected to follow the provisions of APB No. 25 to account for stock-based awards to employees. Under APB No. 25, compensation expense with respect to such awards is not recognized if on the date the awards were granted the exercise price was equal to or greater than the market value of the underlying common shares. Historically, all stock options have been granted with an exercise price equal to the fair market value of the common stock on the date of grant. Accordingly, no compensation expense was recognized from option grants to employees and directors. The fair value of restricted stock unit and restricted stock awards was charged to deferred compensation at the time of issuance and amortized to expense over the vesting period on a straight-line basis.

The modified prospective transition method of SFAS No. 123R requires the presentation of pro forma information, for periods presented prior to the adoption of SFAS No. 123R, regarding net income (loss) and net income (loss) per share as if the Company had accounted for its stock plans under the fair value method provided by SFAS No. 123.

The following table illustrates the effect on net loss and net loss per share for the years ended December 31, 2005 and 2004, respectively, if the Company had accounted for its stock plans using the fair value method of accounting provided under SFAS No. 123:

	Year ended December 31, 2005	Year ended December 31, 2004
Net income (loss), as reported (Under APB No. 25)	$ (3,855)	$ 74,175
Add: Stock-based employee compensation expense included in reported net income (loss)	1,140	110
Deduct: Total stock-based employee compensation expense determined under fair value based method for all awards	(21,098)	(21,720)
Pro forma net loss	$(23,813)	$ 52,565
Net income (loss) per share as reported		
Basic	$ (0.04)	$ 0.75
Diluted	$ (0.04)	$ 0.73
Pro forma net income (loss) per share		
Basic	$ (0.24)	$ 0.53
Diluted	$ (0.24)	$ 0.52

On October 24, 2005, the Compensation Committee of the Board of Directors resolved to accelerate the vesting of certain unvested and "out-of-the-money" stock options with exercise prices equal to or greater than $10.00 per share. These options were previously awarded to employees and other eligible participants, including executive officers, under the Company's 2000 Stock Plan. Of the approximately 1.5 million accelerated options, 309,474 options, or 21.2%, were held by executive officers. The acceleration of vesting was effective for stock options outstanding as of December 15, 2005, at which date the closing price of the Company's common stock was $4.70 per share. The weighted average exercise price of the options subject to the acceleration was $11.52 per share. The acceleration of the vesting of these options did not result in compensation expense based on generally accepted accounting principles. For pro forma disclosure requirements under SFAS No. 123, the Company recognized an incremental $7.1 million of stock-based compensation expense for all options whose vesting was accelerated. As a result of this action the Company is not recognizing compensation expense of approximately the same amount associated with these options in operating results upon effectiveness of the application of SFAS No. 123R.

Stock Options

The following table summarized stock option activity for the years ended December 31, 2005 and 2004:

	2005		2004	
	Options	Weighted-Average Exercise Price	Options	Weighted-Average Exercise Price
Outstanding at beginning of year	15,318	$11.91	14,171	$12.10
Granted	667	6.78	2,157	10.05
Exercised	(190)	6.02	(245)	7.11
Cancelled	(889)	9.03	(483)	9.96
Expired	(1,442)	13.00	(282)	14.86
Outstanding at end of year	13,464	$11.81	15,318	$11.91
Exercisable at end of year	11,450	$12.70	8,947	$13.48

The following table summarizes the stock option activity for the year ended December 31, 2006:

	Options	Weighted Average Exercise Price	Weighted Average Remaining Contractua Term (years)	Aggregate Intrinsic Value
Outstanding at December 31, 2005	13,464	$11.81		
Granted.....	670	5.14		
Exercised.....	(265)	5.98		
Canceled.....	(204)	6.52		
Expired	(860)	11.71		
Outstanding at December 31, 2006	12,805	$11.68	5.22	$676
Exercisable at December 31, 2006	11,304	$12.38	4.84	$248
Options Vested or Expected to Vest at December 31, 2006 (1).....	12,650	$11.74	5.25	$427

(1) In addition to the vested options, the Company expects a portion of the unvested options to vest at some point in the future. Options expected to vest is calculated by applying an estimated forfeiture rate to the unvested options.

The total intrinsic value of options exercised (i.e. the difference between the market price at exercise and the price paid by the employee to exercise the options) for the years ended December 31, 2006, 2005 and 2004 were $0.3, $0.4 and $0.9 million, respectively. The total fair value of stock options vested during the year ended December 31, 2006 was $3.4 million. As of December 31, 2006, there was $3.5 million of total forfeiture adjusted unrecognized compensation cost related to non-vested stock options granted under the 2000 Plan. That cost is expected to be recognized over a weighted-average period of 1.93 years. Cash received from stock option exercises was $1.6, $1.1 and $1.7 million during the years ended December 31, 2006, 2005 and 2004, respectively.

Restricted Stock and Restricted Stock Units

During 2005, the Compensation Committee of the Board of Directors approved the issuance of 900,000 restricted stock units ("RSUs") to selected employees, including 365,000 to executive officers, and the issuance of 44,000 shares of restricted stock to Directors under the 2000 Plan. RSUs represent the Company's unfunded and unsecured promise to issue shares of the common stock at a future date, subject to the terms of the RSU Award Agreement and the 2000 Plan. The purpose of these awards is to assist in attracting and retaining highly competent employees and directors and to act as an incentive in motivating selected employees and directors to achieve long-term corporate objectives. These 2005 RSU awards vest over four years for employees and executive officers. The 2005 restricted stock awards to directors vested on January 1, 2006. The fair value of restricted stock unit and restricted stock awards is charged to expense ratably over the applicable service period.

In accordance with an approval by the Compensation Committee of the Board of Directors under the 2000 Plan, in July 2006 the Company issued 862,000 RSUs to selected employees, including 417,000 to executive officers, and 50,000 shares of restricted stock to directors. In September and October 2006, the Company issued an additional 15,000 RSUs to selected employees under the 2000 Plan, as approved by the Compensation Committee of the Board of Directors. The 2006 awards vest over four years for non-executive officers. The 2006 awards for executive officers vest 50% on July 3, 2009 and 50% on July 3, 2010, subject to acceleration if the Company meets certain market capitalization targets, but not earlier than July 3, 2008. The 2006 restricted stock awards to directors vested on January 2, 2007. The fair value of

restricted stock unit and restricted stock awards is charged to expense ratably over the requisite service period.

Changes in the Company's non-vested restricted stock and restricted stock units for the years ended December 31, 2006 and 2005 follow:

	Shares/units	Weighted-Average Grant Date Fair Value per Share
Outstanding at December 31, 2004	119	$8.39
Granted	944	6.89
Vested	—	—
Forfeited	—	—
Outstanding at December 31, 2005	1,063	7.04
Granted	927	6.01
Vested	(137)	7.90
Forfeited	(22)	7.84
Outstanding at December 31, 2006	1,831	$6.44

The fair value of the Company's restricted stock and restricted stock units was calculated based upon the fair market value of the Company's stock at the date of grant. As of December 31, 2006, there was $7.7 million of total forfeiture adjusted unrecognized compensation cost related to nonvested restricted stock and restricted stock units, which is expected to be amortized over a weighted average amortization period of 3.02 years.

Employee Stock Purchase Plan

The Employee Stock Purchase Plan (the "Purchase Plan") provides effectively all Axcelis employees the opportunity to purchase common stock of the Company at less than market prices. Purchases are made through payroll deductions of up to 10% of the employee's salary, subject to certain caps set forth in the Purchase Plan. Historically, employees could purchase Axcelis common stock at 85% of the market value of the Company's common stock on the first trading day of each offering period or on the day the stock is purchased, whichever was lower. Effective January 1, 2006, employees may only purchase Axcelis common stock at 85% of the market value of the Company's common stock on the day the stock is purchased. The purchase price may be adjusted by the Board of Directors.

Compensation expense was not recognized through December 31, 2005 because the Purchase Plan was a non-compensatory plan under Section 423 of the Internal Revenue Code. Under SFAS No. 123R, the Purchase Plan is now considered compensatory and as such, compensation expense is recognized beginning January 1, 2006. Compensation expense is computed based on the benefit of the discounted stock price, amortized to compensation expense over each offering period of six months. Compensation expense for the year ended December 31, 2006 was $0.3 million.

As of December 31, 2006, there were a total of 4.1 million shares reserved for issuance and available for purchase under the Purchase Plan. There were 0.5, 0.3 and 0.8 million shares purchased under the Purchase Plan for the years ended December 31, 2006, 2005 and 2004, respectively.

Note 16. Stockholders' Equity

Preferred Stock

The Company may issue up to 30 million shares of preferred stock in one or more series. The Board of Directors is authorized to fix the rights and terms for any series of preferred stock without additional shareholder approval. In June 2000, the Board of Directors authorized and designated 3 million shares of

preferred stock as Series A Participating Preferred Stock for issuance pursuant to the Company's Shareholder Rights Plan discussed below. As of December 31, 2006 and 2005, there were no outstanding shares of preferred stock.

Shareholder Rights Plan

In June 2000, the Board of Directors adopted a Shareholder Rights Plan and declared a dividend distribution of one share purchase right (a "Right") for each outstanding share of common stock to stockholders of record at the close of business on June 30, 2000. Each share of common stock newly issued after that date also will carry with it one Right. Each Right will entitle the record holder to purchase from the Company one one-hundredth of a share of Series A Participating Preferred Stock at an exercise price of $110.00 per Right subject to adjustment. If certain takeover events occur, exercise of the rights would entitle the holders thereof (other than the acquiring person or group) to receive common shares or common stock of a surviving corporation, or cash, property or other securities, with a market value equal to twice the purchase price. These takeover events include a person or group becoming the owner of 20% or more of the Company's outstanding common stock, or the commencement of, or announcement of an intention to make, a tender offer or exchange offer the consummation of which would result in the beneficial ownership by a person or group of 20% or more of the Company's outstanding common shares. The Rights expire in June 2020, and may be redeemed by the Company at the option of its Board of Directors, for $.001 per Right.

Other Reserved Shares

At December 31, 2006, there were 7.5 million shares of common stock reserved for issuance upon conversion of the Notes.

Note 17. Commitments and Contingencies

Lease Commitments

The Company leases manufacturing and office facilities and certain equipment under operating leases that expire through 2011. Rental expense was $6.2 million, $7.0 million, and $7.7 million under operating leases, excluding expense recorded as a component of restructuring, for the years ended December 31, 2006, 2005 and 2004, respectively. Future minimum lease commitments on non-cancelable operating leases and sublease income are as follows:

Year ended December 31,	Operating Leases	Sublease Income
	(in thousands)	
2007	$5,311	$230
2008	2,142	—
2009	1,125	—
2010	124	—
2011	19	—
	$8,721	$230

Purchase Commitments

The Company has non-cancelable contracts and purchase orders for inventory of $50.5 million at December 31, 2006.

Litigation

From time to time, the Company may be subject to legal proceedings and claims arising from the conduct of its business, including litigation related to intellectual property matters, customer contract matters, employment claims and environmental matters. At December 31, 2006, the Company was not a party to any material legal proceedings.

Indemnifications

The Company's system sales agreements typically include provisions under which the Company agrees to take certain actions, provide certain remedies and defend its customers against third-party claims of intellectual property infringement under specified conditions and to indemnify customers against any damage and costs awarded in connection with such claims. The Company has not incurred any material costs as a result of such indemnifications and has not accrued any liabilities related to such obligations in the accompanying consolidated financial statements.

Note 18. Business Segment, Geographic Region Information, and Significant Customers

Axcelis operates in one business segment, which is the manufacture of capital equipment for the semiconductor manufacturing industry. The principal market for semiconductor manufacturing equipment is semiconductor manufacturers. Substantially all sales are made directly by Axcelis to customers located in the United States, Europe and Asia Pacific.

Axcelis' ion implantation systems product line includes high and medium current implanters and high energy implanters and services. Other products include dry strip equipment, curing systems, and thermal processing systems. In addition to equipment, Axcelis provides post-sales equipment service and support, including spare parts, equipment upgrades, maintenance services and customer training.

Revenues by product line are as follows:

	Years ended December 31,		
	2006	2005	2004
		(in thousands)	
Ion implantation systems, services, and royalties	$342,885	$297,335	$412,311
Other products systems, services, and royalties	118,832	75,205	95,665
	$461,717	$372,540	$507,976

Revenues and long-lived assets by geographic region based on the physical location of the operation recording the sale or the asset are as follows:

	Revenue	Long-Lived Assets
	(in thousands)	
2006		
United States	$369,920	$65,347
Europe	37,231	588
Asia Pacific	54,566	743
	$461,717	$66,678
2005		
United States	$292,408	$70,150
Europe	32,320	387
Asia Pacific	47,812	906
	$372,540	$71,443
2004		
United States	$424,723	$73,805
Europe	34,897	488
Asia Pacific	48,356	982
	$507,976	$75,275

Long-lived assets consist of property, plant and equipment, net. Operations in Europe and Asia Pacific consist of sales and service organizations.

International revenues, including export sales from U.S. manufacturing facilities to foreign customers, sales by foreign subsidiaries and branches, and royalties were $309.9 million (67.1% of total revenues) in 2006, $262.3 million (70.4% of total revenues) in 2005 and $390.9 million (77.0% of total revenues) in 2004.

In 2006, no single customer accounted for more than 10% of revenue or consolidated accounts receivable at December 31, 2006. In 2005, one customer, Samsung, accounted for 17.5% of revenue and 11.2% of consolidated accounts receivable at December 31, 2005. In 2004, one customer, ST Microelectronics, accounted for 14.9% of revenue. Net sales to the Company's ten largest customers accounted for 54.9%, 60.2%, and 55.4%, of revenue in 2006, 2005, and 2004, respectively.

Note 19. Income Taxes

Income (loss) before income taxes are as follows:

	Years ended December 31,		
	2006	2005	2004
		(in thousands)	
United States	$19,501	$(21,297)	$33,877
Foreign	4,016	3,564	10,731
Equity income of SEN	19,266	15,751	30,531
	$42,783	$ (1,982)	$75,139

Income taxes (credits) are as follows:

	Years ended December 31, 2006	2005	2004
	(in thousands)		
Current			
United States			
Federal	$ 988	$ (92)	$ 648
State	200	110	310
Foreign	1,034	2,683	4,980
Total current	2,222	2,701	5,938
Deferred			
United States	—	—	(3,986)
Foreign	(209)	(828)	(988)
Total deferred	(209)	(828)	(4,974)
Income taxes	$2,013	$1,873	$ 964

Reconciliations of income taxes at the United States Federal statutory rate to the effective income tax rate are as follows:

	Years ended December 31, 2006	2005	2004
	(in thousands)		
Income taxes (credit) at the United States statutory rate	$14,974	$ (694)	$ 26,299
State income taxes, net of federal income tax benefit	130	72	201
Realized net operating loss carryforwards	(4,217)	—	(11,596)
Change in valuation allowance	—	12,481	—
Credit for increasing research activities	—	(2,111)	—
Foreign income tax rate differentials	(581)	(570)	(362)
Equity income of SEN	(6,743)	(5,513)	(10,686)
Reversal of income tax liabilities recorded in prior years	—	(508)	(3,986)
Other—net	(1,550)	(1,284)	1,094
	$ 2,013	$ 1,873	$ 964

Significant components of current and long-term deferred income taxes are as follows:

	December 31,			
	2006		2005	
	Current	Long-term	Current	Long-term
		(in thousands)		
Net operating loss carryforwards	$ —	$ 42,460	$ —	$ 55,491
Tax credit carryforwards	—	33,353	—	29,264
Equity income of SEN	—	(3,810)	—	—
Unremitted earnings of foreign subsidiaries	—	(5,991)	—	(7,135)
Intangible assets	6	(3,137)	—	(3,961)
Property, plant and equipment	—	352	—	(497)
Other	4,028	1,792	3,171	1,027
Accrued compensation	3,925		452	
Inventories	21,472	—	13,670	—
Deferred revenue	8,019	1,447	7,365	2,735
Stock compensation	—	2,194	—	345
Warranty	1,893	455	1,792	518
	39,343	69,115	26,450	77,787
Valuation allowance	(38,359)	(69,062)	(25,682)	(77,727)
	$ 984	$ 53	$ 768	$ 60

At December 31, 2006, the Company had $108.5 million of deferred tax assets relating to net operating loss carryforwards, tax credit carryforwards and other temporary differences, which are available to reduce income taxes in future years. SFAS No. 109 "Accounting for Income Taxes" requires that a valuation allowance be established when it is "more likely than not" that all or a portion of deferred tax assets will not be realized. A review of all available positive and negative evidence needs to be considered, including a company's performance, the market environment in which the company operates, length of carryback and carryforward periods, existing sales backlog, and projections of future operating results. Where there are cumulative losses in recent years, SFAS No. 109 creates a strong presumption that a valuation allowance is needed. This presumption can be overcome in very limited circumstances.

In 2003, the Company entered a three-year cumulative loss position and revised its projections of the amount and timing of profitability in future periods. As a result, the Company increased its valuation allowance at that time to reduce the carrying value of deferred tax assets to zero.

The Company will maintain a valuation allowance on future tax benefits for entities with net operating loss carryforwards until they can sustain an appropriate level of profitability. However, going forward, should the Company's return to profitability provide sufficient evidence, in accordance with the provisions of SFAS No. 109, to support the ultimate realization of income tax benefits attributable to net operating losses, tax credit carryforwards, and other deductible temporary differences, a reduction in the valuation allowance may be recorded and the carrying value of deferred tax assets may be restored, resulting in a non-cash credit to earnings.

Changes in the valuation allowance in 2006 were attributable to changes in the composition of temporary differences and increases in tax credit carryovers which were offset by the realization of benefits from the use of net operating loss carryforwards to reduce taxable income. Changes in the valuation allowance in 2005 were attributable to changes in the composition of temporary differences and increases in net operating losses and tax credit carryforwards.

At December 31, 2006, the Company has federal, state, and foreign net operating loss carryforwards of approximately $116.3 million expiring principally between 2018 and 2025. Net operating loss

carryforwards from acquired businesses of approximately $12.8 million, can be used to offset future taxable income subject to certain annual limitations. Any future income tax benefits related to net operating loss carryforwards of acquired businesses will be recorded as a reduction of goodwill in the year the benefit is realized.

The Company has research and development and other tax credit carryforwards of approximately $30.9 million at December 31, 2006 that can be used to reduce future income tax liabilities. The carryforwards expire principally between 2021 and 2026. In addition, the Company has foreign tax credit carryforwards of approximately $2.5 million at December 31, 2006 that are available to reduce future U.S. income tax liabilities subject to certain limitations. These foreign tax credit carryforwards expire between 2011 and 2016.

At December 31, 2006, no provision for U.S. income taxes has been recognized on approximately $6.8 million of undistributed earnings of the Company's foreign subsidiaries. These earnings are considered to be indefinitely reinvested. The Company has not provided for income tax expense on $115.2 million of equity income of SEN, since the Company does not have the ability to unilaterally initiate a distribution of these earnings. If such earnings were distributed in the future, some portion of the distribution would be subject to both U.S. income taxes and foreign withholding taxes, less an adjustment for applicable foreign tax credits. At the present time the Company has available net operating loss carryforwards and income tax credits that would substantially offset any resulting income tax liability.

Note 20. SEN corporation, an SHI and Axcelis Company (unaudited)

SEN was established in 1982 under the Commercial Code of Japan and is owned equally by Sumitomo Heavy Industries, Ltd., a Japanese corporation, and Axcelis. SEN designs, manufactures, sells and services specified ion implantation equipment in Japan under a license agreement with Axcelis.

Summary financial information is as follows:

	2006	2005	2004
		(in thousands)	
Twelve months ended November 30:			
Net sales	$267,131	$254,886	$329,744
Gross profit	125,394	121,952	165,683
Net income	38,531	31,503	61,063
November 30:			
Current assets	$304,208	$248,566	$279,663
Noncurrent assets	26,044	28,336	40,245
Current liabilities	76,339	58,888	100,967
Noncurrent liabilities	187	188	496

SEN has a March 31 fiscal year end. The consolidated statements of operations for Axcelis include the results of SEN for the twelve-month periods ended November 30, which represents a one-month lag. The information above has been presented as of and for the twelve months ended November 30 to conform to Axcelis' equity accounting for SEN.

A summary of Axcelis' transactions with and balances payable to or receivable from SEN are as follows:

	2006	2005	2004
		(in thousands)	
Net sales	$ 3,007	$ 3,490	$ 3,374
Royalty revenue	9,207	8,652	12,951
Dividends received	—	538	—
Axcelis' equity income of SEN	19,266	15,751	30,531
Accounts receivable at December 31	1,402	2,375	1,816
Accounts payable at December 31	178	71	162

Axcelis' retained earnings (deficit) included $102.2 million and $82.9 million of undistributed earnings of SEN at December 31, 2006 and 2005, respectively.

In 2006, Axcelis and Sumitomo Heavy Industries agreed upon an annual dividend relating to SEN's fiscal year ended March 31, 2006. The two shareholders instructed SEN to dividend 40% of SEN's net earnings for that year. On January 31, 2007, Axcelis received a payment of approximately $5.7 million representing its 50% share of the dividend.

Note 21. Quarterly Results of Operations (unaudited)

	Dec. 31, 2006	Sept. 30, 2006	June 30, 2006	March 31, 2006	Dec. 31, 2005(1)	Sept. 30, 2005(2)	June 30, 2005(3)	March 31, 2005(4)
	(in thousands, except per share data)							
Revenue	$123,339	$122,817	$117,640	$97,921	$92,944	$87,382	$92,178	$100,036
Gross profit	51,264	53,266	47,942	39,042	37,991	35,703	38,940	41,797
Net income (loss)	15,561	12,520	12,144	545	(1,335)	(5,167)	749	1,898
Net income (loss) per share								
Basic	$ 0.15	$ 0.12	$ 0.12	$ 0.01	$ (0.01)	$ (0.05)	$ 0.01	$ 0.02
Diluted	$ 0.15	$ 0.12	$ 0.12	$ 0.01	$ (0.01)	$ (0.05)	$ 0.01	$ 0.02

(1) Includes restructuring charges of $1.1 million.

(2) Includes restructuring charges of $1.5 million and reduced income tax expense of $0.5 million for adjustments to income tax provisions recorded in prior years.

(3) Includes restructuring charges of $2.1 million.

(4) Includes restructuring charges of $1.8 million.

Signatures

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

AXCELIS TECHNOLOGIES, INC.

/s/ Mary G. Puma

Dated: March 13, 2007 By: Mary G. Puma, Chief Executive Officer

Pursuant to the requirements of the Securities Act of 1934, this report has been signed below by the following persons on behalf of the Registrant and in the capacities and on the date indicated.

Signature	Title	Date
/s/ MARY G. PUMA Mary G. Puma	Director and Principal Executive Officer	March 13, 2007
/s/ STEPHEN G. BASSETT Stephen G. Bassett	Principal Accounting and Financial Officer	March 13, 2007
/s/ R. JOHN FLETCHER R. John Fletcher	Director	March 13, 2007
/s/ STEPHEN R. HARDIS Stephen R. Hardis	Director	March 13, 2007
/s/ WILLIAM C. JENNINGS William C. Jennings	Director	March 13, 2007
/s/ MICHIO NARUTO Michio Naruto	Director	March 13, 2007
/s/ PATRICK H. NETTLES Patrick H. Nettles	Director	March 13, 2007
/s/ H. BRIAN THOMPSON H. Brian Thompson	Director	March 13, 2007
/s/ GEOFFREY WILD Geoffrey Wild	Director	March 13, 2007

Exhibit Index

Exhibit No.	Description
3.1	Amended and Restated Certificate of Incorporation of the Company. Incorporated by reference to Exhibit 3.1 of the Company's Registration Statement on Form S-1 (Registration No. 333-36330).
3.2	Bylaws of the Company, as amended as of January 23, 2002. Incorporated by reference to Exhibit 3.2 of the Company's Form 10-K for the year ended December 31, 2001, filed with the Commission on March 12, 2002.
3.3	Certificate of Designation of Series A Participating Preferred Stock, filed with the Secretary of State of Delaware on July 5, 2000. Incorporated by reference to Exhibit 3.3 of the Company's Form 10-K for the year ended December 31, 2000, filed with the Commission on March 30, 2001.
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).
4.2	Rights Agreement between the Company and EquiServe Trust Company, N.A. Incorporated by reference to Exhibit 4.1 of the Company's Registration Statement on Form S-1 (Registration No. 333-36330).
4.3	Indenture between the Company and U.S. Bank National Association, as trustee, including the form of note, dated as of May 2, 2006. Incorporated by reference to Exhibit 4.12 of the Company's Report on Form 8-K filed with the Commission on May 4, 2006.
10.1*	Axcelis Technologies, Inc. 2000 Stock Plan, as amended through June 23, 2005. Incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K filed with the Commission on June 28, 2005.
10.2*	Axcelis Team Incentive Plan for executive officers, adopted by the Compensation Committee of the Board of Directors on January 20, 2005. Incorporated by reference to Exhibit 10.1 to the Company's Report on Form 8-K filed with the Commission on January 31, 2005.
10.3	Form of Indemnification Agreement entered into by the Company with each of its directors and executive officers. Incorporated by reference to Exhibit 10.2 of the Company's Registration Statement on Form S-1 (Registration No. 333-36330).
10.4*	Form of Change in Control Agreement, as amended on May 12, 2005, between the Company and each of its executive officers. Incorporated by reference to Exhibit 10.1 of the Company's report on Form 10-Q filed with the Commission on August 9, 2005.
10.5*	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.
10.6*	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.
10.7*	Form of Restricted Stock Agreement for use under the 2000 Stock Plan. Incorporated by reference to Exhibit 10.4 to the Company's Current Report on Form 8-K filed with the Commission on June 28, 2005.
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.

Exhibit No.	Description
10.9*	Form of Lock-Up Agreement dated October 26, 2005 between the registrant and each of its executive officers. Incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed with the Commission on October 26, 2005.
10.10*	Named Executive Officer Base Compensation at March 1, 2007. Filed herewith.
10.11*	Non-Employee Director Cash Compensation at March 1, 2007. Filed herewith.
10.12*	Employment Agreement between the Company and Mary G. Puma. Incorporated by reference to Exhibit 10.5 of the Company's Registration Statement on Form S-1 (Registration No. 333-36330).
10.13**	Organization Agreement dated December 3, 1982 between Eaton Corporation and Sumitomo Heavy Industries, Ltd. relating to SEN Corporation, an SHI and Axcelis Company formerly known as Sumitomo Eaton Nova Corporation, as amended. Incorporated by reference to Exhibit 10.6 of the Company's Registration Statement on Form S-1 (Registration No. 333-36330).
10.14**	Master License Agreement dated January 16, 1996 between Eaton Corporation and SEN Corporation, an SHI and Axcelis Company formerly known as Sumitomo Eaton Nova Corporation. Incorporated by reference to Exhibit 10.7 of the Company's Registration Statement on Form S-1 (Registration No. 333-36330).
10.15	Registration Rights Agreement between the Company and Quantum Partners LDC, dated as of May 2, 2006. Incorporated by reference to Exhibit 10.1 of the Company's Current Report on Form 8-K filed with the Commission on May 4, 2006.
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. Filed herewith.
23.1	Consent of Ernst & Young LLP, Independent Registered Public Accounting Firm. Filed herewith.
31.1	Certification of the Chief Executive Officer under Exchange Act Rule 13a-14(a)/15d-14(a) (Section 302 of the Sarbanes-Oxley Act), dated March 8, 2006. Filed herewith.
31.2	Certification of the Chief Financial Officer under Exchange Act Rule 13a-14(a)/15d-14(a) (Section 302 of the Sarbanes-Oxley Act), dated March 8, 2006. Filed herewith.
32.1	Certification of the Chief 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 8, 2006. Filed herewith.
32.2	Certification of the Chief 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 8, 2006. Filed herewith.

* Indicates a management contract or compensatory plan.

** Certain confidential information contained in the document has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended, or Rule 24b-2 promulgated under the Securities and Exchange Act of 1934, as amended

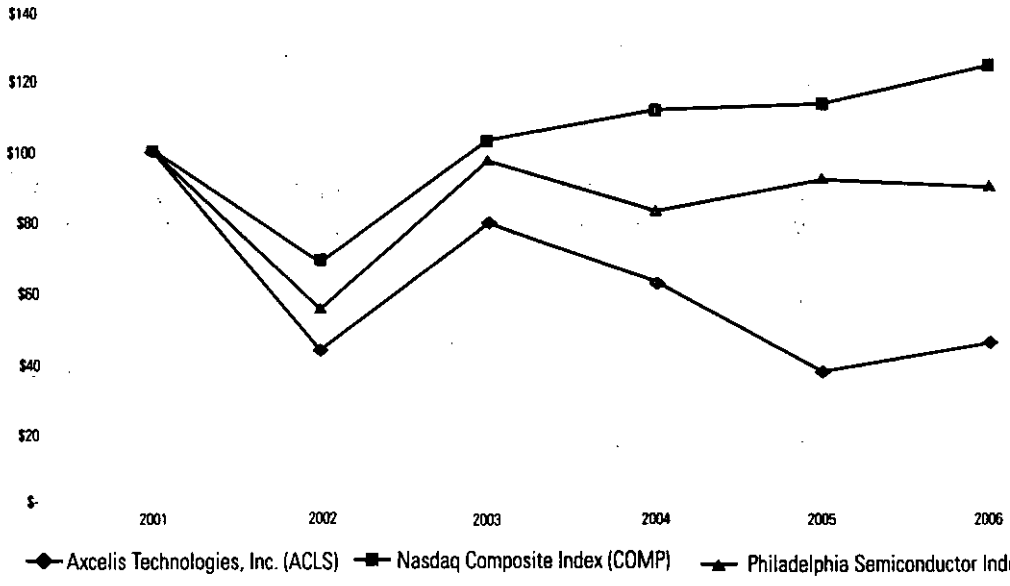
Schedule II-Valuation and Qualifying Accounts
Axcelis Technologies, Inc
(in thousands)

	Balance at Beginning of Period	Charged to Costs and Expenses	Deductions	Other(*)	Balance at End of Period
Year Ended December 31, 2006					
Allowance for doubtful accounts and returns	$ 3,123	$ —	$ (164)	$ (18)	$ 2,941
Reserve for excess and obsolete inventory	17,795	5,797	(2,284)	784	22,092
Year Ended December 31, 2005					
Allowance for doubtful accounts and returns	3,628	—	(455)	(50)	3,123
Reserve for excess and obsolete inventory	15,356	4,224	(1,845)	60	17,795
Year Ended December 31, 2004					
Allowance for doubtful accounts and returns	3,823	82	(277)	—	3,628
Reserve for excess and obsolete inventory	8,966	10,107	(3,963)	246	15,356

(*) represents foreign currency translation adjustments.

STOCK PERFORMANCE GRAPH

This graph compares the five-year cumulative total stockholder returns for our common stock to that of the Philadelphia Semiconductor Index (known as "SOX") and the Nasdaq Composite Index at each of the last five fiscal years ends. The cumulative returns are based on a $100 investment on December 31, 2001, with all dividends, if any, being reinvested. The stock performance shown on the graph below is not necessarily indicative of future price performance.



Company/Index Name	December 31 2001	December 31 2002	December 31 2003	December 31 2004	December 30 2005	December 29 2006
Axcelis Technologies Inc.	$100.00	$43.51	$79.67	$63.07	$37.01	$45.23
NASDAQ Composite Index	$100.00	$68.47	$102.72	$111.54	$113.07	$123.84
Philidelphia Semiconductor Index	$100.00	$55.39	$97.31	$82.98	$91.83	$89.61

Axcelis Technologies, Inc.
108 Cherry Hill Drive
Beverly, MA 01915

END