AXCELIS TECHNOLOGIES INC
Form 10-K
March 17, 2008

Use these links to rapidly review the document

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

(Mark One)

ý **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended December 31, 2007

o **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 Preferred Share Purchase Rights	The Nasdaq Stock Market LLC

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 o No ý

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 o No ý

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 ý No o

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. o

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer o	Accelerated filer ý	Non-accelerated filer o (Do not check if a smaller reporting company)	Smaller reporting company o

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes o No ý

Aggregate market value of the voting stock held by non-affiliates of the registrant as of June 29, 2007: $565,349,066.

Number of shares outstanding of the registrant's Common Stock, $0.001 par value, as of March 13, 2008: 102,448,670.

Documents incorporated by reference:

Portions of the definitive Proxy Statement for Axcelis Technologies, Inc.'s Annual Meeting of Stockholders to be held on May 1, 2008 are incorporated by reference into Part III of this Form 10-K.

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 and other processing 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 75.2% of our revenues in 2007 with the remaining 24.8% of revenues derived from our dry strip and other processing systems. 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," a leading producer of ion implantation equipment in Japan. SEN licenses technology from us for certain ion implantation products and has exclusive rights to market the licensed products in 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 of either 200mm (8 inches) or 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 in the formation of transistors are traditionally referred to as "Front-End-of-Line." The "Back-End-of-Line" 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 equipment 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. For example, the use of 200mm wafers in production began at the end of the 1980s. The migration from 200mm to 300mm began at the end of the 1990s. The majority of wafer fabrication facilities today are using wafers with a diameter of 300mm. In 2007, Axcelis derived 68% of total systems revenue (a component of product 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 over $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 outsource all or part of their chip manufacturing requirements to contract manufacturers, known as foundries. Foundries are predominantly located in Asia (historically Taiwan and Singapore) and are significant purchasers of semiconductor manufacturing equipment. China has recently seen the construction of many new foundries, which is expected to continue.

Traditionally, the semiconductor industry has grown on an annual basis. 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 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 the principal product market segments we serve.

Deliver profitability and positive cash flow through the industry cycles to maximize shareholder and employee value.

In addition to ion implanters, Axcelis offers dry strip and other processing systems. In September 2007, Axcelis' management elected to discontinue future development of the thermal processing and photostabilization/curing product lines. Axcelis continues to provide aftermarket support for the installed base of these systems. Of our total 2007 revenues, 20.3% were derived from our dry strip products and related services and 4.5% from these other product lines. We intend to continue to maximize the opportunity for dry strip, while maintaining our leadership position in ion implantation. Our dry strip and other processing products serve process steps in both the front and back end of line semiconductor manufacturing.

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 scientists and engineers who 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 wide range of implant steps, three different types of implanters have been developed, each 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, processing multiple wafers at the same time. To address smaller device geometries and provide high tilt, single wafer high current implanters now dominate the sector.

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 offers a complete line of high energy, high current and medium current implanters for all application requirements. Axcelis is a market leader in high energy ion implanters and was a market leader in multi wafer high current implanters for many years. Beginning in 2005, most customers shifted from multi wafer tools to single wafer tools for high current applications. Because Axcelis did not have a single wafer high current product at that time, we have experienced a significant loss of market share which we have yet to regain. We introduced our single wafer Optima HD product (for high current applications) in 2006. By the end of 2007, Axcelis had shipped 12 Optima HD products. Our single wafer tool for high energy applications, the Optima XE, was released in the fourth quarter of 2007. We expect to ship our first Optima XE in early 2008. We expect to maintain our leadership in the high energy segment through sales of our multi wafer high energy systems and the Optima XE.

Axcelis' line of single wafer implanters, known as the Optima platform, is 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 HD. 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 XE, which was released in the fourth quarter of 2007. The Optima XE combines Axcelis' production-proven RF Linac high energy, spot beam technology with a high-speed, state-of-the-art single wafer endstation, enabling unmatched throughput. Axcelis' advanced spot beam ensures that all points across the wafer see the same beam at the same beam angle, resulting in exceptional process control and maximum yield. Also introduced in the fourth quarter of 2007 was the Optima HE, a reduced energy version of the Optima XE. This new single wafer high energy tool will meet the needs of those customers exploring a transition from our multi wafer high energy tools.

The Optima MD. 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 in 2005, Axcelis re-entered the medium current market segment, which we had not participated in since 2001.

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 continue Axcelis' history of leadership in ion implant.

Dry Strip

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. Once the subsequent implant processes and etch steps (in which the top layer of the surface of the wafer not covered by photoresist is removed) are completed, 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 radio frequency 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 (sometimes referred to as "bulk strip") 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 device 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 photoresist removal capabilities coupled with our technology for back-end photoresist removal provide a complete solution for our customers.

Other Processing Systems

Photostabilization/Curing Systems In some manufacturing processes, the photoresist stencil material spread on the wafer must be hardened or "cured." Axcelis' curing (also known as photostabilization) systems use proprietary ultraviolet light sources to cure the photoresist so the material maintains the desired pattern during the subsequent implant processes and etch steps.

The photostabilization and curing market has remained a small segment. In past years, Axcelis has explored growth opportunities for this product line in curing and drying new low-k dielectric materials. To date, broad adoption of such materials has not occurred. In the fourth quarter of 2007, Axcelis determined that the current and near term market opportunity for the curing product line did not justify continuing investment in these products. As a result, Axcelis decided to cease future product development in curing to focus on profitable growth within the company's core ion implant and dry strip businesses.

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. Our thermal processing systems employ a patented design to process a single wafer in a hot wall vertical reactor. This technology differs from most other thermal processing equipment, which regulate temperature through a lamp-based system. The RTP market is dominated by a single major competitor and, while the Axcelis RTP systems have technological advantages for certain applications, our penetration into the market remains low. In the third quarter of 2007, Axcelis determined that the current and near term market opportunity for the RTP product line did not justify continuing investment in these products. As a result, Axcelis decided to cease future product development in RTP to focus on profitable growth within the company's core ion implant and dry strip businesses.

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 4,000 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 42.2%, 38.2%, and 42.3% of revenue in 2007, 2006, and 2005, respectively.

Our customer support network consists of over 700 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. See Note 2 to our Consolidated Financial Statements contained in Item 15 of this Form 10-K for a discussion of revenue classifications from our aftermarket business.

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 non-implant products in Japan through Toda Technologies Service Co., Ltd., an unaffiliated company, which provides sales and support services for these products.

International revenues, including export sales from our U.S. manufacturing facilities to foreign customers, sales by foreign subsidiaries and branches, and royalties, accounted for 67.0% of total revenue in 2007, 67.1% in 2006, and 70.4% in 2005. Substantially all of our sales are denominated in U.S. dollars. 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 2007, the top 20 semiconductor manufacturers accounted for approximately 80% of total semiconductor industry capital spending, up slightly from 79.0% in 2006. 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 4,000 of our products, including products shipped by SEN, are in use worldwide.

Revenues from our ten largest customers accounted for 57.8%, 54.9%, and 60.2% of revenue in 2007, 2006, and 2005, 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 2007, two customers accounted for 12.2% and 10.5% of revenue, respectively. In 2006, no single customer accounted for greater than 10% of revenue. However, in 2005, one customer accounted for 17.5% 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 to manufacture and sell specific ion implanter systems using our technology in Japan. As of year end 2007, SEN had 541 employees and 238 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 ("SHI"), holds the other 50% of the equity of SEN.

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 $6.1 million, $9.2 million and $8.7 million in 2007, 2006 and 2005, 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.

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" for a discussion of a pending arbitration with SEN.

In January 2007, SEN made a dividend of 40% of its net earnings for the year ended March 31, 2006. In this dividend Axcelis received payment of approximately $5.7 million, representing its 50% share. In June 2007, Axcelis and Sumitomo Heavy Industries, Ltd., the other shareholder of SEN, entered into a Memorandum of Understanding (the "MOU") that provided that SEN would also dividend to its shareholders 40% of SEN's net earnings for SEN's fiscal years ended March 31, 2007 and ending March 31, 2008. In July 2007, Axcelis received a dividend of approximately $6.7 million for SEN's fiscal year ended March 31, 2007. In accordance with the MOU, Axcelis expects to receive a dividend in July 2008 for SEN's fiscal year ending March 31, 2008. The MOU provides that the two SEN shareholders will seek to re-negotiate the dividend rate for years after 2008 but, absent a new agreement, the MOU provides for continuing annual dividends at the level of 40% of SEN's net earnings.

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 $72.0 million, $72.4 million and $70.9 million in 2007, 2006, and 2005, respectively, or 17.8%, 15.7% and 19.0% of revenues, respectively. We expect that research and development expenditures will continue to represent a substantial investment in future years.

Manufacturing

We manufacture our 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 sq. ft. 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 customers' 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. 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 2008.

Each system module is packaged to maintain clean room standards during shipment. Installation is 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 costs 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 two principal product markets in both the front-end and back-end of the semiconductor wafer fabrication process: ion implantation and dry strip. 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 competitor in high energy and high current is Varian Semiconductor Equipment Associates, Inc. In the medium current equipment segment, we compete with Nissin Electric Co., Ltd. and Varian. SEN faces the same competitors in the Japanese market. Our Optima HD Imax competes against Plasma Immersion Systems from both Varian and Applied Materials.

Dry Strip. Our principal competitors in the dry strip product market are Mattson Technology Inc. and Novellus Systems, 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, 2008, we had 314 patents issued in the United States and 564 patents granted in other countries, as well as 866 patent applications (105 in the United States and 761 in other countries) on file with various patent agencies worldwide. Patents are generally in effect for up to 20 years from the filing of the application.

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.

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, 2007, our systems backlog (excluding deferred systems revenue) was $20.5 million, as compared to $91.7 million as of December 31, 2006. Systems backlog including deferred systems revenue was $60.7 million and $124.8 million as of December 31, 2007 and 2006, respectively. Decrease in backlog is representative of the overall downturn in the semiconductor equipment market. 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 six 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 services or parts 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, 2007, we had 1,575 employees and 63 temporary staff worldwide, of which 1,257 work in North America, 281 in Asia and 100 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, 50, 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, 60, 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, 49, 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, 48, 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, 51, is our Executive 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, 44, 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.

William Bintz, 51, has been our Senior Vice President, Marketing since September 2007. Mr. Bintz joined Axcelis in early 2006 as Director of Marketing for curing and cleaning products and shortly thereafter became Vice President of Product Marketing where he expanded his responsibilities to include implant products as well. Prior to joining Axcelis, from 2002 Mr. Bintz was Product Director for Medium Current and High Energy Ion Implant System at Varian Semiconductor Equipment Associates, Inc. Before that, he was General Manager of the Materials Delivery Products Group at MKS Instruments, beginning in 1999, and General Manager of the Thermal Processing Systems Division at Eaton Corporation (now Axcelis) beginning in 1995.

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 in 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 currently identified, could affect our financial or other performance and could cause our actual results for future periods to differ materially from 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, which risk factors, and others, are 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. When the rate of construction or expansion of fabrication facilities declines, demand for our systems will decline, reducing our revenues. Revenue decline also hurts 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. Our 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 gain market share with our new single wafer ion implant system, the Optima HD. We were 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. The Optima HD serves 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.

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 2007, our top ten customers accounted for 57.8% 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 SEN. 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 can effectively control SEN alone. 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. SEN has filed counter claims which Axcelis believes have no merit. In December 2006, SEN and Axcelis jointly appointed a sole arbitrator. The arbitrator has set a schedule which calls for final decisions in 2009. 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 royalties 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 67.0% of total revenue in 2007, 67.1% in 2006, and 70.4% in 2005. System shipments to Asian customers represented 64% of total shipment dollars in 2007 in comparison to 53% of total shipment dollars in 2006. 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, 2007, approximately 10% of our revenues were derived from foreign operations with this inherent risk. In addition, at December 31, 2007, our operations outside of the United States accounted for approximately 37% 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 to finance our operations.

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. 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 2008. 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.

We may be unable to refinance our outstanding debt.

At December 31, 2007, we held outstanding convertible debt in the principal amount of approximately $79.9 million, which comes due in January 2009. We will need to obtain new financing in order to pay off this debt, with interest, at maturity. There is no assurance that we will be able to obtain such new financing on acceptable terms, or at all. If we cannot do so, we would need to pay off the debt out of existing resources, which would materially adversely affect our business and financial condition.

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 59 properties, of which 20 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 58 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.	22,000 (leased)

SEN manufactures ion implantation products in a 300,000 square foot owned facility located in Saijo, Japan.

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 other locations are ISO 9001 certified.

Item 3. Legal Proceedings.

The Company is not presently a party to any litigation that it believes might have a material adverse effect on its business operations. The Company is, from time to time, a party to litigation that arises in the normal course of its business operations. Pending matters that arose outside of the ordinary course of business are:

Two purported class actions were filed against the Company in connection with a proposal made by Sumitomo Heavy Industries, Ltd. in February 2008 to acquire outstanding common stock of the Company. We believe each of these cases is without merit and continue to defend against them vigorously.

On or about February 11, 2008, Martin Meltzer filed a purported shareholder class action complaint in Massachusetts Superior Court (Civil Action No. 08-0692-E), naming as defendants the Company, Mary G. Puma, Stephen R. Hardis, Patrick H. Nettles, H. Brian Thompson, William C. Jennings, R. John Fletcher, Geoffrey Wild, and Michio Naruto. The complaint alleges that the Company and its Board of Directors breached their fiduciary duties to Axcelis shareholders by failing to properly consider the February 11, 2008 unsolicited offer by Sumitomo Heavy Industries Ltd. to purchase all of the outstanding stock of the Company for $5.20 per share. The complaint seeks an order from the Court directing the Company and its Board of Directors to "give due consideration to any proposed business combination" to maximize shareholder value, while ensuring that no conflicts of interest exist.

On or about February 28, 2008, Shirley Simon filed a purported shareholder class action complaint in Delaware Chancery Court (Case No. 3582), naming as defendants the Company, Mary G. Puma, Stephen R. Hardis, Patrick H. Nettles, H. Brian Thompson, William C. Jennings, R. John Fletcher, and Geoffrey Wild. The complaint alleges that the Company and its Board of Directors breached their fiduciary duties to Axcelis shareholders by failing to properly consider the February 11, 2008 unsolicited offer by Sumitomo Heavy Industries Ltd. to purchase all of the outstanding stock of the Company for $5.20 per share, and subsequently rejecting that offer. The complaint seeks an order from the Court directing the Company and its Board of Directors to cooperate with any person or entity, including Sumitomo, that proposes a merger, acquisition or other transaction that would maximize shareholder value, while ensuring that no conflicts of interest exist. The complaint also seeks to have the defendants other than the Company to pay damages suffered to the class as a result of their alleged breaches of fiduciary duty.

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. SEN has filed counter claims which Axcelis believes have no merit. In December 2006, SEN and Axcelis jointly appointed a sole arbitrator. The arbitrator has set a schedule which calls for final decisions in 2009. 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 royalties 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.

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, 2008, we had approximately 5,918 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
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
2007		
First quarter	$ 7.82	$ 5.92
Second quarter	8.20	5.96
Third quarter	6.63	4.52
Fourth quarter	5.17	4.04

Item 6. Selected Financial Data.

The following selected consolidated statements of operations data for each of the three years ended December 31, 2007, 2006, and 2005 and the consolidated balance sheet data as of December 31, 2007 and 2006 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, 2005 and 2004, and the statement of operations data for the years ended December 31, 2004 and 2003, has been derived from the audited financial statements contained in our Form 10-K filed on March 14, 2006. The consolidated balance sheet data as of December 31, 2003 has been derived from the audited financial statements contained in our Form 10-K filed on March 15, 2005.

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,				
	2007	2006	2005	2004	2003
	(in thousands, except per share amounts)				
Consolidated statements of operations data					
Revenue	$ 404,800	$ 461,717	$ 372,540	$ 507,976	$ 327,990
Gross profit	152,861	191,514	154,431	211,528	110,368
Equity income of SEN	10,416	19,266	15,751	30,531	8,954
Income (loss) before income taxes	(11,808)	42,783	(1,982)	75,139	(44,341)
Net income (loss)	(11,398)	40,770	(3,855)	74,175	(113,876)
Net income (loss) per share					
Basic	$ (0.11)	$ 0.40	$ (0.04)	$ 0.75	$ (1.16)
Diluted	$ (0.11)	$ 0.40	$ (0.04)	$ 0.73	$ (1.16)
Shares used in computing basic and diluted per share amounts					
Basic	101,891	101,058	100,301	99,528	98,514
Diluted	101,891	101,361	100,301	101,205	98,514
Consolidated balance sheet data					
Cash and cash equivalents	$ 83,877	$ 140,451	$ 71,417	$ 108,295	$ 65,749
Working capital	284,679	284,910	301,143	298,184	231,537
Total assets	669,929	753,993	661,443	688,862	585,244
Long-term liabilities	89,920	86,290	141,176	137,994	134,023
Stockholders' equity	486,006	477,562	426,041	443,473	353,250

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 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 is 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. The industry experienced a downturn in 2007, which is expected to continue at least through the first half of 2008. Our gross margins are also affected by the introduction of new products. We typically become more efficient in manufacturing products as they mature. 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.

Beginning in 2004, most customers shifted from multi wafer tools to single wafer tools for high current ion implant applications. Because we did not have a single wafer high current product, we have experienced a significant loss of market share which we have yet to regain. We introduced our single wafer Optima HD (for high current applications) product in 2006 and have begun to gain traction with this tool at a number of customers through evaluation arrangements. As of December 31, 2007, no revenue has been recognized on the Optima HD.

Our single wafer tool for high energy ion implant applications, the Optima XE, was released in the fourth quarter of 2007. We expect the Optima XE to allow us to maintain a leading market share in high energy applications moving forward. As of December 31, 2007, total amounts capitalized as part of inventory, evaluation tools (classified as a component of inventory on the balance sheet) and other assets related to our investment in the Optima product line were approximately $113.8 million. As Optima tools shipped in 2007 convert into revenue in 2008, we expect a significant reduction in these amounts.

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."

Operating results for the years presented are not necessarily indicative of the results that may be expected for future interim periods or years 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

Our revenue recognition policy involves significant judgment by management. As described 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.

We recognize 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 product 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. Product 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.

We generally recognize 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 new 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.

For initial shipments of systems with new technologies or 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, 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.

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 service hours is recognized when the services are performed.

Royalty revenue is primarily earned under the terms of our license agreement with SEN. Royalty revenue is recorded at the time SEN notifies the Company that royalties have been earned.

Beginning with the period ended September 30, 2007, we modified the classification of various components of revenue presented in the statement of operations to more closely align with SEC reporting guidelines. Product revenue includes revenue from system sales, sales of spare parts, the spare parts component of maintenance and service contracts and product upgrades. Service revenue

includes the labor component of maintenance and service contract amounts charged for on-site service personnel. Revenue and cost of revenue amounts presented for prior periods have been reclassified to permit comparison.

Goodwill, Intangible and Long-Lived 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 reporting 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. In September 2007, we elected to discontinue future development of the RTP and Photostabilization/Curing product lines. Based on that business decision, the forecast of future cash flows was revised and, as such, in September 2007 a goodwill impairment loss of $4.7 million was recorded in our statement of operations as a non-cash charge to earnings. The fair value of this reporting unit was estimated using the expected present value of future cash flows. In addition, we performed our annual impairment review of goodwill for our other reporting units. As a result of this review, we determined that there were no additional impairments of our goodwill as of December 31, 2007.

We assess the impairment of intangible and long-lived assets 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. As a result of this review, we determined there were no impairments of our intangible and long-lived assets as of December 31, 2007.

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,		
	2007	2006	2005
Revenue			
Product	84.9%	86.3%	81.7%
Services	13.6	11.7	15.9
Royalties, primarily from SEN	1.5	2.0	2.4
	100.0	100.0	100.0
Cost of revenue			
Product	53.6	50.7	49.9
Services	8.6	7.8	8.6
	62.2	58.5	58.5
Gross profit	37.8	41.5	41.5
Operating expenses			
Research and development	17.8	15.7	19.0
Sales and marketing	12.3	9.9	12.0
General and administrative	10.3	10.1	12.2
Impairment of goodwill	1.2		
Amortization of intangible assets	0.7	0.5	0.7
Restructuring charges	0.6	0.1	1.7
	42.9	36.3	45.7
Income (loss) from operations	(5.1)	5.2	(4.3)
Other income (expense)			
Equity income of SEN	2.6	4.2	4.2
Interest income	1.2	1.8	1.5
Interest expense	(1.6)	(1.9)	(1.8)
Other net		(0.1)	(0.2)
	2.2	4.0	3.7
Income (loss) before income taxes	(2.9)	9.2	(0.5)
Income taxes (credits)	(0.1)	0.4	0.5
Net income (loss)	(2.8)%	8.8%	(1.0)%

Year ended December 31, 2007 in comparison to the year ended December 31, 2006

Revenue

Product

Product revenue, which includes systems sales, sales of spare parts and product upgrades, was $343.6 million or 84.9% of revenue in 2007, compared with $398.4 million, or 86.3% of revenue in 2006. Product revenue in 2006 and 2007 has been reduced by our loss of high current market share, as discussed above. The decline in product revenue in 2007 is also attributable to a weakening semiconductor market and a related decrease in capital spending by semiconductor manufacturers. In addition a decrease in capacity expansion at 200mm manufacturing facilities (a portion of which relates to the overall decline in the semiconductor capital equipment market) decreased revenue from system sales by $44.6 million for 2007.

Approximately 31.6% of systems revenue in 2007 was from sales of 200mm products and 68.4% was from sales of 300mm products, compared with 42.2% and 57.8% for sales of 200mm products and 300mm products in 2006, 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.

A portion of our revenue from system sales is deferred until installation and other services related to future deliverables are performed. The total amount of deferred revenue at December 31, 2007 and 2006 was $40.5 million and $33.9 million, respectively.

Service

Service revenue, which includes the labor component of maintenance and service contracts and fees for service hours provided by on-site service personnel, was $55.2 million, or 13.6% of revenue for 2007, compared with $54.1 million, or 11.7% of revenue, for 2006. Although service revenue should increase with the expansion of the installed base of systems, it can fluctuate period to period based on capacity utilization at customers' manufacturing facilities, which affects the need for equipment service.

Royalties

Royalty revenue was $6.1 million, or 1.5% of revenue for 2007, compared with $9.2 million, or 2.0% of revenue for 2006. Royalties are primarily earned under the terms of our license agreement with SEN. Changes are mainly attributable to fluctuations in SEN sales volume based on demand for equipment by Japanese semiconductor manufacturers and the timing of shipments in Japan.

Ion Implant

Revenue from sales of ion implantation products and service accounted for $304.5 million, or 75.2% of total revenue in 2007, compared with $342.9 million, or 74.3%, of total revenue in 2006. Annual revenues from the sale of ion implantation products and service typically average from 70% to 80% of total revenues.

Aftermarket

Aftermarket revenues, which include sales of spare parts, product upgrades and service revenues, were $170.9 million for 2007, compared to $176.2 million for 2006. Aftermarket revenue generally increases with expansion of the installed base of systems but can fluctuate period to period based on capacity utilization at customers' manufacturing facilities, which affects the sale of spare parts and demand for equipment service.

Gross Profit

Product

Gross profit from product revenue was 36.8% for 2007, compared to 41.2% for 2006. The decrease in gross profit from product revenues is attributable to a decline in product revenue and the related under absorption of manufacturing overheads (approximately 3.2%) and lower margins on new product revenue (approximately 2.7%), offset by the favorable impact of a higher mix of upgrades and proprietary spare parts (approximately 1.4%).

Service

Gross profit from service revenue was 36.8% for 2007, compared to 33.7% for 2006. The increase in gross profit for 2007 is attributable to improved utilization of the fixed service labor cost base.

Research and Development

Research and development expense was $72.0 million in 2007, a decrease of $0.4 million, or 0.6%, compared with $72.4 million in 2006. The decrease was driven primarily by decreased variable compensation costs ($2.5 million), decreased professional fee expenses ($1.3 million) and decreased payroll costs ($0.6 million), offset by increased project material costs ($2.3 million) and increased development asset amortization and depreciation costs ($2.5 million).

Research and development expense was attributable to the following activities for 2007: 57% for new product development, 28% for improvement of existing products, and 15% for product testing.

Sales and Marketing

Selling expense was $50.0 million in 2007, an increase of $4.5 million, or 9.9%, compared with $45.5 million in 2006. The increase was driven primarily by increased payroll costs ($2.6 million), increased costs related to evaluation system support for our Optima platform ($2.6 million) and increased stock compensation costs ($0.6 million), offset by lower commissions expense ($1.5 million).

General and Administrative

General and administrative expense was $41.7 million in 2007, a decrease of $4.9 million, or 10.5%, compared with $46.6 million in 2006. The decrease was driven primarily by lower variable compensation costs ($4.6 million), lower depreciation costs ($0.7 million), lower stock compensation costs ($0.6 million) and lower lease, travel, utilities, sales tax and insurance expense ($0.4 million), offset by increased professional fee expenses ($0.9 million) and increased payroll related costs ($0.5 million).

Impairment of Goodwill

During the three month period ended September 30, 2007, we elected to discontinue future development of the RTP and Curing product lines. Based on that business decision, the forecast of future cash flows was revised and, as such, in September 2007 a goodwill impairment loss of $4.7 million was recorded. The fair value of these product lines was estimated using the expected present value of future cash flows.

Stock-based Compensation Expense

Total stock-based compensation expense related to stock options, restricted stock, restricted stock units and the Employee Stock Purchase Plan for the years ended December 31, 2007 and 2006 was $5.5 million, respectively.

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

In October of 2007, we implemented a reduction in force related to planned actions taken by management to control costs and improve the focus of its operations in order to sustain future profitability and conserve cash. This reduction in force is expected to result in a total charge to expense of approximately $3.1 million related to separation and outplacement costs, of which $2.5 million was recorded in the statement of operations at December 31, 2007. The remaining $0.6 million will be recorded in the first quarter of 2008. A total of $1.6 million has been paid through December 31, 2007. Substantially all payments related to these actions will be completed in the first quarter of 2008.

Changes in our restructuring liability, included in amounts reported as other current liabilities, are as follows:

	Severance	Retention	Leases	Total
		(in thousands)		
Balance at December 31, 2006	$	$	$ 1,124	$ 1,124
Restructuring expense	2,506			2,506
Cash payments	(1,590)		(1,124)	(2,714)
Balance at December 31, 2007	$ 916	$	$	$ 916

The 2006 lease restructuring liability relates to the consolidation of our Rockville, Maryland operations into its headquarters and manufacturing facility located in Beverly, Massachusetts during 2005. These leases were paid over the remaining lease term, which ended December 31, 2007.

Other Income (Expense)

Equity income attributable to SEN was $10.4 million for 2007. This is compared to equity income attributable to SEN of $19.3 million for 2006. Fluctuations in equity income 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 $5.0 million for 2007, primarily relates to interest earned on cash, cash equivalents and short-term investments. Interest income decreased by $3.4 million from 2006, due primarily to lower average cash balances, resulting from the repayment of $74.2 million of long-term debt in January 2007.

Interest expense of $6.4 million in 2007, a decrease of $2.7 million from 2006, relates primarily to the outstanding convertible senior subordinated notes which have an effective yield to maturity of 8%. The decrease in interest expense in 2007 is a direct result of the repayment of $74.2 million of long-term debt in January 2007.

Income Taxes (Credits)

Income tax credits for 2007 were $0.4 million. In 2007, we determined that certain tax reserves relating to a previous tax year were no longer required. As a result, we recorded an adjustment to reduce income tax expense by $1.2 million. In addition, during the year we recorded tax benefits related to the realization of foreign tax credits, which we expect to recover approximately $1.2 million in tax refunds of amounts paid for alternative minimum taxes remitted for tax years 2004 through 2006.

We incur income tax expense relating principally to operating results of foreign entities in jurisdictions, principally in Asia, where we earn taxable income. We have significant net operating loss carryforwards in the United States and certain foreign jurisdictions, principally Europe, and, as a result, we do not currently pay significant income taxes in those jurisdictions and we do not recognize the tax benefit for such losses as discussed in Note 19 to the consolidated financial statements. Accordingly, our effective income tax rate is not meaningful.

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

Revenue

Product

Product revenue, which includes systems sales, sales of spare parts and product upgrades, was $398.4 million or 86.3% of revenue in 2006, compared with $304.4 million, or 81.7% of revenue in 2005. System sales increased to $276.3 million in 2006 from $203.1 million 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.

A portion of our revenue from system sales 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.

Service

Service revenue, which includes the labor component of maintenance and service contracts and fees for service hours provided by on-site service personnel, was $54.1 million, or 11.7% of revenue for 2006, compared with $59.4 million, or 15.9% of revenue, for 2005. Although service revenue should increase with the expansion of the installed base of systems, it can fluctuate period to period based on capacity utilization at customers' manufacturing facilities, which affects the need for equipment service.

Royalties

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. 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.

Ion Implant

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.

Aftermarket

Aftermarket revenues which include sales of spare parts, product upgrades and service revenues were $176.2 million for 2006, compared to $157.6 million for 2005. Aftermarket revenue generally increases with expansion of the installed base of systems but can fluctuate period to period based on capacity utilization at customers' manufacturing facilities which affects the sale of spare parts and demand for equipment service.

Gross Profit

Product

Gross profit from product revenue was 41.2% for 2006, compared to 38.9% for 2005. The gross profit performance compared to 2005 was the result of favorable operating overheads (approximately 2.1%), systems volume, product mix and changes in revenue deferrals (approximately 1.3%), offset by the negative impact of proportionately lower spare parts & upgrades volume (approximately 1.1%).

Service

Gross profit from service revenue was 33.7% for 2006, compared to 45.7% for 2005. The decrease in gross profit for 2006 is attributable to decreased service revenue over a relatively fixed service labor cost base (approximately 8.0%), combined with a higher mix of lower margin labor based service revenue (approximately 4.0%).

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 and depreciation ($0.8 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, we 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 our Rockville, Maryland operations into our 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.

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 our restructuring liability, included in amounts reported as other current liabilities, 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 (Credits)

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.

Liquidity and Capital Resources

Cash, cash equivalents, and marketable securities at December 31, 2007 were $83.9 million, compared to $203.7 million at December 31, 2006. The $119.8 million decrease in cash and cash equivalents and short-term investments is mainly attributable to the repayment of $74.2 million for our 4.25% Convertible Subordinated Notes, cash used by operations ($31.1 million), capital expenditures ($10.4 million) and an increase of restricted cash balances ($4.9 million).

Capital expenditures were $10.4 million and $6.9 million for the years ended December 31, 2007 and 2006, respectively. We have no significant capital projects planned for 2008 and total capital expenditures for 2008 are projected to be less than $9.0 million. Future capital expenditures beyond 2008 will depend on a number of factors, including the timing and rate of expansion of our business.

We have net operating loss and tax credit carryforwards the tax effect of which aggregate $86.7 million at December 31, 2007. These carryforwards, which expire principally between 2021 and 2027, are available to reduce future income tax liabilities in the United States and certain foreign jurisdictions.

We have no off-balance sheet arrangements at December 31, 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. 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. At maturity, we will be required to repay the outstanding principal of the New Notes, plus a maturity premium of 11.125% of such principal, a total of $83.3 million, resulting in an effective annual yield to maturity of approximately 8.0%. At March 31, 2008, the New Notes will be reclassified to current liabilities.

During 2007, we experienced negative cash flows from operations and anticipate significant cash outflows in the first quarter of 2008. Cash used for operations in 2007 was predominately driven by operating needs to support the Optima product line (approximately $40.7 million). We expect to generate cash from operations during 2008. Our 2008 cash position will be driven by reductions in working capital, as inventory for the Optima product line is converted into revenue. We expect that

existing resources will be sufficient to satisfy liquidity requirements in 2008. However, we intend to enter into new credit facilities during 2008 which will provide resources to repay the New Notes in January 2009. These financing alternatives under consideration include a revolving credit facility and/or a sale-lease back of our headquarters and manufacturing facility located in Beverly, Massachusetts. Any proceeds from financing events will be used to repay the New Notes when they mature on January 15, 2009. We expect to have new financing in place by the end of the second quarter of 2008. However, there can be no assurance that these financing transactions will be completed. In addition, interest rates on new debt may be higher than rates currently in effect on our outstanding New Notes. If we are unable to refinance or obtain additional financing when needed, we may be required to delay, reduce the scope of, or eliminate one or more aspects of business development activities, which could harm the long term growth of the business.

We have outstanding standby letters of credit, bank guarantees and surety bonds in the amount of $22.7 million to support certain operating lease obligations, workers' compensation insurance, and certain value added tax claims in Europe. At December 31, 2007, $17.0 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, 2007 (in thousands):

		Payments Due by Period			
Contractual Obligations	**Total**	**2008**	**2009-2010**	**2011-2012**	**Thereafter**
Long-term debt (including interest)	$ 88,125	$ 3,188	$ 84,937	$	$
Purchase order commitments	32,550	32,550			
Operating leases	12,113	5,700	6,075	211	127
	$ 132,788	$ 41,438	$ 91,012	$ 211	$ 127

		Amount of Commitment Expiration by Period			
Other Commercial Commitments	**Total**	**2008**	**2009-2010**	**2011-2012**	**Thereafter**
Standby letters of credit	$ 13,915	$ 13,915	$	$	$
Guarantees	8,822	6,433	2,389		
	$ 22,737	$ 20,348	$ 2,389	$	$

Axcelis' liquidity is affected by many factors. Some of these factors are based on normal operations of the business, including acceptance of the Optima product line, 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 and cash equivalents, anticipated financing events mentioned previously and expected positive cash flows for 2008 will be sufficient to satisfy our anticipated cash requirements through 2008.

Recent Accounting Pronouncements

In September 2006, the Financial Accounting Standards Board (FASB) issued SFAS No. 157, *Fair Value Measurement*. SFAS No. 157 defines fair value, establishes a framework for measuring fair value in generally accepted accounting principles and establishes a hierarchy that categorizes and prioritizes the sources to be used to estimate fair value. SFAS No. 157 also expands financial statement disclosures about fair value measurements. On February 6, 2008, the FASB issued FASB Staff Position (FSP) 157-b which delays the effective date of SFAS No. 157 for one year for all nonfinancial assets and nonfinancial liabilities, except those that are recognized or disclosed at fair value in the financial statements on a recurring basis (at least annually). SFAS No. 157 and FSP 157-b are effective for financial statements issued for fiscal years beginning after November 15, 2007. We have elected a partial deferral of SFAS No. 157 under the provisions of FSP 157-b related to the measurement of fair value used when evaluating goodwill, other intangible assets and other long-lived assets for impairment and valuing asset retirement obligations and liabilities for exit or disposal activities. The impact of partially adopting SFAS No. 157 effective January 1, 2008 is not expected to be material to our consolidated financial statements.

In February 2007, the FASB issued SFAS No. 159, *The Fair Value Option for Financial Assets and Financial Liabilities Including an Amendment of SFAS 115*, which permits but does not require us to measure financial instruments and certain other items at fair value. Unrealized gains and losses on items for which the fair value option has been elected are reported in earnings. This statement is effective for financial statements issued for fiscal years beginning after November 15, 2007. As we have not elected to fair value any of our financial instruments under the provisions of SFAS No. 159, the adoption of this statement will not have any impact to our consolidated financial statements.

In December 2007, the FASB issued SFAS No. 141(R) *Business Combinations.* This statement applies to all transactions or other events in which an entity (the acquirer) obtains control of one or more businesses (the acquiree), including those sometimes referred to as "true mergers" or "mergers of equals" and combinations achieved without the transfer of consideration, for example, by contract alone or through the lapse of minority veto rights. This statement applies to all business entities, including mutual entities that previously used the pooling-of-interests method of accounting for some business combinations. It does not apply to; 1) the formation of a joint venture; 2) the acquisition of an asset or a group of assets that does not constitute a business; 3) a combination between entities or businesses under common control; 4) a combination between not-for-profit organizations or the acquisition of a for-profit business by a not-for-profit organization. This statement applies prospectively to business combinations for which the acquisition date is on or after the beginning of the first annual reporting period beginning on or after December 15, 2008. An entity may not apply it before that date. The effective date of this statement is the same as that of the related SFAS No. 160, *Noncontrolling Interests in Consolidated Financial Statements*. The adoption of SFAS No. 141(R) is not expected to have a material impact on our financial position, results of operations or liquidity.

In December 2007, the FASB issued SFAS No. 160. *Noncontrolling Interests in Consolidated Financial Statements, an Amendment to ARB No. 51*. This statement applies to all entities that prepare consolidated financial statements, except not-for-profit organizations, but will affect only those entities that have an outstanding noncontrolling interest in one or more subsidiaries or that deconsolidate a subsidiary. This statement is effective for fiscal years, and interim periods within those fiscal years, beginning on or after December 15, 2008 (that is, January 1, 2009, for entities with calendar year-ends). Earlier adoption is prohibited. The effective date of this statement is the same as that of the related SFAS No. 141(R). The adoption of SFAS No. 160 is not expected to have a material impact on our financial position, results of operations or liquidity.

Outlook

Our performance is directly related to semiconductor manufacturers' levels of capital expenditures to open new fabrication facilities and expand existing ones, customers' acceptance of our new products and 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, 2008, we announced that net revenues (excluding SEN) for the first quarter of 2008 are forecast in the range of $80 million to $95 million. Gross margins are projected to be in the range of 33% to 35%. We are experiencing margin pressure from the low level of systems volume and new products. With lower revenue from the base business, we are projecting a first quarter net loss in the range of $0.04 to $0.08 per share.

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 at December 31, 2007. 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, 2007 and 2006, approximately 10% and 9% of our revenues, respectively, were derived from foreign operations with this inherent risk. In addition, at both December 31, 2007 and 2006, our operations outside of the United States accounted for approximately 37% and 29% of our total assets, respectively, 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 ($0.4 million at December 31, 2007) we hedge, from time to time, 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 $12.0 million at December 31, 2007.

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, 2007. 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, 2007, our internal control over financial reporting is effective based on those criteria.

The independent registered public accounting firm of Ernst & Young LLP, as auditors of our consolidated financial statements, has issued an attestation report on its assessment of our internal control over financial reporting.

Report of Independent Registered Public Accounting Firm

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

We have audited Axcelis Technologies, Inc.'s internal control over financial reporting as of December 31, 2007, 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 included in the accompanying Management's Annual Report on Internal Control over Financial reporting. Our responsibility is to express an opinion on 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, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, 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, Axcelis Technologies Inc. maintained, in all material respects, effective internal control over financial reporting as of December 31, 2007, 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 Inc. as of December 31, 2007 and 2006, and the related consolidated statements of operations, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2007 of Axcelis Technologies, Inc. and our report dated March 14, 2008 expressed an unqualified opinion thereon.

/s/ Ernst & Young LLP

Boston, Massachusetts
March 14, 2008

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 1, 2008 (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, 2007 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	11,433,527	$ 11.65	21,710,698
Equity compensation plans not approved by stockholders			
Total	11,433,527		21,710,698

(1) Represents the total shares available for issuance under our 2000 Stock Plan and our Employee Stock Purchase Plan, as of December 31, 2007, as follows:

(A) 17,996,358 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 304,261 outstanding shares issued under the plan as restricted stock, 2,288,706 shares issuable upon vesting of outstanding restricted stock units, 1,150,515 shares issued upon option exercises, and the outstanding options shown in column (A), all as of December 31, 2007. This plan is generally used for grants to employees and directors and was approved by our stockholders at our 2002 annual meeting.

(B) 3,714,340 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 3,785,660 shares issued through December 31, 2007. 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:

2)

Financial Statement Schedules:

Schedule II Valuation and Qualifying Accounts for the years ended December 31, 2007, 2006 and 2005

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.

3)

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.

4)

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, 2007 and 2006, and the related consolidated statements of operations, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2007. 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, 2007 and 2006, and the consolidated results of its operations and its cash flows for each of the three years in the period ended December 31, 2007, 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 to 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, 2007, 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 14, 2008 expressed an unqualified opinion thereon.

/s/ Ernst & Young, LLP

Boston, Massachusetts
March 14, 2008

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

	Year Ended December 31,		
	2007	**2006**	**2005**
Revenue			
Product	$ 343,555	$ 398,437	$ 304,351
Services	55,179	54,073	59,380
Royalties, primarily from SEN	6,066	9,207	8,809
	404,800	461,717	372,540
Cost of revenue			
Product	217,039	234,370	185,889
Services	34,900	35,833	32,220
	251,939	270,203	218,109
Gross profit	152,861	191,514	154,431
Operating expenses			
Research and development	72,044	72,384	70,908
Sales and marketing	49,974	45,536	44,826
General and administrative	41,718	46,620	45,631
Impairment of goodwill	4,658		
Amortization of intangible assets	2,624	2,551	2,448
Restructuring charges	2,506	682	6,497
	173,524	167,773	170,310
Income (loss) from operations	(20,663)	23,741	(15,879)
Other income (expense)			
Equity income of SEN	10,416	19,266	15,751
Interest income	5,019	8,383	5,459
Interest expense	(6,427)	(9,085)	(6,634)
Other net	(153)	478	(679)
	8,855	19,042	13,897
Income (loss) before income taxes	(11,808)	42,783	(1,982)
Income taxes (credits)	(410)	2,013	1,873
Net income (loss)	$ (11,398)	$ 40,770	$ (3,855)
Net income (loss) per share			
Basic	$ (0.11)	$ 0.40	$ (0.04)
Diluted	$ (0.11)	$ 0.40	$ (0.04)
Shares used in computing basic and diluted net income (loss) per share			
Basic	101,891	101,058	100,301
Diluted	101,891	101,361	100,301

See accompanying Notes to Consolidated Financial Statements

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

	December 31,	
	2007	**2006**
ASSETS		
Current assets		
Cash and cash equivalents	$ 83,877	$ 140,451
Marketable securities		63,200
Restricted cash	17,018	11,019
Accounts receivable, net	76,067	73,635
Inventories, net	169,278	160,107
Prepaid expenses and other current assets	32,442	26,639
Total current assets	378,682	475,051
Property, plant and equipment, net	68,101	66,678
Investment in SEN	132,911	126,688
Goodwill	42,115	46,773
Intangible assets	10,925	13,549
Restricted cash, long-term portion		1,137
Other assets	37,195	24,117
	$ 669,929	$ 753,993
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities		
Accounts payable	$ 27,054	$ 37,312
Accrued compensation	17,003	26,996
Warranty	5,011	5,229
Income taxes	531	3,906
Deferred revenue	35,827	28,811
Current portion, long term debt		74,217
Other current liabilities	8,577	13,670
Total current liabilities	94,003	190,141
Long-term debt	79,923	76,887
Long-term deferred revenue	4,704	5,054
Other long-term liabilities	5,293	4,349
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; 102,565 shares issued and 102,445 shares outstanding at December 31, 2007; 101,418 shares issued and 101,298 shares outstanding at December 31, 2006	103	101
Additional paid-in capital	478,726	469,967
Treasury stock, 120 shares at December 31, 2007 and 2006	(1,218)	(1,218)
Retained earnings (deficit)	(1,815)	9,583
Accumulated other comprehensive income (loss)	10,210	(871)
	486,006	477,562
	$ 669,929	$ 753,993

See accompanying Notes to Consolidated Financial Statements

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

	Common Stock		Additional Paid-in Capital	Deferred Compensation	Treasury Stock	Retained Earnings (Deficit)	Accumulated Other Comprehensive Income (Loss)	Total
	Shares	Amount						
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
Comprehensive loss								
Net loss						(11,398)		(11,398)
Foreign currency translation adjustments							10,819	10,819
Unrealized gain on marketable securities							4	4
Change in pension							258	258

	Common Stock						Accumulated Other Comprehensive Income (Loss)	
Total comprehensive loss								(317)
Exercise of stock options	189	1	1,081					1,082
Issuance of shares under Employee Stock Purchase Plan	586	1	2,984					2,985
Forfeiture of restricted common shares	(16)							
Issuance of common shares under the 2000 Stock Plan	388		(838)					(838)
Stock-based compensation expense			5,532					5,532
Balance at December 31, 2007	102,565	$ 103	$ 478,726	$	$ (1,218)	$ (1,815)	$ 10,210	$ 486,006

See accompanying Notes to Consolidated Financial Statements

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

	Year Ended December 31,		
	2007	**2006**	**2005**
Operating activities			
Net income (loss)	$ (11,398)	$ 40,770	$ (3,855)
Adjustments to reconcile net income (loss) to net cash provided by (used for) operating activities			
Undistributed income of SEN	(10,416)	(19,266)	(15,751)
Depreciation and amortization	19,287	17,586	21,284
Deferred income taxes	(91)	(209)	(828)
Amortization of intangible assets	2,624	2,551	2,448
Accretion of premium on long-term debt	3,036	1,887	
Purchased in-process research and development			1,500
Stock-based compensation expense	5,532	5,475	1,140
Impairment of fixed assets			725
Impairment of goodwill	4,658		
Cash dividend from SEN	12,424		
Changes in operating assets & liabilities			
Accounts receivable	(1,537)	6,704	3,133
Inventories	(5,700)	(47,335)	4,120
Prepaid expenses and other current assets	(4,690)	6,503	(17,987)
Accounts payable & other current liabilities	(24,989)	21,402	(7,280)
Deferred revenue	6,666	(7,452)	(328)
Income taxes	(2,455)	868	(1,291)
Other assets and liabilities	(24,055)	(10,466)	800
Net cash provided by (used for) operating activities	(31,104)	19,018	(12,170)
Investing activities			
Purchases of marketable securities	(13,000)	(72,329)	(108,125)
Sales and maturities of marketable securities	76,200	103,763	92,965
Expenditures for property, plant and equipment	(10,386)	(6,924)	(7,794)
Acquisition of businesses			(1,500)
Decrease (increase) in restricted cash	(4,862)	(924)	(4,893)
Net cash provided by (used for) investing activities	47,952	23,586	(29,347)
Financing activities			
Proceeds from issuance of convertible debt		24,217	
Repayment of convertible subordinated debt	(74,217)		
Proceeds from the exercise of stock options	1,082	1,586	1,141
Proceeds from Employee Stock Purchase Plan	1,822	1,930	2,463
Net cash provided by (used for) financing activities	(71,313)	27,733	3,604
Effect of exchange rate changes on cash	(2,109)	(1,303)	1,035
Net increase (decrease) in cash and cash equivalents	(56,574)	69,034	(36,878)
Cash and cash equivalents at beginning of period	140,451	71,417	108,295
Cash and cash equivalents at end of period	$ 83,877	$ 140,451	$ 71,417
Cash paid for interest	$ 4,765	$ 5,802	$ 5,566
Cash paid for income taxes	$ 2,981	$ 2,867	$ 4,956

See accompanying Notes to Consolidated Financial Statements

Axcelis Technologies, Inc.
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 and other processing equipment used in the fabrication of semiconductor chips in the United States, Europe and Asia. In September of 2007, Axcelis' management elected to discontinue future development of the thermal processing and photostabilization/curing product lines to focus on profitable growth within the company's core ion implant and dry strip businesses. See Note 2 for further discussion.

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.

As of December 31, 2007, the Company had approximately $83.9 million of cash and cash equivalents. During 2007, the Company experienced negative cash flows from operations and anticipates significant cash outflows in the first quarter of 2008. Furthermore, on March 31, 2008, the Company's New Notes (see Note 13), due January 15, 2009, will be reclassified to current liabilities. The Company is currently considering various financing alternatives including a revolving credit facility and/or a sale-lease back of the Company's headquarters and manufacturing facility located in Beverly, Massachusetts. Any proceeds from financing alternatives will be used to repay the New Notes when they mature. However, there can be no assurance that these financial transactions will be completed. The Company expects that existing cash and cash equivalents and expected positive cash flow for 2008, coupled with planned financing events, will be sufficient to satisfy the Company's anticipated cash requirements for 2008 and beyond. Should the Company not be able to obtain financing with acceptable terms, the Company's management may seek alternative strategies intended to improve the Company's cash position, should current estimates for anticipated cash uses in 2008 prove incorrect. These activities could include initiating further cost reduction efforts, seeking improvements in working capital management, and reducing or delaying capital expenditures.

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 consist of cash on hand and highly liquid investments with original maturities of ninety days or less. 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. The Company periodically reviews its inventories and makes provisions as necessary for estimated obsolescence or damaged goods to ensure values approximate lower of cost or market. The amount of such markdowns is equal to the difference between cost of inventory and the estimated market value based upon assumptions about future demands, selling prices, and market conditions.

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.

In September 2007, the company's management elected to discontinue future development of the thermal processing ("RTP") and photostabilization/curing product lines. Based on that business decision, the forecast of future cash flows was revised and, as such, in September 2007 a goodwill impairment loss of $4.7 million was recorded in our statement of operations as a non-cash charge to earnings. The fair value of this reporting unit was estimated using the expected present value of future cash flows.

In addition, we performed our annual impairment review of goodwill for our other reporting units during the fourth quarter. As a result of this review, we determined that there were no additional impairments of goodwill as of December 31, 2007.

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 57.8%, 54.9%, and 60.2% of revenue in 2007, 2006, and 2005, 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. The Company reviews the allowance for doubtful accounts monthly. The Company does not have any off-balance-sheet credit exposure related to its customers.

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 ($0.4 million at December 31, 2007) the Company hedges, from time to time, 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.

Comprehensive Income (Loss)

Comprehensive income (loss) is comprised of two components, net income (loss) and other comprehensive income (loss). Other comprehensive income (loss) consists of foreign currency translation adjustments, unrealized gains and losses on the Company's marketable securities and the effects of the minimum pension liability.

The following table shows the cumulative components of other comprehensive income (loss) for the years ended December 31, 2007, 2006 and 2005:

	2007	2006	2005
		(in thousands)	
Foreign currency translation adjustments	$ 9,952	$ (867)	$ (2,683)
Unrealized loss on securities		(4)	(41)
Pension benefit adjustment	258		
Total	$ 10,210	$ (871)	$ (2,724)

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 product 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. Product 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 new 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.

For initial shipments of systems with new technologies or 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, 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.

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 service hours is recognized when the services are performed.

Royalty revenue is primarily earned under the terms of our license agreement with SEN. Royalty revenue is recorded at the time SEN notifies the Company that royalties have been earned.

Beginning with the period ended September 30, 2007, the Company has modified the classification of its various components of revenue presented in the statement of operations to more closely align with SEC reporting guidelines. Product revenue includes revenue from system sales, sales of spare parts, the spare parts component of maintenance and service contracts and product upgrades. Service revenue includes the labor component of maintenance and service contract amounts charged for on-site service personnel. Revenue and cost of revenue amounts presented for prior periods have been reclassified to permit comparison.

Shipping and Handling Costs

Shipping and handling costs are included in cost of revenue.

Stock-Based Compensation

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") 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 years ended December 31, 2007 and 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 were not restated.

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

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 judgment 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.

Income taxes include the largest amount of tax benefit for an uncertain tax position that is more likely than not to be sustained upon audit based on the technical merits of the tax position. Settlements with tax authorities, the expiration of statutes of limitations for particular tax positions, or obtaining new information on particular tax positions may cause a change to the effective tax rate. The Company recognizes accrued interest related to unrecognized tax benefits as interest expense and penalties as operating expense.

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, calculated using the treasury stock method.

For the year ended December 31, 2007, the Company has excluded 0.2 million incremental shares attributable to outstanding stock options and 0.3 million incremental shares attributable to restricted stock and restricted stock units from the computation of diluted earnings per share as their effect would be anti-dilutive. For the year ended December 31, 2005, 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 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, 4.0 million shares, 7.5 million shares, and 6.3 million shares, computed using the if converted method, were excluded from the computation of diluted earnings per share for years ended December 31, 2007, 2006, and 2005, respectively, as the effect of conversion would be anti-dilutive. These stock options, restricted stock awards, restricted stock units 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:

	2007	2006	2005
	(in thousands, except per share data)		
Income (loss) available to common stockholders	$ (11,398)	$ 40,770	$ (3,855)
Weighted average common shares outstanding used in computing basic net income (loss) per share	101,891	101,058	100,301
Incremental shares		303	
Weighted average common shares outstanding used in computing diluted net income (loss) per share	101,891	101,361	100,301
Net income (loss) per share			
Basic	$ (0.11)	$ 0.40	$ (0.04)
Diluted	$ (0.11)	$ 0.40	$ (0.04)

Recent Accounting Pronouncements

In September 2006, the Financial Accounting Standards Board (FASB) issued SFAS No. 157, *Fair Value Measurement*. SFAS No. 157 defines fair value, establishes a framework for measuring fair value in generally accepted accounting principles and establishes a hierarchy that categorizes and prioritizes the sources to be used to estimate fair value. SFAS No. 157 also expands financial statement disclosures about fair value measurements. On February 6, 2008, the FASB issued FASB Staff Position (FSP) 157-b which delays the effective date of SFAS No. 157 for one year for all nonfinancial assets and nonfinancial liabilities, except those that are recognized or disclosed at fair value in the financial statements on a recurring basis (at least annually). SFAS No. 157 and FSP 157-b are effective for financial statements issued for fiscal years beginning after November 15, 2007. We have elected a partial deferral of SFAS No. 157 under the provisions of FSP 157-b related to the measurement of fair value used when evaluating goodwill, other intangible assets and other long-lived assets for impairment and valuing asset retirement obligations and liabilities for exit or disposal activities. The impact of

partially adopting SFAS No. 157 effective January 1, 2008 is not expected to be material to our consolidated financial statements.

In February 2007, the FASB issued SFAS No. 159, *The Fair Value Option for Financial Assets and Financial Liabilities Including an Amendment of SFAS 115*, which permits but does not require us to measure financial instruments and certain other items at fair value. Unrealized gains and losses on items for which the fair value option has been elected are reported in earnings. This statement is effective for financial statements issued for fiscal years beginning after November 15, 2007. As we have not elected to fair value any of our financial instruments under the provisions of SFAS No. 159, the adoption of this statement will not have any impact to our consolidated financial statements.

In December 2007, the FASB issued SFAS No. 141(R) *Business Combinations*. This statement applies to all transactions or other events in which an entity (the acquirer) obtains control of one or more businesses (the acquiree), including those sometimes referred to as "true mergers" or "mergers of equals" and combinations achieved without the transfer of consideration, for example, by contract alone or through the lapse of minority veto rights. This statement applies to all business entities, including mutual entities that previously used the pooling-of-interests method of accounting for some business combinations. It does not apply to; 1) the formation of a joint venture; 2) the acquisition of an asset or a group of assets that does not constitute a business; 3) a combination between entities or businesses under common control; 4) a combination between not-for-profit organizations or the acquisition of a for-profit business by a not-for-profit organization. This statement applies prospectively to business combinations for which the acquisition date is on or after the beginning of the first annual reporting period beginning on or after December 15, 2008. An entity may not apply it before that date. The effective date of this statement is the same as that of the related SFAS No. 160, *Noncontrolling Interests in Consolidated Financial Statements*. The adoption of SFAS No. 141(R) is not expected to have a material impact on the Company's financial position, results of operations or liquidity.

In December 2007, the FASB issued SFAS No. 160, *Noncontrolling Interests in Consolidated Financial Statements, an Amendment to ARB No. 51*. This statement applies to all entities that prepare consolidated financial statements, except not-for-profit organizations, but will affect only those entities that have an outstanding noncontrolling interest in one or more subsidiaries or that deconsolidate a subsidiary. This statement is effective for fiscal years, and interim periods within those fiscal years, beginning on or after December 15, 2008 (that is, January 1, 2009, for entities with calendar year-ends). Earlier adoption is prohibited. The effective date of this statement is the same as that of the related SFAS No. 141(R). The adoption of SFAS No. 160 is not expected to have a material impact on the Company's financial position, results of operations or liquidity.

Note 3. Cash and Cash Equivalents and Marketable Securities

Cash and Cash Equivalents: Cash and cash equivalents consist of cash on hand and highly liquid investments with original maturities of 90 days or less.

Marketable Securities: Axcelis accounts for investments in accordance to SFAS No. 115, *Accounting for Certain Investments in Debt and Equity Securities*. Investments are classified as available-for-sale and are carried on the balance sheet at fair market value.

At December 31, 2006 we held $63.2 million of short-term investments, which consisted primarily of auction rate securities classified as available-for-sale securities. In the case of auction rate securities, which have long-term underlying maturities, Axcelis' intent was not to hold them until final maturity. As rates on auction rate securities are reset every 7, 28, or 35 days, Axcelis' practice was to take advantage of the rate reset feature for liquidity and enhanced yield relative to alternative short-term investments. All income generated from these investments was recorded as interest income.

Realized gains or losses on sales of available-for-sale marketable securities for the years ended December 31, 2007, 2006 and 2005 were immaterial.

Note 4. Restricted Cash

The components of restricted cash are as follows:

	December 31,	
	2007	2006
	(in thousands)	
Cash collateralizing standby letters of credit	$ 13,915	$ 9,352
Bank guarantees	3,103	2,804
	$ 17,018	$ 12,156

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 $5.7 million at December 31, 2007.

Note 5. Accounts Receivable

The components of accounts receivable are as follows:

	December 31,	
	2007	2006
	(in thousands)	
Trade receivables	$ 78,994	$ 76,576
Allowance for doubtful accounts	(2,927)	(2,941)
	$ 76,067	$ 73,635

Note 6. Inventories

The components of inventories are as follows:

	December 31,	
	2007	2006
	(in thousands)	
Raw materials	$ 95,289	$ 93,197
Work in process	41,018	44,587
Finished goods (completed systems)	32,971	22,323
	$ 169,278	$ 160,107

Approximately $75.9 million and $52.3 million of inventory as of December 31, 2007 and 2006, respectively, relates to the Optima product family.

Note 7. Property, Plant and Equipment

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

	December 31,	
	2007	2006
	(in thousands)	
Land and buildings	$ 78,678	$ 76,326
Machinery and equipment	66,144	59,681
Construction in process	6,493	5,840
	151,315	141,847
Accumulated depreciation	(83,214)	(75,169)
	$ 68,101	$ 66,678

Depreciation expense was $8.7 million, $8.9 million, and $10.5 million, for the years ended December 31, 2007, 2006, and 2005, respectively.

Note 8. Intangible Assets

The components of intangible assets are as follows:

	December 31, 2007			December 31, 2006		
	Cost	Accumulated Amortization	Net Book Value	Cost	Accumulated Amortization	Net Book Value
	(in thousands)					
Developed technology	$ 48,030	$ 38,191	$ 9,839	$ 48,030	$ 35,833	$ 12,197
Customer list	903	416	487	903	326	577
Software licenses	877	278	599	877	102	775
	$ 49,810	$ 38,885	$ 10,925	$ 49,810	$ 36,261	$ 13,549

Amortization expense for intangible assets was $2.6 million, $2.6 million, and $2.4 million for the years ended December 31, 2007, 2006, and 2005, respectively.

Estimated future amortization expense for the intangible assets as of December 31, 2007 is as follows:

Year ended December 31,	(in thousands)
2008	$ 2,624
2009	$ 2,428
2010	$ 2,428
2011	$ 2,325
2012	$ 792
Thereafter	$ 328

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,	
	2007	2006
	(in thousands)	
Cost	$ 82,447	$ 63,560
Accumulated amortization	(48,138)	(43,514)
	$ 34,309	$ 20,046

Approximately $26.4 million and $13.9 million of the internal use assets as of December 31, 2007 and 2006, respectively, are dedicated to the Optima family of products.

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 $9.2 million, $7.6 million, and $10.0 million, for the years ended December 31, 2007, 2006, and 2005, 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

In October of 2007, the Company implemented a reduction in force related to planned actions taken by management to control costs and improve the focus of its operations in order to sustain future profitability and conserve cash. This reduction in force is expected to result in a total charge to expense of approximately $3.1 million related to separation and outplacement costs, of which $2.5 million was recorded in the statement of operations at December 31, 2007. The remaining $0.6 million will be recorded in the first quarter of 2008. A total of $1.6 million has been paid through December 31, 2007. Substantially all payments related to these actions will be completed in the first quarter of 2008.

Changes in the Company's restructuring liability are as, included in amounts reported as other liabilities, follows:

	Severance	Retention	Leases	Total
	(in thousands)			
Balance at December 31, 2006	$	$	$ 1,124	$ 1,124
Restructuring expense	2,506			2,506
Cash payments	(1,590)		(1,124)	(2,714)
Balance at December 31, 2007	$ 916	$	$	$ 916

The 2006 lease restructuring liability relates to the consolidation of the Company's Rockville, Maryland operations into its headquarters and manufacturing facility located in Beverly, Massachusetts during 2005. These leases were paid over the remaining lease term, which ended December 21, 2007.

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.

Changes in the Company's restructuring liability, included in amounts reported as other liabilities, 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.

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,		
	2007	2006	2005
	(in thousands)		
Balance at January 1 (beginning of year)	$ 6,472	$ 7,166	$ 10,924
Warranties issued during the period	6,625	9,231	7,393
Settlements made during the period	(6,306)	(6,513)	(8,723)
Changes in estimate of liability for pre-existing warranties during the period	(546)	(3,412)	(2,428)
Balance at December 31 (end of year)	$ 6,245	$ 6,472	$ 7,166
Amount classified as current	$ 5,011	$ 5,229	$ 5,739
Amount classified as long-term	1,234	1,243	1,427
	$ 6,245	$ 6,472	$ 7,166

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, 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. At maturity, we will be required to repay the outstanding principal of the New Notes, plus a maturity premium of 11.125% of such principal, a total of $83.3 million, resulting in an effective annual yield to maturity of approximately 8.0%. Refer to Note 1 for a discussion of the Company's liquidity.

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. Maturity of the New Notes accelerates upon a change in control, as defined.

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 $2.3 million, $2.2 million, and $2.2 million was recognized as expense for the years ended December 31, 2007, 2006, and 2005, respectively.

Note 15. Stock Award Plans and Stock-Based Compensation

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, 2007 there were 18.0 million shares of common stock available for future grant. At December 31, 2007, 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,		
	2007	2006	2005
Weighted-average expected volatility	58.4%	58.4%	74.0%
Weighted-average expected term (in years)	4.2	4.2	4.0
Risk-free interest rate	3.5-5.1%	4.3-5.1%	3.4-4.3%
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 each of the years ended December 31, 2007 and 2006, respectively. For 2007 and 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 2007 and 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 years ended December 31, 2007 and 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 year ended December 31, 2005, 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
Net income (loss), as reported (Under APB No. 25)	$ (3,855)
Add: Stock-based employee compensation expense included in reported net income (loss)	1,140
Deduct: Total stock-based employee compensation expense determined under fair value based method for all awards	(21,098)
Pro forma net loss	$ (23,813)
Net income (loss) per share as reported	
Basic	$ (0.04)
Diluted	$ (0.04)
Pro forma net income (loss) per share	
Basic	$ (0.24)
Diluted	$ (0.24)

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 summarizes the stock option activity for the years ended December 31, 2007, 2006 and 2005:

	Options	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term	Aggregate Intrinsic Value
	(in thousands)		(years)	
Outstanding at December 31, 2004	15,318	$ 11.91		
Granted	667	6.78		
Exercised	(190)	6.02		
Canceled	(889)	9.03		
Expired	(1,442)	13.00		
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		
Granted	385	4.93		
Exercised	(191)	5.71		
Canceled	(114)	6.33		
Expired	(1,451)	11.47		
Outstanding at December 31, 2007	11,434	$ 11.65	4.50	$ 62
Exercisable at December 31, 2007	10,467	$ 12.21	4.13	$ 2
Options Vested or Expected to Vest at December 31, 2007(1)	11,354	$ 11.72	4.51	$ 60

(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.

Of the options outstanding at December 31, 2007, 2006, and 2005, 10,467, 11,304, and 11,450, respectively, were vested and exercisable with a weighted average exercise price of $12.21, $12.38, and $12.70, respectively. 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, 2007, 2006 and 2005 were $0.3, $0.3 and $0.4 million, respectively.

Cash received from stock option exercises was $1.1, $1.6 and $1.1 million during the years ended December 31, 2007, 2006 and 2005, respectively.

The total fair value of stock options vested during the year ended December 31, 2007 was $2.6 million. As of December 31, 2007, there was $2.2 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 2.07 years.

Restricted Stock and Restricted Stock Units

Restricted stock units ("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 RSU awards typically vest over four years for employees and executive officers. The restricted stock awards to directors typically vest over six months. The fair value of restricted stock unit and restricted stock awards is charged to expense ratably over the applicable service period.

Changes in the Company's non-vested restricted stock and restricted stock units for the years ended December 31, 2007 and 2006 follow:

	Shares/units	Weighted-Average Grant Date Fair Value per Share
	(in thousands)	
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
Granted	1,178	6.03
Vested	(476)	6.60
Forfeited	(423)	6.24
Outstanding at December 31, 2007	2,110	$ 6.22

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, 2007, there was $8.8 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 2.71 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 has been 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 years ended December 31, 2007 and 2006 was $0.3 million, respectively.

As of December 31, 2007, there were a total of 3.7 million shares reserved for issuance and available for purchase under the Purchase Plan. There were 0.6, 0.5 and 0.3 million shares purchased under the Purchase Plan for the years ended December 31, 2007, 2006 and 2005, 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, 2007 and 2006, 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 2010, 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, 2007, there were 4.0 million shares of common stock reserved for issuance upon conversion of the New Notes.

Note 17. Commitments and Contingencies

Lease Commitments

The Company leases manufacturing and office facilities and certain equipment under operating leases that expire through 2015. Rental expense was $6.9 million, $6.2 million, and $7.0 million under operating leases, excluding amounts recorded as a component of restructuring expense, for the years ended December 31, 2007, 2006 and 2005, respectively. Future minimum lease commitments on non-cancelable operating leases are as follows:

Year ended December 31,	Operating Leases
	(in thousands)
2008	$ 5,700
2009	4,190
2010	1,885
2011	151
2012	60
Thereafter	127
	$ 12,113

Purchase Commitments

The Company has non-cancelable contracts and purchase orders for inventory of $32.6 million at December 31, 2007.

Litigation

The Company is not presently a party to any litigation that it believes might have a material adverse effect on its business operations. The Company is, from time to time, a party to litigation that arises in the normal course of its business operations. Pending matters that arose outside of the ordinary course of business are:

Two purported class actions were filed against the Company in connection with a proposal made by Sumitomo Heavy Industries, Ltd. in February 2008 to acquire outstanding common stock of the Company. We believe each of these cases is without merit and continue to defend against them vigorously.

On or about February 11, 2008, Martin Meltzer filed a purported shareholder class action complaint in Massachusetts Superior Court (Civil Action No. 08-0692-E), naming as defendants the Company, Mary G. Puma, Stephen R. Hardis, Patrick H. Nettles, H. Brian Thompson, William C. Jennings, R. John Fletcher, Geoffrey Wild, and Michio Naruto. The complaint alleges that the Company and its Board of Directors breached their fiduciary duties to Axcelis shareholders by failing to properly consider the February 11, 2008 unsolicited offer by Sumitomo Heavy Industries Ltd. to purchase all of the outstanding stock of the Company for $5.20 per share. The complaint seeks an order from the Court directing the Company and its Board of Directors to "give due consideration to any proposed business combination" to maximize shareholder value, while ensuring that no conflicts of interest exist.

On or about February 28, 2008, Shirley Simon filed a purported shareholder class action complaint in Delaware Chancery Court (Case No. 3582), naming as defendants the Company, Mary G. Puma, Stephen R. Hardis, Patrick H. Nettles, H. Brian Thompson, William C. Jennings, R. John Fletcher, and Geoffrey Wild. The complaint alleges that the Company and its Board of Directors breached their fiduciary duties to Axcelis shareholders by failing to properly consider the February 11, 2008 unsolicited offer by Sumitomo Heavy Industries Ltd. to purchase all of the outstanding stock of the Company for $5.20 per share, and subsequently rejecting that offer. The complaint seeks an order from the Court directing the Company and its Board of Directors to cooperate with any person or entity, including Sumitomo, that proposes a merger, acquisition or other transaction that would maximize shareholder value, while ensuring that no conflicts of interest exist. The complaint also seeks to have the defendants other than the Company to pay damages suffered to the class as a result of their alleged breaches of fiduciary duty.

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. SEN has filed counter claims which Axcelis believes have no merit. In December 2006, SEN and Axcelis jointly appointed a sole arbitrator. The arbitrator has set a schedule which calls for final decisions in 2009. 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 royalties 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.

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,		
	2007	2006	2005
	(in thousands)		
Ion implantation systems, services, and royalties	$ 304,529	$ 342,885	$ 297,335
Other products systems, services, and royalties	100,271	118,832	75,205
	$ 404,800	$ 461,717	$ 372,540

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)	
2007		
United States	$ 316,467	$ 66,845
Europe	35,629	518
Asia Pacific	52,704	738
	$ 404,800	$ 68,101
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

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 $271.2 million (67.0% of total revenues) in 2007, $309.9 million (67.1% of total revenues) in 2006, and $262.3 million (70.4% of total revenues) in 2005.

In 2007, one customer accounted for 12.2% of revenue and 24.1% of consolidated accounts receivable at December 31, 2007. Also in 2007, one additional customer accounted for 10.5% of revenue. In 2006, no single customer accounted for more than 10% of revenue or consolidated accounts receivable at December 31, 2006. In 2005, one customer accounted for 17.5% of revenue and 11.2% of consolidated accounts receivable at December 31, 2005. In addition, a significant portion of SEN's revenues are generated from a small number of customers.

Note 19. Income Taxes

Income (loss) before income taxes are as follows:

	Years ended December 31,		
	2007	2006	2005
	(in thousands)		
United States	$ (28,121)	$ 19,501	$ (21,297)
Foreign	5,897	4,016	3,564
Equity income of SEN	10,416	19,266	15,751
	$ (11,808)	$ 42,783	$ (1,982)

	Years ended December 31,		

Income taxes (credits) are as follows:

	Years ended December 31,		
	2007	2006	2005
	(in thousands)		
Current			
United States			
Federal	$ (1,574)	$ 988	$ (92)
State	185	200	110
Foreign	1,070	1034	2,683
Total current	(319)	2,222	2,701
Deferred			
United States			
Foreign	(91)	(209)	(828)
Total deferred	(91)	(209)	(828)
Income taxes	$ (410)	$ 2,013	$ 1,873

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

	Years ended December 31,		
	2007	2006	2005
	(in thousands)		
Income taxes (credit) at the United States statutory rate	$ (4,132)	$ 14,974	$ (694)
State income taxes, net of federal income tax benefit	185	130	72
Realized net operating loss carryforwards		(4,217)	
Change in valuation allowance	5,856		12,481
Foreign income tax rate differentials	(497)	(581)	(570)
Equity income of SEN	(2,187)	(6,743)	(5,513)
Reversal of income tax liabilities recorded in prior years	(1,294)		(508)
Other net	1,659	(1,550)	(3,395)
	$ (410)	$ 2,013	$ 1,873

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

	December 31,			
	2007		2006	
	Current	Long-term	Current	Long-term
	(in thousands)			
Federal net operating loss carryforwards	$	$ 49,022	$	$ 35,874
State net operating loss carryforwards		1,717		1,702
Foreign net operating loss carryforwards		4,487		4,884
Federal tax credit carryforwards		21,073		17,739
State tax credit carryforwards		10,439		15,614
Equity income of SEN		(485)		(3,810)
Unremitted earnings of foreign subsidiaries				(5,991)
Intangible assets		(2,328)	6	(3,137)
Property, plant and equipment		1,082		352
Accrued compensation	620		3,925	
Inventories	22,978		21,472	
Deferred revenue	(464)	(63)	8,019	1,447
Stock compensation		3,018		2,194
Warranty	1,804	445	1,893	455
Other	1,409	(335)	4,028	1,792
	26,347	88,072	39,343	69,115
Valuation allowance	(25,248)	(88,029)	(38,359)	(69,062)
	$ 1,099	$ 43	$ 984	$ 53

At December 31, 2007, the Company had $114.4 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 continues to maintain a full valuation allowance for those deferred tax assets until sustainable future levels of profitability are evident.

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 2007 were attributable to changes in the composition of temporary differences, increases in net operating loss carryforwards and decreases in tax credit carryovers. Changes in the valuation allowance in 2006 were attributable to changes in the composition of temporary differences and increases in tax credit carryforwards which were offset by the realization of benefits from the use of net operating loss carryforwards to reduce taxable income.

At December 31, 2007, the Company has federal, state, and foreign net operating loss carryforwards of approximately $155.1 million expiring principally between 2018 and 2027.

The Company has research and development and other tax credit carryforwards of approximately $18.0 million at December 31, 2007 that can be used to reduce future income tax liabilities. These tax credit carryforwards expire principally between 2021 and 2027. In addition, the Company has foreign tax credit carryforwards of approximately $13.5 million at December 31, 2007 that are available to reduce future U.S. income tax liabilities subject to certain limitations. These foreign tax credit carryforwards expire between 2011 and 2017.

At December 31, 2007, no provision for U.S. income taxes has been recognized on approximately $26.0 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 $130.4 million of equity income of SEN, since the Company does not have the ability to unilaterally initiate a distribution of these earnings nor a contractual agreement with its joint venture partner to do so. 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.

In June 2006, the FASB issued Financial Interpretation No. 48, *Accounting for Uncertainty in Income Taxes* (FIN 48), which clarifies the accounting for uncertainty in income taxes recognized in a company's financial statements in accordance with SFAS No. 109. The Interpretation prescribes a recognition threshold and measurement attribute criteria for the financial statement recognition and measurement of a tax position taken or expected to be taken in a tax return. The Interpretation also provides guidance on derecognition, classification, interest and penalties, accounting in interim periods, disclosure and transition.

The Company and its subsidiaries file income tax returns in the U.S. federal jurisdiction, and various states and foreign jurisdictions. The Company and most foreign subsidiaries are subject to income tax examinations by tax authorities for all years dating back to 2001. The Company's policy is to recognize interest related to unrecognized tax benefits as interest expense and penalties as operating expenses. Accrued interest and penalties are insignificant at December 31, 2007. The Company believes that it has appropriate support for the income tax positions taken and to be taken on its tax returns and that its accruals for tax liabilities are adequate for all open years based on an assessment of many factors including past experience and interpretations of tax law applied to the facts of each matter.

The Company adopted the provisions of FIN 48 on January 1, 2007. The adoption of FIN 48 did not impact the consolidated financial condition, results of operations or cash flows. At January 1, 2007, the Company had unrecognized tax benefits of approximately $5.2 million, of which approximately $2.8 million reduced the Company's deferred tax assets and the offsetting valuation allowance and $2.4 million was recorded in other long-term liabilities. During September of 2007, the Company made the determination that certain reserves relating to a previous tax year were no longer required due to the expiration of a statue of limitations for the specific amount reserved. As a result, the company recorded an adjustment to reduce income tax expense by $1.2 million during the three month period ended September 30, 2007. To the extent these unrecognized tax benefits are ultimately recognized, approximately $1.1 million would impact the effective tax rate in a future period and $4.6 million would increase deferred tax assets and the offsetting valuation allowance. The Company does not expect any significant changes in unrecognized tax benefits in 2008.

A reconciliation of the beginning and ending balance of unrecognized tax benefits (in thousands) is as follows:

Balance at January 1, 2007	$ 5,248
Increases in unrecognized tax benefits as a result of tax positions taken during a prior period	1,480
Increases in unrecognized tax benefits as a result of tax positions taken during the current period	274
Decreases in unrecognized tax benefits as a result of tax positions taken during the current period	(88)
Decreases in the unrecognized tax benefits as a result of a lapse of the applicable statute of limitations	(1,206)
Balance at December 31, 2007	$ 5,708
Recorded as Other Long Term Liability	$ 1,104
Recorded as a decrease in deferred tax assets and offsetting valuation allowance	4,604
Balance at December 31, 2007	$ 5,708

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:

	2007	2006	2005
		(in thousands)	
Twelve months ended November 30:			
Net sales	$ 235,611	$ 267,131	$ 254,886
Gross profit	97,911	125,394	121,952
Net income	20,832	38,531	31,503
November 30:			
Current assets	$ 287,990	$ 304,208	$ 248,566
Noncurrent assets	25,945	26,044	28,336
Current liabilities	47,760	76,339	58,888
Noncurrent liabilities	189	187	188

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:

	2007	2006	2005
		(in thousands)	
Net sales	$ 1,825	$ 3,007	$ 3,490
Royalty revenue	6,066	9,207	8,652
Dividends received	12,424		538
Axcelis' equity income of SEN	10,416	19,266	15,751
Accounts receivable at December 31	442	1,402	2,375
Accounts payable at December 31	284	178	71

Axcelis' retained earnings (deficit) included $100.2 million and $102.2 million of undistributed earnings of SEN at December 31, 2007 and 2006, respectively.

In 2006, Axcelis and Sumitomo Heavy Industries (SHI) 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. In 2007 the Company entered into an agreement with SHI pursuant to which SEN will be instructed to dividend 40% of its net income annually. On July 31, 2007 the Company received a dividend of approximately $6.7 million for SEN's fiscal year ended March 31, 2007.

Note 21. Quarterly Results of Operations (unaudited)

	Dec. 31, 2007(1)	Sept. 30, 2007(2)	June 30, 2007(3)	March 31, 2007	Dec. 31, 2006	Sept. 30, 2006	June 30, 2006	March 31, 2006
	(in thousands, except per share data)							
Revenue	$ 89,649	$ 107,553	$ 110,073	$ 97,526	$ 123,339	$ 122,817	$ 117,640	$ 97,921
Gross profit	31,753	36,269	43,590	41,250	51,264	53,266	47,942	39,042
Net income (loss)	(10,617)	(8,197)	4,744	2,672	15,561	12,520	12,144	545
Net income (loss) per share								
Basic	$ (0.10)	$ (0.08)	$ 0.05	$ 0.03	$ 0.15	$ 0.12	$ 0.12	$ 0.01
Diluted	$ (0.10)	$ (0.08)	$ 0.05	$ 0.03	$ 0.15	$ 0.12	$ 0.12	$ 0.01

(1) Includes restructuring charges of $2.5 million.

(2) Includes reduced income tax expense of $1.2 million for expiration of a statue of limitations for a specific reserve no longer required.

(3) Includes reduced income tax expense of $1.2 million for tax benefits related to the realization of foreign tax credits.

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 14, 2008 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 14, 2008
/s/ STEPHEN G. BASSETT Stephen G. Bassett	Principal Accounting and Financial Officer	March 14, 2008
/s/ R. JOHN FLETCHER R. John Fletcher	Director	March 14, 2008
/s/ STEPHEN R. HARDIS Stephen R. Hardis	Director	March 14, 2008
/s/ WILLIAM C. JENNINGS William C. Jennings	Director	March 14, 2008
/s/ PATRICK H. NETTLES Patrick H. Nettles	Director	March 14, 2008
/s/ H. BRIAN THOMPSON H. Brian Thompson	Director	March 14, 2008
/s/ GEOFFREY WILD Geoffrey Wild	Director	March 14, 2008

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 August 8, 2007. Incorporated by reference to Exhibit 3.2 of the Company's Form 10-Q for the quarter ended June 30, 2007, filed with the Commission on August 9, 2007.
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 approved by the Board of Directors on October 16, 2007 and first effective on November 6, 2007, between the Company and each of its executive officers. Incorporated by reference to Exhibit 10.4 of the Company's report on Form 10-Q for the quarter ended September 30, 2007 filed with the Commission on November 8, 2007.
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.
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, 2008. Filed herewith.
10.11*	Non-Employee Director Cash Compensation at March 1, 2008. Filed herewith.
10.12*	Amended and Restated Employment Agreement between the Company and Mary G. Puma dated November 6, 2007. Incorporated by reference to Exhibit 10.3 of the Company's report on Form 10-Q for the quarter ended September 30, 2007 filed with the Commission on November 8, 2007.
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.
10.16*	Executive Separation Agreement between the Company and Marc S. Levine dated as of August 22, 2007. Incorporated by reference to Exhibit 10.1 of the Company's report on Form 10-Q for the quarter ended September 30, 2007 filed with the Commission on November 8, 2007.
10.17*	Executive Separation Agreement between the Company and Mark Namaroff dated as of October 18, 2007. Filed herewith.
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 14, 2008. 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 14, 2008. 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 14, 2008. 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 14, 2008. 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, 2007					
Allowance for doubtful accounts and returns	$ 2,941	$	$ (13)	$ (1)	$ 2,927
Reserve for excess and obsolete inventory	22,092	5,018	(2,091)	52	25,071
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

(*) Represents foreign currency translation adjustments.