AXCELIS TECHNOLOGIES INC
Form 10-K
February 29, 2012

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, 2011

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	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 checkmark whether the registrant has submitted electronically and posted on its corporate Web site, of any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). 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. ý

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 30, 2011: $171,923,525

Number of shares outstanding of the registrant's Common Stock, $0.001 par value, as of February 27, 2012: 107,117,038.

Documents incorporated by reference:

Portions of the definitive Proxy Statement for Axcelis Technologies, Inc.'s Annual Meeting of Stockholders to be held on May 2, 2012 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," the "Company," "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 leading semiconductor chip manufacturers worldwide. The ion implantation business comprised approximately 74.5% of our revenue in 2011 with the remaining 25.5% of revenue 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.

Axcelis, which was incorporated in Delaware in 1995, 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. Over 300 process steps utilizing over 50 different types of process tools are required to make 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 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 2011, Axcelis derived 75.1% of total systems revenue (a component of product revenue) from sales of 300mm equipment. In 2011, industry participants began planning for the next wafer size transition, to 450mm diameter wafers. The schedule for this future transition will vary by customer.

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 can be over $4 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 significant purchasers of semiconductor manufacturing equipment.

The semiconductor industry is highly cyclical, as global chip production capacities successively exceed, then lag behind, global chip demand. When chip demand is high, and inventories low, chip manufacturers add capacity though capital equipment purchases. Given the difficulties of forecasting and calibrating chip demand and production capacity, the industry periodically experiences excess chip inventories and softening chip prices. Our customers react with muted capital spending, lowering the demand for our equipment. Changes in consumer and business demand for products in which chips are used also affect the industry. 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.

After historic lows in 2009, the market for our products steadily improved during 2010 and we gained market share with our single wafer ion implant systems for high current and high energy applications (the Optima HDx and Optima XEx). This market recovery continued during the first half of 2011, but during the second half of 2011, deterioration within the industry environment decreased our revenues as compared with the first half of the year. In addition, we had delays in key penetrations in the second half of 2011. These delays were a function of poor market conditions and issues in our prioritization of new technology. The Company's 2011 results reflect efforts in recent years to lower our breakeven revenue levels to avoid significant losses in a downturn.

Axcelis' Strategy

Our mission and vision is to:

- Ensure our customers' success by providing enabling semiconductor manufacturing and support solutions that deliver the best performance at the lowest total cost of ownership.
- Achieve and maintain market share leadership in ion implantation and dry strip.
- Deliver profitability and positive cash flow through the industry cycles to maximize shareholder and employee value.

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 take pride in our scientists and engineers who 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 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 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.

Although the Company continues to focus on equipment for the semiconductor manufacturing industry, we have and will continue to explore, from time to time, ways to utilize our existing products in alternative markets such as solar and LED (Light-Emitting Diodes).

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 to low-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.

High Energy Implant. Axcelis is a market leader in high energy ion implanters. Our single wafer tool for high energy applications is the Optima XEx. The Optima XEx 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. We expect to maintain our leadership in the high energy segment through sales of our multi wafer high energy systems and the Optima XEx.

High Current Implant. Our single wafer product for high current applications is the Optima HDx. We use the term "high dose" or "HD" in connection with this product because the Optima HDx 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

HDx can process some traditional mid current implants. In addition, the Optima HDx is extendable into ultra-low energy applications to satisfy future process requirements including leakage current performance.

Medium Current Implant. Axcelis re-entered the medium current market segment with a new product, the Optima MDxt, in 2011, a market in which we had not previously had a competitive offering. 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. Axcelis has continued to develop medium current technology and has plans to introduce next generation products in the future.

We believe the Optima products will continue to meet customer demand for advantages in productivity, simplicity, process performance and technical extendibility.

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.

Axcelis offers a full line of dry strip tools that cover the entire range of customer applications. Our most advanced products, the Integra RS and ES, bring significantly higher productivity and flexibility to Axcelis' already proven advanced dry strip process capabilities. The Integra's unique multi-chamber design includes paired-chamber process modules that can run production recipes with the highest throughputs available for leading edge memory and logic devices. Each of the chamber pairs can operate independently, giving users the choice of running different cleaning recipes simultaneously or performing maintenance on one module while the others continue to operate. This flexiblity makes the system ideal for a variety of advanced cleaning applications in a high volume manufacturing environment. The platform also includes technology required to address cleaning challenges at emerging transistor device nodes, such as those associated with advanced source/drain formation and high-k/metal-gate structures.

We believe our dry strip products and technology will continue to meet customer demand for advantages in productivity, process performance and technical extendibility.

Aftermarket Support and Services

We offer our customers extensive aftermarket service and support throughout the lifecycle of the equipment we manufacture as well as equipment we previously manufactured. We believe that approximately 3,000 of our products are in use in 32 countries worldwide. The service and support that we provide include spare parts, equipment upgrades, and maintenance services. We provide service out of 32 field offices to customers located in 32 countries. Revenue generated through our service and support business represented about 46.2%, 51.7%, and 73.8% of revenue in 2011, 2010, and 2009, respectively.

To support our aftermarket business we have several hundred staff members, 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. In 2011, Applied Materials, Inc.

provided aftermarket services and support services for our products in Japan. This role will be transitioned to Ulvac Techno, a Japanese company, in 2012.

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. Our Axcelis Managed Inventory service offering, a parts consignment arrangement, provides the customer with full spares support, with Axcelis retaining responsibility for the complete supply chain. The expansion of these services provides ease of use alternatives that help us reduce order fulfillment costs and improve cycle time, resulting in an expanded customer base for this service offering.

Sales and Marketing

We primarily sell our equipment and services through our direct sales force. We have 11 sales offices in 7 countries. Aftermarket service and support is also offered at all of these offices. In the United States, we conduct sales and marketing activities from two locations. Outside of the United States, our sales offices are located in Taiwan, South Korea, China, Germany, Singapore and Italy. In addition, isolated sales are made in smaller markets through distributors and manufacturing representatives.

Since March 2009, SEN Corporation, or "SEN" (our former Japanese joint venture, which was divested in 2009), has held a non-exclusive license to use certain patented and unpatented technology associated with legacy products owned by the Company. Axcelis benefits from a reciprocal license of implant technology from SEN. These royalty-free, perpetual cross licenses do not restrict our ability to sell any of our products in Japan or elsewhere in the world. See Note 17 to our Consolidated Financial Statements contained in Item 15 of this Annual Report on Form 10-K for further information regarding SEN.

International revenue, including export sales from our U.S. manufacturing facilities to foreign customers, sales by foreign subsidiaries and branches, and royalties, accounted for 72.3% of total revenue in 2011, 75.8% in 2010, and 62.8% in 2009. Substantially all of our sales are denominated in U.S. dollars. See Note 15 to our Consolidated Financial Statements contained in Item 15 of this Form 10-K for a breakdown of our revenue and long-lived assets in the United States, Europe and Asia.

Customers

In 2011, the top 20 semiconductor manufacturers accounted for approximately 84.6% of total semiconductor industry capital spending, up from 78.9% in 2010. 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 serves all leading semiconductor manufacturers.

Revenue from our ten largest customers accounted for 68.6%, 62.7%, and 56.6% of revenue in 2011, 2010, and 2009, 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 2011, one customer accounted for 21.2% of revenue. In 2010, one customer accounted for 18.6% of revenue. In 2009 no customer accounted for more than 10% of revenue.

Our Beverly, Massachusetts Advanced Technology Center houses a process development laboratory with 12,500 sq. ft. of class 10/100/1000 clean room for product demonstrations and process development and a 34,000 sq. ft. customer training center. The Advanced Technology Center provides infrastructure and process capabilities that allow customers to test their unique process steps on our systems under conditions that substantially replicate the customers' production environment. This facility also provides significant capability for our research and development efforts.

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 $47.2 million, $39.5 million and $32.7 million in 2011, 2010, and 2009, respectively, or 14.8%, 14.4% and 24.6% of revenue, respectively. We expect that research and development expenditures will continue to represent a substantial investment in future years.

Manufacturing

We manufacture products at our 417,000 sq. ft. ISO 9000:2008, ISO 14001:2004 certified plant in Beverly, Massachusetts. Our facility employs best in class manufacturing techniques including lean manufacturing, six sigma controls and advanced inventory management, purchasing and quality systems. Our clean manufacturing process uses class 1000/10,000 space to facilitate most of our manufacturing requirements.

The Company's core manufacturing competency is built around system assembly and test which remains an in house capability due to the high degree of expertise and intellectual property associated with the process and design. Non-core work is sourced to one of several global partners and includes items such as power distribution, vacuum systems, wafer handling and commodity level components. We continuously pursue outsourcing opportunities where the economics are justified, with a goal of enabling factory capacity, quality and margin improvement. Our supply chain team is globally focused and is located in Beverly and Singapore. Customized and commercially available software solutions drive our planning, purchasing and inventory tracking process.

Our products are designed to be assembled and tested in a modular fashion, which facilitates our industry-recognized "ship-from-cell" process. Specially developed test stands, software and tooling provide the framework for this accelerated delivery process. Customers that choose ship-from-cell substantially improve their delivery times while receiving the same high level of quality provided by more traditional longer cycle integration techniques. Product margins and inventory turns also improve as a result of shorter factory cycle times and increased labor productivity.

Installation of our equipment is provided by factory and field teams. 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 factory testing.

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 of the semiconductor wafer fabrication process: ion implantation and dry strip. 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. Relationships also have a significant influence on a customer's choice of equipment supplier.

Ion Implantation. In ion implantation, we compete against Varian Semiconductor Equipment Associates, Inc. (acquired by Applied Materials, Inc. in late 2011), SEN, Nissin Electric Co., Ltd. and Advanced Ion Beam Technology, Inc.

Dry Strip. Our principal competitors in the dry strip product market are PSK, Inc., 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, 2012, we had 377 patents issued in the United States and 469 patents granted in other countries, as well as 719 patent applications (72 in the United States and 647 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 "Sales and Marketing"), 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 remove certain features from our products or both.

Backlog

As of December 31, 2011, our systems backlog (excluding deferred systems revenue) was $10.8 million, as compared to $51.7 million as of December 31, 2010. Systems backlog including deferred systems revenue was $23.1 million and $68.0 million as of December 31, 2011 and 2010, respectively. The decrease in backlog is indicative of the overall trend toward slowdown in the semiconductor equipment market during the second half of 2011. 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, 2011, we had 1,025 employees and 22 temporary staff worldwide, of which 784 work in North America, 203 in Asia and 60 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. One of our European locations has formed a work council, which has 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 of the Registrant

Mary G. Puma, 54, 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).

Jay Zager, 62, became our Executive Vice President and Chief Financial Officer in January 2011. Prior to joining Axcelis, from 2007 until 2010, Mr. Zager was Executive Vice President and Chief Financial Officer at 3Com Corporation, a global enterprise networking solutions provider acquired by Hewlett Packard. From February 2005 until June 2007, Mr. Zager was Executive Vice President and Chief Financial Officer at Gerber Scientific, Inc., a supplier of automated manufacturing systems. Prior to joining Gerber, Mr. Zager was Senior Vice President and Chief Financial Officer of Helix Technology Corp., a semiconductor equipment manufacturer, from February 2002 to January 2005.

Kevin J. Brewer, 53, has been our Executive Vice President, Operations since 2008. Mr. Brewer held the position of Senior Vice President, Manufacturing Operations 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, 52, is our Executive Vice President, Human Resources/Legal and General Counsel, a position she has held since May 2005. Prior to that, Ms. Fallon was Senior Vice President HR/Legal and General Counsel since 2002, and Senior Vice President and General Counsel since 2001. Ms. Fallon has also been our corporate Secretary 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.

William Bintz, 55, has been our Executive Vice President, Product Development, Engineering and Marketing since 2011. Prior to that, he was our Senior Vice President, Marketing since September 2007, after joining Axcelis in early 2006 as Director of Marketing for curing and cleaning products and shortly thereafter becoming Vice President of Product Marketing. 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.

Risks Related to Our Business and Industry

Set forth below and elsewhere in this Form 10-K and in other documents we file with the SEC are risks and uncertainties that could cause actual results to differ materially from the results contemplated by the forward-looking statements contained in this Form 10-K. We note that factors set forth below, individually or in the aggregate, may cause our actual results to differ materially from expected and historical results. We note these factors for investors as permitted by the Private Securities Litigation Reform Act of 1995. You should understand that it is not possible to predict or identify all such factors. Consequently, you should not consider the following to be a complete discussion of all potential risks or uncertainties.

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. 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.

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 will be sufficient to satisfy our anticipated cash requirements through the end of 2012 and beyond, but this, of course, depends on the accuracy of our assumptions about levels of sales and expenses. A number of factors, including those described in these "Risk Factors," could prove our assumptions wrong and cause us to require additional capital from external sources. 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.

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 revenue. 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 revenue 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 $0.2 million to $5.0 million. At our current sales level, each sale, or failure to make a sale, has a material effect on us in a particular quarter. In a given quarter, a number of factors can adversely affect our revenue 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. Fluctuations in our financial results may have an adverse effect on the price of our common stock.

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

Management may from time to time provide financial forecasts. These forecasts 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 revenue 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 revenue 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.

Accounting rules addressing revenue recognition have added additional complexity in forecasting quarterly revenue 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 forecasted 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. 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. Our revenue can vary significantly from one point in the cycle to another, making it difficult to manage the business, both when revenue is increasing and when it is decreasing. In addition, a substantial portion of our operating expenses are fixed and do not fluctuate with changes in volume. Significant decreases in revenue can therefore have a disproportionate effect on 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 2011, our top ten customers accounted for 68.6% 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.

Axcelis is subject to the risks of operating internationally and we derive a substantial portion of our revenue 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 72.3% of total

revenue in 2011 in comparison to 75.8% in 2010 and 62.8% in 2009. System shipments to Asian customers represented 60% of total shipment dollars in 2011 in comparison to 68% in 2010 and 76% in 2009. 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;
- difficulties in accounts receivable collections;
- extended payment terms beyond those customarily offered in the United States;
- difficulties in managing suppliers, service providers 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 revenue is billed in U.S. dollars and operating expenses are incurred in the local functional currency. During the year ended December 31, 2011, approximately 21% of our revenue was derived from foreign operations with this inherent risk. In addition, at December 31, 2011, 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 stock price has been 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 has 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. 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 own one property and lease 48 properties, of which 15 are located in the United States and the remainder are located in Asia and Europe, including offices in Taiwan, Singapore, South Korea, China, Malaysia, Italy, and Germany.

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 and customer support.	11,000 (leased)

Although we are currently operating significantly below normal capacity as a result of the continuing downturn in the industry, 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 facility is 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.

Item 4. Mine Safety Disclosures.

Not applicable.

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 Global Select Market under the symbol ACLS. The following table sets forth the high and low sale prices as reported on the Nasdaq Global Select Market during each of the quarters for the two most recent years. As of February 29, 2012, we had approximately 5,000 stockholders of record. We have never paid any cash dividends to our shareholders and do not anticipate paying cash dividends in the future and in any event, we would be restricted from doing so by the terms of our bank credit agreement.

	Common Stock Price	
	High	Low
2010		
First Quarter	$ 1.86	$ 1.41
Second Quarter	$ 2.58	$ 1.44
Third Quarter	$ 1.96	$ 1.34
Fourth Quarter	$ 3.72	$ 1.80
2011		
First Quarter	$ 3.77	$ 2.20
Second Quarter	$ 2.69	$ 1.48
Third Quarter	$ 1.94	$ 1.14
Fourth Quarter	$ 1.55	$ 1.00

Item 6. Selected Financial Data.

The following selected consolidated statements of operations data for each of the three years ended December 31, 2011, 2010, and 2009 and the consolidated balance sheet data as of December 31, 2011 and 2010 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, 2009 and 2008, and the statement of operations data for the years ended December 31, 2008 and 2007, has been derived from the audited financial statements contained in our Form 10-K filed on March 15, 2010. The consolidated balance sheet data as of December 31, 2007 has been derived from the audited financial statements contained in our Form 10-K filed on March 17, 2008.

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,				
	2011	2010	2009	2008	2007
	(In thousands, except per share amounts)				
Consolidated statements of operations data:					
Revenue	$ 319,416	$ 275,212	$ 133,022	$ 250,214	$ 404,800
Gross profit	114,737	85,838	28,064	62,615	152,861
Equity income (loss) of SEN			(3,238)	(3,667)	10,416
Income (loss) before Income taxes	7,471	(17,261)	(76,603)	(195,803)	(11,808)
Net income (loss)	5,077	(17,573)	(77,468)	(196,664)	(11,398)
Net income (loss) per share:					
Basic	$ 0.05	$ (0.17)	$ (0.75)	$ (1.91)	$ (0.11)
Diluted	$ 0.05	$ (0.17)	$ (0.75)	$ (1.91)	$ (0.11)
Shares used in computing basic and diluted per share amounts:					
Basic	106,234	104,522	103,586	102,739	101,891
Diluted	109,098	104,522	103,586	102,739	101,891
Consolidated balance sheet data:					
Cash and cash equivalents	$ 46,877	$ 45,743	$ 45,020	$ 37,694	$ 83,877
Working capital	164,561	160,501	163,849	111,182	284,679
Total assets	269,245	280,872	250,603	455,181	669,929
Long-term liabilities	7,218	7,176	4,447	5,808	89,920
Stockholders' equity	214,555	205,567	216,399	319,377	486,006

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 others discussed 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, except as may be required by law.

Overview

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 revenue and gross margins fluctuate from year to year and period to period. 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 experience fluctuations in operating results and cash flows depending on our revenue 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 pricing pressure as higher percentages of our total revenue are tied to the buying decisions of a particular customer or a small number of customers. Axcelis' net revenue from its ten largest customers accounted for 68.6% of total revenue for the year ended December 31, 2011 compared to, 62.7%, and 56.6% of revenue for the years ended December 31, 2010 and 2009, respectively.

After historic lows in 2009, the market for our products steadily improved during 2010 and we gained market share with our single wafer ion implant systems for high current and high energy applications (the Optima HDx and Optima XEx). This market recovery continued during the first half of 2011, but during the second half of 2011, deterioration within the industry environment decreased our revenues as compared with the first half of the year. In addition, we had delays in key penetrations in the second half of 2011. These delays were a function of poor market conditions and issues in our prioritization of new technology. However, in 2011 we continued to penetrate new customers with our Optima implant products which we expect will lead to additional future sales. In 2011 we also gained market share with our Integra dry strip products. We expect the industry to recover in 2012, and as a result, we believe that our financial results will improve. In the event that industry conditions cause the demand for Axcelis' products to decline in future periods, we believe that we can align manufacturing and operating expense levels to changing business conditions and provide sufficient liquidity to support operations.

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, revenue and expenses, and related disclosure of contingent assets and liabilities. On an on-going basis, we evaluate our estimates and assumptions. 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. For additional accounting policies see Notes to Consolidated Financial Statements Note 2. Significant Accounting Policies.

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 future service obligations to the customer, the complexity of the customer's post delivery acceptance provisions, payment history, customer creditworthiness and the installation process. In the future, if the post delivery acceptance provisions and installation process become more complex or result in a materially lower rate of acceptance, we may have to revise our revenue recognition policy, which could delay the timing of revenue recognition.

Axcelis' system sales transactions are made up of multiple elements, including the system itself and elements that are not delivered simultaneously with the system. These undelivered elements might include a combination of installation services, extended warranty and support and spare parts, all of which are generally covered by a single sales price. Effective January 1, 2011, we adopted Accounting Standards Update, or ASU, No. 2009-13, *Multiple Deliverable Revenue Arrangements*, as required, using the prospective method. Accordingly, this guidance is being applied to all system revenue arrangements entered into or materially modified on or after January 1, 2011. The adoption of the amended guidance did not change the accounting for arrangements entered into prior to January 1, 2011. There was no material impact on our financial position, results of operations or cash flows upon adoption and we do not expect adoption will have a material impact on our future reporting periods based on our current practices.

The impact of adopting this amended guidance on our results of operations has been limited to transactions involving the sale of systems. ASU No. 2009-13 amended the previous guidance for multiple-element arrangements. Pursuant to the amended guidance in ASU 2009-13, our system revenue arrangements with multiple elements are divided into separate units of accounting if specified criteria are met, including whether the delivered element has stand-alone value to the customer. If the criteria are met, then the consideration received is allocated among the separate units based on their relative selling price, and the revenue is recognized separately for each of the separate units.

We determine selling price for each unit of accounting (element) using vendor specific objective evidence (VSOE) or third-party evidence (TPE), if they exist, otherwise, we use best estimated selling price (BESP). The Company generally expects that it will not be able to establish TPE due to the nature of its products, and, as such, the Company typically will determine selling price using VSOE or BESP.

Where required, the Company determines BESP for an individual element based on consideration of both market and Company-specific factors, including the selling price and profit margin for similar products, the cost to produce the deliverable and the anticipated margin on that deliverable and the characteristics of the varying markets in which the deliverable is sold.

The total consideration to be received in the transaction is allocated to each element in the arrangement based upon the relative selling price of each element when compared to the consideration received.

Systems are not sold separately and VSOE or TPE is not available for the systems element. Therefore the selling price associated with systems is based on BESP. The allocated value for installation in the arrangement includes (a) the greater of (i) the relative selling price of the installation or (ii) the portion or the sales price that will not be received until the installation is completed (the "retention"). The selling price of 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, both of which are sold separately. The selling price of all other elements (extended warranty for support, spare parts, and labor) is based upon the price charged when these elements are sold separately, or VSOE.

Product revenue for products which have demonstrated market acceptance, 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, collection 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 product revenue for systems which have demonstrated market acceptance 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. While some customers accept Axcelis' standard specifications, 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. 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. 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 was primarily earned under the terms of our license agreement with SEN. Royalty revenue was recorded at the time SEN notified Axcelis that royalties had been earned.

Impairment of Long-Lived Assets

We record impairment losses on long-lived assets when events and circumstances indicate that these assets might not be recoverable. Recoverability is measured by a comparison of the assets' carrying amount to their expected future undiscounted net cash flows. If such assets are considered to be impaired, the impairment is measured based on the amount by which the carrying value exceeds its fair value.

Future actual performance could be materially different from our current forecasts, which could impact future estimates of undiscounted cash flows and may result in the impairment of the carrying amount of the long-lived assets in the future. This could be caused by strategic decisions made in response to economic and competitive conditions, the impact of the economic environment on our customer base, or a material adverse change in our relationships with significant customers.

As of December 31, 2011 the Company completed a test for recoverability due to indicators that were present at December 31, 2011. Results of this test indicated no impairment as of December 31, 2011. The Company did not record an impairment charge for the years ended December 31, 2011, 2010, or 2009.

Accounts Receivable Allowance for Doubtful Accounts

We record an allowance for doubtful accounts for estimated losses resulting from the inability of our customers to make required payments. Our allowance for doubtful accounts is established based on a specific assessment of collectibility of our customer accounts. If the financial condition of our 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

We record 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.

Although we make every effort to ensure the accuracy of our forecasts or product demand and pricing assumptions, any significant unanticipated changes in demand, pricing, or technical developments would significantly impact the value of our inventory and our reported operating results. In the future, if we find that estimates are too optimistic and determine that inventory needs to be written down, the Company will recognize such costs in our cost of revenue at the time of such determination. Conversely, if we find our estimates are too pessimistic and we subsequently sell product that has previously been written down, our gross margin in that period will be favorably impacted.

Product Warranty

We generally offer a one year warranty for all of our systems, 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 revenue for the periods indicated:

	Years Ended December 31,		
	2011	2010	2009
Revenue:			
Product	90.0%	88.2%	74.2%
Service	10.0	11.8	25.5
Royalties, primarily from SEN			0.3
Total revenue	100.0	100.0	100.0
Cost of revenue:			
Product	56.8	61.1	63.3
Services	7.3	7.7	15.6
Total cost of revenue	64.1	68.8	78.9
Gross profit	35.9	31.2	21.1
Operating expenses:			
Research and development	14.8	14.4	24.6
Sales and marketing	9.1	10.0	19.0
General and administrative	9.8	11.7	25.6
Restructuring charges			4.2
Total operating expenses	33.7	36.1	73.4
Income (loss) from operations:	2.2	(4.9)	(52.3)
Other income (expense):			
Gain on sale of SEN			0.8
Equity loss of SEN			(2.4)
Interest income			0.1
Interest expense			(1.3)
Other, net	0.1	(1.5)	(2.6)
Total other income (expense)	0.1	(1.5)	(5.4)
Income (loss) before income taxes	2.3	(6.4)	(57.7)
Provision for income taxes	0.7		0.7
Net income (loss)	1.6%	(6.4)%	(58.4)%

Year ended December 31, 2011 in comparison to the year ended December 31, 2010

Revenue

Revenue increased significantly in 2011 compared to 2010 as the Company benefited from improving market conditions and increased capacity utilization at customers' manufacturing facilities during the first half of 2011. However during the second half of 2011, deterioration within the industry environment resulted in a decrease in our revenues as compared to the first half of the year.

Product

Product revenue, which includes systems sales, sales of spare parts and product upgrades, was $237.9 million or 90.0% of revenue in 2011, compared with $242.8 million, or 88.2% of revenue in 2010. The increase in product revenue in 2011 is attributable to the strengthening of the semiconductor market and a related increase in capital spending by semiconductor manufacturers during the first half

of 2011. However, our revenues decreased during the second half of 2011 due to the weakening of the semiconductor market and the related delay in capital spending by semiconductor manufacturers. In addition, we had delays in key penetrations in the second half of 2011. These delays were a function of poor market conditions and issues in our prioritization of new technology. Despite this market slowdown we believe we are gaining market traction with our single wafer ion implant systems. During 2011, we also gained market share with our Integra dry strip products.

Approximately 24.9% of systems revenue in 2011 was from sales of 200mm products and 75.1% was from sales of 300mm products, compared with 12.8% and 87.2% for sales of 200mm products and 300mm products in 2010, respectively.

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, 2011 and 2010 was $12.3 million and $16.3 million, respectively. The decrease was mainly due to the decrease in systems sales in the second half of 2011 and the timing of acceptance of deferred system sales.

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 $32.1 million, or 10.0% of revenue for 2011, compared with $32.4 million, or 11.8% of revenue, for 2010. Although service revenue should increase with the expansion of the installed base of systems, it can fluctuate from period to period based on capacity utilization at customers' manufacturing facilities, which affects the need for equipment service. The slight decrease during 2011 was primarily due to a decrease in fabrication utilization in the semiconductor industry particularly during the second half of 2011.

Revenue Categories used by Management

As an alternative to the line item revenue categories discussed above, management also uses revenue categorizations which look at revenue by product line (the most significant of which is ion implant) and by aftermarket, as described below.

Ion Implant

Included in total revenue of $319.4 million in 2011 is revenue from sales of ion implantation products and related service of $237.9 million, or 74.5% of total revenue, compared with $232.4 million, or 84.4%, of total revenue in 2010. The dollar increase was due to the factors discussed above for product revenue. Annual revenue from the sale of ion implantation products and service typically averages from 70% to 80% of total revenue.

Aftermarket

The Company's product revenue includes sales of spare parts and product upgrades as well as complete systems. We refer to the business of selling spare parts and product upgrades, combined with the sale of maintenance labor and service contracts and service hours, as the "aftermarket" business. Included in total revenue of $319.4 million in 2011 is revenue from our aftermarket business of $147.6 million, compared to $142.2 million for 2010. Aftermarket revenue generally increases with expansion of the installed base of systems but can fluctuate from 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 36.9% for the twelve months ended December 31, 2011, compared to 30.8% for the twelve months ended December 31, 2010. The increase in gross profit of 6.1 percentage points is due primarily to a favorable mix of products at higher margins and leveraging our on-going efforts to drive labor and material productivity through lean, ship from cell and our global sourcing efforts.

Service

Gross profit from service revenue was 27.0% for the twelve months ended December 31, 2011, compared to 34.3% for the twelve months ended December 31, 2010. The decrease in gross profit is attributable to changes in the mix of service contracts and the unfavorable absorption of fixed service costs.

Research and Development

Research and development expense was $47.2 million in 2011, an increase of $7.7 million, or 19.5%, compared with $39.5 million in 2010. The increase was primarily payroll costs due to increased headcount ($3.8 million), as well as increased amortization and depreciation costs for assets used as demonstration and/or test systems ($1.8 million), increased project material costs ($1.1 million), and increased professional fee expenses ($1.0 million).

Research and development expense was attributable to the following activities for 2011: 57% for new product development, 30% for improvement and enhancement of existing products, and 13% for product testing.

Sales and Marketing

Sales and marketing expense was $29.3 million in 2011, an increase of $1.8 million, or 6.5%, compared with $27.5 million in 2010. The increase was driven primarily by increased payroll costs ($2.5 million), increased travel costs ($0.4 million), increased freight costs ($0.1 million), increased miscellaneous other ($0.4 million), offset by decreased supplies and marketing costs ($1.6 million).

General and Administrative

General and administrative expense was $31.2 million in 2011, a decrease of $0.9 million, or 2.8% compared with $32.1 million in 2010. The lower general and administrative expense in 2011 was driven primarily by decreased incentive compensation expense ($1.9 million), and decreased professional fee expenses ($0.6 million), offset by increased payroll costs ($0.6 million), increased separation costs associated with the retirement of a former executive of the Company ($0.3 million) and increased other miscellaneous costs ($0.7 million).

Other Income (Expense)

Other income (expense) for the year ended December 31, 2011 primarily consisted of foreign exchange gains compared to foreign exchange losses in 2010, as a result of U.S. dollar currency fluctuations against the local currencies of certain of the countries in which we operate.

For the year ended December 31, 2011 the Company incurred $1.2 million of foreign exchange gains. For the year ended December 31, 2010 the Company incurred $1.9 million of foreign exchange losses. Included in foreign exchange losses in 2010 are $0.3 million of foreign exchange losses relating to currency hedging activities.

Income Taxes

We incur income tax expense relating principally to operating results of foreign entities in jurisdictions in Europe and Asia, where we earn taxable income. We have significant net operating loss carryforwards in the United States and certain European jurisdictions, and, as a result, we do not currently pay significant income taxes in those jurisdictions. Additionally we do not recognize the tax benefit for such losses in the United States and certain European taxing jurisdictions. In the fourth quarter of 2011, the Company recorded a tax expense of $0.9 million related to an uncertain tax position in one of our European jurisdictions.

In 2010, the Company performed an evaluation of the deferred tax assets of certain of our foreign subsidiaries for which the Company had previously established a valuation allowance. Based on the subsidiaries' recent and expected ability to generate taxable income, the Company reduced the subsidiaries' corresponding valuation allowance and recognized a tax benefit of $1.3 million.

Year ended December 31, 2010 in comparison to the year ended December 31, 2009

Revenue

Revenue increased significantly in 2010 compared to 2009 as the Company benefited from improving market conditions and increased capacity utilization at customers' manufacturing facilities. The Company expects this positive trend to continue into 2011.

Product

Product revenue, which includes systems sales, sales of spare parts and product upgrades, was $242.8 million or 88.2% of revenue in 2010, compared with $98.7 million, or 74.2% of revenue in 2009. The increase in product revenue in 2010 is attributable to the strengthening of the semiconductor market and a related increase in capital spending by semiconductor manufacturers. In addition, we also believe we are gaining market share with our single wafer ion implant systems for high current and high energy applications (the Optima HDx and Optima XEx), as customers are showing a higher acceptance of our technology.

Approximately 12.8% of systems revenue in 2010 was from sales of 200mm products and 87.2% was from sales of 300mm products, compared with 25.0% and 75.0% for sales of 200mm products and 300mm products in 2009, respectively.

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, 2010 and 2009 was $16.3 million and $5.7 million, respectively. The increase was mainly due to the increase in systems sales in 2010.

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 $32.4 million, or 11.8% of revenue for 2010, compared with $33.9 million, or 25.5% of revenue, for 2009. Although service revenue should increase with the expansion of the installed base of systems, it can fluctuate from period to period based on capacity utilization at customers' manufacturing facilities, which affects the need for equipment service. The slight decrease during 2010 was primarily due to a decrease in fabrication utilization in the North American semiconductor industry.

Royalties

Royalties were previously earned under our prior license agreement with SEN. As a result of the sale of our investment in SEN, SEN has had no further royalty obligations since March 30, 2009. Royalty revenue was $0.4 million or 0.3% of revenue for 2009.

Revenue Categories used by Management

As an alternative to the line item revenue categories discussed above, management also uses revenue categorizations which look at revenue by product line (the most significant of which is ion implant) and by aftermarket, as described below.

Ion Implant

Included in total revenue of $275.2 million in 2010 is revenue from sales of ion implantation products and service of $232.4 million, or 84.4% of total revenue, compared with $110.9 million, or 83.4%, of total revenue in 2009. The dollar increase was due to the factors discussed above for product revenue. Annual revenue from the sale of ion implantation products and service typically averages from 70% to 80% of total revenue.

Aftermarket

The Company's product revenue includes sales of spare parts and product upgrades as well as complete systems. We refer to the business of selling spare parts and product upgrades, combined with the sale of maintenance labor and service contracts and service hours, as the "aftermarket" business. Included in total revenue of $275.2 million in 2010 is revenue from our aftermarket business of $142.2 million, compared to $98.2 million for 2009. Aftermarket revenue generally increases with expansion of the installed base of systems but can fluctuate from 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 30.8% for the twelve months ended December 31, 2010, compared to 14.7% for the twelve months ended December 31, 2009. Approximately 3.3% of the 16.1% increase resulted from a lower provision for excess inventory. The remaining 12.8% increase in gross profit from product revenue is attributable to higher systems sales volume and the related favorable absorption of fixed overhead costs which increased gross margins by 22.3%, offset by a 9.5% decrease in gross margin resulting from an unfavorable mix of parts and upgrade revenue.

Service

Gross profit from service revenue was 34.3% for the twelve months ended December 31, 2010, compared to 38.8% for the twelve months ended December 31, 2009. The decrease in gross profit is attributable to lower volumes.

Research and Development

Research and development expense was $39.5 million in 2010, an increase of $6.8 million, or 20.8%, compared with $32.7 million in 2009. The increase was primarily payroll costs due to increased headcount ($3.1 million), increased professional fee expenses ($2.4 million), increased project material costs ($1.3 million), and increased asset amortization and depreciation costs for assets used as demonstration and/or test systems ($0.1 million).

Research and development expense was attributable to the following activities for 2010: 53% for new product development, 31% for improvement of existing products, and 16% for product testing.

Sales and Marketing

Sales and marketing expense was $27.5 million in 2010, an increase of $2.3 million, or 9.1%, compared with $25.2 million in 2009 as the Company benefited from improved market conditions in 2010. The increase was driven primarily by increased travel costs ($0.8 million), increased freight costs ($0.8 million), increased supplies and marketing costs ($0.4 million), and increased payroll costs ($0.3 million).

General and Administrative

General and administrative expense was $32.1 million in 2010, a decrease of $2.0 million, or 5.9% compared with $34.1 million in 2009. The decrease was driven primarily by decreased professional fee expenses ($4.6 million) primarily due to legal transaction costs and business outsourcing activities being incurred in 2009 and a decrease in other miscellaneous costs ($0.4 million), offset by increased payroll and incentive compensation costs ($3.0 million).

Other Income (Expense)

Equity loss attributable to SEN was $3.2 million for the year ended December 31, 2009. As a result of the sale of the Company's investment in SEN, subsequent to March 30, 2009, the Company no longer records equity income or loss from SEN.

Interest income of $0.1 million for the year ended December 31, 2010, primarily relates to interest earned on cash and cash equivalents. Interest income decreased by $0.1 million from the year ended December 31, 2009, primarily due to lower average cash balances and lower interest rates.

We had no interest expense for the year ended December 31, 2010. Our interest expense was $1.7 million for the year ended December 31, 2009. We have had no borrowings since we paid in full our convertible senior subordinated notes on March 30, 2009.

For the year ended December 31, 2010 and 2009 the Company incurred $1.9 million of foreign exchange losses. Included in foreign exchange losses in 2010 are $.3 million of foreign exchange losses relating to currency hedging activities. The primary reason for foreign exchange losses in both years was due to the weakening of the U.S dollar.

Income Taxes

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 18 to the consolidated financial statements. Accordingly, our effective income tax rate is not meaningful.

In 2010, the Company performed an evaluation of the deferred tax assets of certain of our foreign subsidiaries for which the Company had previously established a valuation allowance. Based on the subsidiaries recent and expected ability to generate taxable income, the Company reduced the subsidiary's corresponding valuation allowance and recognized a tax benefit of $1.3 million.

Liquidity and Capital Resources

Capital expenditures were $2.1 million and $1.4 million for the years ended December 31, 2011 and 2010, respectively. We have no significant capital projects planned for 2012 and total capital expenditures for 2012 are projected to be less than $2.5 million. Future capital expenditures beyond 2012 will depend on a number of factors, including the timing and rate of expansion of our business and our ability to generate cash to fund them.

We have outstanding standby letters of credit, statutory liability deposits and surety bonds in the amount of $5.8 million to support certain operating programs, workers' compensation insurance, and certain value added tax claims in Europe, of which $104,000 at December 31, 2011 was supported by cash pledged as collateral. The pledged cash is reflected as long-term restricted cash on the consolidated balance sheet.

The following represents our commercial commitments as of December 31, 2011 (in thousands):

	Amount of Commitment Expiration by Period				
Other Commercial Commitments	**Total**	**2012**	**2013-2014**	**2015-2016**	**Thereafter**
Surety bonds	$ 4,146	$ 2,842	$ 1,304	$	$
Standby letters of credit	1,575	1,575			
Statutory liability deposits	104		104		
	$ 5,825	$ 4,417	$ 1,408	$	$

The following represents our contractual obligations as of December 31, 2011 (in thousands):

	Payments Due by Period				
Contractual Obligations	**Total**	**2012**	**2013-2014**	**2015-2016**	**Thereafter**
Purchase order commitments	$ 24,229	$ 24,229	$	$	$
Operating leases	10,145	3,434	3,831	2,100	780
	$ 34,374	$ 27,663	$ 3,831	$ 2,100	$ 780

We have no off-balance sheet arrangements at December 31, 2011.

Our liquidity is affected by many factors. Some of these relate specifically to the operations of our business, for example, the rate of sale of our Optima and Integra products, and others relate to the uncertainties of global economies, including the availability of credit, and the condition of the overall semiconductor equipment industry.

We have net operating loss and tax credit carryforwards the tax effect of which aggregate $108.2 million at December 31, 2011. These carryforwards, which expire principally between 2021 and 2031, are available to reduce future income tax liabilities in the United States and certain foreign jurisdictions.

In 2011, $3.5 million of cash was generated by operating activities compared to a cash use of $5.9 million in 2010. The $9.4 million increase in cash generated by operations in 2011 was predominately driven by the Company's income from operations in addition to noncash charges for depreciation and amortization and stock based compensation expense. Cash and cash equivalents at December 31, 2011 were $46.9 million, compared to $45.7 million at December 31, 2010. Working

capital at December 31, 2011 was $164.6 million. Approximately $15.6 million of cash is located in foreign jurisdictions as of December 31, 2011.

It is Company policy to provide taxes for the total anticipated tax impact of the undistributed earnings of our wholly-owned foreign subsidiaries' as such earnings are not expected to be reinvested indefinitely. The Company anticipates that US tax resulting from remitting such earnings will be off-set by net operating loss or credit carryforwards to the extent available. In addition, the Company does not anticipate incurring a foreign withholding tax on remitting such earnings since it does not intend to remit the earnings as dividends.

On April 25, 2011, the Company amended its existing revolving credit facility with a bank. The amended agreement provides for borrowings up to $30 million based primarily on accounts receivable. The facility has certain financial covenants requiring us to maintain minimum levels of operating results and liquidity. The agreement will terminate on April 10, 2015. The Company uses the facility to support letters of credit and hedging transactions.

On December 27, 2011, the Company entered into a modification agreement relating to this facility, which revises the Company's covenant to require a minimum trailing six month adjusted net income (as defined in the agreement) for the six month period ending December 31, 2011 of ($3,000,000).

At December 31, 2011 the Company's available borrowing capacity under the amended credit facility was $23.3 million and the Company was compliant with all covenants of the loan agreement.

We believe that based on our current market, revenue and expense forecasts, our existing cash and cash equivalents will be sufficient to satisfy our anticipated cash requirements in the short and long-term. Our 2012 forecast reflects revenue and gross margins consistent with our understanding of customer plans, the market conditions currently forecasted by the industry, and capacity utilization at customers' manufacturing facilities.

Related-Party Transactions

There are no significant related-party transactions that require disclosure in the consolidated financial statements for the year ended December 31, 2011, or in this Annual Report on Form 10-K.

Recent Accounting Pronouncements

A discussion of recent accounting pronouncements is included in Note 2 to the consolidated financial statements for the year ended December 31, 2011 included in this Annual Report on Form 10-K.

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, 2011. 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, 2011 and 2010, approximately 21% and 24% of our revenue were derived from foreign operations with this inherent risk. In addition, at both December 31, 2011 and 2010, our operations outside of the United States accounted for approximately 37% and 34% of our total assets, respectively, the majority of which was denominated in currencies other than the U.S. dollar.

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 Rule 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 all 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, 2011. 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, 2011, 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 Stockholders of Axcelis Technologies, Inc.

We have audited Axcelis Technologies, Inc.'s internal control over financial reporting as of December 31, 2011, 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, 2011, 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, 2011 and 2010, and the related consolidated statements of operations, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2011 of Axcelis Technologies, Inc. and our report dated February 29, 2012 expressed an unqualified opinion thereon.

/s/ Ernst & Young LLP

Boston, Massachusetts
February 29, 2012

Changes in Internal Control over Financial Reporting

There was no change in our internal control over financial reporting (as defined in Rule 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.

The Company entered into Amended and Restated Indemnification Agreements dated February 28, 2012 with each of its current directors and officers to conform to an updated form of Indemnification Agreement. The previous form of Indemnification Agreement was adopted in June, 2000 and the Board determined that certain provisions required clarification or enhancement in light of court decisions interpreting indemnification agreements during the period since the previous form was adopted. These amendments:

- add language providing for a neutral decision-maker in the event of a change in control and certain presumptions benefiting the director or officer;
- clarify and elaborate on a number of definitions and other terms;
- eliminate the Company's obligation to maintain an escrow account for the benefit of the indemnitees.

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 2, 2012 (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 of the Registrant" 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 and unvested restricted stock units 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, 2011 are summarized in the following table:

Plan category	(A) Number of shares to be issued upon exercise of outstanding options, warrants and rights(1)	(B) Weighted-average exercise price of outstanding options, warrants and rights	(C) Number of shares remaining available for future issuance under equity compensation plans (excluding shares reflected in column (A)(2)
Equity compensation plans approved by stockholders	21,244,352	$ 2.75	9,663,316
Equity compensation plans not approved by stockholders			
Total	21,244,352	$ 2.75	9,663,316

(1) Represents 21,093,022 shares issuable on exercise of outstanding options as of December 31, 2011, plus 151,330 shares issuable on vesting of outstanding restricted stock units as of December 31, 2011 (some of which will be withheld to compensate for tax withholding).

(2) Represents the total shares available for issuance under our 2000 Stock Plan and our Employee Stock Purchase Plan, as of December 31, 2011, as follows:

(A) 7,318,082 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 418,880 outstanding shares issued under the plan as restricted stock, 1,879,176 shares issued on vesting of outstanding restricted stock units, 2,312,877 shares issued upon option exercises, and the outstanding options and unvested restricted stock units shown in column (A), all as of December 31, 2011. This plan is generally used for grants to employees and directors and was approved by our stockholders at our 2002 annual meeting.

(B) 2,345,234 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 5,154,766 shares issued through December 31, 2011.

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

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

"Executive Compensation,"

"Corporate Governance Board of Directors Independence and Meetings," and

"Corporate Governance Certain Relationships and Related Transactions."

Item 14. Principal Accounting Fees and Services

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

PART IV

Item 15. Exhibits, Financial Statement Schedules.

(a)

The following documents are filed as part of this Report:

1)

Financial Statements:

Report of Independent Registered Public Accounting Firm	F-1
Consolidated Statements of Operations For the years ended December 31, 2011, 2010 and 2009	F-2
Consolidated Balance Sheets December 31, 2011 and 2010	F-3
Consolidated Statements of Stockholders' Equity For the years ended December 31, 2011, 2010 and 2009	F-4
Consolidated Statements of Cash Flows For the years ended December 31, 2011, 2010 and 2009	F-5
Notes to Consolidated Financial Statements	F-6

2)

Financial Statement Schedules:

Schedule II Valuation and Qualifying Accounts for the years ended December 31, 2011, 2010 and 2009

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.

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, 2011 and 2010, and the related consolidated statements of operations, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2011. 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 financial statements referred to above present fairly, in all material respects, the consolidated financial position of Axcelis Technologies, Inc. at December 31, 2011 and 2010, and the consolidated results of its operations and its cash flows for each of the three years in the period ended December 31, 2011, in conformity with U.S. generally accepted accounting principles. Also, in our opinion, the related financial statement schedule, when considered in relation to the basic financial statements taken as a whole, presents fairly in all material respects the information set forth therein.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), Axcelis Technologies, Inc.'s internal control over financial reporting as of December 31, 2011, based on criteria established in Internal Control Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated February 29, 2012 expressed an unqualified opinion thereon.

/s/ Ernst & Young LLP

Boston, Massachusetts
February 29, 2012

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

	Year Ended December 31,		
	2011	2010	2009
Revenue			
Product	$ 287,324	$ 242,771	$ 98,716
Service	32,092	32,441	33,917
Royalties, primarily from SEN			389
	319,416	275,212	133,022
Cost of revenue			
Product	181,241	168,047	84,185
Service	23,438	21,327	20,773
	204,679	189,374	104,958
Gross profit	114,737	85,838	28,064
Operating expenses			
Research and development	47,176	39,524	32,661
Sales and marketing	29,255	27,549	25,209
General and administrative	31,174	32,132	34,087
Restructuring charges			5,541
	107,605	99,205	97,498
Income (loss) from operations	7,132	(13,367)	(69,434)
Other income (expense)			
Gain on sale of SEN			1,080
Equity loss of SEN			(3,238)
Interest income	42	96	181
Interest expense			(1,676)
Other, net	297	(3,990)	(3,516)
	339	(3,894)	(7,169)
Income (loss) before income taxes	7,471	(17,261)	(76,603)
Income taxes	2,394	312	865
Net income (loss)	$ 5,077	$ (17,573)	$ (77,468)
Net income (loss) per share			
Basic net income (loss) per share	$ 0.05	$ (0.17)	$ (0.75)
Diluted net income (loss) per share	$ 0.05	$ (0.17)	$ (0.75)
Shares used in computing basic and diluted net income (loss) per share			
Weighted average common shares outstanding basic	106,234	104,522	103,586
Weighted average common shares outstanding diluted	109,098	104,522	103,586

See accompanying Notes to these Consolidated Financial Statements

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

	December 31, 2011	December 31, 2010
ASSETS		
Current assets		
Cash and cash equivalents	$ 46,877	$ 45,743
Accounts receivable, net	35,071	57,888
Inventories, net	120,023	109,653
Prepaid expenses and other current assets	10,062	15,346
Total current assets	212,033	228,630
Property, plant and equipment, net	37,204	38,594
Long-term restricted cash	104	107
Other assets	19,904	13,541
	$ 269,245	$ 280,872
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities		
Accounts payable	$ 19,551	$ 36,709
Accrued compensation	8,285	10,597
Warranty	3,556	2,556
Income taxes	495	
Deferred revenue	10,786	13,859
Other current liabilities	4,799	4,408
Total current liabilities	47,472	68,129
Long-term deferred revenue	1,488	2,417
Other long-term liabilities	5,730	4,759
Commitments and contingencies (Note 14)		
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; 106,809 shares issued and 106,689 shares outstanding at December 31, 2011; 105,906 shares issued and 105,786 shares outstanding at December 31, 2010	107	106
Additional paid-in capital	499,332	493,967
Treasury stock, at cost, 120 shares at December 31, 2011 and 2010	(1,218)	(1,218)
Accumulated deficit	(288,443)	(293,520)
Accumulated other comprehensive income	4,777	6,232
	214,555	205,567
	$ 269,245	$ 280,872

See accompanying Notes to these Consolidated Financial Statements

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

	Common Stock		Additional Paid-in Capital	Treasury Stock	Accumulated Deficit	Accumulated Other Comprehensive Income (Loss)	Total Stockholders' Equity
	Shares	Amount					
Balance at December 31, 2008	103,400	$ 103	$ 483,546	$ (1,218)	$ (198,479)	$ 35,425	$ 319,377
Comprehensive loss							
Net loss					(77,468)		(77,468)
Foreign currency translation adjustments						(30,239)	(30,239)
Change in pension						(47)	(47)
Total comprehensive loss							(107,754)
Exercise of stock options	66	1	44				45
Issuance of shares under Employee Stock Purchase Plan	302		184				184
Issuance of restricted common shares	444		(104)				(104)
Stock-based compensation expense			4,651				4,651
Balance at December 31, 2009	104,212	104	488,321	(1,218)	(275,947)	5,139	216,399
Comprehensive loss							
Net loss					(17,573)		(17,573)
Foreign currency translation adjustments						1,535	1,535
Change in pension						(442)	(442)
Total comprehensive loss							(16,480)
Exercise of stock options	704	1	552				553
Issuance of shares under Employee Stock Purchase Plan	280	1	637				638
Issuance of restricted common shares	262		(201)				(201)
Issuance of restricted shares in satisfaction of accrued compensation	448		570				570
Stock-based compensation expense			4,088				4,088
Balance at December 31, 2010	105,906	106	493,967	(1,218)	(293,520)	6,232	205,567
Comprehensive income							
Net income					5,077		5,077
Foreign currency translation adjustments						(1,466)	(1,466)
Change in pension						11	11
Total comprehensive income							3,622
Exercise of stock options	372		288				288
Issuance of shares under Employee Stock Purchase Plan	398	1	502				503
Issuance of restricted common shares	133		(112)				(112)
Stock-based compensation expense			4,687				4,687
Balance at December 31, 2011	106,809	$ 107	$ 499,332	$ (1,218)	$ (288,443)	$ 4,777	$ 214,555

See accompanying Notes to these Consolidated Financial Statements

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

	Year Ended December 31,		
	2011	**2010**	**2009**
Cash flows from operating activities			
Net income (loss)	$ 5,077	$ (17,573)	$ (77,468)
Adjustments to reconcile net loss to net cash provided by (used for) operating activities			
Undistributed loss of SEN			3,238
Depreciation and amortization	8,497	7,045	7,436
Gain on sale of SEN			(1,080)
Deferred income taxes	585	(1,525)	(765)
Other	28		133
Stock-based compensation expense	4,687	4,088	4,651
Provision for excess inventory	1,015	2,015	9,818
Changes in operating assets & liabilities			
Accounts receivable	22,692	(38,652)	8,572
Inventories	(11,870)	3,549	26,445
Prepaid expenses and other current assets	3,049	(3,469)	8,131
Accounts payable & other current liabilities	(17,940)	32,276	(11,038)
Deferred revenue	(4,006)	10,601	(8,695)
Income taxes	507	(1,406)	1,154
Other assets and liabilities	(8,788)	(2,841)	(4,474)
Net cash provided by (used for) operating activities	3,533	(5,892)	(33,942)
Cash flows from investing activities			
Expenditures for property, plant, and equipment	(2,124)	(1,403)	(463)
Decrease in restricted cash	3	7,056	1,491
Proceeds from sale of SEN			132,847
Payments related to sale of SEN			(10,590)
Net cash (used for) provided by investing activities	(2,121)	5,653	123,285
Cash flows from financing activities			
Repayment of convertible debt			(83,344)
Financing fees and other expenses	(200)	(523)	
Proceeds from exercise of stock options	288	553	45
Proceeds from Employee Stock Purchase Plan	503	569	184
Net cash provided by (used for) financing activities	591	599	(83,115)
Effect of exchange rate changes on cash	(869)	363	1,098
Net increase in cash and cash equivalents	1,134	723	7,326
Cash and cash equivalents at beginning of period	$ 45,743	$ 45,020	$ 37,694
Cash and cash equivalents at end of period	$ 46,877	$ 45,743	$ 45,020
Cash paid for interest	$	$	$ 3,009
Cash paid for income taxes	$ 515	$ 2,286	$ 734
Non cash investing and financing activities:			
Issuance of restricted common stock in satisfaction of accrued compensation	$	$ 570	$

See accompanying Notes to these Consolidated Financial Statements

Axcelis Technologies, Inc.
Notes to Consolidated Financial Statements

Note 1. Nature of Business

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 addition, the Company provides extensive aftermarket service and support, including spare parts, equipment upgrades, and maintenance services to the semiconductor industry.

Until March 30, 2009, the Company owned 50% of the equity of a joint venture with Sumitomo Heavy Industries, Ltd. ("SHI") in Japan. This joint venture, which was known as SEN, licensed technology from the Company relating to the manufacture of specified ion implantation products and had exclusive rights to manufacture and sell these products in the territory of Japan. On March 30, 2009, the Company sold to SHI all of the Company's common shares in SEN, in exchange for a cash payment of 13 billion Yen, which resulted in proceeds of approximately $132.8 million before advisor fees and other expenses of $10.6 million. The sales price was determined through an arm's length negotiation. This transaction terminated all prior agreements among the three parties relating to the SEN joint venture. In addition, the arbitration with SEN initiated by Axcelis in Tokyo was dismissed. Detailed information about the Company's investment in SEN is provided in Note 17. A portion of the proceeds of the sale were used to pay off, in full, the amounts due to the holder of the Company's 4.25% Convertible Senior Subordinated Notes.

Note 2. Significant Accounting Policies

Principles of Consolidation

The consolidated financial statements include the accounts of Axcelis and its wholly-owned, controlled subsidiaries. All intercompany balances and transactions have been eliminated in consolidation.

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 revenue and expenses. The resulting translation adjustments are recorded in stockholders' equity as an element of accumulated other comprehensive income (loss). Foreign currency transaction gains and losses are included in other income (expense) in the consolidated statements of operations.

For the year ended December 31, 2011 the Company incurred $1.2 million of foreign exchange gains. For the year ended December 31, 2010 the Company incurred $1.9 million of foreign exchange losses.

Cash and Cash Equivalents

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 and certificates of deposit. Cash equivalents are carried on the balance sheet at fair market value.

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 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

The Company records impairment losses on long-lived assets when events and circumstances indicate that these assets might not be recoverable. Recoverability is measured by a comparison of the assets' carrying amount to their expected future undiscounted net cash flows. If such assets are considered to be impaired, the impairment is measured based on the amount by which the carrying value exceeds its fair value. As of December 31, 2011 the Company completed a test for recoverability due to indicators that were present at December 31, 2011. Results of this test indicated no impairment as of December 31, 2011. The Company did not record an impairment charge for the years ended December 31, 2011, 2010, or 2009.

Future actual performance could be materially different from our current forecasts, which could impact future estimates of undiscounted cash flows and may result in the impairment of the carrying amount of the long-lived assets in the future. This could be caused by strategic decisions made in response to economic and competitive conditions, the impact of the economic environment on our customer base, or a material adverse change in the Company's relationships with significant customers. The Company performs an impairment analysis when circumstances or events warrant.

Concentration of Risk

Financial instruments, which potentially expose Axcelis to concentrations of credit risk, consist principally of accounts receivable and cash equivalents. Axcelis' customers consist of semiconductor manufacturers located throughout the world. Axcelis' net sales to its ten largest customers accounted for 68.6%, 62.7%, and 56.6% of revenue in 2011, 2010, and 2009, 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 collectability 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. 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.

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, resulting either from depressed economic conditions or other factors, could affect its ability to deliver products to its customers.

Accumulated Other Comprehensive Income

Comprehensive income is comprised of two components, net loss and other comprehensive income. Other comprehensive income consists of foreign currency translation adjustments and the effects of the minimum pension liability. The following table shows the cumulative components of accumulated other comprehensive income for the years ended December 31, 2011, 2010 and 2009:

	2011	2010	2009
	(in thousands)		
Foreign currency translation adjustments	$ 4,857	$ 6,323	$ 4,788
Pension benefit adjustment	(80)	(91)	351
Total accumulated other comprehensive income	$ 4,777	$ 6,232	$ 5,139

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.

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.

Axcelis' system sales transactions are made up of multiple elements, including the system itself and elements that are not delivered simultaneously with the system. These undelivered elements might include a combination of installation services, extended warranty and support and spare parts, all of which are covered generally by a single sales price. Effective January 1, 2011, the Company adopted Accounting Standards Update, or ASU, No. 2009-13, *Multiple Deliverable Revenue Arrangements*, as required, using the prospective method. Accordingly, this guidance is being applied to all system revenue arrangements entered into or materially modified on or after January 1, 2011. The adoption of the amended guidance did not change the accounting for arrangements entered into prior to January 1, 2011. There was no material impact on our financial position, results of operations or cash flows upon

adoption and we do not expect adoption will have a material impact on our future reporting periods based on our current practices.

The impact of adopting this amended guidance on the Company's results of operations has been limited to transactions involving the sale of systems. ASU No. 2009-13 amended the previous guidance for multiple-element arrangements. Pursuant to the amended guidance in ASU 2009-13, the Company's system revenue arrangements with multiple elements are divided into separate units of accounting if specified criteria are met, including whether the delivered element has stand-alone value to the customer. If the criteria are met, then the consideration received is allocated among the separate units based on their relative selling price, and the revenue is recognized separately for each of the separate units.

The Company determines selling price for each unit of accounting (element) using vendor specific objective evidence (VSOE) or third-party evidence (TPE), if they exist, otherwise, the Company uses best estimated selling price (BESP). The Company generally expects that it will not be able to establish TPE due to the nature of its products, and, as such, the Company typically will determine selling price using VSOE or BESP.

Where required, the Company determines BESP for an individual element based on consideration of both market and Company-specific factors, including the selling price and profit margin for similar products, the cost to produce the deliverable and the anticipated margin on that deliverable and the characteristics of the varying markets in which the deliverable is sold.

The total consideration to be received in the transaction is allocated to each element in the arrangement based upon the relative selling price of each element when compared to the consideration received.

Systems are not sold separately and VSOE or TPE is not available for the systems element. Therefore the selling price associated with systems is based on BESP. The allocated value for installation in the arrangement includes (a) the greater of (i) the relative selling price of the installation or (ii) the portion or the sales price that will not be received until the installation is completed (the "retention"). The selling price of 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, both of which are sold separately. The selling price of all other elements (extended warranty for support, spare parts, and labor) is based upon the price charged when these elements are sold separately, or VSOE.

Product revenue for products which have demonstrated market acceptance, 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, collectability 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 revenue for products which have demonstrated market acceptance 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. 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.

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.

Shipping and Handling Costs

Shipping and handling costs are included in cost of revenue.

Stock-Based Compensation

The Company recognizes 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 using the Black- Sholes option pricing model, adjusted for expected forfeitures. Stock-based compensation expense is recognized ratably over the requisite service period.

See Note 12 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. The Company establishes 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

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.

	Years Ended December 31,		
	2011	2010	2009
	(in thousands, except per share data)		
Income (loss) available to common stockholders	$ 5,077	$ (17,573)	$ (77,468)
Weighted average common shares outstanding used in computing basic net income (loss) per share	106,234	104,522	103,586
Incremental shares	2,864		
Weighted average common shares outstanding used in computing diluted net income (loss) per share	109,098	104,522	103,586
Net income (loss) per share			
Basic	$ 0.05	$ (0.17)	$ (0.75)
Diluted	$ 0.05	$ (0.17)	$ (0.75)

Because the Company had a net loss for each of the years ended December 31, 2010 and 2009, any common shares related to outstanding stock options, restricted stock, restricted stock units and convertible debt have been excluded from the calculation of net loss per share because the effect would have been anti-dilutive.

Recent Accounting Pronouncements

In June 2011, the Financial Accounting Standards Board, or FASB, issued Accounting Standards Update, or ASU, No. 2011-05, *Comprehensive Income (Topic 220)*. This newly issued accounting standard (1) eliminates the option to present the components of other comprehensive income as part of the statement of changes in stockholders' equity; (2) requires the consecutive presentation of the statement of net income and other comprehensive income; and (3) requires an entity to present reclassification adjustments on the face of the financial statements from other comprehensive income to net income. This update does not change the items that must be reported in other comprehensive income or when an item of other comprehensive income must be reclassified to net income nor does it affect how earnings per share is calculated or presented. In December, 2011, The Financial Accounting Standards Board (FASB) issued Accounting Standards Update No. 2011-12, *Comprehensive Income (Topic 220): Deferral of the Effective Date for Amendments to the Presentation of Reclassifications of Items Out of Accumulated Other Comprehensive Income in Accounting Standards Update No. 2011-05*. The Update defers the specific requirement to present items that are reclassified from accumulated other comprehensive income to net income separately with their respective components of net income and other comprehensive income. The Board did not defer the requirement to report comprehensive income either in a single continuous statement or in two separate but consecutive financial statements. This update is required to be applied retrospectively and is effective for us for fiscal years (and interim periods within those years) beginning on or after January 1, 2012. As this update only requires enhanced disclosure, the adoption of this update will not impact our financial position or results of operations.

Note 3. Restricted Cash

The components of restricted cash are as follows:

	December 31,	
	2011	2010
	(in thousands)	
Statutory liability deposit	$ 104	$ 107
	$ 104	$ 107

In addition to the statutory liability deposit, the Company has surety bonds related to value added tax claims and refunds in Europe of approximately $4.1 million at December 31, 2011 and standby letters of credit issued under the credit line of $1.6 million. Restricted cash is reflected in non-current assets based on the expiration of the requirement with the bank or counterparty.

Note 4. Accounts Receivable, net

The components of accounts receivable are as follows:

	December 31,	
	2011	2010
	(in thousands)	
Trade receivables	$ 35,482	$ 59,245
Allowance for doubtful accounts	(411)	(1,357)
	$ 35,071	$ 57,888

Note 5. Inventories, net

The components of inventories are as follows:

	December 31,	
	2011	2010
	(in thousands)	
Raw materials	$ 85,829	$ 74,596
Work in process	25,639	29,848
Finished goods (completed systems)	8,555	5,209
	$ 120,023	$ 109,653

When recorded, inventory reserves are intended to reduce the carrying value of inventories to their net realizable value. The Company establishes inventory reserves when conditions exist that indicate inventory may be in excess of anticipated demand or is obsolete based upon assumptions about future demand for the Company's products or market conditions. The Company regularly evaluates the ability to realize the value of inventories based on a combination of factors including the following: forecasted sales or usage, estimated product end of life dates, estimated current and future market value and new product introductions. Purchasing and usage alternatives are also explored to mitigate inventory exposure. As of December 31, 2011 and 2010, inventories are stated net of inventory reserves of $22.8 million and $27.5 million respectively. The decrease in inventory reserves in 2011 is primarily due to the sale or disposal of $5.6 million of previously reserved inventory.

Note 6. Property, Plant and Equipment, net

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

	December 31,	
	2011	2010
	(in thousands)	
Land and buildings	$ 78,985	$ 79,754
Machinery and equipment	7,020	5,775
Construction in process	541	621
	86,546	86,150
Accumulated depreciation	(49,342)	(47,556)
	$ 37,204	$ 38,594

Depreciation expense was $3.5 million, $3.6 million, and $3.8 million, for the years ended December 31, 2011, 2010, and 2009, respectively.

Note 7. Assets Manufactured for Internal Use

The components of assets manufactured for internal use, included in amounts reported as other assets, are as follows:

	December 31,	
	2011	2010
	(in thousands)	
Cost	$ 25,684	$ 16,148
Accumulated depreciation	(8,707)	(3,768)
	$ 16,977	$ 12,380

These products are used in-house for research and development, training, and customer demonstration purposes. Costs are generally amortized to expense over five years. Amortization expense was $4.9 million, $3.3 million, and $3.8 million, for the years ended December 31, 2011, 2010, and 2009, respectively.

Note 8. Restructuring Charges

The Company did not incur any restructuring charges for the years ended December 31, 2011 or December 31, 2010. In 2009, the Company implemented a reduction in force of approximately 20 percent of the Company's global workforce resulting in a total charge to restructuring expense of approximately $6.1 million principally for severance and related costs. The Company's restructuring liability for the years ended December 31, 2011, 2010 and 2009 are as follows:

	Severance
	(In thousands)
Balance at December 31, 2008	$ 746
Restructuring expense	6,084
Cash payments	(6,533)
Balance at December 31, 2009	297
Cash payments	(126)
Balance at December 31, 2010	171
Cash payments	
Balance at December 31, 2011	$ 171

Note 9. Product Warranty

The Company generally offers a one year warranty for all of its systems, 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,		
	2011	2010	2009
	(in thousands)		
Balance at January 1 (beginning of year)	$ 2,713	$ 726	$ 3,530
Warranties issued during the period	4,772	3,722	791
Settlements made during the period	(5,275)	(1,923)	(2,363)
Changes in estimate of liability for pre-existing warranties during the period	1,487	188	(1,232)
Balance at December 31 (end of year)	$ 3,697	$ 2,713	$ 726
Amount classified as current	$ 3,556	$ 2,556	$ 638
Amount classified as long-term	141	157	88
Total Warranty Liability	$ 3,697	$ 2,713	$ 726

Note 10. Financing Arrangements

Convertible Subordinated Debt

On March 30, 2009, Axcelis used $85 million of the proceeds of its sale of SEN to pay in full its outstanding 4.25% Convertible Senior Subordinated Notes which it had issued in May 2006.

Bank Credit Facility

On April 25, 2011, the Company amended its revolving credit facility. The amended agreement provides for borrowings up to $30 million based primarily on accounts receivable. The facility has certain financial covenants requiring us to maintain minimum levels of operating results and liquidity. The agreement will terminate on April 10, 2015. The Company uses the facility to support letters of credit and hedging transactions.

On December 27, 2011, the Company entered into a modification agreement relating to this facility, which revises the Company's covenant to require a minimum trailing six month adjusted net income (as defined in the agreement) for the six month period ending December 31, 2011 of ($3,000,000).

At December 31, 2011 the Company's available borrowing capacity under the amended credit facility was $23.3 million and the Company was compliant with all covenants of the loan agreement.

Note 11. 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 suspended matching contributions in 2009, so no expense was recorded for this plan in 2011, 2010 or 2009.

Note 12. 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, 2011, there were 7.3 million shares of common stock available for future grant. At December 31, 2011, 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 Select 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,		
	2011	**2010**	**2009**
Weighted-average expected volatility	97.8%	97.8%	76.5%
Weighted-average expected term (in years)	6.1	6.2	5.5
Risk-free interest rate	1.1 2.4%	1.5 2.0%	2.1 2.6%
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. The Company's method of estimating expected volatility for all stock options granted relies on a combination of historical and implied volatility. The Company believes that 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.

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. The fair value of the Company's restricted stock and restricted stock units is calculated based upon the fair market value of the Company's stock at the date of grant.

The Company uses the straight-line attribution method to recognize expense for stock-based awards such that the expense associated with awards is evenly recognized throughout the period.

The amount of stock-based compensation recognized is based on the value of the portion of the awards that are ultimately expected to vest. The Company estimates forfeitures at the time of grant and revises them, 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 5% per year, including executive officer awards.

The Company recognized stock-based compensation expense of $4.7 million, $4.1 million and $4.7 million for the years ended December 31, 2011, 2010 and 2009, respectively. For 2011, 2010 and 2009, the Company primarily used stock options in its annual share-based payment program.

The benefits of tax deductions in excess of recognized compensation cost is 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 had no impact on the Company's consolidated statement of cash flows as of and for the years ended December 31, 2011, 2010 and 2009.

Stock Options

The following table summarizes the stock option activity for the years ended December 31, 2011, 2010 and 2009:

	Options	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term	Aggregate Intrinsic Value
	(in thousands)		(years)	(in thousands)
Outstanding at December 31, 2008	15,524	$ 8.05		
Granted	4,555	1.11		
Exercised	(66)	0.68		
Canceled	(887)	1.20		
Expired	(1,758)	9.73		
Outstanding at December 31, 2009	17,368	6.43		
Granted	5,310	1.61		
Exercised	(704)	0.79		
Canceled	(333)	1.23		
Expired	(2,693)	18.26		
Outstanding at December 31, 2010	18,948	$ 3.70		
Granted	4,662	1.70		
Exercised	(372)	0.77		
Canceled	(654)	1.43		
Expired	(1,491)	12.38		
Outstanding at December 31, 2011	21,093	$ 2.76	7.01	$ 3,112
Exercisable at December 31, 2011	10,205	$ 4.13	5.22	$ 2,129
Options Vested or Expected to Vest at December 31, 2011(1)	20,284	$ 2.81	7.03	$ 2,548

(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, 2011, 2010, and 2009, 10,205, 8,443, and 9,335, respectively, were vested and exercisable with a weighted average exercise price of $4.13, $6.68, and $11.12, 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, 2011, 2010 and 2009 was $0.7, $1.2 and $0.8 million, respectively.

The total fair value of stock options vested during the year ended December 31, 2011 was $3.3 million. As of December 31, 2011, there was $9.5 million of total forfeiture adjusted unrecognized compensation cost related to non-vested stock options granted under the 2000 Plan. That cost is expected to be recognized over a weighted-average period of 2.8 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, 2011, 2010, and 2009 are as follows:

	Shares/units (in thousands)	Weighted-Average Grant Date Fair Value per Share	
Outstanding at December 31, 2008	1,612	$	5.94
Vested	(798)		6.04
Forfeited	(210)		5.63
Outstanding at December 31, 2009	604	$	5.90
Granted	695		1.72
Vested	(1,052)		3.30
Forfeited	(19)		2.94
Outstanding at December 31, 2010	228	$	5.38
Granted	121		2.50
Vested	(196)		5.81
Forfeited	(2)		6.01
Outstanding at December 31, 2011	151	$	2.52

The company's offers a net share settlement program to offset the personal income tax obligations of the employee's restricted stock vesting. Vesting activity above reflects shares vested before net share settlement. As of December 31, 2011, there was $0.3 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 2.99 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. Employees may 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 Plan is considered compensatory and as such, compensation expense has been recognized 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, 2011, 2010, and 2009 was $0.1 million, $0.1 million, and $0.0 million respectively.

As of December 31, 2011, there were a total of 2.3 million shares reserved for issuance and available for purchase under the Purchase Plan. There were 0.4, 0.3, and 0.3 million shares purchased under the Purchase Plan for the years ended December 31, 2011, 2010, and 2009 respectively.

Note 13. 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. As of December 31, 2011, 2010, and 2009, there were no outstanding shares of preferred stock.

Note 14. Commitments and Contingencies

Lease Commitments

The Company leases manufacturing and office facilities and certain equipment under operating leases that expire through 2016. Rental expense was $4.6 million, $5.2 million, and $5.7 million under operating leases for the years ended December 31, 2011, 2010, and 2009 respectively. Future minimum lease commitments on non-cancelable operating leases are as follows:

Year ended December 31,	Operating Leases
	(in thousands)
2012	$ 3,434
2013	2,320
2014	1,511
2015	1,247
2016	853
Thereafter	780
	$ 10,145

Purchase Commitments

The Company has non-cancelable contracts and purchase orders for inventory of $24.2 million at December 31, 2011.

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.

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 15. 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 current, medium current and high energy implanters. 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.

Revenue by product lines is as follows:

	Years ended December 31,		
	2011	2010	2009
	(in thousands)		
Ion implantation systems, services, and royalties	$ 237,857	$ 232,335	$ 110,946
Other products systems, services, and royalties	81,559	42,877	22,076
	$ 319,416	$ 275,212	$ 133,022

Revenue 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)	
2011		
United States	$ 234,132	$ 54,472
Europe	31,505	
Asia Pacific	53,779	996
	$ 319,416	$ 55,468
2010		
United States	$ 190,819	$ 50,532
Europe	33,822	
Asia Pacific	50,571	442
	$ 275,212	$ 50,974
2009		
United States	$ 83,790	$ 53,494
Europe	23,063	
Asia Pacific	26,169	
	$ 133,022	$ 53,494

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

International revenue, including export sales from U.S. manufacturing facilities to foreign customers, sales by foreign subsidiaries and branches, and royalties was $231.0 million (72.3% of total

revenue) in 2011, $208.5 million (75.8% of total revenue) in 2010, and $83.5 million (62.8% of total revenue) in 2009.

One customer accounted for 21.2% of revenue and 27.2% of consolidated accounts receivable at December 31, 2011. One customer accounted for 18.6% of consolidated revenue and two customers accounted for 30.2% and 10.4% of consolidated accounts receivable, respectively at December 31, 2010. No customer accounted for more than 10% of consolidated revenue or consolidated accounts receivable at December 31, 2009.

Note 16. Income Taxes

Income (loss) before income taxes are as follows:

	Years ended December 31,		
	2011	2010	2009
	(in thousands)		
United States	$ 2,622	$ (21,526)	$ (78,185)
Foreign	4,849	4,265	4,820
Equity loss of SEN			(3,238)
Income (loss) before income taxes	$ 7,471	$ (17,261)	$ (76,603)

Income taxes (credits) are as follows:

	Years ended December 31,		
	2011	2010	2009
	(in thousands)		
Current:			
United States			
Federal	$	$	$ 5
State	163	309	99
Foreign	1,646	1,528	1,526
Total current	1,809	1,837	1,630
Deferred:			
Foreign	585	(1,525)	(765)
Total deferred	585	(1,525)	(765)
Income taxes	$ 2,394	$ 312	$ 865

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

	Years ended December 31,		
	2011	2010	2009
	(in thousands)		
Income (credit) at the United States statutory rate	$ 2,615	$ (6,041)	$ (26,812)
State income taxes	31	309	99
Unrecognized tax benefits	899	842	
Unremitted earnings of foreign subsidiaries			705
Effect of change in valuation allowance	(3,160)	6,550	(21,446)
Foreign income tax rate differentials	(365)	(1,490)	(926)
Restoration of foreign deferred tax assets		(1,329)	
Equity loss of SEN			1,133
Taxable gain on sale of investment in SEN			41,973
Deemed distribution from foreign subsidiaries	1,533	2,152	3,914
Other, net	841	(681)	2,225
Income taxes	$ 2,394	$ 312	$ 865

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

	As of December 31,			
	2011		2010	
	Current	Long Term	Current	Long Term
	(in thousands)			
Federal net operating loss carryforwards	$	$ 79,163	$	$ 75,459
State net operating loss carryforwards		2,685		2,812
Foreign net operating loss carryforwards		1,821		1,723
Federal tax credit carryforwards		15,505		15,087
State tax credit carryforwards		9,051		9,205
Unremitted earnings of foreign subsidiaries		(10,370)		(1,589)
Intangible assets		803	82	898
Property, plant and equipment		5,589		6,627
Accrued compensation	541		1,642	
Inventories	22,447		17,519	
Stock compensation		3,970		4,038
Warranty	1,293	51	938	57
Other	1,243	(3,814)	74	3,914
Deferred taxes, gross	25,524	104,454	20,255	118,231
Valuation allowance	(24,160)	(102,814)	(18,174)	(116,723)
Deferred taxes, net	$ 1,364	$ 1,640	$ 2,081	$ 1,508

At December 31, 2011, the Company had $130.0 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. A valuation allowance must 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 there is a strong presumption that a valuation allowance is needed. This presumption can be overcome in very limited circumstances.

The Company is in a three year cumulative loss position in the United States. As a result, the Company maintains a 100% valuation allowance for entities in those tax jurisdictions to reduce the carrying value of deferred tax assets to zero. The Company will continue to maintain a full valuation allowance for those tax assets until sustainable future levels of profitability are evident.

Changes in the valuation allowance in 2011 and 2010 were attributable to changes in the composition of temporary differences and changes in net operating loss carryforwards. In addition, during 2010 the Company performed an evaluation of the deferred tax assets of certain of its foreign subsidiaries. Based on the subsidiaries recent and expected ability to generate taxable income, the Company reduced the subsidiaries' corresponding valuation allowance and recognized a tax benefit of $1.3 million.

At December 31, 2011, the Company has federal and state net operating loss carryforwards of approximately $227.9 million and foreign net operating loss carryforwards of approximately $4.5 million expiring principally between 2021 and 2030.

The Company has research and development and other tax credit carryforwards of approximately $19.0 million at December 31, 2011 that can be used to reduce future federal and state income tax liabilities. These tax credit carryforwards expire principally between 2021 and 2031. In addition, the Company has foreign tax credit carryforwards of approximately $5.6 million at December 31, 2011 that are available to reduce future U.S. income tax liabilities subject to certain limitations. These foreign tax credit carryforwards expire between 2012 and 2016.

It is Company policy to provide taxes for the total anticipated tax impact of the undistributed earnings of our wholly-owned foreign subsidiaries', as such earnings are not expected to be reinvested indefinitely. The Company anticipates that US tax resulting from remitting such earnings will be off-set by net operating loss or credit carryforwards to the extent available. In addition, the Company does not anticipate incurring a foreign withholding tax on remitting such earnings since it does not intend to remit the earnings as dividends.

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. 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.

At December 31, 2011, the Company had unrecognized tax benefits of approximately $8.0 million, of which approximately $4.8 million reduced the Company's deferred tax assets and the offsetting valuation allowance and $3.2 million was recorded in other long-term liabilities. The Company does not expect any significant changes in unrecognized tax benefits in 2012.

A reconciliation of the beginning and ending balance of unrecognized tax benefits are as follows:

	2011	2010
	(in thousands)	
Balance at beginning of year	$ 6,965	$ 5,934
Increases in unrecognized tax benefits as a result of tax positions taken during a prior period	1,124	189
Increases in unrecognized tax benefits as a result of tax positions taken during the current period		842
Balance at end of year	$ 8,089	$ 6,965
Recorded as other long-term liability	$ 3,244	$ 2,246
Recorded as a decrease in deferred tax assets and offsetting valuation allowance	4,845	4,719
	$ 8,089	$ 6,965

Note 17. SEN

Until March 30, 2009, the Company owned 50% of the equity of a joint venture with Sumitomo Heavy Industries, Ltd. ("SHI") in Japan. This joint venture, which was known as SEN was established in 1982 and licensed technology from the Company relating to the manufacture of specified ion implantation products and had exclusive rights to manufacture and sell these products in the territory of Japan. On March 30, 2009, pursuant to a Share Purchase Agreement dated February 26, 2009, the Company sold to SHI all of the Company's common shares in SEN in exchange for a cash payment of 13 billion Yen, which resulted in proceeds of approximately $132.8 million before advisor fees and other expenses of $10.6 million. The sales price was determined through an arm's length negotiation. This transaction terminated all prior agreements among the three parties relating to the SEN joint venture. In addition, an arbitration the Company had initiated against SEN in Tokyo was dismissed.

In connection with the sale of the Company's investment in SEN, on March 30, 2009, the Company and SEN entered into a License Agreement pursuant to which the parties have cross licensed each other to use certain ion implant patents and technical information on a non-exclusive, perpetual, royalty-free, worldwide basis, provided that both received sole exclusive licenses for 4 years in the U.S. and Japan, respectively. The licenses to technical information cover only technical information shared by the parties prior to the date of the license, so the license to SEN does not cover technical information relating to the Optima HD and Optima XE. The license also excludes patents relating to the Company's work in molecular implant and certain patents developed for the Optima HD and Optima XE. The parties provided each other with limited warranties regarding their right to grant these licenses, and indemnity with respect thereto, but disclaim any warranty regarding the validity or freedom from infringement of the licensed intellectual property. Neither party will provide any support for the other party's use of the licensed intellectual property.

The sale of the Company's investment in SEN on March 30, 2009, resulted in a gain of approximately $1.1 million. This gain includes net proceeds of $122.2 million (after payment of advisor fees and other costs of $10.6 million) and cumulative foreign translation gain of $23.5 million, previously recorded in other comprehensive income, reduced by the carrying value of the investment on the date of sale of $144.6 million. The gain from the sale of the Company's investment in SEN is recorded in other income.

Note 18. Quarterly Results of Operations (unaudited)

	Dec. 31, 2011	Sept. 30, 2011	June 30, 2011	March 31, 2011	Dec. 31, 2010	Sept. 30, 2010	June 30, 2010	March 31, 2010
	(in thousands, except per share data)							
Revenue	$ 60,411	$ 72,455	$ 93,380	$ 93,170	$ 93,403	$ 75,106	$ 58,203	$ 48,500
Gross profit	22,623	26,895	34,138	31,081	31,493	21,470	19,868	13,007
Net income (loss)	(2,113)	1,151	4,227	1,812	4,330	(6,273)	(4,529)	(11,101)
Net income (loss) per share basic and diluted	$ (0.02)	$ 0.01	$ 0.04	$ 0.02	$ 0.04	$ (0.06)	$ (0.04)	$ (0.11)

Results of operations for the quarters ended December 31, 2011 include a tax expense of $0.9 million related to an uncertain tax position in a certain foreign jurisdiction. Results of operations for the quarter ended December 31, 2010 include a tax benefit of $1.3 million related to the restoration of deferred tax assets in certain foreign jurisdictions.

Note 19. Subsequent Events

In order to align manufacturing and operating expense levels to changing business conditions, the Company implemented a headcount reduction of approximately 9% in the first quarter of 2012. This action is expected to generate savings in the range of $8 million to $12 million annually. The Company anticipates recording employee termination benefits and other related costs of $2.5 million to $3.5 million during the first and second quarters of 2012.

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.

By: /s/ MARY G. PUMA

Mary G. Puma, *Chief Executive Officer*

Dated: February 29, 2012

Pursuant to the requirements of the Securities Exchange 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	February 29, 2012
/s/ JAY ZAGER Jay Zager	Principal Accounting and Financial Officer	February 29, 2012
/s/ EDWARD H. BRAUN Edward H. Braun	Director	February 29, 2012
/s/ R. JOHN FLETCHER R. John Fletcher	Director	February 29, 2012
/s/ STEPHEN R. HARDIS Stephen R. Hardis	Director	February 29, 2012
/s/ WILLIAM C. JENNINGS William C. Jennings	Director	February 29, 2012
/s/ JOSEPH P. KEITHLEY Joseph P. Keithley	Director	February 29, 2012
/s/ PATRICK H. NETTLES Patrick H. Nettles	Director	February 29, 2012
/s/ H. BRIAN THOMPSON H. Brian Thompson	Director	February 29, 2012

Exhibit Index

Exhibit No.	Description
3.1	Amended and Restated Certificate of Incorporation of the registrant, as adopted May 6, 2009. Incorporated by reference to Exhibit 3.1 of the Company's Form 8-K filed with the Commission on May 11, 2009.
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.
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).
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 Management Incentive Plan, as amended and restated by the Compensation Committee of the Board of Directors on February 11, 2010. Incorporated by reference to Exhibit 10.2 of the Company's report on Form 10-K for the year ended December 31, 2009 filed with the Commission on March 15, 2010.
10.3	Form of Indemnification Agreement entered into by the Company with each of its directors and executive officers prior to 2012. 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 Indemnification Agreement approved by the Board of Directors of the Company on February 9, 2012 for use with each of its directors and officers, together with a schedule of each current indemnitee. Filed herewith.
10.5*	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.
10.6*	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.
10.7*	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.
10.8*	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.
10.9*	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.
10.10*	Named Executive Officer Base Compensation at February 29, 2012. Filed herewith.
10.11*	Non-Employee Director Cash Compensation at February 29, 2012. 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.

Exhibit No.	Description
10.13*	Letter from Mary G. Puma to the Board of Directors dated May 1, 2009, modifying her Amended and Restated Employment Agreement with the Company. Incorporated by reference to Exhibit 10.1 of the Company's report on Form 8-K filed with the Commission on May 11, 2009.
10.14*	Letter Agreement with Mary G. Puma dated September 22, 2011. Filed herewith.
10.15	Second Amended and Restated Loan and Security Agreement dated as of April 25, 2011 between the Company and Axcelis Technologies CCS Corporation, as borrowers, and Silicon Valley Bank. Incorporated by reference to Exhibit 10.1 to the Company's report on Form 10-Q for the quarter ended March 31, 2011 filed with the Commission on May 6, 2011.
10.16	First Loan Modification Agreement dated as of December 27, 2011 between the Company and Axcelis Technologies CCS Corporation, as borrowers, and Silicon Valley Bank with other Company subsidiaries confirming guaranties. Filed herewith.
10.17	License Agreement dated as of March 30, 2009 between the Company and SEN Corporation. Incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed with the Commission on April 3, 2009.
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 Principal Executive Officer under Exchange Act Rule 13a-14(a)/15d-14(a) (Section 302 of the Sarbanes-Oxley Act), dated February 29, 2012. Filed herewith.
31.2	Certification of the Principal Financial Officer under Exchange Act Rule 13a-14(a)/15d-14(a) (Section 302 of the Sarbanes-Oxley Act), dated February 29, 2012. Filed herewith.
32.1	Certification of the Principal 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 February 29, 2012. Filed herewith.
32.2	Certification of the Principal 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 February 29, 2012. Filed herewith.
101	The following materials from the Company's Form 10-K for the year ended December 31, 2011, formatted in eXtensible Business Reporting Language (XBRL): (i) Consolidated Statements of Operations, (ii) Consolidated Balance Sheets, (iii) Consolidated Statements of Equity, (iv) Consolidated Statements of Cash Flows, and (v) Notes to Consolidated Financial Statements.

* Indicates a management contract or compensatory plan.

You may obtain a copy of any of these exhibits free of charge either on our website at http://www.axcelis.com or by contacting Investor Relations at Axcelis Technologies, Inc., 108 Cherry Hill Drive, Beverly, MA 01915-1053.

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, 2011					
Allowance for doubtful accounts and returns	$ 1,357	$ (535)	$ (449)	$ 38	$ 411
Reserve for excess and obsolete inventory	27,517	1,015	(5,583)	(171)	22,778
Year Ended December 31, 2010					
Allowance for doubtful accounts and returns	$ 2,390	$ (1,120)	$ (17)	$ 104	$ 1,357
Reserve for excess and obsolete inventory	36,980	2,015	(11,224)	(254)	27,517
Year Ended December 31, 2009					
Allowance for doubtful accounts and returns	$ 2,545	$ (88)	$	$ (67)	$ 2,390
Reserve for excess and obsolete inventory	47,656	9,818	(20,732)	238	36,980

(*) Represents foreign currency translation adjustments.