
**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

Form 10-K

(Mark One)

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

For the fiscal year ended December 31, 2004

OR

- 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: 000-24085

AXT, Inc.

(Exact name of registrant as specified in its charter)

Delaware

(State or other jurisdiction of
incorporation or organization)

4281 Technology Drive, Fremont, California

(Address of principal executive offices)

94-3031310

(I.R.S. Employer
Identification No.)

94538

(Zip Code)

Registrant's telephone number, including area code: **(510) 683-5900**

Securities registered pursuant to Section 12(b) of the Act:

Title of each class

Name of each exchange on which registered

Securities registered pursuant to Section 12(g) of the Act:

Common Stock, \$0.001 par value

(Title of class)

Indicate by checkmark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15 (d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by checkmark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§ 229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

Indicate by checkmark whether the registrant is an accelerated filer (as defined in Rule 12b-2 of the Act.). Yes No

The aggregate market value of the voting stock held by non-affiliates of the registrant, based upon the closing sale price of the common stock on June 30, 2004 as reported on the Nasdaq National Market, was approximately \$35,305,807. Shares of common stock held by each officer, director and by each person who owns 5% or more of the outstanding common stock have been excluded in that such persons may be deemed to be affiliates. This determination of affiliate status is not a conclusive determination for other purposes.

As of March 10, 2005, 23,175,126 shares, \$0.001 par value, of the registrant's common stock were outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the definitive proxy statement for the registrant's 2005 annual meeting of stockholders to be filed with the Commission pursuant to Regulation 14A not later than 120 days after the end of the fiscal year covered by this form are incorporated by reference into Part III of this Form 10-K report.

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PART I

This Annual Report (including the following section regarding Management's Discussion and Analysis of Financial Condition and Results of Operations) contains forward-looking statements regarding our business, financial condition, results of operations and prospects. Words such as "expects," "anticipates," "intends," "plans," "believes," "seeks," "estimates" and similar expressions or variations of such words are intended to identify forward-looking statements, but are not the exclusive means of identifying forward-looking statements in this Annual Report. Additionally, statements concerning future matters such as the development of new products, enhancements or technologies, sales levels, expense levels and other statements regarding matters that are not historical are forward-looking statements.

Although forward-looking statements in this Annual Report reflect the good faith judgment of our management, such statements can only be based on facts and factors currently known by us. Consequently, forward-looking statements are inherently subject to risks and uncertainties and actual results and outcomes may differ materially from the results and outcomes discussed in or anticipated by the forward-looking statements. Factors that could cause or contribute to such differences in results and outcomes include without limitation those discussed under the heading "Risks Related to Our Business" below, as well as those discussed elsewhere in this Annual Report. Readers are urged not to place undue reliance on these forward-looking statements, which speak only as of the date of this Annual Report. We undertake no obligation to revise or update any forward-looking statements in order to reflect any event or circumstance that may arise after the date of this Annual Report. Readers are urged to carefully review and consider the various disclosures made in this Annual Report, which attempt to advise interested parties of the risks and factors that may affect our business, financial condition, results of operations and prospects.

Item 1. Business Overview

We design, develop, manufacture and distribute high-performance compound and single element semiconductor substrates comprising gallium arsenide (GaAs), indium phosphide (InP) and germanium (Ge). Our substrate products are used primarily in lighting display applications, wireless communications, and fiber optic communications. We believe our vertical gradient freeze, or VGF, technique for manufacturing semiconductor substrates provides significant benefits over other methods and enabled us to become a leading manufacturer of such substrates. We pioneered the commercial use of VGF technology to manufacture GaAs substrates and subsequently used VGF technology to manufacture substrates from InP and Ge. Some of our competitors followed our lead by developing their own versions of VGF technology. Customers for our substrates include United Epitaxy Company, Agilent Technologies, Samsung, EMCORE, Kopin, IQE, Osram, MBE Technologies, and Sumika. Over the past four years, we have implemented an initiative to reduce the cost of manufacturing our substrates by moving our manufacturing operations to China, which is now complete, and by investing in sources of low cost raw materials.

We also manufacture and sell raw materials related to our substrate business through five joint ventures located in China. These joint ventures produce products including 99.99% pure gallium (4N Ga), high purity gallium, arsenic, germanium, germanium dioxide, paralytic boron nitride (pBN) crucibles, and boron oxide. AXT's ownership interest in these entities ranges from 25 percent to 88 percent. We consolidate the three ventures in which we own a majority interest and employ equity accounting for the two joint ventures in which we have a 25 percent interest. We purchase the materials produced by these ventures for our use and sell other portions of their production to third parties.

On June 24, 2003, our Board of Directors approved management's plan to exit our unprofitable opto-electronics business. The disposition was a result of continuing operating losses and negative cash flows from the division and significant uncertainty regarding its future profitability.

We were incorporated in California in December 1986 and reincorporated in Delaware in May 1998. We changed our name from American Xtal Technology, Inc. to AXT, Inc. in July 2000. Our corporate office is located at 4281 Technology Drive, Fremont, California 94538, and our telephone number at this address is (510) 683-5900. Our web site is www.axt.com; however, the information on our web site does not constitute a part of this annual report on Form 10-K and is not incorporated herein. We make available, free of charge, on or through our web site, our annual, quarterly and current reports, and any amendments to those reports.

Industry Background

Most semiconductors are created on a single crystal base material, or substrate, of silicon. Some electronic and opto-electronics semiconductors have requirements that exceed the capabilities of silicon. These semiconductors are composed of multiple elements that include a metal, such as gallium, aluminum or indium, and a non-metal, such as arsenic, phosphorus or nitrogen. The resulting compounds include gallium arsenide, indium phosphide and gallium nitride. Devices made on such semiconductors are power efficient, operate at high frequencies, and can be produced cost effectively.

These properties address the continually increasing demand to send, receive and display information on high-speed wireless and fiber optic networks. The products made using semiconductor substrates include power amplifiers and radio frequency integrated circuits used in wireless handsets. Compound semiconductor substrates can also be used to create opto-electronic products including high brightness light emitting diodes, or HBLEDs, and vertical cavity surface emitting lasers, or VCSELs, used in solid-state lighting and fiber optic communications, respectively.

These semiconductors enable the growth and development of a wide range of end user applications, including:

- mobile terminals;
- voice and high-speed wireless data systems;
- infrared emitters and optical detectors in computer systems;
- fiber optic networks and optical systems within these networks;
- selected wi-fi networks;
- solid-state lighting, including full color displays, automobile lighting, traffic lights, and channel lighting; and
- satellite communications systems.

The markets for several of these end-user applications are expected to grow; for example, iSuppli Corporation, an independent research firm, expects worldwide mobile telephone production to grow from approximately 510 million units in 2003 to approximately 740 million units in 2005.

As a result of the limitations of silicon-based technologies, semiconductor device manufacturers use compound semiconductor substrates to improve the performance of semiconductor devices and to enable these new applications. This use occurs even though these compound semiconductor substrates are more expensive than silicon. Advantages of devices manufactured on compound substrates over devices manufactured using silicon substrates include:

- operation at higher speeds;
- lower power consumption;
- less noise and distortion; and

- opto-electronic properties that enable devices to emit and detect light.

A key step in producing a compound semiconductor substrate is to grow a crystal of the materials. Historically, two processes were used to grow crystals: the Liquid Encapsulated Czochralski, or LEC, technique and the Horizontal-Bridgeman, or HB, technique. We believe two trends reduced the appeal of these techniques: more semiconductor devices are being formed using an epitaxial process and semiconductor device manufacturers are switching their production lines to larger diameter substrates, including six-inch diameters for electronic device applications and three- and four-inch diameters for opto-electronic device applications. The LEC and HB techniques each have difficulties producing high quality, low-cost compound semiconductor substrates for epitaxial processing, especially for larger sizes. Substrates produced using the LEC technique have a high volume of defects as size increases beyond four-inches in diameter. The HB technique has been unable to reliably produce substrates more than three-inches in diameter.

We introduced our VGF technique in 1986 to respond to the limitations inherent in the LEC and HB techniques, and, in recent years, some of our competitors who previously relied on the LEC or HB methods have also developed their own versions of VGF. We believe that a majority of the substrates sold commercially since 2003 for electronic device applications were manufactured using VGF or similar techniques.

The AXT Advantage

We are a leading developer and supplier of high-performance compound semiconductor substrates. We believe that we benefit from the following advantages:

Our VGF technology is a competitive advantage for our current and prospective markets. We pioneered the commercial use of VGF technology to manufacture GaAs substrates and we believe that through the use of VGF we became a leading worldwide supplier of GaAs substrates, particularly for HBLED applications. Our VGF process produces substrates with high mechanical strength and physical and chemical uniformity, as well as low crystal defect densities.

While we sold relatively few substrates for wireless and other electronic device applications in 2004, our VGF technology helps qualify us to compete for these markets because changes in customers' technologies are increasing the share of substrates sold that are manufactured using VGF or comparable technology:

- *Greater use of epitaxy rather than ion implantation.* Many of the newest generation of high-performance semiconductor devices for fiber optic and wireless communications applications, including heterojunction bipolar transistors, or HBTs, and pseudomorphic high electron mobility transistors, or PHEMTs, are popular because they offer lower power consumption and better device linearity than their predecessors. These devices are created using epitaxial processed substrates. Our VGF substrates are more suitable for these applications than are products manufactured using LEC and HB technologies, and competing materials such as silicon germanium, or SiGe.
- *Switch to six-inch diameter wafers.* Many semiconductor device manufacturers switched their GaAs production lines to six-inch diameter substrates from three and four inch diameter substrates in order to reduce unit costs and increase capacity. We were among the first competitors able to deliver large volumes of six-inch diameter VGF substrates and retain a significant amount of manufacturing capacity for this product. Although we encountered surface morphology problems causing our 2004 sales of six-inch diameter GaAs substrates to be lower than in previous years, we believe that we are well-positioned to take advantage of the growth in this market.

Some customers specify VGF substrates. Our wafers are qualified with many of the key suppliers of GaAs and InP semiconductor devices. The qualification process, which is lengthy and must be repeated for

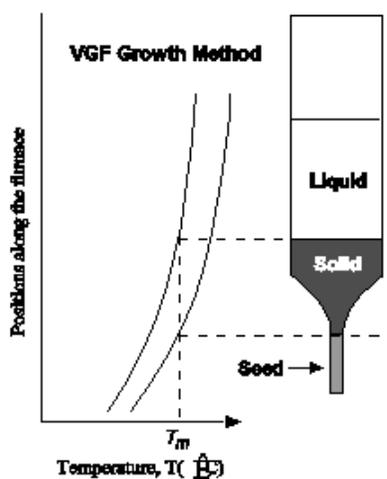
each customer, can be a barrier to entry for a new material or supplier. Furthermore, certain of our customers now effectively specify that they will only accept VGF-grown or equivalent substrates for their manufacturing processes. The lengthy qualification period benefits us when we are already qualified with a customer, but acts as a barrier to entry for those customers with which we are not qualified.

Our low-cost manufacturing is an advantage. In 1998, we began moving portions of our substrate manufacturing operations to China, to benefit from a combination of lower costs for facilities, labor and materials than we encounter in the United States. That move continued after 1998 and during 2004, we completed the transfer of all of our manufacturing to China. We have also made five strategic investments in raw materials producers that provide us with secured and low cost sources of important materials and enable us to market surplus production to others. We believe this provides us with a cost advantage vis-à-vis our competitors who do not enjoy similar arrangements.

Customer technology independence protects us from dependence on a small number of customers. Our semiconductor device manufacturing customers often compete among themselves. For example, several of our customers compete for technological leadership and market share in the HBLED market. These customers or end-users all manufacture some of their devices on GaAs substrates. Because we supply many HBLED manufacturers, we are, therefore, largely immune from the effects of such competition and benefit from an overall need for better and more efficient solid-state lighting.

Technology

Our core technologies include our proprietary VGF technique used to produce high quality crystals that are processed into compound substrates, and the technologies of our joint venture companies, which enable us to manufacture a range of products that are used in the manufacture of compound semiconductor substrates or can be sold to third parties.



Our VGF technique is designed to control the crystal-growth process with minimal temperature variation and is the technique we use to produce our GaAs, InP and Ge substrates. Unlike traditional techniques, our VGF technique places the hot compound melt above the cool crystal, and minimizes the temperature gradient between the crystal and the melt which reduces the turbulence at the interface of the melt and the solid crystal. In comparison, in the LEC technique the melt and crystal are inverted, there is a higher temperature gradient between the melt and the crystal, and more turbulence at the interface of the melt and solid crystal. These aspects of the VGF technique enable us to grow crystals that have a relatively

low defect density and high uniformity. The crystal and the resulting substrate are mechanically strong, resulting in lower breakage rates during a customer's manufacturing process. Since the temperature gradient is controlled electronically rather than by physical movement, the sensitive crystal is not disturbed as it may be during some competitors' VGF-like growth processes. In addition, the melt and growing crystal are contained in a closed chamber, which isolates the crystal from the outside environment to reduce potential contamination. This substrate isolation allows for more precise control of the gallium-to-arsenic ratio, resulting in better consistency and uniformity of the crystals.

Our VGF technique offers several benefits when compared to traditional crystal growing technologies. The Horizontal-Bridgeman, or HB, technique is the traditional method for producing semi-conducting GaAs substrates for opto-electronic applications. The HB technique holds the GaAs melt in a semi-cylindrical container, causing crystals grown using the HB method to have a semi-circular, or D-shaped, cross-section. Accordingly, more crystal material is discarded when the D-shaped substrate is subsequently trimmed to a round shape. In addition, crystals grown using the HB technique have a higher defect density than VGF-grown crystals. The HB technique cannot be used cost-effectively to produce substrates greater than three inches in diameter. The HB technique houses the GaAs melt in a quartz container during the growth process, which can contaminate the GaAs melt with silicon impurities, making it unsuitable for producing semi-insulating GaAs substrates.

Our VGF technique also offers advantages over the Liquid Encapsulated Czochralski, or LEC, technique for producing semi-insulating GaAs substrates for electronic applications. During the LEC process, the crystal is grown by dipping a seed crystal through molten boric oxide into a melt of gallium and arsenic poly-crystal material and slowly pulling the seed up into the cool zone above the boron oxide where the crystal hardens. Unlike the VGF technique, the LEC technique is designed so that the hotter GaAs melt is located beneath the cooler crystal, resulting in greater turbulence in the melt, and at a temperature gradient that is significantly higher than the VGF technique. The turbulence and high temperature cause LEC-grown crystals to have a higher dislocation density than VGF-grown crystals, resulting in a higher rate of breakage during the device manufacturing process. As an open process, the LEC technique also results in greater propensity for contamination and difficulty controlling the ratio of gallium to arsenic. It requires large, complex electro-mechanical systems that are expensive and require highly skilled personnel to operate. Strategy Analytics, a third-party market research firm, estimated that approximately 60 percent of the GaAs substrates sold in 2003 by all competitors to customers that manufacture electronic devices were manufactured using VGF or similar techniques. They projected that VGF's share would increase to approximately 70 percent by 2007.

The following table provides a comparison of these three techniques: in 2003, LEC retains about 40% of the semi-insulating market and HB is still present in the semi-conducting or opto-electronics market.

Substrate applications	VGF	HB	LEC
	Electronic and opto-electronic	Opto-electronic	Electronic
Largest wafer size in commercial use	6"	3"	6"
Stress/defect levels	Very Low	Low	High
Crystal purity	Good	Poor	Good
Applicability to multiple materials	GaAs, InP, Ge	GaAs	GaAs, InP, GaP
Equipment and labor cost	Very Low	Low	High
Amount of waste material	Very Low	High	Low
Equipment flexibility	Versatile	Limited	Limited
Equipment downtime	Minimal	Moderate	High
Number of competitors	Several	Declining	Declining

Products

We design, develop, manufacture and distribute high-performance semiconductor substrates. The table below sets forth our products and selected applications:

<u>Product</u>	<u>Applications</u>	
Substrates	Electronic	Opto-electronic
GaAs	<ul style="list-style-type: none"> • Cellular phones • Direct broadcast television • High-performance transistors • Satellite communications 	<ul style="list-style-type: none"> • LEDs • Lasers • Optical couplers
InP	<ul style="list-style-type: none"> • Fiber optic communications • Satellite communications • High-performance transistors • Automotive collision avoidance radar 	<ul style="list-style-type: none"> • Lasers
Ge	<ul style="list-style-type: none"> • Satellite solar cells 	

Substrates. We currently sell compound substrates manufactured from GaAs and InP, as well as single-element substrates manufactured from Ge. We supply GaAs substrates in two-, three-, four-, five- and six-inch diameters. We manufacture InP substrates in two-, three- and four-inch diameters and Ge substrates in two- and four-inch diameters.

Materials. We participate in five joint ventures in China that sell raw materials used by us in substrate manufacturing and by others. These joint ventures produce products including 99.99% pure gallium (4N Ga), high purity gallium, arsenic, and germanium, germanium dioxide, paralytic boron nitride (pBN) crucibles, and boron oxide. In 2004, sales of gallium to parties other than us were approximately \$3.3 million.

Customers

We sell our compound semiconductor substrates and materials worldwide. Our customers include:

Advanced Epitaxy Technology	EMCORE	Sogem
Agilent Technologies	IQE, Inc.	Sumika
Arima Optoelectronic Corp.	MCP	United Epitaxy Company
Bookham	Motorola	Visual Photonics Epitaxy
Coherent Tutcore	Nippon Sheet Glass	Xiamen Shanan Electronics
Dowa	Osram	

Historically, we have sold a significant portion of our products in any particular period to a limited number of customers. No customer represented greater than 10% of revenues for the years ended December 31, 2004, 2003, and 2002. The company's top five customers represented 30.1% of revenue for the year ended December 31, 2004, 28.9% of revenue for the year ended December 31, 2003, and 31.4% of revenue for the year ended December 31, 2002. We expect that sales to a small number of customers will continue to comprise a significant portion of our revenue in the future.

Manufacturing, Raw Materials and Supplies

We believe that our results are partially due to our manufacturing efficiency and high product yields and we continually emphasize quality and process control throughout our manufacturing operations. We perform our substrate manufacturing operations at our facilities in Beijing, China. During 2004, we discontinued our manufacturing and research and development activities at our Fremont, California facility. We believe that our capital investment and subsequent operating costs are lower for our manufacturing facilities in China relative to the U.S. Many of our manufacturing operations are fully automated and computer monitored or controlled, enhancing reliability and yield. We use proprietary equipment in our substrate manufacturing operations to protect our intellectual property and control the timing and pace of capacity additions. All of our manufacturing facilities are ISO 9001 or 9002 certified.

Although we purchase supply parts, components and raw materials from several domestic and international suppliers, we depend on a single or limited number of suppliers for certain critical materials used in the production of our substrates, such as quartz tubing, and polishing solutions. We generally purchase these materials through standard purchase orders and not pursuant to long-term supply contracts. Although we seek to maintain sufficient inventory levels of certain materials to guard against interruptions in supply and to meet our near term needs, and have to date been able to obtain sufficient supplies of materials in a timely manner, there may be shortages of certain key materials, such as gallium. Accordingly, to help ensure continued supply of materials, we formed five joint ventures with and made investments in some suppliers of key raw materials required to manufacture our products, including gallium, arsenic, germanium, germanium dioxide, paralytic boron nitride crucibles, and boron oxide. We believe that these joint ventures and investments will be advantageous in procuring materials to support our growth and cost management goals.

Sales and Marketing

We advertise in trade publications, distribute promotional materials, conduct marketing and sales programs, and participate in industry trade shows and conferences in order to raise market awareness of our products. We sell our substrate products through our direct sales force in the U.S. and Japan and through independent sales representatives in France, Germany, Japan, South Korea, Taiwan and the United Kingdom. Our direct sales force is knowledgeable in the use of compound and single-element substrates. Our applications engineers work with customers during all stages of the substrate manufacturing process, from developing the precise composition of the substrate through manufacturing and processing the substrate to the customer's specifications. We believe that maintaining a close relationship with customers and providing them with ongoing engineering support improves customer satisfaction and will provide us with a competitive advantage in selling other substrates to our customers. The substrate division launched a program in late 2000 with selected customers in which we guaranteed that certain volumes of six-inch GaAs and other substrates would be delivered on specific dates and the customer made a prepayment for part of the value of the entire order. Several major customers participated in this program. As of December 31, 2004, the unearned pre-payments we retained under this program equaled \$130,000. We do not expect to continue this program after the pre-payments currently in hand are utilized by customers.

International Sales. International sales are an important part of our business. For the year ended December 31, 2004, sales to customers outside of the United States accounted for 79.2% of our revenue, as compared with 65.9% in 2003, and with 43.9% in 2002. The primary markets for sales of our products outside of the United States include countries in Asia and Western Europe.

Research and Development

To maintain and improve our competitive position, we focus our research and development efforts on designing new proprietary processes and products, improving the performance of existing products and reducing manufacturing costs. We have assembled a multi-disciplinary team of skilled scientists, engineers and technicians to meet our research and development objectives.

Our current substrate research and development activities focus on continued development and enhancement of GaAs, InP and Ge substrates, including haze reduction, improved yield, enhanced surface and electrical characteristics and uniformity, greater substrate strength and increased crystal length. In addition, during 2004 we spent some research and development resources to reduce surface quality problems we experienced with our GaAs and InP substrates for some customers, particularly related to surface morphology. We continue to work on issues related to surface quality.

Research and development expenses were \$1.5 million in 2004, compared with \$1.3 million in 2003 and with \$2.3 million in 2002. We expect to increase our rate of expenditure on research and development costs by approximately 15% in 2005.

Competition

The semiconductor substrate industry is characterized by rapid technological change and price erosion, as well as intense foreign and domestic competition. We believe we currently have a leading position in the market for GaAs substrates for HBLED applications primarily as a result of our expertise in VGF technology, overall product quality, response times and prices. However, we face actual and potential competition from a number of established domestic and international companies who have advantages not available to us.

We believe that the primary competitive factors in the markets in which our substrate products compete are:

- quality;
- price;
- performance;
- meeting customer specifications; and
- customer support and satisfaction.
- our ability to compete in target markets also depends on factors such as:
 - the timing and success of the development and introduction of new products and product features by us and our competitors;
 - the availability of adequate sources of raw materials;
 - protection of our products by effective use of intellectual property laws and
 - general economic conditions.

Our primary competition in the market for compound semiconductor substrates includes Crystal Technologies, Freiberger Compound Materials, Japan Energy, Mitsubishi Chemical Corporation, and Sumitomo Electric Industries. We believe that at least two of our competitors are shipping high volumes of GaAs substrates manufactured using a technique similar to our VGF technique. In addition, as a result of quality problems that we have experienced, we believe that some customers have allocated some of their requirements for VGF grown substrates across more competitors and we believe that we may have lost revenue and market share as a result of these customer decisions. In addition, we also face competition

from compound semiconductor device manufacturers that produce substrates for their own internal use, including Hitachi, and from companies such as IBM that are actively developing alternative compound semiconductor materials.

Protection of our Intellectual Property

Our success and the competitive position of our VGF technique depend on our ability to maintain trade secrets and other intellectual property protections. We rely on a combination of patents, trademark and trade secret laws, non-disclosure agreements and other intellectual property protection methods to protect our proprietary technology. We believe that, due to the rapid pace of technological innovation in the markets for our products, our ability to establish and maintain a position of technology leadership depends as much on the skills of our development personnel as upon the legal protections afforded our existing technologies. To protect our trade secrets, we take certain measures to ensure their secrecy, such as executing non-disclosure agreements with our employees, customers and suppliers. However, reliance on trade secrets is only an effective business practice insofar as trade secrets remain undisclosed and a proprietary product or process is not reverse engineered or independently developed.

To date, we have been issued four U.S. patents and have four U.S. patent applications pending, which relate to our VGF products and processes. We have fifteen patent applications pending (in PCT/national stage process) in Europe, Canada, China, Japan and South Korea which are based on our U.S. patents that relate to our VGF processes. We have one issued foreign patent.

Environmental Regulations

We are subject to federal, state and local environmental laws and regulations, including laws in China as well as the U.S. These laws, rules and regulations govern the use, storage, discharge and disposal of hazardous chemicals during manufacturing, research and development and sales demonstrations. If we fail to comply with applicable regulations, we could be subject to substantial liability for clean-up efforts, personal injury and fines or suspension or cessation of our operations.

Employees

As of December 31, 2004, we had 1,010 employees, of whom 854 were principally engaged in manufacturing, 112 in sales and administration, and 44 in research and development. Of these employees, 65 are located in the U.S., 943 in China and 2 in Japan. As a result of shifting more of our substrate manufacturing to China, we reduced our headcount in our Fremont, California facilities, and expect further reductions during 2005. Some of our employees in China are represented by a union, but we have never experienced a work stoppage. Although morale has been affected by our workforce reductions in California, we consider our relations with our employees to be good.

Item 2. *Properties*

Our principal properties as of March 10, 2005 are as follows:

<u>Location</u>	<u>Square Feet</u>	<u>Principal Use</u>	<u>Ownership</u>
Fremont, CA	80,000	Vacant	Owned
Fremont, CA	14,441	Vacant	Operating lease, expires May 2005
Fremont, CA	9,280	Warehouse	Operating lease, expires June 2005
Fremont, CA	24,100	Warehouse	Operating lease, expires July 2006
Fremont, CA	55,000	Production and Administration	Operating lease, expires March 2013
Monterey Park, CA	22,000	Vacant	Owned; accepted offer to purchase, expected to complete sale in 2 nd quarter 2005
El Monte, CA	5,600	Vacant	Operating lease, expires December 2006
Beijing, China	31,000	Production and Administration	Owned
Beijing, China	31,000	Production	Owned
Beijing, China	32,000	Production	Owned
Beijing, China	16,000	Housing	Owned
Beijing, China	34,000	Production	Owned
Beijing, China	48,000	Production	Owned
Beijing, China	22,000	Production and Administration	Owned
Beijing, China	53,000	Production	Owned
Xianshee, China	56,500	Production	Owned by Beijing Ji Ya Semiconductor Materials, Co., Ltd.*
Xianshee, China	7,500	Administration	Owned by Beijing Ji Ya Semiconductor Materials, Co., Ltd.*
Xianshee, China	1,000	Administration	Owned by Beijing Ji Ya Semiconductor Materials, Co., Ltd.*
Nanjing, China	22,000	Production	Owned by Nanjing Jin Mei Gallium Co., Ltd.*
Nanjing, China	5,700	R&D and Administration	Owned by Nanjing Jin Mei Gallium Co., Ltd.*
Nanjing, China	3,900	Production	Owned by Nanjing Jin Mei Gallium Co., Ltd.*
Beijing, China	7,600	Production and Administration	Owned by Beijing Bo Yu Semiconductor Vessel Craftwork Technology*

* Joint ventures in which we hold an interest of between 25 percent and 88 percent.

We consider each facility to be in good operating condition and adequate for its present use, and believe that each facility has sufficient plant capacity to meet its current and anticipated operating requirements. We do not intend to renew the operating leases of properties in Fremont and El Monte, California, that expire in 2005 and 2006, respectively, as we are no longer using such facilities.

Item 3. *Legal Proceedings*

On October 15, 2004, a purported securities class action lawsuit was filed in the United States Court for the Northern District of California. City of Harper Woods Employees Retirement System v. AXT, Inc. et al., No. C 04 4362 MJJ. The lawsuit names AXT, Inc. and our chief executive officer, China operations, as defendants, and is brought on behalf of a class of all purchasers of our securities from February 6, 2001 through April 27, 2004. The complaint alleges that we announced financial results during this period that

were false and misleading. No specific amount of damages is claimed. On February 4, 2005, the Court consolidated the case with a related case making similar allegations, and appointed a lead plaintiff, who will file a consolidated complaint. We believe that there are meritorious defenses against this litigation and intends to vigorously defend it. However, due to the inherent uncertainties of litigation, we cannot accurately predict the ultimate outcome of the litigation. Any unfavorable outcome of the litigation could have an adverse impact on our business, financial condition and results of operations.

On December 2, 2004, we executed an agreement with Sumitomo Electric Industries, Ltd. ("SEI"), a Japanese corporation, to settle litigation commenced by SEI against AXT in Japan alleging infringement of certain SEI patents, and an interference action between an AXT patent and an SEI reissue application brought in the United States. We and SEI entered into a four-year cross-licensing agreement for all intellectual property used by either company related to compound semiconductor substrates, which will expire on December 31, 2008, with the exception of the patents that were the basis for the litigation in Japan and the interference in the U.S. where the license agreement shall last for the life of these patents. Under the terms of the settlement, we made a payment to SEI in the amount of Japanese Yen one hundred and forty-seven million (¥147,000,000) on January 4, 2005, and we will make on-going royalty payments through 2012 on certain products sold by us in Japan. Subsequent to that payment, SEI dropped the litigation in Japan and we abandoned the interference proceedings in the U.S.

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

None

PART II

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

Our common stock has been trading publicly on the Nasdaq National Market, (NASDAQ) under the symbol "AXTI" since May 20, 1998, the date we consummated our initial public offering. The following table sets forth the range of high and low sales prices on NASDAQ of the common stock for the periods indicated, as reported by NASDAQ. Such quotations represent inter-dealer prices without retail markup, markdown or commission and may not necessarily represent actual transactions.

	<u>High</u>	<u>Low</u>
2004		
First Quarter	\$ 4.68	\$ 3.00
Second Quarter	\$ 3.57	\$ 1.73
Third Quarter	\$ 1.97	\$ 1.05
Fourth Quarter	\$ 2.04	\$ 1.37
2003		
First Quarter	\$ 1.95	\$ 0.67
Second Quarter	\$ 1.65	\$ 0.68
Third Quarter	\$ 3.12	\$ 1.20
Fourth Quarter	\$ 3.42	\$ 1.89

As of December 31, 2004, there were 107 holders of record of our common stock. Because many shares of AXT's common stock are held by brokers and other institutions on behalf of stockholders, we are unable to estimate the total number of stockholders.

We have never paid or declared any cash dividends on our common stock and do not anticipate paying cash dividends in the foreseeable future. Dividends accrue on our outstanding Series A preferred stock at the rate of \$0.20 per annum per share of Series A preferred stock.

Issuer Purchases of Equity Securities

In August 2004, we announced the adoption of a stock repurchase program in accordance with Rule 10b5-1 of the Securities Exchange Act of 1934 to provide for the repurchase of up to \$2 million of our common stock. Repurchases may be made from time to time in the open market during the twelve-month period ending July 31, 2005, at prevailing market prices using our own cash resources. As of December 31, 2004, we had 23.1 million shares of common stock outstanding and none were repurchased in 2004 under this program. In January 2005, 10,000 shares were repurchased.

Item 6. Selected Consolidated Financial Data

The following selected consolidated financial data are derived from and should be read in conjunction with our consolidated financial statements and related notes set forth in Item 8 below, and in our previously filed reports on Form 10-K. See also Item 7 “Management’s Discussion and Analysis of Financial Condition and Results of Operations” for further information relating to items reflecting our results of operations and financial condition.

	Years Ended December 31,				
	2004	2003	2002	2001	2000
	(in thousands, except per share data)				
Income Statement Data:					
Revenue	\$ 35,454	\$ 34,713	\$ 44,865	\$ 108,800	\$ 113,374
Cost of revenue	35,705	32,478	53,758	67,494	61,361
Gross profit (loss)	(251)	2,235	(8,893)	41,306	52,013
Operating expenses:					
Selling, general, and administrative	11,561	10,475	13,860	17,208	13,619
Research and development	1,479	1,337	2,339	3,876	4,307
Impairment charges	210	—	14,632	—	—
Restructuring costs	1,308	—	—	—	—
Total operating expenses	14,558	11,812	30,831	21,084	17,926
Income (loss) from operations	(14,809)	(9,577)	(39,724)	20,222	34,087
Interest expense	290	466	437	831	2,357
Other (income) and expense, net	(646)	1,050	12,703	13,379	(28,463)
Income (loss) from continuing operations before provision for income taxes	(14,453)	(11,093)	(52,864)	6,012	60,193
Provision for income taxes	71	—	2,119	2,164	22,874
Income (loss) from continuing operations	(14,524)	(11,093)	(54,983)	3,848	37,319
Discontinued operations:					
Gain (loss) from discontinued operations	472	(6,163)	(34,625)	(13,818)	(22,264)
Gain (loss) on disposal	419	(9,475)	—	—	(1,341)
Benefit for income taxes	—	—	(8,427)	(4,974)	(7,896)
Gain (loss) from discontinued operations	891	(15,638)	(26,198)	(8,844)	(15,709)
Net income (loss)	\$ (13,633)	\$ (26,731)	\$ (81,181)	\$ (4,996)	\$ 21,610
Basic income (loss) per share:					
Income (loss) from continuing operations	\$ (0.64)	\$ (0.49)	\$ (2.46)	\$ 0.17	\$ 1.90
Gain (loss) from discontinued operations	0.04	(0.69)	(1.17)	(0.40)	(0.80)
Net income (loss)	\$ (0.60)	\$ (1.18)	\$ (3.63)	\$ (0.23)	\$ 1.10
Diluted income (loss) per share:					
Income (loss) from continuing operations	\$ (0.64)	\$ (0.49)	\$ (2.46)	\$ 0.17	\$ 1.77
Gain (loss) from discontinued operations	0.04	(0.69)	(1.17)	(0.39)	(0.75)
Net income (loss)	\$ (0.60)	\$ (1.18)	\$ (3.63)	\$ (0.23)	\$ 1.03
Shares used in per share calculations:					
Basic	23,063	22,781	22,433	22,278	19,677
Diluted	23,063	22,781	22,433	22,879	21,059

	Years Ended December 31,				
	2004	2003	2002	2001	2000
	(in thousands)				
Balance Sheet Data:					
Cash and cash equivalents	\$ 12,117	\$ 24,339	\$ 13,797	\$ 37,538	\$ 68,585
Short-term investments	20,062	14,669	8,205	25,673	30,852
Working capital	45,861	57,335	65,375	125,295	140,387
Restricted deposits	8,215	9,302	11,150	—	—
Long-term investments	—	—	3,657	6,552	—
Total assets	87,540	107,023	145,667	243,359	250,220
Long-term capital lease, net of current portion	—	—	4,847	10,002	7,278
Long-term debt, net of current portion	7,600	8,842	13,289	14,342	15,123
Stockholders' equity	68,017	82,298	105,657	186,322	185,347

All periods have been restated to reflect the accounting for discontinued operations. As a result, the discontinued opto-electronics and consumer products divisions have been eliminated from continuing operations in the statements of operations.

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

In addition to historical information, the following discussion contains forward-looking statements that are subject to risks and uncertainties. Actual results may differ substantially from those referred to herein due to a number of factors, including but not limited to risks described in the section entitled Risks Related to Our Business and elsewhere in this Annual Report. This discussion should be read in conjunction with "Selected Consolidated Financial Data" and our consolidated financial statements and related notes included elsewhere in this Form 10-K.

Critical Accounting Policies and Estimates

We have prepared our consolidated financial statements in accordance with accounting principles generally accepted in the United States of America. Accordingly, we have had to make estimates, assumptions and judgments that affect the amounts reported on our consolidated financial statements. These estimates, assumptions and judgments about future events and their effects on our results cannot be determined with certainty, and are made based upon our historical experience and on other assumptions that are believed to be reasonable under the circumstances. These estimates may change as new events occur or additional information is obtained, and we may periodically be faced with uncertainties, the outcomes of which are not within our control and may not be known for a prolonged period of time.

We have identified the policies below as critical to our business operations and understanding of our financial condition and results of operations. A critical accounting policy is one that is both material to the presentation of our consolidated financial statements and requires us to make difficult, subjective or complex judgments that could have a material impact on our consolidated financial statements. Different estimates that we could have used, or changes in the estimates that are reasonably likely to occur, may have a material impact on our financial condition or results of operations. We also refer you to our "The Company and Summary of Significant Accounting Policies" discussed in the accompanying notes to our consolidated financial statements included elsewhere in this Form 10-K.

Revenue Recognition

We manufacture and sell high-performance compound semiconductor substrates and sell certain raw materials including gallium, germanium dioxide, and pBN crucibles. After we ship our products, there are no remaining obligations or customer acceptance requirements that would preclude revenue recognition. Our products are typically sold pursuant to a purchase order placed by our customers, and our terms and conditions of sale do not require customer acceptance. We recognize revenue upon shipment and transfer of title of products to our customers, which is either upon shipment from our dock, receipt at the customer's dock, or removal from consignment inventory at the customer's location, provided that we have received a signed purchase order, the price is fixed or determinable, title and risk of ownership have transferred, collection of resulting receivables is probable, and product returns are reasonably estimable. We do not provide training, installation or commissioning services. Additionally, we do not provide discounts or other incentives to customers except for one customer with whom we agreed in the fourth quarter of 2004 to provide a certain amount of cumulative discounts on future product purchases from us. We will recognize these discounts in future periods as a reduction in revenue as products are sold to this customer.

We provide for future returns based on historical experience, current economic trends and changes in customer demand at the time revenue is recognized. In the first quarter of 2004, we recorded a reserve for sales returns of \$745,000 related to our failure to follow certain testing requirements and provision of testing data and information to certain customers. This reserve was based on discussions with some of the affected customers and review of specific shipments. Approximately \$285,000 of the \$745,000 sales returns reserve had been utilized as of December 31, 2004. See further discussion in "Results of Operations" below.

Allowance for Doubtful Accounts

We periodically review the likelihood of collection on our accounts receivable balances and provide an allowance for doubtful accounts receivable primarily based upon the age of these accounts. We provide a 100% allowance for U.S. receivables in excess of 90 days and for foreign receivables in excess of 120 days. We assess the probability of collection based on a number of factors, including the length of time a receivable balance has been outstanding, our past history with the customer and their credit worthiness.

In previous years, three of our customers had filed for bankruptcy protection. Upon notification of the bankruptcy, we immediately stopped shipping orders to these customers other than on payment in advance. At that time, the outstanding balances of these customers had been fully reserved. The related accounts receivable balances and reserve were subsequently written off in November 2004 when we finally determined that the balances were uncollectible. This determination was made as a result of our unsuccessful efforts to collect these accounts receivable, the significant length of time that the receivables balance was outstanding, and the unlikelihood that we would collect the balances from the bankrupt's estate. As of December 31, 2004 and 2003, our accounts receivable balance was \$4.0 million and \$6.3 million, respectively, which was net of an allowance for doubtful accounts of \$1.1 million and \$4.3 million, respectively. During 2004, we wrote off \$3.5 million of fully reserved accounts receivable and increased the allowance for doubtful accounts by \$0.3 million. If actual uncollectible accounts differ substantially from our estimates, revisions to the estimated allowance for doubtful accounts would be required, which could have a material impact on our financial results for the period.

Warranty Reserve

We maintain a warranty reserve based upon our claims experience during the prior twelve months. Warranty costs are accrued at the time revenue is recognized. As of December 31, 2004, accrued product warranties totaled \$135,000. If actual warranty costs differ substantially from our estimates, revisions to the estimated warranty liability would be required, which could have a material impact on our financial condition and results of operations.

Inventory Valuation

Inventories are stated at the lower of cost or market. Cost is determined using the weighted average cost method. Our inventory consists of raw materials as well as finished goods and work-in-process that include material, labor and manufacturing overhead costs. Given the nature of our substrate products, and the materials used in the manufacturing process, the wafers and ingots comprising work-in-process may be held in inventory for up to two years and three years, respectively, as the risk of obsolescence for these materials is low. We routinely evaluate the levels of our inventory in light of current market conditions in order to identify excess and obsolete inventory and provide a valuation allowance for certain inventories based upon the age and quality of the product and the projections for sale of the completed products. During the third quarter of 2004, it became apparent that our revenues were likely to continue to decline in the fourth and subsequent quarters due to the need to re-qualify our products with several customers. Furthermore, many new orders were for products with specifications that differed from the features of the products held in inventory. In accordance with our policy, we evaluated the levels of our inventory, and determined that in light of current market conditions, we had excess and obsolete inventory based upon its age and quality, and that the inventory exceeded the sales projections as revised. Accordingly, we established a reserve for the excess. As of December 31, 2004 and 2003, we had an inventory reserve of \$6.1 million and \$7.2 million, respectively. The majority of this inventory has not been scrapped. If actual demand for our products were to be substantially lower than estimated, additional inventory adjustments for excess or obsolete inventory might be required, which could have a material impact on our business, financial condition and results of operations.

Impairment of Investments

We classify our investments in debt and equity securities as available-for-sale securities as prescribed by Statement of Financial Accounting Standards (SFAS) No. 115, *“Accounting for Certain Investments in Debt and Equity Securities.”* All available-for-sale securities with a quoted market value below cost (or adjusted cost) are reviewed in order to determine whether the decline is other-than-temporary. Factors considered in determining whether a loss is temporary include the magnitude of the decline in market value, the length of time the market value has been below cost (or adjusted cost), credit quality, and our ability and intent to hold the securities for a period of time sufficient to allow for any anticipated recovery in market value.

We invest in equity instruments of privately-held companies for business and strategic purposes. These investments are classified as other assets and are accounted for under the cost method as we do not have the ability to exercise significant influence over their operations. We monitor our investments for impairment and record reductions in carrying value when events or changes in circumstances indicate that the carrying value may not be recoverable. Determination of impairment is highly subjective and is based on a number of factors, including an assessment of the strength of investee’s management, the length of time and extent to which the fair value has been less than our cost basis, the financial condition and near-term prospects of the investee, fundamental changes to the business prospects of the investee, share prices of subsequent offerings, and our intent and ability to hold the investment for a period of time sufficient to allow for any anticipated recovery in our carrying value.

Impairment of Long-Lived Assets

We evaluate the recoverability of property, equipment, and intangible assets in accordance with SFAS No. 144, *“Accounting for the Impairment or Disposal of Long-Lived Assets.”* When events and circumstances indicate that long-lived assets may be impaired, we compare the carrying value of the long-lived assets to the projection of future undiscounted cash flows attributable to such assets. In the event that the carrying value exceeds the future undiscounted cash flows, we record an impairment charge against income equal to the excess of the carrying value over the asset’s fair value.

Employee Stock Options

We believe that employee stock options represent an appropriate and essential component of our overall compensation program. We grant options to substantially all management employees and believe that this broad-based program helps us to attract, motivate, and retain high quality employees, to the ultimate benefit of our stockholders. We currently account for share-based payments to employees using the intrinsic value method under APB Opinion No. 25 and, as such, generally recognize no compensation cost for employee stock options. The adoption of Statement of Financial Accounting Standards No. 123 (revised), *“Share-Based Payment”* (SFAS 123R) is expected to result in a material increase in expense during the second half of 2005 based on unvested options outstanding as of December 31, 2004 and current compensation plans. While the effect of adoption depends on the level of share-based payments granted in the future and unvested grants on the date we adopt SFAS 123(R), the effect of this accounting standard on our prior operating results would approximate the effect of SFAS 123 as described in the disclosure of pro forma net loss and net loss per share. See *“Note 1—The Company and Summary of Significant Accounting Policies”* of the notes to consolidated financial statements.

Income Taxes

We account for income taxes in accordance with SFAS No. 109 (SFAS 109), *“Accounting for Income Taxes,”* which requires that deferred tax assets and liabilities be recognized using enacted tax rates for the effect of temporary differences between the book and tax bases of recorded assets and liabilities. SFAS 109

also requires that deferred tax assets be reduced by a valuation allowance if it is more likely than not that a portion of the deferred tax asset will not be realized.

We provide for income taxes based upon the geographic composition of worldwide earnings and tax regulations governing each region, particularly China. The calculation of tax liabilities involves significant judgment in estimating the impact of uncertainties in the application of complex tax laws, particularly in foreign countries such as China.

Results of Operations

Overview

We were founded in 1986 to commercialize and enhance our proprietary vertical gradient freeze (VGF) technique for producing high-performance compound semiconductor substrates. As a result of the discontinuance of our opto-electronics division, and the sale of substantially all of the assets of this business in 2003, we now have one operating segment: our substrate business. We recorded our first substrate sales in 1990 and our substrate division currently sells gallium arsenide (GaAs) and indium phosphide (InP) substrates to manufacturers of semiconductor devices for use in applications such as fiber optic and wireless telecommunications, light emitting diodes (LEDs) and lasers. We also sell raw materials including gallium and germanium through our participation in majority- and minority-owned joint ventures. We had the capability to manufacture germanium substrates for use in satellite solar cells but withdrew from this business during 2000 so that we could more profitably use our then constrained capacity. We are now trying to re-qualify our germanium substrates with the few existing satellite solar cell system manufacturers.

Continuing Operations

Our continuing business, primarily sales of our substrate products, is dependant on the semiconductor industry, which is highly cyclical and has historically experienced downturns both as a result of economic changes and overcapacity.

During the first half of 2002 our revenues grew due to improvements in the wireless market. In the second half of 2002 our revenue fell, however, because the substrate industry was still facing excess capacity that caused prices to decline, and because we experienced a loss of market share after two competitors developed technologies similar to ours. In addition, certain customers selected competitors' products in order to diversify their supply sources and due to the belief that the competitors' substrates offered better surface qualities. Full year 2002 revenue declined \$63.9 million, or 58.8% compared with 2001. We recorded losses in each quarter of 2002 and incurred impairment charges against fixed assets and inventory due to the decline in demand and prices. In reaction to the economic downturn and competition, we initiated an aggressive effort to reduce substrate manufacturing costs. This included moving much of our substrate manufacturing operations to China, reducing capacity in our Fremont, California facility and developing and investing in key low-cost raw material sources.

In 2003, we believe that the wireless communications and HBLED markets grew, but our revenue did not increase until the fourth quarter of 2003 due to continued reductions in prices, and time required to improve our substrate surface quality and regain some lost customers. Revenue for 2003 fell by \$10.2 million, or 22.6% compared with 2002. We recorded net losses in each quarter of 2003. During 2003, we continued to shift more of our manufacturing operations to China and reduced our costs incurred in the United States.

In 2004, our revenue increased \$0.7 million as compared to 2003, primarily as a result of increased demand for HBLEDs.

In March 2004, we learned of certain failures to comply with requirements for product testing and the provision of testing data and information relating to requirements of certain customers. Specifically, we

determined that in some cases we had not provided accurate data to customers confirming that products shipped were compliant with all specifications provided by the customer, or had been manufactured at the location specified by the customer. As a result of our conclusions, we reorganized our production and quality control procedures, established quality control and assurance as a direct reporting group to the chief executive officer, and implemented measures, including additional employee training, statistical sampling of product shipments during the quarter, and review of our satisfaction of customer specifications each quarter, to ensure adherence to operational controls. We also implemented certain executive management changes.

As a result of the weaknesses identified, in the first quarter of 2004 we increased our sales return reserve by \$745,000, based on our best estimate of future returns related to this matter. Approximately \$285,000 of the \$745,000 sales returns reserve had been utilized as of December 31, 2004. This reserve was based, in part, on discussion with affected customers. The amount of the reserve was determined in part based upon the amount of our historical product returns, payment history of prior period receivables, discussions with customers concerning the non-compliant product and testing data, and estimated levels of our product maintained by customers, and likelihood that products previously shipped would be returned to us.

During the second quarter of 2004, we announced plans to cease all production activities in the United States and to manufacture our products only in China. See further discussion under "Impairment and Restructuring Charges" below.

Discontinued Opto-Electronics Business

In June 2003, we announced the discontinuation of our opto-electronics division, which we had established as part of our acquisition of Lyte Optronics, Inc. in May 1999. The discontinued opto-electronics division manufactured blue, cyan, and green high-brightness light emitting diodes (HBLEDs) for the illumination markets, including full-color displays, wireless handset backlighting and traffic signals, and also manufactured vertical cavity surface emitting lasers (VCSELs) and laser diodes for fiber optic communications and storage area networks. Accordingly, the results of operations of the opto-electronics division have been segregated from continuing operations and are reported separately as discontinued operations in our consolidated statements of operations for all periods presented. See Note 2 to our consolidated financial statements for details regarding the accounting for discontinued operations.

In September 2003, we completed the sale of substantially all of the assets of our opto-electronics business to Lumei Optoelectronics Corp. (Lumei) and Dalian Luming Science and Technology Group, Co., Ltd. for the Chinese Renminbi (RMB) equivalent of \$9.6 million. A portion of the purchase price equal to \$1.0 million was held in escrow to satisfy any claims that the purchaser might make for breaches of representations or warranties by us. Of this total escrow \$750,000 could be released after the one year anniversary of the sale of the opto-electronics business and the remainder could be released after the second anniversary of the sale. Given the difficult negotiations we encountered with the acquiring company when negotiating the sale of the opto-electronics business, as well as the historical operating problems of the business, we determined there was significant uncertainty regarding the recoverability of the escrowed amounts. Accordingly, we did not recognize the cash held in escrow in recording the sale of the opto-electronics division. We will only record amounts as and when they are received. To date, we have resolved all claims made against the first \$750,000 held in escrow by the acquiring company, and expect to receive all but \$31,000 of the first \$750,000 held in escrow. As of December 31, 2004, approximately \$419,000 was released from escrow and accordingly we recorded a gain on discontinued operations in 2004. In February 2005, we received an additional \$300,000 from escrow, leaving \$250,000 in escrow, which will not be eligible for release until September 2005.

In addition, we retain a building located in Monterey Park, California that we have listed on the market for sale. This asset has been classified as held for sale on the consolidated balance sheets as of

December 31, 2004 and 2003. We recorded in the fourth quarter 2004 a \$0.25 million market value adjustment after we accepted an offer in January 2005 from a real estate developer to purchase the property for net proceeds of approximately \$1.25 million, after deducting estimated commission and selling expenses. We expect the sale to be completed in the second quarter of 2005.

Impairment and Restructuring Charges

Inventory Impairment

Prior to 2001, our markets had steadily increased, causing us to build inventory to meet demand. In the second half of 2001, we experienced a 58.5% decrease in revenue as a result of a rapid decline in the mobile and fiber optic telecommunications markets. We experienced lower revenues and slower bookings than forecast, as well as postponements and cancellations of orders. The market decline continued into 2002, as significant excess capacity developed in the substrate industry, sales prices declined, and our revenues fell, resulting in a higher ratio of inventory levels to revenue. In addition, two competitors had developed and were successfully selling products with technologies similar to ours, capturing a significant portion of our market share. With this unexpected loss in market share, we determined that it would be harder to recover even once the market improved. As our revenue continued to decline, and the industry continued to experience excess capacity, it became apparent by the fourth quarter of 2002 that the amount of inventory we would be able to utilize was significantly less than previously projected and that the amount of inventory on hand exceeded the then current sales projections for those products. As a result, we wrote down \$9.6 million of obsolete inventory in 2002, none of which has been subsequently sold. Of this amount, inventory valued at \$1.2 million and \$1.7 million were scrapped in the second and fourth quarter of 2003, respectively.

In September 2004, we wrote down an additional \$2.1 million of obsolete inventory. The wafers and ingots comprising the written-down inventory had been manufactured within the prior two and three years, respectively. During the third quarter of 2004, it became apparent that our revenues were likely to continue to decline in the fourth and subsequent quarters due to the need to re-qualify our products with several customers. Furthermore, many new orders were for products with specifications that differed from the features of the products held in inventory. In accordance with our policy, we evaluated the levels of our inventory, and determined that in light of current market conditions, we had excess and obsolete inventory based upon its age and quality, and that the inventory exceeded the sales projections as revised. Accordingly, we established a reserve for the excess. The majority of this inventory has not been scrapped.

Reduction in Long-Lived Assets

Also as a result of this decline and the adverse impact on our revenues, during the second quarter of 2002 we revised our financial forecast and initiated an aggressive effort to reduce our substrate manufacturing costs. This included moving more of our substrate manufacturing to China beginning in the second quarter of 2002, and ultimately shutting down our Fremont, California facility. Given the lowered sales projections and the expectation to close down our Fremont manufacturing facility, we undertook a review of the long-lived assets of our substrate business in order to determine whether the expected undiscounted, future cash flows were sufficient to recover the carrying values of the related assets. This review undertaken in the second quarter of 2002 indicated that an impairment charge of \$14.6 million was required to write down these long-lived assets to their estimated fair market value. In order to determine the fair value of these assets, we calculated the present value of expected cash flows of the substrate operations. The estimated cash flows were based on our updated revenue outlook, and accordingly we revised our operating budget and related cash flows discounted at the rate reflecting our average cost of capital.

Opto-Electronics Business

During the third quarter of 2002, we recorded an additional impairment charge of \$24.5 million related to our opto-electronics division. The primary business of this division was the manufacture of light-emitting diodes (“LED’s”). Our business in this division was heavily dependent on one customer. In the third quarter of 2002, we experienced a significant quality problem which ultimately resulted in this customer canceling all current and future orders. Given the uncertainty of resolving the quality issue and the significance of this customer to the operations, we undertook an impairment review in the third quarter which indicated that the undiscounted cash flows were not sufficient to recover the carrying value of the related long-lived assets. Accordingly, an impairment charge was recorded to write down the assets to their estimated fair market value. The estimated fair market value was based on management’s estimate of the fair value, with management making this determination based in part on an independent valuation of the assets.

As a result of our decision to discontinue the opto-electronics business in 2003, the \$24.5 million charge related to the opto-electronics business was reclassified into “loss from discontinued operations” in 2003.

Restructuring Charges

During the second quarter of 2004, we announced plans to cease all production activities in the United States and to manufacture our products only in China. In June 2004, we incurred a restructuring charge of \$1.1 million as a result of our decision to close down our remaining manufacturing facilities in the United States. In the third and fourth quarter of 2004, we incurred additional restructuring charges of \$231,000 for a total of \$1.3 million in 2004. These charges comprised costs related to the reduction in work force effected in June 2004, and lease costs associated with the facilities located in California that are no longer required to support production. In aggregate, we eliminated 50 positions, 47 of which were production workers. As of December 31, 2004, we saved approximately \$560,000 in payroll and related expenses. On an annual basis, we anticipate payroll and related expense savings of \$1.5 million. In 2005, we will continue to reduce costs by qualifying new lower cost suppliers, moving more of our administrative functions to China where our costs are lower, and streamlining our organization structure and costs in the United States and China to bring them in line with with our current business. Refer to Note 8 to our consolidated financial statements.

Other Impairment

Also in the third quarter of 2004, we recorded an impairment charge of \$210,000 to write down the value of our investment in a private company. We made the decision to write down the investment as a result of the declining financial position of the investee, evidenced by an audit opinion with a going concern explanatory paragraph received by the investee. The \$210,000 was the remaining balance of this investment.

Revenue

	<u>Years Ended December 31,</u>			<u>2003 to 2004</u>		<u>2002 to 2003</u>	
	<u>2004</u>	<u>2003</u>	<u>2002</u>	<u>Increase (Decrease)</u>	<u>% Change</u>	<u>Increase (Decrease)</u>	<u>% Change</u>
GaAs	\$27,272	\$28,354	\$32,892	\$ (1,082)	(3.8)%	\$ (4,538)	(13.8)%
InP	1,588	2,075	6,491	(487)	(23.5)	(4,416)	(68.0)
Raw Materials	6,499	4,118	4,485	2,381	57.8	(367)	(8.2)
Other	95	166	997	(71)	(42.8)	(831)	(83.4)
Total revenue	<u>\$35,454</u>	<u>\$34,713</u>	<u>\$44,865</u>	<u>\$ 741</u>	<u>2.1%</u>	<u>\$ (10,152)</u>	<u>(22.6)%</u>

Revenue from continuing operations increased \$741,000, or 2.1%, to \$35.5 million in 2004 compared to \$34.7 million in 2003. Total GaAs substrate revenue decreased \$1.1 million, or 3.8%, to \$27.3 million in 2004 compared to \$28.4 million in 2003. Sales of 5 inch and 6 inch diameter GaAs substrates, which were used exclusively to manufacture electronic devices, decreased \$1.9 million, or 36.1%, to \$3.5 million in 2004 compared to \$5.4 million in 2003. InP substrate revenue decreased \$0.5 million, or 23.5%, to \$1.6 million in 2004 compared to \$2.1 million in 2003. InP substrates were used almost exclusively for telecommunications applications. The decrease in GaAs and InP substrate revenue was due to the pricing pressures causing prices to decline and overall lesser demand from our telecommunications and wireless application customers. Raw material sales increased \$2.4 million, or 57.8%, to \$6.5 million in 2004 compared to \$4.1 million in 2003. The increase in raw material sales was due to customers' higher demand, particularly for raw gallium and germanium dioxide.

Revenue from continuing operations decreased \$10.2 million, or 22.6%, to \$34.7 million in 2003 compared to \$44.9 million in 2002. Total GaAs substrate revenue decreased \$4.5 million, or 13.8%, to \$28.4 million in 2003 compared to \$32.9 million in 2002. Sales of 5 inch and 6 inch diameter GaAs substrates, which were used exclusively to manufacture electronic devices, decreased \$3.4 million, or 38.5% to \$5.4 million in 2003 compared to \$8.8 million in 2002. InP substrate revenue decreased \$4.4 million, or 68.0%, to \$2.1 million in 2003 compared to \$6.5 million in 2002. InP substrates were used almost exclusively for telecommunications applications. The decrease in GaAs and InP substrate revenue was due to decreased volume and lower average sales prices as a result of the slowdown in our target markets including telecommunications, high speed electronic devices, and short wavelength lasers, and the introduction of VGF-like substrates from our competitors that caused some customers to purchase substrates from our competitors rather than from us.

Revenue by Geographic Region

	Years Ended December 31,			2003 to 2004		2002 to 2003	
	2004	2003	2002	Increase (Decrease)	% Change	Increase (Decrease)	% Change
North America*	\$ 7,514	\$ 12,009	\$ 26,208	\$ (4,495)	(37.4)%	\$ (14,199)	(54.2)%
% of total revenue	21%	35%	59%				
Europe	6,840	5,638	5,508	1,202	21.3	130	2.4
% of total revenue	19%	16%	12%				
Japan	5,156	4,167	3,000	989	23.7	1,167	38.9
% of total revenue	15%	12%	7%				
Taiwan	8,397	7,055	4,246	1,342	19.0	2,809	66.2
% of total revenue	24%	20%	9%				
Asia Pacific (excluding Japan and Taiwan)	7,547	5,844	5,903	1,703	29.1	(59)	(1.0)
% of total revenue	21%	17%	13%				
Total revenue	\$ 35,454	\$ 34,713	\$ 44,865	\$ 741	2.1%	\$ (10,152)	(22.6)%

* Primarily the United States.

Sales to customers outside of North America represented approximately 79%, 65% and 41% of our revenue during 2004, 2003 and 2002, respectively. International revenue continued to increase during 2004 as compared to 2003 primarily due to sales growth of \$1.2 million and \$4.0 million in Europe and Asia Pacific including Japan and Taiwan, respectively. The increase was the result of our continued penetration into the Asian markets, particularly Taiwan and China.

International revenue increased during 2003 as compared to 2002 primarily due to sales growth of \$0.1 million, \$1.2 million, and \$2.8 million in Europe, Japan, and Taiwan, respectively. The increase was

driven by greater share of our GaAs substrates being used in opto-electronics applications and the majority of our customers requiring these applications were in Asia.

Gross Margin

	Years Ended December 31,			2003 to 2004		2002 to 2003	
	2004	2003	2002	Increase (Decrease)	% Change	Increase (Decrease)	% Change
Gross profit (loss)	\$ (251)	\$ 2,235	\$ (8,893)	\$ (2,486)	(111)%	\$ 11,128	125%
Gross Margin %	(0.7)%	6.4%	(19.8)%				

Gross margin decreased to negative 0.7% of revenue in 2004 compared to 6.4% of revenue in 2003. The decrease was primarily due to the following factors during 2004: (i) a \$2.1 million charge for excess and obsolete inventory in the third quarter, (ii) an approximately \$1.4 million settlement charge with Sumitomo Electric Industries, Ltd. in the third quarter, and (iii) the establishment of a sales return reserve of \$745,000 in the first quarter related to our failure to follow certain testing requirements, which reduced revenues without affecting costs of revenues.

Gross margin increased to 6.4% of revenue in 2003 compared to negative 19.8% in 2002. The increase was primarily due to reduced costs associated with moving most of our production to China. In addition, we incurred a charge of \$9.7 million in 2002 related to the write-down of certain inventory that we concluded was obsolete.

Selling, General and Administrative Expenses

	Years Ended December 31,			2003 to 2004		2002 to 2003	
	2004	2003	2002	Increase (Decrease)	% Change	Increase (Decrease)	% Change
SG&A expenses	\$ 11,561	\$ 10,475	\$ 13,860	\$ 1,086	10.4%	\$ (3,385)	(24.4)%
% of total revenue	32.6%	30.2%	30.9%				

Selling, general and administrative expenses increased \$1.1 million, or 10.4%, to \$11.6 million in 2004 compared to \$10.5 million in 2003. As a percentage of total revenue, selling, general and administrative expenses were 32.6% in 2004 compared to 30.2% in 2003. The increase in selling, general and administrative expenses is primarily the result of increased legal and professional fees with respect to our product testing investigation, the Sumitomo litigation settlement, and implementation of Section 404 of the Sarbanes-Oxley Act of 2002.

Selling, general and administrative expenses decreased \$3.4 million, or 24.4%, to \$10.5 million in 2003 compared to \$13.9 million in 2002. As a percentage of total revenue, selling, general and administrative expenses were 30.2% in 2003 compared to 30.9% in 2002. The decrease in selling, general and administrative expenses is the result of our efforts to adjust costs in line with our current business and of our ability to shift some of these activities to China where our costs are lower.

Research and Development Expenses

	Years Ended December 31,			2003 to 2004		2002 to 2003	
	2004	2003	2002	Increase (Decrease)	% Change	Increase (Decrease)	% Change
R&D expenses	\$ 1,479	\$ 1,337	\$ 2,339	\$ 142	10.6%	\$ (1,002)	(42.8)%
% of total revenue	4.2%	3.9%	5.2%				

Research and development expenses increased \$142,000, or 10.6%, to \$1.5 million in 2004 compared to \$1.3 million in 2003. As a percentage of total revenue, research and development expenses were 4.2% in 2004 compared to 3.9% in 2003. As planned, we maintained our investment in product development in 2004 in order to improve our substrate manufacturing technologies. We expect research and development expenses to increase by approximately 15% in 2005.

Research and development expenses decreased \$1.0 million or 42.8%, to \$1.3 million in 2003 compared to \$2.3 million in 2002. As a percentage of total revenue, research and development expenses were 3.9% in 2003 compared to 5.2% in 2002. Research and development efforts during 2003 were focused primarily on improving the yield and surface quality of our GaAs substrates.

Impairment and Restructuring Charges

	<u>Years Ended December 31,</u>			<u>2003 to 2004</u>		<u>2002 to 2003</u>	
	<u>2004</u>	<u>2003</u>	<u>2002</u>	<u>Increase (Decrease)</u>	<u>% Change</u>	<u>Increase (Decrease)</u>	<u>% Change</u>
	(\$ in thousands)						
Impairment charges	\$ 210	\$ —	\$ 14,632	\$ 210	NM	\$ (14,632)	NM
<i>% of total revenue</i>	<i>0.6%</i>	<i>—</i>	<i>32.6%</i>				
Restructuring costs	\$ 1,308	\$ —	\$ —	\$ 1,308	NM	\$ —	NM
<i>% of total revenue</i>	<i>3.7%</i>	<i>—</i>	<i>—</i>				

NM: percentage not meaningful

In the third quarter of 2004, we recorded an impairment charge of \$210,000 to write down the value of our investment in a private company. We made the decision to write down the investment as a result of the declining financial position of the investee, evidenced by an audit opinion with a going concern explanatory paragraph received by the investee. The \$210,000 was the remaining balance of this investment.

Interest Expense

	<u>Years Ended December 31,</u>			<u>2003 to 2004</u>		<u>2002 to 2003</u>	
	<u>2004</u>	<u>2003</u>	<u>2002</u>	<u>Increase (Decrease)</u>	<u>% Change</u>	<u>Increase (Decrease)</u>	<u>% Change</u>
	(\$ in thousands)						
Interest expense	\$ 290	\$ 466	\$ 437	\$ (176)	(37.8)%	\$ 29	6.6%
<i>% of total revenue</i>	<i>0.8%</i>	<i>1.3%</i>	<i>1.0%</i>				

Interest expense decreased \$176,000, or 37.8%, to \$290,000 in 2004 compared to \$466,000 in 2003. The decrease in interest expense reflected the absence of equipment financing charges. By the end of 2003, we had repaid \$10.1 million in equipment lease and loan debt.

Interest expense increased \$29,000, or 6.6%, to \$466,000 in 2003 compared to \$437,000 in 2002.

Other Income and Expense, Net

	<u>Years Ended December 31,</u>			<u>2003 to 2004</u>		<u>2002 to 2003</u>	
	<u>2004</u>	<u>2003</u>	<u>2002</u>	<u>Increase (Decrease)</u>	<u>% Change</u>	<u>Increase (Decrease)</u>	<u>% Change</u>
	(\$ in thousands)						
Other income (expense), net	\$ 646	\$ (1,050)	\$ (12,703)	\$ 1,696	161.5%	\$ 11,653	91.7%
<i>% of total revenue</i>	<i>1.8%</i>	<i>(3.0)%</i>	<i>(28.3)%</i>				

Other income was \$0.6 million in 2004 compared to other expense of \$1.1 million in 2003. Other income (expense) comprises foreign exchange gain (loss) and minority interests from our China joint ventures. Other income in 2004 also included a gain of \$237,000 as a result of a customer's forfeiture of

deposits originally made in connection with the program we launched in late 2000 with selected customers to guarantee volume delivery of substrates. We terminated all remaining obligations under the program with this customer by mutual consent.

Other expense was \$1.1 million in 2003 compared to \$12.7 million in 2002. The amount in 2003 included a charge of \$2.1 million related to the write-down of our investments in two privately held U.S. companies. The amount in 2002 included non-cash charges of \$10.8 million related to the write-down of our investment in Finisar Corporation's common stock to its market value and \$3.1 million related to the write-down of a building held for sale to its net realizable value as of December 31, 2002.

Provision for Income Taxes

	<u>Years Ended December 31,</u>			<u>2003 to 2004</u>		<u>2002 to 2003</u>	
	<u>2004</u>	<u>2003</u>	<u>2002</u>	<u>Increase (Decrease)</u>	<u>% Change</u>	<u>Increase (Decrease)</u>	<u>% Change</u>
	(\$ in thousands)						
Provision for income taxes	\$ 71	\$ —	\$2,119	\$ 71	NM	\$ (2,119)	NM
<i>% of total revenue</i>	<i>0.2%</i>	<i>—</i>	<i>4.7%</i>				

NM: percentage not meaningful

Provision for income taxes was \$71,000 for 2004, all of which related to our foreign subsidiaries. Due to our continuing operating losses and uncertainty regarding future profitability, we recorded a full valuation allowance against our net deferred tax assets of \$38.8 million in 2004.

Gain or Loss from Discontinued Operations

	<u>Years Ended December 31,</u>			<u>2003 to 2004</u>		<u>2002 to 2003</u>	
	<u>2004</u>	<u>2003</u>	<u>2002</u>	<u>Increase (Decrease)</u>	<u>% Change</u>	<u>Increase (Decrease)</u>	<u>% Change</u>
	(\$ in thousands)						
Gain (loss) from discontinued operations	\$891	\$ (15,638)	\$ (26,198)	\$ 16,529	105.7%	\$ 10,560	40.3%

In 2004, we realized a \$419,000 gain on discontinued opto-electronics operations as a result of the partial release of escrow funds. Also in 2004, we entered into an agreement with a real estate developer for the purchase of our discontinued opto-electronics' property held for sale and realized a gain of \$250,000 reflecting an adjustment to the realizable market value of the property. The remaining gain of \$222,000 was a result of our reversal of accrued liabilities of general and administrative expenses no longer required. Loss from our discontinued opto-electronics division for 2003 was \$15.6 million, which included a loss on disposal of \$9.5 million and the operating loss of \$6.1 million. Loss from our discontinued opto-electronics division for 2002 was \$26.2 million, which included the operating loss and certain impairment charges for a total of \$34.6 million, partially offset by a benefit for income taxes of \$8.4 million. See further discussion under "Results of Operations—Overview" elsewhere in Management's Discussion and Analysis of Financial Condition and Results of Operations of this Form 10-K.

American Jobs Creation Act of 2004-Repatriation of Foreign Earnings

The American Jobs Creation Act of 2004 (the "Jobs Act"), enacted on October 22, 2004, allows us to repatriate earnings from our foreign subsidiaries at a reduced tax rate. Under the Jobs Act, we may elect, for one taxable year, an 85% dividends received deduction for eligible dividends from our foreign subsidiaries. The deduction would result in an approximate 5.25% federal tax rate on the repatriated earnings. To qualify for the deduction, the repatriated earnings must be reinvested in the United States pursuant to a domestic reinvestment plan established by our chief executive officer and approved by the

company's board of directors. Certain other criteria in the Jobs Act must be satisfied as well. We may elect to apply this provision to qualifying earnings repatriations in either fiscal 2005 or fiscal 2006. We are in the process of evaluating whether we will repatriate foreign earnings under the repatriation provisions of the Jobs Act.

We are not yet in a position to determine the impact of a qualifying repatriation, should we choose to make one, on our income tax expense for either fiscal 2005 or fiscal 2006, the amount of our indefinitely reinvested foreign earnings, or the amount of our deferred tax liability with respect to foreign earnings.

Liquidity and Capital Resources

	<u>Years Ended December 31,</u>		
	<u>2004</u>	<u>2003</u>	<u>2002</u>
	(\$ in thousands)		
Net cash provided by (used in):			
Operating activities	\$ (340)	\$ 6,269	\$ 725
Investing activities	(7,846)	13,723	(16,037)
Financing activities	(4,216)	(9,647)	(8,116)
Effect of exchange rate changes	180	197	(313)
Net change in cash and cash equivalents	(12,222)	10,542	(23,741)
Cash and cash equivalents—beginning period	24,339	13,797	37,538
Cash and cash equivalents—end of period	12,117	24,339	13,797
Short-term investments—end of period	20,062	14,669	8,205
Total cash, cash equivalents and short-term investments	<u>\$ 32,179</u>	<u>\$ 39,008</u>	<u>\$ 22,002</u>

We consider cash and cash equivalents, and short-term investments as liquid and available for use. Short-term investments are comprised of government bonds and high-grade commercial debt instruments. Also included in short-term investments is our investment in common stock of Finisar Corporation, a United States publicly-traded company. As of December 31, 2004, our principal sources of liquidity were \$32.2 million in cash and cash equivalents and short-term investments, excluding restricted deposits.

Cash and cash equivalents and short-term investments, excluding \$2.7 million and \$3.7 million for our investment in Finisar common stock as of December 31, 2004 and December 31, 2003, respectively, decreased \$5.8 million to \$29.5 million as of December 31, 2004 compared with \$35.3 million as of December 31, 2003. The combined decrease in cash and cash equivalents and short-term investments was primarily due to payments of long-term debt of \$4.5 million, purchase of machinery and equipment of \$0.9 million, and the continual funding of our operations.

The decrease in operating cash flow in 2004, as compared with 2003, was primarily the result of the absence during 2003 of certain non-cash charges of \$9.5 million on the disposal of our discontinued opto-electronics business and \$2.1 million on impairment of investments, a slower rate of decrease in inventories of \$3.9 million, partially offset by an improvement to our net loss of \$13.6 million.

Net accounts receivable decreased by \$2.3 million, or 35.9%, to \$4.0 million as of December 31, 2004 compared with \$6.3 million as of December 31, 2003. The decrease reflects lower fourth quarter 2004 sales compared with the same period in 2003, better collections from customers and an establishment of a sales returns reserve of \$745,000 recorded in the first quarter of 2004.

Net inventories decreased \$7.6 million, or 31.6% to \$16.5 million as of December 31, 2004 compared with \$24.1 million as of December 31, 2003. We adopted a strategy of using inventory to conserve cash beginning in 2001. During 2004, we had a \$2.1 million inventory valuation charge due to excess and obsolete inventory. We do not expect to maintain the same rate of net inventory decrease in 2005 as we experienced in 2004.

Net cash used by investing activities of \$7.8 million for the year ended December 31, 2004 included purchases of property and equipment of \$2.1 million primarily used to transfer production capacity to China for the substrate division, and purchases of high grade investment securities with maturities of less than two years totaling \$25.9 million. This was partially offset by sales of high grade investment securities totaling \$19.1 million and a decrease in our restricted deposits of \$1.1 million

We do not have any plans to initiate any major new capital spending projects in 2005. We are currently completing certain projects at our China facilities. We expect to invest approximately \$5.0 million in capital projects in 2005. We believe that our existing and planned facilities and equipment are sufficient to fulfill current and expected future orders.

Net cash used in financing activities of \$4.2 million for the year ended December 31, 2004 consisted of payments of \$4.5 million related to long-term borrowings, partially offset by proceeds of \$270,000 as a result of purchases of our common stock by employees under our employee stock compensation programs.

In December 2004, we reached a final settlement of our litigation with Sumitomo Electric Industries, Ltd. (SEI), which includes a global intellectual property cross-licensing agreement. We recorded a charge of approximately \$1.4 million in the quarter ended September 30, 2004 in connection with this settlement. Under the terms of the settlement, we made a payment to SEI in the amount of Japanese Yen one hundred and forty-seven million (¥147,000,000) on January 4, 2005, and we will make on-going royalty payments through 2012 on certain products sold by AXT in Japan. Subsequent to that payment, SEI dropped the litigation in Japan and we abandoned the interference proceedings in the U.S.

We believe that we have adequate cash and investments to meet our needs over the next 12 months. If our sales decrease, however, our ability to generate cash from operations will be adversely affected which could adversely affect our future liquidity, require us to use cash at a more rapid rate than expected, and require us to seek additional capital. There can be no assurance that such additional capital will be available or, if available it will be at terms acceptable to us. Cash from operations could be affected by various risks and uncertainties, including, but not limited to those set forth below under "Risks Related to Our Business."

Off-Balance Sheet Arrangements

We have never entered into any off-balance sheet financing arrangements and have never established any special purpose entities. We have not entered into any options on non-financial assets.

We have entered into contracts to supply several large customers with GaAs wafers. The contracts guaranteed delivery of a certain number of wafers between January 1, 2001 and December 31, 2004 with a current contract value of \$130,000. The contract sales prices are subject to review quarterly and can be adjusted in the event that raw material prices change. In the event of non-delivery of the determined wafer quantities in any monthly delivery period, we could be subject to non-performance penalties of between 5% and 10% of the value of the delinquent monthly deliveries. We have not received any claims for non-performance penalties due to non-delivery. As of December 31, 2004, we have met all of its current delivery obligations under these contracts and expects to continue to meet delivery requirements during the remainder of the contract terms.

We indemnify certain customers for attorney fees and damages and costs awarded against these parties in certain circumstances if our products are found to infringe certain patents and they are sued by the patent holder and awarded damages. There are limits on and exceptions to our potential liability for indemnification relating to intellectual patent infringement claims. We cannot estimate the amount of potential future payments, if any, that we might be required to make as a result of these agreements. To date, we have not paid any claim or been required to defend any action related to our indemnification obligations, and accordingly, we have not accrued any amounts for such indemnification obligations. However, we may record charges in the future as a result of these indemnification obligations.

Contractual Obligations

Our main Fremont, California manufacturing facility is financed by long-term borrowings, which were refinanced by taxable variable rate revenue bonds in 1998. These bonds mature in 2023 and bear interest at a variable rate that was 2.49% as of December 31, 2004. The bonds are traded in the public market. Repayment of principal and interest under the bonds is supported by a letter of credit from our bank and is paid on a quarterly basis. We have the option to redeem the bonds in whole or in part during their term. As of December 31, 2004, \$8.05 million was outstanding under these bonds.

As of December 31, 2004, the credit facility maintained by us with a bank included a letter of credit supporting repayment of our industrial bonds with an outstanding amount of approximately \$8.2 million. We have pledged and placed certain investment securities with an affiliate of the bank as additional collateral for this facility. We have also pledged certain investments for a credit facility for our workers compensation insurance policy for portions of 2003. Accordingly, \$8.2 million of our cash and short-term investments are restricted.

We lease certain office space, manufacturing facilities and property under long-term operating leases expiring at various dates through March 2013. On March 11, 2003, we completed the sale of our property located at 4281 Technology Drive, Fremont, California, for \$6.3 million. Net cash proceeds from the sale were \$5.2 million. The gain incurred by us on this transaction was less than \$15,000. Under the terms of the sale agreement, we have agreed to lease back the property for a ten-year period. Accordingly, on March 11, 2003, we signed an operating lease for this property through March 2013. Total rent expenses under these operating leases were approximately \$1.3 million, \$1.2 million and \$0.9 million for years ended December 31, 2004, 2003 and 2002, respectively. We have a purchase obligation with a third party vendor to purchase \$1.3 million of equipment towards which we have paid a deposit of \$300,000, leaving a net purchase obligation of \$1.0 million.

The following table summarizes our contractual obligations as of December 31, 2004 (in thousands):

Contractual Obligations	Payments Due by Period				
	Total	Less than 1 year	1-3 years	4-5 years	More than 5 years
Long-term debt obligations	\$ 8,050	\$ 450	\$ 1,420	\$ 900	\$ 5,280
Operating lease obligations	6,837	1,319	2,299	1,486	1,733
Purchase obligations	1,017	1,017	—	—	—
Total	<u>\$ 15,904</u>	<u>\$ 2,786</u>	<u>\$ 3,719</u>	<u>\$ 2,386</u>	<u>\$ 7,013</u>

We have made strategic investments in private companies located in China in order to gain access to raw materials at competitive costs that are critical to our substrate business. We are currently negotiating a new joint venture investment in China for a Germanium business opportunity, and upon the fulfillment of certain conditions, we may invest up to \$1.0 million in the new joint venture in 2005.

Risks Related to Our Business

We may incur claims or other liabilities or obligations related to our failure to follow requirements for testing of products and provision of testing data and information relating to customer requirements. Additionally, customers may cancel or reduce future shipments in response to these failures.

During the first quarter of 2004 we determined that we had not followed requirements for testing of products and provision of testing data and information relating to customer requirements. We notified affected customers concerning our findings, however, there can be no assurance that we will not incur customer claims or other liabilities or obligations in connection with this matter, nor, if we receive any such claims, that we will not have to restate results from prior periods. In addition, revenue in future periods

may be adversely impacted if customers decide not to order from us as a result of this disclosure. We experienced several cancellations of future orders by customers pending further information regarding enhancements to our product testing and quality control systems. In addition, some customers are requiring additional qualification of our China operations before placing future orders with us. We cannot be sure that we will not receive additional cancellations of orders by other customers, or fail to win expected future orders from customers, as a result of our disclosure of our investigation conclusions, or that our customers will qualify our China operations and place future orders with us.

Because of power shortages in China, we may have to temporarily close our China operations, which would adversely impact our ability to manufacture our products, meet customer orders, and result in reduced revenues.

The Chinese government faced a power crunch over the summer of 2004 and reported that power demand in 24 provinces outstripped supply in peak periods during the first four months of 2004. Instability in electrical supply caused sporadic outages among residential and commercial consumers. As a result, the Chinese government implemented tough measures in 2004 to ease the energy shortage which is expected to last at least through 2005. Provinces imposed power brownouts during 2004 to reduce electricity demand and some companies in Beijing were ordered to give their employees a week off to ease the pressure on power supply. The plants, most of which are state-owned, were closed and reopened on a staggered schedule to reduce power consumption during the capital's hottest months during 2004. As a result we closed most of our operations for a week in late July 2004 in conformance with this policy. Some shortages have already been reported in 2005 and the power shortages may be more severe than during 2004. If we are required to make additional temporary closures of our Beijing and joint venture operations during 2005, we may be unable to manufacture our products, and would then be unable to meet customer orders except from inventory on hand. As a result, we could lose sales, adversely impacting our revenues, and our relationships with our customers could suffer, impacting our ability to generate future sales. In addition, if power is shut off at our Beijing operations at any time, either voluntarily or as a result of unplanned brownouts, during certain phases of our manufacturing process including our crystal growth phase, the work in process may be ruined and rendered unusable, causing us to incur expense that will not be covered by revenue, and negatively impacting our cost of goods sold and gross margins. We are attempting to partially mitigate the potential effects of power outages by building inventory during early 2005 in anticipation of power outages during the summer. This inventory build is prepared to accommodate forecast demand rather specific customer orders. If the inventory we build is not ordered by customers, we may have to scrap these products and incur a cost which will reduce our gross margins.

Our operating results depend in large part on further customer acceptance of our existing substrate products manufactured in China.

As we are now manufacturing only in China, if the shift of our substrate manufacturing operations to China is to be successful, we will need our customers to qualify products manufactured in China. If we are unable to achieve qualifications for these products, our China facility will be underutilized, our investments in China will not be recouped and we will be unable to lower our costs by moving to China. We may lose sales of our products to competitors who are not manufacturing in China, or whose operations in China have already been qualified by customers. If customers do not fully qualify our China production, we may lose additional customers and fail to achieve revenue growth.

Furthermore, some customers have reduced their orders from us until our surface quality is as good and consistent as that offered by competitors. As a result, some customers are now allocating their requirements for compound semiconductor substrates across more competitors and we believe that we have lost revenue and market share as a result of these customer decisions, which we may be unable to recover. If we are unable to retain our market share, our revenue and performance will decline.

Problems Incurred by Our Joint Ventures or Venture Partners Could Result in a Material Adverse Impact on Our Financial Condition or Results of Operations

We have invested in five joint venture operations in China that produce products including 99.99% pure gallium (4N Ga), high purity gallium, arsenic, germanium, germanium dioxide, paralytic boron nitride (pBN) crucibles, and boron oxide. We purchase the materials produced by these ventures for our use and sell other portions of their production to third parties. Our ownership interest in these entities ranges from 25 percent to 88 percent. We consolidate the three ventures in which we own a majority interest and employ equity accounting for the two joint ventures in which we have a 25 percent interest. Several of these ventures occupy facilities within larger facilities owned and/or operated by one of the other venture partners. Several of these venture partners are engaged in other manufacturing activities at or near the same facility. In some facilities, we share access to certain functions, including water, treatment of hazardous waste or air quality treatment. If any of our joint venture partners in any of these five ventures experience problems with their operations, disruptions of our joint venture operations could result, having a material adverse effect on the financial condition and results of operation of our joint ventures, and correspondingly on our financial condition or results of operations.

In addition, if any of our joint ventures or venture partners with whom our joint ventures share facilities are deemed to have violated applicable laws, rules or regulations governing the use, storage, discharge or disposal of hazardous chemicals during manufacturing, research and development, or sales demonstrations, the operations of our joint ventures could be adversely affected and we could be subject to substantial liability for clean-up efforts, personal injury and fines or suspension or cessation of our joint venture operations as a result of the actions of the joint ventures or other venture partners. Employees working at the operations of our joint ventures or the operations of any of the other venture partners could bring litigation against us as a result of actions taken at the joint venture or venture partner facilities, even though we are not directly controlling the operations, including actions for exposure to chemicals or other hazardous materials at the facilities of our joint ventures or the facilities of any venture partner that are shared by our joint ventures. If litigation is brought against us, litigation is inherently uncertain and while we would expect to defend ourselves vigorously, it is possible that our business, financial condition, results of operations or cash flows could be affected in any particular period by such litigation if brought against us, particularly if, as a non-Chinese company, litigation with us is deemed advantageous. Even if we are not deemed responsible for the actions of the joint ventures or venture partners, litigation could be costly, time consuming to defend and divert management attention; in addition, pursuit of us could occur if we are deemed to be the most financially viable of the partners.

Going forward, we believe that investing in additional joint ventures will be important to remaining competitive in our marketplace and ensuring a supply of critical raw materials. However, we may not be able to identify complementary joint venture opportunities or, even once opportunities are identified, we may not be able to reach agreement on the terms of the venture with the other venture partners. Additional joint ventures could cause us to incur contingent liabilities or other expenses, any of which could adversely affect our financial condition and operating results.

Since all of our joint venture activity is expected to occur in China, these activities could subject us to a number of risks associated with conducting operations internationally, including:

- Difficulties in managing geographically disparate operations;
- Difficulties in enforcing agreements through non-U.S. legal systems;
- Unexpected changes in regulatory requirements that may limit our ability to export the venture products or sell into particular jurisdictions or impose multiple conflicting tax laws and regulations;
- Political and economic instability, civil unrest or war;

- Terrorist activities that impact international commerce;
- Difficulties in protecting our intellectual property rights, particularly in countries where the laws and practices do not protect proprietary rights to as great an extent as do the laws and practices of the United States;
- Changing laws and policies affecting economic liberalization, foreign investment, currency convertibility or exchange rates, taxation or employment; and
- Nationalization of foreign owned assets, including intellectual property.

Intellectual property infringement claims may be costly to resolve and could divert management attention.

Other companies may hold or obtain patents on inventions or may otherwise claim proprietary rights to technology necessary to our business. The markets in which we compete are comprised of competitors who in some cases hold substantial patent portfolios covering aspects of products that could be similar to ours. We could become subject to claims that we are infringing patent, trademark, copyright or other proprietary rights of others. For example, we have previously been involved in two separate lawsuits alleging patent infringement.

On June 11, 2003, Cree, Inc. filed a complaint in the United States Court for Northern District of California against us alleging patent infringement. The complaint sought damages and injunction against infringement. On July 23, 2003, we filed a counter complaint in the United States Court for Northern District of California, denying any patent infringement and alleging that Cree's actions were intentionally designed to interfere with our prospective business relationships. We reached an agreement with Cree resolving the disputes between us and signed a settlement agreement on March 5, 2004. The resolution of the disputes did not have a material adverse impact on the Company's consolidated financial position or results of operations.

On October 8, 2004, we announced that we had reached a tentative settlement of the litigation in Japan and interference actions in the United States with Sumitomo Electric Industries, Ltd. ("SEI"), which includes a global intellectual property cross-licensing agreement. AXT and SEI finalized this agreement on December 2, 2004. Accordingly, we recorded a charge of approximately \$1.4 million for the quarter ended September 2004 in connection with this settlement, and are expected to make royalty payments on future sales of certain products. The litigation was withdrawn in January, 2005 and we abandoned the interference proceeding.

If we fail to comply with environmental and safety regulations, we may be subject to significant fines or cessation of our operations; in addition, we could be subject to suits for personal injuries caused by hazardous materials.

We are subject to federal, state and local environmental and safety laws and regulations in all of our operating locations, including laws and regulations of China. These laws, rules and regulations govern the use, storage, discharge and disposal of hazardous chemicals during manufacturing, research and development, and sales demonstrations. If we fail to comply with applicable regulations, we could be subject to substantial liability for clean-up efforts, personal injury and fines or suspension or cessation of our operations. In March 2001, we settled a claim made by the California Occupational Safety and Health Administration, or Cal-OSHA, in an investigation primarily regarding impermissible levels of potentially hazardous materials in certain areas of our manufacturing facility in Fremont, California for \$200,415, and during 2004 we were the target of press allegations and correspondence purportedly on behalf of current and/or former employees concerning our environmental compliance programs and exposure of our employees to hazardous materials, and there is a possibility that current and/or former employees may bring litigation against us. Although we have put in place engineering, administrative and personnel protective equipment programs to address these issues, our ability to expand or continue to operate our present locations could be restricted or we could be required to acquire costly remediation equipment or incur other significant expenses. Existing or future changes in laws or regulations in the United States and China may require us to incur significant expenditures or liabilities, or may restrict our operations. In addition, our employees could be exposed to chemicals or other hazardous materials at our facilities and we may be subject to lawsuits seeking damages for wrongful death or personal injuries allegedly caused by exposure to chemicals or hazardous materials at our facilities.

If litigation is brought against us, litigation is inherently uncertain and while we would expect to defend ourselves vigorously, it is possible that our business, financial condition, results of operations or cash flows could be affected in any particular period by such litigation if brought against us.

The semiconductor industry is cyclical and has experienced a downturn which has adversely impacted our operating results.

Our continuing business depends in significant part upon manufacturers of electronic and opto-electronic semiconductor devices, as well as the current and anticipated market demand for such devices and products using such devices. As a supplier to the semiconductor industry, we are subject to the business cycles that characterize the industry. The timing, length and volatility of these cycles are difficult to predict. The semiconductor industry has historically been cyclical because of sudden changes in demand for semiconductors, the manufacturing capacity of these semiconductors and changes in the technology employed in the semiconductors. The rate of changes in demand, including end demand, is high, and the effect of these changes upon us occurs quickly, exacerbating the volatility of these cycles. These changes have affected the timing and amounts of customers' purchases and investments in new technology. These industry cycles create pressure on our revenue, gross margin and net income (loss).

The industry has in the past experienced periods of oversupply that result in significantly reduced demand and prices for semiconductor devices and components, including our products, both as a result of general economic changes and overcapacity. When these periods occur, our operating results and financial condition are adversely affected, and create pressure on our revenue, gross margins and net income. Inventory buildups in telecommunications products and slower than expected sales of computer equipment resulted in overcapacity and led to reduced sales by our customers, and therefore reduced purchases of our products. During periods of weak demand such as those experienced over the past years, customers typically reduce purchases, delay delivery of products and/or cancel orders of component parts such as our products. Increased price competition has resulted, causing pressure on our net sales, gross margin and net income. We experienced cancellations, price reductions, delays and push outs of orders, which have resulted in reduced revenues. If the economic downturn occurred again, further order cancellations,

reductions in order size or delays in orders could occur and would materially adversely affect our business and results of operations. Actions to reduce our costs, such as those we have recently taken, may be insufficient to align our structure with prevailing business conditions. We may be required to undertake additional cost-cutting measures, and may be unable to invest in marketing, research and development and engineering at the levels we believe are necessary to maintain our competitive position. Our failure to make these investments could seriously harm our business.

During periods of increasing demand for semiconductor devices, we must have sufficient manufacturing capacity and inventory to meet customer demand, and must be able to attract, hire, train and retain qualified employees to meet demand. It appears that the semiconductor industry experienced increased demand during 2004. However, we cannot predict neither the sustainability nor rate of a recovery, if any. If we are unable to effectively manage our resources and production capacity during an industry upturn, there could be a material adverse effect on our business, financial condition and results of operations.

Our results of operations may suffer if we do not effectively manage our inventory.

We must manage our inventory of component parts, work-in-process, and finished goods effectively to meet changing customer requirements, while keeping inventory costs down and improving gross margins. Some of our products and supplies have in the past and may in the future become obsolete while in inventory due to changing customer specifications, or become excess inventory due to decreased demand for our products and an inability to sell the inventory within a foreseeable period. Furthermore, if current costs of production increase or sales prices drop below the standard prices at which we value inventory, we may need to take a charge for a reduction in inventory values. We have in the past, including during 2004, had to take inventory valuation and impairment charges. If we are not able to manage successfully our inventory in the future, we may again need to write off un-saleable, obsolete or excess inventory, which could adversely affect our results of operations.

During early 2005 we will increase work-in-process inventory in order to avoid the effects of probable power shortages in China. We will prepare this inventory in accordance with our forecast of demand rather than against specific customer orders. If we do not forecast correctly, customers may not order the inventory we manufacture, and we will incur a cost with no offsetting revenue. Ultimately, we would have to incur a charge for the value of unused inventory.

Decreases in average selling prices of our products may reduce gross margins.

The market for compound semiconductor substrates is characterized by pressures on average selling prices resulting from factors such as increased competition or overcapacity. We may experience price pressures on our products, and if average selling prices decline in the future, our revenues and gross margins could decline. We may be unable to reduce the cost of our products sufficiently to counter the effect of lower selling prices and allow us to keep pace with competitive pricing pressures and our margins could be adversely affected.

The impact of changes in global economic conditions on our customers may cause us to fail to meet expectations, which would negatively impact the price of our stock.

Our operating results can vary significantly based upon the impact of changes in global economic conditions on our customers. More specifically, the macro-economic environment that we faced since late 2000 was more uncertain than in some prior periods, the downturn which began in 2001 lasted longer than expected and materially and adversely affected us and our operating results. The revenue growth and profitability of our business depends on the overall demand for our substrates, and we are particularly dependant on the market conditions for the wireless, solid-state illumination, fiber optics and

telecommunications industries. Because our sales are primarily to major corporate customers whose businesses fluctuate with general economic and business conditions, a softening of demand for products that use our substrates, caused by a weakening economy may result in decreased revenues. Customers may find themselves facing excess inventory from earlier purchases, and may defer or reconsider purchasing products due to the downturn in their business and in the general economy.

Defects in our products could diminish demand for our products.

Our products are complex and may contain defects. We have experienced quality control problems with some of our products which caused customers to return products to us, reduce orders for our products, or both. If we continue to experience quality control problems, or experience these or other problems in new products, customers may cancel or reduce orders or purchase products from our competitors and sales of our products could decline. Defects in our products could cause us to incur higher manufacturing costs and suffer product returns and additional service expenses, all of which could adversely impact our operating results.

If new products developed by us contain defects when released, our customers may be dissatisfied and we may suffer negative publicity or customer claims against us, lose sales or experience delays in market acceptance of our new products.

If we have low product yields, the shipment of our products may be delayed and our operating results may be adversely impacted.

Our products are manufactured using complex technologies, and the number of usable substrates we can produce can fluctuate as a result of many factors, including:

- impurities in the materials used;
- contamination of the manufacturing environment;
- substrate breakage;
- equipment failure, power outages or variations in the manufacturing process; and
- performance of personnel involved in the manufacturing process.

If our yields decrease, our revenue could decline if we are unable to produce needed product on time while our manufacturing costs remain fixed, or could increase. We have experienced product shipment delays and difficulties in achieving acceptable yields on both new and older products, and delays and poor yields have adversely affected our operating results. We may experience similar problems in the future and we cannot predict when they may occur or their severity. In particular, many of our manufacturing processes are new and are still being refined, which can result in lower yields.

If we do not successfully develop new products to respond to rapidly changing customer requirements, our ability to generate revenue, obtain new customers, and retain existing customers may suffer.

Our success depends on our ability to offer new products and product features that incorporate leading technology and respond to technological advances. In addition, our new products must meet customer needs and compete effectively on quality, price and performance. The life cycles of our products are difficult to predict because the markets for our products are characterized by rapid technological change, changing customer needs and evolving industry standards. If our competitors introduce products employing new technologies or performance characteristics, our existing products could become obsolete and unmarketable. During the past two years, we have seen our competitors selling more substrates manufactured using a crystal growth technology similar to ours, which has eroded our technological differentiation. Other companies, including Triquent, are actively developing substrate materials that could

be used to manufacture devices that could provide the same high-performance, low-power capabilities as GaAs- and InP-based devices at competitive prices. If these substrate materials or VGF-derived products are successfully developed and semiconductor device manufacturers adopt them, demand for our GaAs substrates could decline and our revenue could suffer.

The development of new products can be a highly complex process, and we may experience delays in developing and introducing new products. Any significant delays could cause us to fail to timely introduce and gain market acceptance of new products. Further, the costs involved in researching, developing and engineering new products could be greater than anticipated. If we fail to offer new products or product enhancements or fail to achieve higher quality products, we may not generate sufficient revenue to offset our development costs and other expenses or meet our customers' requirements.

Intense competition in the markets for our products could prevent us from increasing revenue and sustaining profitability.

The markets for our products are intensely competitive. We face competition for our substrate products from other manufacturers of substrates, such as Freiberger, Hitachi Cable, Japan Energy and Sumitomo Electric and from semiconductor device manufacturers that produce substrates for their own use, and from companies, such as Triquent, that are actively developing alternative materials to GaAs and some semiconductor devices are being marketed using these materials. We believe that at least two of our competitors are shipping high volumes of GaAs substrates manufactured using a technique similar to our VGF technique. Other competitors may develop and begin using similar technology. If we are unable to compete effectively, our revenue may not increase and we may be unable to be profitable. We face many competitors that have a number of significant advantages over us, including:

- greater experience in the business;
- more manufacturing experience;
- extensive intellectual property;
- broader name recognition; and
- significantly greater financial, technical and marketing resources.

Our competitors could develop new or enhanced products that are more effective than our products are.

The level and intensity of competition has increased over the past year and we expect competition to continue to increase in the future. Competitive pressures caused by the current economic conditions have resulted in reductions in the prices of our products, and continued or increased competition could reduce our market share, require us to further reduce the prices of our products, affect our ability to recover costs or result in reduced gross margins.

Demand for our products may decrease if our customers experience difficulty manufacturing, marketing or selling their products.

Our products are used as components in our customers' products. Accordingly, demand for our products is subject to factors affecting the ability of our customers to successfully introduce and market their products, including:

- the competition our customers face in their particular industries;
- the technical, manufacturing, sales and marketing and management capabilities of our customers;
- the financial and other resources of our customers; and

- the inability of our customers to sell their products if they infringe third party intellectual property rights.

If demand for the end user applications for which our products are used decreases, or our customers are unable to develop, market and sell their products, demand for our products will decrease.

The financial condition of our customers may affect their ability to pay amounts owed to us.

Many of our customers are facing business downturns that have reduced their cash balances and their prospects. We frequently allow our customers to pay for products we ship to them within 30 to 120 days after delivery. Subsequent to our shipping a product, some customers have been unable to make payments as due, reducing our cash balances and causing us to incur charges to allow for a possibility that some accounts might not be paid. During 2004, a customer of one agent filed for bankruptcy protection. We incurred a charge equal to the amount owed us and believe that there is a substantial likelihood that we will be able to recoup little, if any, of the this amount. Other customers may also be forced to file for bankruptcy. If our customers do not pay their accounts when due, we will be required to incur charges that would reduce our earnings.

We purchase critical raw materials and parts for our equipment from single or limited sources, and could lose sales if these sources fail to fill our needs.

We depend on a limited number of suppliers for certain raw materials, components and equipment used in manufacturing our products, including key materials such as quartz tubing, polishing solutions, and paralytic boron nitride. Although several of these raw materials are purchased from suppliers in whom we hold an ownership interest, we generally purchase these materials through standard purchase orders and not pursuant to long-term supply contracts and no supplier guarantees supply of raw materials or equipment to us. If we lose any of our key suppliers, our manufacturing efforts could be significantly hampered and we could be prevented from timely producing and delivering products to our customers. We have in the past experienced delays obtaining critical raw materials and spare parts, including gallium, due to shortages of these materials. Although we hope to alleviate some of these delays and shortages as a result of our interests in our joint ventures, we may experience delays due to shortages of materials and may be unable to obtain an adequate supply of materials. These shortages and delays could result in higher materials costs and cause us to delay or reduce production of our products. If we have to delay or reduce production, we could fail to meet customer delivery schedules and our revenue and operating results could suffer.

We have made and may continue to make strategic investments in raw materials suppliers, which may not be successful and may result in the loss of all or part of our investment.

Through fiscal 2004, we have recorded investments in raw material suppliers in China, that provide us with opportunities to gain supply of key raw materials that are important to our substrate business. These affiliates each have a market beyond that provided by us. We do not have influence over all of these companies, each of which is located in China, and in some we have made only a strategic, minority investment. We may not be successful in achieving the financial, technological or commercial advantage upon which any given investment is premised, and we could end up losing all or part of our investment.

The loss of one or more of our key substrate customers would significantly hurt our operating results.

A small number of substrate customers have historically accounted for a substantial portion of our total revenue. Our top five customers represented 30.1%, 28.9%, and 31.4% of product revenue for the years ended December 31, 2004, 2003, and 2002, respectively. We expect that a significant portion of our future revenue will continue to be derived from a limited number of substrate customers. Our customers

are not obligated to purchase a specified quantity of our products or to provide us with binding forecasts of product purchases. In addition, our customers may reduce, delay or cancel orders at any time without any significant penalty, and during the past year, we have experienced slower bookings, significant push outs and cancellation of orders from some customers. In addition, several of our previously large customers have stopped operations entirely. If we lose a major customer or if a customer cancels, reduces or delays orders, our revenue would decline. In addition, customers that have accounted for significant revenue in the past may not continue to generate revenue for us in any future period. Any delay in scheduled shipments of our products could cause revenue to fall below our expectations and the expectations of market analysts or investors, causing our stock price to decline.

Our substrate products have a long qualification cycle that makes it difficult to plan our expenses and forecast our results.

Customers typically place orders with us for our substrate products three months to a year or more after our initial contact with them. The sale of our products may be subject to delays due to our customers' lengthy internal budgeting, approval and evaluation processes. During this time, we may incur substantial expenses and expend sales, marketing and management efforts while the customers evaluate our products. These expenditures may not result in sales of our products. If we do not achieve anticipated sales in a period as expected, we may experience an unplanned shortfall in our revenue. As a result, we may not be able to cover expenses, causing our operating results to vary. In addition, if a customer decides not to incorporate our products into its initial design, we may not have another opportunity to sell products to this customer for many months or even years. In the current competitive and economic climate, the average sales cycle for our products has lengthened even further and is expected to continue to make it difficult to accurately forecast our future sales. We anticipate that sales of any future substrate products will also have lengthy sales cycles and will, therefore, be subject to risks substantially similar to those inherent in the lengthy sales cycle of our current substrate products.

If we are unable to protect our intellectual property, we may lose valuable assets or incur costly litigation.

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. However, we believe that, due to the rapid pace of technological innovation in the markets for our products, our ability to establish and maintain a position of technology leadership also depends on the skills of our development personnel.

Despite our efforts to protect our intellectual property, a third party could develop products or processes similar to ours. Our means of protecting our proprietary rights may not be adequate and our competitors may independently develop similar technology, duplicate our products or design around our patents. We believe that at least two of our competitors have begun to ship GaAs substrates produced using a process similar to our VGF technique. Our competitors may also develop and patent improvements to the VGF technology upon which we rely, and thus may limit any exclusivity we enjoy by virtue of our patents or trade secrets.

It is possible that pending or future United States or foreign patent applications made by us will not be approved, that our issued patents will not protect our intellectual property, or that third parties will challenge the ownership rights or the validity of our patents. In addition, the laws of some foreign countries may not protect our proprietary rights to as great an extent as do the laws of the United States and it may be more difficult to monitor the use of our intellectual property. Our competitors may be able to legitimately ascertain non-patented proprietary technology embedded in our systems. If this occurs, we may not be able to prevent the development of technology substantially similar to ours.

We may have to resort to costly litigation to enforce our intellectual property rights, to protect our trade secrets or know-how or to determine their scope, validity or enforceability. Enforcing or defending our proprietary technology is expensive, could cause us to divert resources and may not prove successful. Our protective measures may prove inadequate to protect our proprietary rights, and if we fail to enforce or protect our rights, we could lose valuable assets.

For example, we have recently been involved in litigation with Sumitomo Electric Industries, Ltd. (“SEI”) in Japan as well as interference actions in the United States. We and SEI approved a settlement of this litigation during the fourth quarter of 2004 and the litigation was withdrawn and we abandoned the interference proceeding. We incurred an initial charge of approximately \$1.4 million and will have to pay ongoing royalties to SEI on certain of our products.

We derive a significant portion of our revenue from international sales, and our ability to sustain and increase our international sales involves significant risks.

Our revenue growth depends in part on the expansion of our international sales and operations. International sales represented 79% and 66% of our total revenue for fiscal years ended December 31, 2004 and 2003, respectively. We expect that sales to customers outside the U.S. will continue to represent a significant portion of our revenue, particularly sales to customers in Asia.

Currently, an increasing percentage of our sales are to customers headquartered in Asia. Certain manufacturing facilities and suppliers are also located outside the U.S. Managing our global operations presents challenges, including periodic regional economic downturns, trade balance issues, varying business conditions and demands, political instability, variations in enforcement of intellectual property and contract rights in different jurisdictions, differences in the ability to develop relationships with suppliers and other local businesses, changes in U.S. and international laws and regulations including U.S. export restrictions, fluctuations in interest and currency exchange rates, the ability to provide sufficient levels of technical support in different locations, cultural differences, shipping delays and terrorist acts or acts of war, among other risks. Many of these challenges are present in China, which represents a large potential market for semiconductor equipment and where we anticipate significant opportunity for growth. Global uncertainties with respect to: (i) economic growth rates in various countries; (ii) sustainability of demand for electronics products; (iii) capital spending by semiconductor manufacturers; (iv) price weakness for certain semiconductor devices; and (v) political instability in regions where we have operations may also affect our business, financial condition and results of operations.

Our dependence on international sales involves a number of risks, including:

- changes in tariffs, import or export restrictions and other trade barriers;
- unexpected changes in regulatory requirements;
- longer periods to collect accounts receivable;
- changes in export license requirements;
- political and economic instability;
- unexpected changes in diplomatic and trade relationships; and
- foreign exchange rate fluctuations.

Our sales are denominated in U.S. dollars, except for sales to our Japanese and some Taiwanese customers, which are denominated in Japanese yen. Thus, increases in the value of the U.S. dollar could increase the price of our products in non-U.S. markets and make our products more expensive than competitors’ products in these markets. Also, denominating some sales in Japanese yen subjects us to fluctuations in the exchange rates between the U.S. dollar and the Japanese yen. The functional currencies

of our Japanese and Chinese subsidiaries are the local currencies. We incur transaction gains or losses resulting from consolidation of expenses incurred in local currencies for these subsidiaries, as well as in translation of the assets and liabilities of these assets at each balance sheet date. If we do not effectively manage the risks associated with international sales, our revenue, cash flows and financial condition could be adversely affected.

We need to continue to improve or implement our systems, procedures and controls and may not receive favorable attestation of our internal control systems by our independent registered public accounting firm.

The new requirements adopted by the Securities and Exchange Commission in response to the passage of the Sarbanes-Oxley Act of 2002 will require annual review and evaluation of our internal control systems, and attestation of these systems by our independent accountants. We are currently reviewing our internal control procedures and considering further documentation of such procedures that may be necessary. Although the guidelines for the evaluation and attestation of internal control systems have been finalized, the evaluation and attestation processes are new and untested. Therefore, we can give no assurances that our systems will satisfy the new requirements of the Securities and Exchange Commission or that we will receive a favorable review and attestation by our independent registered public accounting firm.

In the past, periods of rapid growth and expansion has strained our management and other resources. The expansion of our manufacturing capacity and the shift of manufacturing operations to China placed and continue to place a significant strain on our operations and management resources. We recently upgraded our inventory control systems and may implement additional systems relating to consolidation of our financial results. If we fail to manage these changes effectively, our operations may be disrupted.

To manage our business effectively, we may need to implement additional and improved management information systems, further develop our operating, administrative, financial and accounting systems and controls, add experienced senior level managers, and maintain close coordination among our executive, engineering, accounting, marketing, sales and operations organizations.

Legislative actions, higher insurance costs and potential new accounting pronouncements are likely to cause our general and administrative expenses to increase and impact our future financial position and results of operations.

In order to comply with rules and regulations adopted pursuant to the Sarbanes-Oxley Act of 2002 by the SEC, as well as changes to listing standards adopted by NASDAQ, and accounting changes adopted affecting accounting for stock-based compensation we may be required to increase our internal controls, hire additional personnel and additional outside legal, accounting and advisory services, all of which will cause our general and administrative costs to increase. Insurers may increase premiums as a result of the high claims rates they incurred over the past year. Changes in the accounting rules, including legislative and other rules to account for employee stock options as a compensation expense among others, could materially increase the expense that we report under generally accepted accounting principles and adversely affect our operating results.

If we fail to manage periodic contractions, we may utilize our cash balances and our existing cash and cash equivalent balances could decline.

We anticipate that our existing cash resources will fund any anticipated operating losses, purchases of capital equipment and provide adequate working capital for the next twelve months. However, our liquidity is affected by many factors including, among others, the extent to which we pursue additional capital expenditures, the level of our production, and other factors related to the uncertainties of the industry and global economies. If we fail to manage our contractions successfully we may draw down our

cash reserves, which would adversely affect our operating results and financial condition, reduce our value and may impinge our ability to raise debt and equity funding in the future, at a time when we may be required to raise additional cash. Accordingly, there can be no assurance that events in the future will not require us to seek additional capital, or, if so required, that such capital will be available on terms acceptable to us, if at all. As part of our effort to reduce costs, we may lose key staff, production resources, and technology that we will need to grow when end markets recover. These events could reduce our ability to grow profitably as markets recover.

We anticipate that our existing cash resources will fund any anticipated operating losses, purchases of capital equipment and provide adequate working capital for the next twelve months. Our liquidity is affected by many factors including, among others, the extent to which we pursue additional capital expenditures, the level of our production efforts, and other factors related to the uncertainties of the industry and global economies. Accordingly, there can be no assurance that events in the future will not require us to seek additional capital sooner, or, if so required, that such capital will be available on terms acceptable to us if at all.

Changes in China's political, social and economic environment may affect our financial performance.

Our financial performance may be affected by changes in China's political, social and economic environment. The role of the Chinese central and local governments in the Chinese economy is significant. Chinese policies toward economic liberalization, and laws and policies affecting technology companies, foreign investment, currency exchange rates and other matters could change, resulting in greater restrictions on our ability to do business and operate our manufacturing facilities in China. Any imposition of surcharges or any increase in Chinese tax rates could hurt our operating results. The Chinese government could revoke, terminate or suspend our license for national security and similar reasons without compensation to us. If the government of China were to take any of these actions, we would be prevented from conducting all or part of our business. Any failure on our part to comply with governmental regulations could result in the loss of our ability to manufacture our products in China.

China has from time to time experienced instances of civil unrest and hostilities. Confrontations have occurred between the military and civilians. Events of this nature could influence the Chinese economy, result in nationalization of foreign-owned operations such as ours, and could negatively affect our ability to operate our facilities in China.

A reoccurrence of Severe Acute Respiratory Syndrome (SARS) or the outbreak of a different contagious disease may adversely impact our manufacturing operations and some of our key suppliers and customers.

The majority of our substrate manufacturing activities are conducted in China. In addition, we source key raw materials, including gallium, from our joint ventures and other suppliers in China. The 2003 SARS outbreak was most notable in China and a small number of cases were reported in 2004. One employee at our LED production facility in China contracted SARS in late April 2003 prompting us to close the facility for ten days. There was no significant impact to our ability to fill customer orders. If there were to be another outbreak of SARS or a different contagious disease and if our employees contracted the disease, we may be required to temporarily close our manufacturing operations. Similarly, if one of our key suppliers is required to close for an extended period, we may not have enough raw material inventory to continue manufacturing operations. In addition, while we possess management skills among our China staff that enable us to maintain our manufacturing operations with minimal on-site supervision from our US-based staff, our business could also be harmed if travel to or from Asia and the United States is restricted or inadvisable, as it was during parts of 2003. None of our substrate competitors is as dependent on manufacturing facilities in China as we are. If our manufacturing operations were closed for a significant period, we could lose revenue and market share during that period which would depress our financial performance and could be difficult to recapture. Finally, if one of our key customers is required

to close for an extended period, we may not be able to ship product to them, our revenue would decline and our financial performance would suffer.

The effect of terrorist threats and actions on the general economy could decrease our revenues.

The United States continues to be on alert for terrorist activity. The potential near- and long-term impact terrorist activities may have in regards to our suppliers, customers and markets for our products and the U.S. economy are uncertain. There may be embargos of ports or products, or destruction of shipments or our facilities, or attacks that affect our personnel. There may be other potential adverse effects on our operating results due to a significant event that we cannot foresee. Since we perform substantially all of our manufacturing operations in China, and a significant portion of our customers are located outside of the United States, terrorist activity or threats against US-owned enterprise are a particular concern to us.

Any future acquisitions may disrupt our business, dilute stockholder value or distract management attention.

As part of our strategy, we may consider acquisitions of, or significant investments in, businesses that offer products, services and technologies complementary to ours. Acquisitions entail numerous risks, including:

- we may have difficulty assimilating the operations, products and personnel of the acquired businesses;
- our ongoing business may be disrupted;
- we may incur unanticipated costs;
- our management may be unable to manage the financial and strategic position of acquired or developed products, services and technologies;
- we may be unable to maintain uniform standards, controls, procedures, and policies; and
- our relationships with employees and customers may be impaired as a result of any integration.

For example, we incurred substantial costs in connection with our acquisition of Lyte Optronics in May 1999, including the assumption of approximately \$10.0 million of debt, which was subsequently repaid, resulting in a decline of cash available. We also incurred consistent operating losses for the business following the acquisition, and have discontinued all operations and sold the related assets acquired in our acquisition of Lyte Optronics during 2003.

To the extent that we issue shares of our stock or other rights to purchase stock in connection with any future acquisitions, dilution to our existing stockholders will result and our earnings per share may suffer. Any future acquisitions may not generate additional revenue or provide any benefit to our business.

If any of our facilities is damaged by actions such as fire, explosion, or natural disaster, we may not be able to manufacture our products.

The ongoing operation of our manufacturing and production facilities in China is critical to our ability to meet demand for our products. If we are not able to use all or a significant portion of our facilities for prolonged periods for any reason, we will not be able to manufacture products for our customers. For example, a natural disaster, fire or explosion caused by our use of combustible chemicals and high temperatures during our manufacturing processes would render some or all of our facilities inoperable for an indefinite period of time. Actions outside of our control, such as earthquakes, could also damage our facilities, rendering them inoperable. If we are unable to operate our facilities and manufacture our products, we will lose customers and revenue and our business will be harmed.

Unpredictable fluctuations in our operating results could disappoint analysts or our investors, which could cause our stock price to decline.

We have not over the past year been able to sustain growth, and may not be able to return to historic growth levels in the current economic environment. Our net loss in 2002 was the largest in our history and our losses continued during 2003 and 2004.

We have and may continue to experience significant fluctuations in our revenue and earnings. Our quarterly and annual revenue and operating results have varied significantly in the past and may vary significantly in the future due to a number of factors, including:

- our ability to develop, manufacture and deliver high quality products in a timely and cost-effective manner;
- decline in general economic conditions or downturns in the industry in which we compete;
- fluctuations in demand for our products;
- expansion of our manufacturing capacity;
- expansion of our operations in China;
- limited availability and increased cost of raw materials;
- the volume and timing of orders from our customers, and cancellations, push outs and delays of customer orders;
- fluctuation of our manufacturing yields;
- decreases in the prices of our competitors' products;
- costs incurred in connection with any future acquisitions of businesses or technologies; and
- increases in our expenses, including expenses for research and development.

Due to these factors, we believe that period-to-period comparisons of our operating results may not be meaningful indicators of our future performance. Our operating results have over the past year at times been below the expectations of securities analysts or investors. If this occurs again in future periods, the price of our common stock could decline or fluctuate.

A substantial percentage of our operating expenses are fixed in the short term and we may be unable to adjust spending to compensate for an unexpected shortfall in revenues. As a result, any delay in generating revenue could cause our operating results to be below the expectations of market analysts or investors, which could also cause our stock price to fall.

Our stock price has been and may continue to be volatile.

Our stock price has fluctuated significantly since we began trading on the NASDAQ National Market. For the twelve months ended December 31, 2004, the high and low closing sales prices of our common stock were \$4.68 and \$1.05, respectively. A number of factors could cause the price of our common stock to continue to fluctuate substantially, including:

- actual or anticipated fluctuations in our quarterly or annual operating results;
- changes in expectations about our future financial performance or changes in financial estimates of securities analysts;
- announcements of technological innovations by us or our competitors;

- new product introduction by us or our competitors;
- large customer orders or order cancellations; and
- the operating and stock price performance of comparable companies.

In addition, the stock market in general has experienced extreme volatility that often has been unrelated to the operating performance of particular companies. These broad market and industry fluctuations may adversely affect the trading price of our common stock, regardless of our actual operating performance.

We have adopted certain anti-takeover measures that may make it more difficult for a third party to acquire us.

Our board of directors has the authority to issue up to 2,000,000 shares of preferred stock and to determine the price, rights, preferences and privileges of those shares without any further vote or action by the stockholders. The rights of the holders of common stock will be subject to, and may be adversely affected by, the rights of the holders of any preferred stock that may be issued in the future. The issuance of shares of preferred stock, while potentially providing desirable flexibility in connection with possible acquisitions and for other corporate purposes, could have the effect of making it more difficult for a third party to acquire a majority of our outstanding voting stock. We have no present intention to issue shares of preferred stock.

On April 24, 2001, our board of directors adopted a preferred stock purchase rights plan intended to guard against certain takeover tactics. The adoption of this plan was not in response to any proposal to acquire us, and the board is not aware of any such effort. The existence of this plan could also have the effect of making it more difficult for a third party to acquire a majority of our outstanding voting stock. In addition, certain provisions of our certificate of incorporation may have the effect of delaying or preventing a change of control, which could adversely affect the market price of our common stock.

In addition, provisions in our amended and restated certificate of incorporation and bylaws may have the effect of delaying or preventing a merger, acquisition or change of control of us, or changes in our management, including:

- the division of our board of directors into three separate classes, each with three year terms;
- the right of our board to elect a director to fill a space created by a board vacancy or the expansion of the board;
- the ability of our board to alter our bylaws;
- the ability of our board to authorize the issuance of up to 2,000,000 shares of blank check preferred stock; and
- the requirement that only our board or the holders of at least 10% of our outstanding shares may call a special meeting of our stockholders.

Furthermore, because we are incorporated in Delaware, we are subject to the provisions of Section 203 of the Delaware General Corporation Law. These provisions prohibit large stockholders, in particular those owning 15% or more of the outstanding voting stock, from consummating a merger or combination with a corporation unless:

- 6 2/3% of the shares of voting stock not owned by these large stockholders approve the merger or combination, or
- the board of directors approves the merger or combination or the transaction which resulted in the large stockholder owning 15% or more of our outstanding voting stock.

Item 7A. Quantitative and Qualitative Disclosures about Market Risk

Foreign Currency Risk

We use short-term forward exchange contracts for hedging purposes to reduce the effects of adverse foreign exchange rate movements. We have purchased foreign exchange contracts to hedge against certain trade accounts receivable denominated in Japanese yen. The change in the fair value of the forward contracts is recognized as part of the related foreign currency transactions as they occur. As of December 31, 2004, we had no outstanding commitments with respect to foreign exchange contracts.

Interest Rate Risk

Cash and cash equivalents earning interest and certain variable rate debt instruments are subject to interest rate fluctuations. The following table sets forth the probable impact of a 10% change in interest rates (in thousands):

Instrument	Balance as of December 31, 2004	Current Interest Rate	Projected Annual Interest Income/ (Expense)	Proforma 10% Interest Rate Decline Income/(Expense)	Proforma 10% Interest Rate Increase Income/(Expense)
Cash and cash equivalents	\$12,117	0.50%	\$ 61	\$ 55	\$ 67
Investment in debt instruments	25,322	1.40	523	470	575
Long-term debt	(8,050)	2.49	(200)	(180)	(220)
			<u>\$ 384</u>	<u>\$ 345</u>	<u>\$ 422</u>

Equity Risk

We also maintain minority investments in private and publicly traded companies. These investments are reviewed for other than temporary declines in value on a quarterly basis. Reasons for other than temporary declines in value include whether the related company would have insufficient cash flow to operate for the next twelve months, significant changes in the operating performance and changes in market conditions. In 2004, we recorded \$210,000 in charges in connection with an impairment write-down of our investments. In 2003, we recorded \$2.0 million in charges to write-down our investment in two private U.S. companies. As of December 31, 2004, the minority investments we continue to hold totaled \$0.4 million.

Item 8. Consolidated Financial Statements and Supplementary Data

Selected Quarterly Results of Operations

The following table sets forth unaudited quarterly results in dollars and percentages for the eight quarters ended December 31, 2004. We believe that all necessary adjustments, consisting only of normal recurring adjustments, have been included in the amounts stated below to present fairly such quarterly information. The operating results for any quarter are not necessarily indicative of results for any subsequent period.

	Quarters Ended							
	Dec. 31, 2004	Sept. 30, 2004	June 30, 2004	Mar. 31, 2004	Dec. 31, 2003	Sept. 30, 2003	June 30, 2003	Mar. 31, 2003
Revenue	\$ 7,623	\$ 8,531	\$ 9,524	\$ 9,776	\$ 9,129	\$ 8,529	\$ 8,519	\$ 8,536
Cost of revenue	7,000	10,767	8,695	9,243	8,342	8,029	7,844	8,263
Gross profit (loss)	623	(2,236)	829	533	787	500	675	273
Operating expenses:								
Selling, general and administrative	3,120	2,468	3,203	2,770	2,502	2,654	2,819	2,500
Research and development	391	397	350	341	289	301	368	379
Impairment charges	—	210	—	—	—	—	—	—
Restructuring costs	73	158	1,077	—	—	—	—	—
Total operating expenses	3,584	3,233	4,630	3,111	2,791	2,955	3,187	2,879
Loss from operations	(2,961)	(5,469)	(3,801)	(2,578)	(2,004)	(2,455)	(2,512)	(2,606)
Interest expense	63	60	58	109	96	145	108	117
Other (income) and expense, net	(212)	(380)	113	(167)	15	(3)	1,269	(231)
Loss from continuing operations before provision for income taxes	(2,812)	(5,149)	(3,972)	(2,520)	(2,115)	(2,597)	(3,889)	(2,492)
Provision (benefit) for income taxes	(106)	40	97	40	—	—	—	—
Loss from continuing operations	(2,706)	(5,189)	(4,069)	(2,560)	(2,115)	(2,597)	(3,889)	(2,492)
Discontinued operations:								
Gain (loss) from discontinued operations	250	—	222	—	—	(1,591)	(2,747)	(1,825)
Gain (loss) on disposal	194	225	—	—	—	1,625	(11,100)	—
Benefit for income taxes	—	—	—	—	—	—	—	—
Gain (loss) from discontinued operations	444	225	222	—	—	34	(13,847)	(1,825)
Net loss	\$ (2,262)	\$ (4,964)	\$ (3,847)	\$ (2,560)	\$ (2,115)	\$ (2,563)	\$ (17,736)	\$ (4,317)

Other consolidated financial statements and supplementary data required by this item are set forth at the pages indicated at Item 15(a).

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

On June 23, 2004 we dismissed PricewaterhouseCoopers LLP (“PwC”) as our independent registered public accounting firm. The audit reports of PwC on our consolidated financial statements for each of past two years did not contain an adverse opinion or a disclaimer of opinion and were not qualified or modified as to uncertainty, audit scope or accounting principles. The decision to change accountants was approved by our Audit Committee of the Board of Directors. In connection with its audits for the two recent fiscal years ending on December 31, 2003 and through June 18, 2004, there were no disagreements with PwC on any matter of accounting principles or practices, financial statement disclosure or auditing scope or procedures which disagreements, if not resolved to PwC’s satisfaction, would have caused PwC to make reference to such disagreement in their report on the financial statements for such years.

During the two fiscal years ending on December 31, 2003 and through June 18, 2004, there were no reportable events as defined in Item 304(a)(1)(v)(A), (B), (C) or (D) of Regulation S-K, except that, in its letter to the Audit Committee Members dated June 7, 2004, in connection with the review of the financial statements for the quarter ended March 31, 2004, PwC noted that as part of our implementation of our Code of Business Conduct and Ethics, we learned, and informed PwC, of certain failures to comply with requirements for product testing and the provision of testing data and information relating to requirements of certain customers. Our investigation into the product testing practices and procedures conducted, with the assistance of outside counsel, confirmed that certain customer requirements were not being complied with.

PwC indicated that it believed that the condition that enabled the deficiency to exist, including the lack of an effective monitoring and operational oversight function in this area, was a material weakness as defined in AU 325, *Communication of Internal Control Related Matters Noted In An Audit* (AU 325) of the *AICPA Professional Standards*. PwC recommended that we implement specific measures to ensure greater operational controls and compliance with customer requirements. Company management did not disagree with the suggestions made by PwC.

The Company engaged Burr, Pilger & Mayer LLP as its independent registered public accounting firm as of June 23, 2004. During the two fiscal years ending on December 31, 2003 and through the date of their engagement by us, we did not consult with Burr, Pilger & Mayer LLP regarding either (i) the application of accounting principles to a specified transaction, either completed or proposed, or the type of audit opinion that might be rendered on our financial statements, and neither a written report was provided to us or oral advice was provided that Burr, Pilger & Mayer LLP concluded was an important factor considered by us in reaching a decision as to the accounting, auditing or financial reporting issue; or (ii) any matter that was either the subject of a disagreement, as that term is defined in Item 304(a)(1)(iv) of Regulation S-K and the related instructions to Item 304 of Regulation S-K, or a reportable event, as that term is defined in Item 304(a)(1)(v) of Regulation S-K.

Item 9A. Controls and Procedures

Evaluation of disclosure controls and procedures. Under the supervision and with the participation of our management, our Interim Chief Executive Officer and Chief Financial Officer have evaluated the effectiveness of our disclosure controls and procedures, as such term is defined under Rule 13a-15(e) promulgated under the Securities Exchange Act of 1934, as amended. Based upon that evaluation, our Interim Chief Executive Officer and our Chief Financial Officer concluded that the our disclosure controls and procedures were effective as of the end of the period covered by this report.

Changes in internal control over financial reporting. As required by Rule 13a-15(d), our management, including our Interim Chief Executive Officer and Chief Financial Officer, also conducted an evaluation of our internal control over financial reporting to determine whether any changes occurred during the period covered by this report that have materially affected, or are reasonably likely to materially affect, our

internal control over financial reporting. Based on that evaluation, there has been no such change during the period covered by this report.

Limitations of the effectiveness of internal control. A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the internal control system are met. Because of the inherent limitations of any internal control system, no evaluation of controls can provide absolute assurance that all control issues, if any, within a company have been detected. Notwithstanding these limitations, our disclosure controls and procedures are designed to provide reasonable assurance of achieving their objectives. Our Interim Chief Executive Officer and Chief Financial Officer have concluded that our disclosure controls and procedures are, in fact, effective at the “reasonable assurance” level.

Item 9B. *Other Information*

None.

PART III

The United States Securities and Exchange Commission (“SEC”) allows us to include information required in this report by referring to other documents or reports we have already or will soon be filing. This is called “Incorporation by Reference.” We intend to file our definitive proxy statement pursuant to Regulation 14A not later than 120 days after the end of the fiscal year covered by this report, and certain information therein is incorporated in this report by reference.

Item 10. *Directors and Executive Officers of the Registrant.*

The information required by this item pursuant to Item 401 of Regulation S-K concerning directors is incorporated by reference to the information in the section entitled “Proposal No. 1, Election of Directors” in the Proxy Statement.

The information required by this item pursuant to Item 401 of Regulation S-K concerning executive officers is incorporated by reference to the section entitled “Proposal No.1 Election of Directors” and “Executive Compensation and Other Matters” in the Proxy Statement.

The information required by this item pursuant to Item 405 of Regulation S-K concerning compliance with Section 16(a) of the Securities Exchange Act of 1934, as amended, is incorporated by reference to information in the section entitled “Security Ownership of Certain Holders—Section 16(a) Beneficial Ownership Reporting Compliance” in the Proxy Statement.

The Board of Directors of AXT, Inc. has adopted a code of ethics that applies to our principal executive officers, principal financial officer, and corporate controller, as well as other employees. A copy of this code of ethics has been posted on our Internet website at www.axt.com. Any amendments to, or waivers from, a provision of our code of ethics that applies to our principal executive officer, principal financial officer, controller, or persons performing similar functions and that relates to any element of the code of ethics enumerated in paragraph (b) of Item 406 of Regulation S-K shall be disclosed by posting such information on our website.

Item 11. *Executive Compensation.*

The information required by this Item is incorporated herein by reference to information set forth in our definitive Proxy statement to be filed in connection with our annual meeting of stockholders to be held on June 28, 2005, under the section entitled “Executive Compensation and Other Matters.”

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

The information required by this Item is incorporated herein by reference to information set forth in our definitive Proxy statement to be filed in connection with our annual meeting of stockholders to be held on June 28, 2005, under the section entitled “Security Ownership of Certain Beneficial Owners and Management and Equity Compensation Plan Information.”

Item 13. *Certain Relationships and Related Transactions*

Since January 2002, there has not been, nor is there currently proposed, any transaction or series of similar transactions to which we were or are to be a party in which the amount involved exceeds \$60,000, and in which any director, executive officer or holder of more than 5% of any class of our voting securities or members of that person’s immediate family had or will have a direct or indirect material interest other than the transactions described below.

We entered into an operating lease in July 2001 for warehouse space in Fremont, CA with 4160 Business Center, LLC, a real estate holding company, in which Davis Zhang, the president of our China

Operations, is the sole shareholder. Lease payments to 4160 Business Center, LLC were approximately \$484,000 for the year ended December 31, 2002 and \$121,000 for the three months ended March 31, 2003. In April of 2003, Mr. Zhang sold this warehouse to a party unrelated to us. We began leasing this warehouse from the new owner on the date of sale. Mr. Zhang will continue to hold a \$3.7 million note on the property through April 2005.

Item 14. *Principal Accountant Fees and Services*

The information required by this Item is incorporated herein by reference to information set forth in our definitive Proxy statement to be filed in connection with our annual meeting of stockholders to be held on June 28, 2005, under the section entitled "Principal Accounting Firm Fees."

PART IV

Item 15. Exhibits and Financial Statement Schedules

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

(1) Financial Statements:

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

<u>Report of Independent Registered Public Accounting Firm, Burr, Pilger & Mayer LLP</u>	52
<u>Report of Independent Registered Public Accounting Firm, PricewaterhouseCoopers LLP</u>	53
<u>Consolidated Balance Sheets</u>	54
<u>Consolidated Statements of Operations</u>	55
<u>Consolidated Statements of Stockholders' Equity</u>	56
<u>Consolidated Statements of Cash Flows</u>	57
<u>Notes to Consolidated Financial Statements</u>	58

(2) Financial Statement Schedules

All schedules have been omitted because the required information is not applicable or because the information required is included in the consolidated financial statements or notes thereto.

(b) Exhibits

See Index to Exhibits attached elsewhere to this Form 10-K. The exhibits listed in the accompanying Index to Exhibits are filed as part of, or incorporated by reference into, this report on Form 10-K.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and Board of Directors of AXT, Inc.:

We have audited the accompanying consolidated balance sheet of AXT, Inc. and subsidiaries (the Company) as of December 31, 2004, and the related consolidated statements of operations, stockholders' equity and cash flows for the year then ended. These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements 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 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 audit provides a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of AXT, Inc. and subsidiaries as of December 31, 2004, and the results of their operations and their cash flows for the year then ended, in conformity with accounting principles generally accepted in the United States of America.

/s/ BURR, PILGER & MAYER LLP

Burr, Pilger & Mayer LLP
Palo Alto, California
February 4, 2005

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders of AXT, Inc.:

In our opinion, the accompanying consolidated balance sheet as of December 31, 2003 and the related consolidated statements of operations, stockholders' equity and cash flows for each of the two years in the period ended December 31, 2003 present fairly, in all material respects, the financial position, results of operations and cash flows of AXT, Inc. and its subsidiaries at December 31, 2003 and for each of the two years in the period ended December 31, 2003, in conformity with accounting principles generally accepted in the United States of America. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits of these statements 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 of financial statements includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

/s/ PRICEWATERHOUSECOOPERS LLP

PricewaterhouseCoopers LLP
San Jose, California
March 5, 2004

AXT, INC.
CONSOLIDATED BALANCE SHEETS

	<u>December 31,</u>	
	<u>2004</u>	<u>2003</u>
	<u>(In thousands, except per share data)</u>	
ASSETS		
Current assets		
Cash and cash equivalents	\$ 12,117	\$ 24,339
Short-term investments	20,062	14,669
Accounts receivable, net of allowance of \$1,087 and \$4,304 as of December 31, 2004 and 2003, respectively	4,034	6,297
Inventories, net	16,462	24,083
Prepaid expenses and other current assets	2,523	1,575
Assets held for sale	1,250	1,000
Total current assets	<u>56,448</u>	<u>71,963</u>
Property, plant and equipment	19,045	21,795
Restricted deposits	8,215	9,302
Other assets	3,832	3,963
Total assets	<u>\$ 87,540</u>	<u>\$ 107,023</u>
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities		
Accounts payable	\$ 1,895	\$ 2,638
Accrued liabilities	3,920	3,227
Accrued compensation and related charges	715	1,012
Accrued restructuring costs	552	—
Customer prepayments	130	994
Current portion of long-term debt	450	3,694
Income taxes payable	2,925	3,063
Total current liabilities	<u>10,587</u>	<u>14,628</u>
Long-term debt, net of current portion	7,600	8,842
Other long-term liabilities	1,336	1,255
Total liabilities	<u>19,523</u>	<u>24,725</u>
Commitments and contingencies (Note 18)		
Stockholders' equity:		
Preferred stock, \$0.001 par value; 2,000 shares authorized; 883 shares issued and outstanding as of December 31, 2004 and 2003, respectively	3,532	3,532
Common stock, \$0.001 par value; 70,000 shares authorized; 23,119 and 22,957 shares issued and outstanding as of December 31, 2004 and 2003, respectively	23	23
Additional paid-in-capital	155,431	155,155
Accumulated deficit	(92,561)	(78,928)
Other comprehensive income	1,592	2,516
Total stockholders' equity	<u>68,017</u>	<u>82,298</u>
Total liabilities and stockholders' equity	<u>\$ 87,540</u>	<u>\$ 107,023</u>

The accompanying notes are an integral part of these consolidated financial statements.

AXT, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS

	Years Ended December 31,		
	2004	2003	2002
	(In thousands, except per share data)		
Revenue	\$ 35,454	\$ 34,713	\$ 44,865
Cost of revenue	35,705	32,478	53,758
Gross profit (loss)	<u>(251)</u>	<u>2,235</u>	<u>(8,893)</u>
Operating expenses:			
Selling, general and administrative	11,561	10,475	13,860
Research and development	1,479	1,337	2,339
Impairment charges	210	—	14,632
Restructuring costs	1,308	—	—
Total operating expenses	<u>14,558</u>	<u>11,812</u>	<u>30,831</u>
Loss from operations	(14,809)	(9,577)	(39,724)
Interest expense	290	466	437
Other (income) and expense, net	(646)	1,050	12,703
Loss from continuing operations before provision for income taxes	<u>(14,453)</u>	<u>(11,093)</u>	<u>(52,864)</u>
Provision for income taxes	71	—	2,119
Loss from continuing operations	<u>(14,524)</u>	<u>(11,093)</u>	<u>(54,983)</u>
Discontinued operations:			
Gain (loss) from discontinued operations	472	(6,163)	(34,625)
Gain (loss) on disposal	419	(9,475)	—
Benefit for income taxes	—	—	(8,427)
Gain (loss) from discontinued operations	<u>891</u>	<u>(15,638)</u>	<u>(26,198)</u>
Net loss	<u>\$ (13,633)</u>	<u>\$ (26,731)</u>	<u>\$ (81,181)</u>
Basic and diluted income (loss) per share:			
Loss from continuing operations	\$ (0.64)	\$ (0.49)	\$ (2.46)
Gain (loss) from discontinued operations	0.04	(0.69)	(1.17)
Net loss	<u>\$ (0.60)</u>	<u>\$ (1.18)</u>	<u>\$ (3.63)</u>
Shares used in computing basic and diluted net loss per share	23,063	22,781	22,433

The accompanying notes are an integral part of these consolidated financial statements.

AXT, INC.

CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY

	Preferred Stock		Common Stock			Retained Earnings (Accumulated Deficit)	Other Comprehensive Income/(loss)	Total	Comprehensive Income/(loss)
	Shares	Amount	Shares	Amount	Additional Paid In Capital				
(In thousands)									
Balance as of December 31, 2001	883	\$ 3,532	22,383	\$ 22	\$ 153,613	\$ 28,984	\$ 171	\$ 186,322	
Common stock options exercised			88		684			684	
Issuance of Employee Stock Purchase Plan stock			24		166			166	
Comprehensive loss:									
Net loss						(81,181)		(81,181)	\$ (81,181)
Unrealized gain (loss) on marketable securities							(21)	(21)	(21)
Currency translation adjustment							(313)	(313)	(313)
Balance as of December 31, 2002	883	3,532	22,495	22	154,463	(52,197)	(163)	105,657	(81,515)
Common stock options exercised			33		73			73	
Issuance of Employee Stock Purchase Plan stock			404	1	591			592	
Issuance of common stock to board members			25		28			28	
Comprehensive loss:									
Net loss						(26,731)		(26,731)	(26,731)
Unrealized gain (loss) on marketable securities							2,482	2,482	2,482
Currency translation adjustment							197	197	197
Balance as of December 31, 2003	883	3,532	22,957	23	155,155	(78,928)	2,516	82,298	(24,052)
Common stock options exercised			56		153			153	
Issuance of Employee Stock Purchase Plan stock			106		117			117	
Compensation related to stock options					6			6	
Comprehensive loss:									
Net loss						(13,633)		(13,633)	(13,633)
Unrealized gain (loss) on marketable securities							(1,104)	(1,104)	(1,104)
Currency translation adjustment							180	180	180
Balance as of December 31, 2004	<u>883</u>	<u>\$ 3,532</u>	<u>23,119</u>	<u>\$ 23</u>	<u>\$ 155,431</u>	<u>\$ (92,561)</u>	<u>\$ 1,592</u>	<u>\$ 68,017</u>	<u>\$ (14,557)</u>

The accompanying notes are an integral part of these consolidated financial statements.

AXT, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS

	<u>Years Ended December 31,</u>		
	<u>2004</u>	<u>2003</u>	<u>2002</u>
	(In thousands)		
Cash flows from operating activities:			
Net loss	\$ (13,633)	\$ (26,731)	\$ (81,181)
Adjustments to reconcile net loss to cash (used in) provided by operations:			
Depreciation	4,869	5,782	9,493
Deferred income taxes	—	—	2,533
Amortization of marketable securities premium/discount	307	502	403
Stock-based compensation	6	28	—
Non-cash restructuring charge	1,308	—	—
Impairment of property, plant and equipment	—	—	39,086
Impairment of investments	210	2,128	10,577
(Gain) loss on disposal of property, plant and equipment	10	(11)	3,404
(Gain) loss on disposal on discontinued operations	(472)	9,475	—
Changes in assets and liabilities:			
Accounts receivable, net	2,263	232	8,489
Inventories	7,621	11,541	17,989
Prepaid expenses	(948)	2,217	(320)
Other assets	(77)	(137)	(362)
Accounts payable	(743)	(1,590)	1,285
Accrued liabilities	(1,001)	(5,493)	(5,019)
Income taxes	(140)	8,783	(6,091)
Other long-term liabilities	80	(457)	439
Net cash (used in) provided by operating activities	<u>(340)</u>	<u>6,269</u>	<u>725</u>
Cash flows from investing activities:			
Purchases of property, plant and equipment	(2,139)	(2,175)	(14,238)
Proceeds from disposal of property, plant and equipment	10	—	—
Purchases of marketable securities	(25,876)	(5,941)	(17,869)
Proceeds from sale of marketable securities	19,072	13,885	17,070
Proceeds from sale of property and equipment from discontinued opto-electronics business	—	8,600	—
Proceeds from sale of property	—	5,172	—
Decrease (increase) in restricted deposits	1,087	(5,818)	(1,000)
Net cash (used in) provided by investing activities	<u>(7,846)</u>	<u>13,723</u>	<u>(16,037)</u>
Cash flows from financing activities:			
Proceeds from issuance of common stock	270	480	850
Capital lease payments	—	(8,409)	(5,965)
Proceeds from long-term debt borrowings	—	—	3,935
Long-term debt payments	(4,486)	(1,718)	(6,936)
Net cash used in financing activities	<u>(4,216)</u>	<u>(9,647)</u>	<u>(8,116)</u>
Effect of exchange rate changes	180	197	(313)
Net (decrease) increase in cash and cash equivalents	(12,222)	10,542	(23,741)
Cash and cash equivalents at the beginning of the period	24,339	13,797	37,538
Cash and cash equivalents at the end of the period	<u>\$ 12,117</u>	<u>\$ 24,339</u>	<u>\$ 13,797</u>
Non-cash activity:			
Purchases of property, plant and equipment through financing	\$ —	\$ —	\$ 577
Supplemental Disclosures:			
Interest paid	\$ 271	\$ 790	\$ 1,326

The accompanying notes are an integral part of these consolidated financial statements.

AXT, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Note 1. The Company and Summary of Significant Accounting Policies

The Company

AXT, Inc. (“AXT”, “we,” “us,” and “our” refer to AXT, Inc. and all of its subsidiaries) designs, develops, manufactures and distributes high-performance compound semiconductor substrates. Our substrate products are used primarily in wireless communications, lighting display applications, and fiber optic communications. We believe our vertical gradient freeze, or VGF, technique for manufacturing semiconductor substrates provides significant benefits over other methods and enabled us to become a leading manufacturer of such substrates. We pioneered the commercial use of VGF technology to manufacture GaAs substrates and subsequently used VGF technology to manufacture substrates from InP, and Ge. We also manufacture and sell raw materials related to our substrate business through five joint ventures located in China. These joint ventures produce products including 99.99% pure gallium (4N Ga), high purity gallium, arsenic, and germanium, germanium dioxide, paralytic boron nitride (pBN) crucibles, and boron oxide. AXT’s ownership interest in these entities ranges from 25 percent to 88 percent. We consolidate the three ventures in which we own a majority share and employ equity accounting for the two joint ventures in which we have a 25 percent interest. We purchase the materials produced by these ventures for our use and sell other portions of their production to third parties.

On June 24, 2003, our Board of Directors approved management’s plan to exit our unprofitable Opto-electronics business. Substantially all of the assets of this division were sold in September 2003. The decision to dispose of the business was due to continuing operating losses and negative cash flows from the division and significant uncertainty regarding future profitability.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ materially from these estimates.

Principles of Consolidation

The consolidated financial statements include the accounts of AXT and our majority-owned subsidiaries. All significant intercompany accounts and transactions have been eliminated. Investments in business entities in which we do not have control, but have the ability to exercise significant influence over operating and financial policies (generally 20-50% ownership), are accounted for by the equity method.

Fair Value of Financial Instruments

The carrying amounts of certain of our financial instruments including cash and cash equivalents, accounts receivable, short-term investments, accounts payable and accrued liabilities approximate fair value due to their short maturities. The carrying amounts of short-term and long-term debt approximate fair value due to the market interest rates that these debts bear, and interest rates currently available to us.

Reclassifications

Certain reclassifications have been made to the prior years' consolidated financial statements to conform to current year presentation. These reclassifications had no impact on previously reported total assets, stockholders' equity or net loss.

Foreign Currency Translation

The functional currencies of our Japanese and Chinese subsidiaries are the local currencies. Transaction gains and losses resulting from transactions denominated in currencies other than the U.S. dollar or in the functional currencies of our subsidiaries are included in other (income) expense, net for the periods presented.

The assets and liabilities of the subsidiaries are translated at the rates of exchange on the balance sheet date. Revenue and expense items are translated at the average rate of exchange for the period. Gains and losses from foreign currency translation are included in other comprehensive income in stockholders' equity.

Revenue Recognition

We recognize revenue upon the shipment of our products to customers when:

- we have received a signed purchase order placed by our customers,
- the price is fixed or determinable,
- title and risk of ownership has transferred to our customers upon shipment from our dock, receipt at customer's dock, or removal from consignment inventory at customer's location,
- collection of resulting receivables is probable, and
- product returns are reasonably estimable.

We do not provide training, installation or commissioning services. Our terms and conditions of sale do not require customer acceptance. We assess the probability of collection based on a number of factors including past history with the customer and credit worthiness. We provide for future returns based on historical experience, current economic trends and changes in customer demand at the time revenue is recognized. Additionally, we do not provide discounts or other incentives to customers except for one customer with whom we agreed in the fourth quarter of 2004 to provide a certain amount of cumulative discounts on future product purchases from us. We will recognize these discounts in future periods as a reduction in revenue as products are sold to this customer.

Concentration of Credit Risk

Our business is very dependant on the semiconductor industry, which is highly cyclical and has historically experienced downturns as a result of economic changes, overcapacity, and technological advancements. Significant technological changes in the industry or customer requirements, or the emergence of competitive products with new capabilities or technologies, could adversely affect operating results. In addition, a significant portion of our revenues and net income (loss) is derived from international sales. Fluctuations of the United States dollar against foreign currencies and changes in local regulatory or economic conditions, particularly in an emerging market such as China, could adversely affect operating results.

We depend on a single or limited number of suppliers for certain critical materials used in the production of our substrates, such as quartz tubing, and polishing solutions. We generally purchase these materials through standard purchase orders and not pursuant to long-term supply contracts.

Financial instruments that potentially subject us to concentration of credit risk consist primarily of cash equivalents, short-term investments, and trade accounts receivable. We invest primarily in money market accounts, commercial paper instruments, and investment grade securities. We are exposed to credit risks in the event of default by the issuers to the extent of the amount recorded on the balance sheet.

We perform ongoing credit evaluations of our customers' financial condition, and limit the amount of credit extended when deemed necessary, but generally do not require collateral. The credit risk in our accounts receivable is substantially mitigated by our credit evaluation process, reasonably short collection terms and the geographical dispersion of sales transactions. No customer represented greater than 10% of product revenues for the years ended December 31, 2004, 2003 and 2002. Our top five customers represented 30.1%, 28.9%, and 31.4% of product revenue for the years ended December 31, 2004, 2003, and 2002, respectively. We expect that sales to certain customers will continue to comprise a significant portion of our revenue in the future. Two customers each accounted for 10% or more of our trade accounts receivable balance as of December 31, 2004 at 10.1% and 10.0%, and no customer accounted for 10% or more of our trade accounts receivable balance as of December 31, 2003.

Cash Equivalents and Short-Term Investments

We classify our investments in debt and equity securities as available-for-sale securities as prescribed by Statement of Financial Accounting Standards (SFAS) No. 115, "*Accounting for Certain Investments in Debt and Equity Securities.*" We consider investments in highly liquid instruments purchased with an original maturity of three months or less to be cash equivalents. Our short-term investments are reported at fair value as of the respective balance sheet dates with unrealized gains and losses included in accumulated other comprehensive income (loss) within stockholders' equity on the consolidated balance sheet. The amortized cost of securities is adjusted for amortization of premiums and accretion of discounts to maturity. Such amortization is included in other (income) expense, net in the consolidated statements of operations. Realized gains and losses and declines in value judged to be other than temporary on available-for-sale securities are also included in other (income) expense, net in the consolidated statements of operations. The cost of securities sold is based upon the specific identification method.

All available-for-sale securities with a quoted market value below cost (or adjusted cost) are reviewed in order to determine whether the decline is other-than-temporary. Factors considered in determining whether a loss is temporary include the magnitude of the decline in market value, the length of time the market value has been below cost (or adjusted cost), credit quality, and our ability and intent to hold the securities for a period of time sufficient to allow for any anticipated recovery in market value.

Accounts Receivable and Allowance for Doubtful Accounts

Accounts receivable are recorded at the invoiced amount and are not interest bearing. We maintain an allowance for doubtful accounts to reserve for potentially uncollectible trade receivables. We also review our trade receivables by aging category to identify specific customers with known disputes or collectibility issues. We exercise judgment when determining the adequacy of these reserves as we evaluate historical bad debt trends, general economic conditions in the United States and internationally, and changes in customer financial conditions. Uncollectible receivables are recorded as bad debt expense when all efforts to collect have been exhausted and recoveries are recognized when they are received. During 2004, we wrote off \$3.5 million of fully reserved accounts receivable and increased the allowance for doubtful accounts by \$0.3 million.

Inventories

Inventories are stated at the lower of cost (approximated by standard cost) or market. Cost is determined using the weighted average cost method. Our inventory consists of raw materials as well as finished goods and work-in-process that include material, labor and manufacturing overhead costs.

Property, Plant and Equipment

Property, plant and equipment are stated at cost less accumulated depreciation computed using the straight-line method over the estimated economic lives of the assets, which vary from 3 to 27.5 years. Leasehold improvements are amortized over the shorter of the estimated useful life or the term of the lease. We generally depreciate computers and software over 3 years, office equipment, furniture and fixtures over 3 years, automobiles over 5 years, leasehold improvements over 10 years, and buildings over 27.5 years. Repairs and maintenance costs are charged to expense as incurred.

Impairment of Long-Lived Assets

We evaluate the recoverability of property, equipment, and intangible assets in accordance with SFAS No. 144, *Accounting for the Impairment or Disposal of Long-Lived Assets*. When events and circumstance indicate that long-lived assets may be impaired, management compares the carrying value of the long-lived assets to the projection of future undiscounted cash flows attributable to such assets and in the event that the carrying value exceeds the future undiscounted cash flows, we record an impairment charge against income equal to the excess of the carrying value over the asset's fair value.

Segment Reporting

Our business is conducted in a single operating segment. Our interim chief executive officer reviews a single set of financial data that encompasses our entire operations for purpose of making operating decisions and assessing financial performance.

Investments

We invest in equity instruments of privately-held companies for business and strategic purposes. These investments are classified as other assets and are accounted for under the cost method as we do not have the ability to exercise significant influence over their operations. We monitor our investments for impairment and record reductions in carrying value when events or changes in circumstances indicate that the carrying value may not be recoverable. Determination of impairment is highly subjective and is based on a number of factors, including an assessment of the strength of investee's management, the length of time and extent to which the fair value has been less than our cost basis, the financial condition and near-term prospects of the investee, fundamental changes to the business prospects of the investee, share prices of subsequent offerings, and our intent and ability to hold the investment for a period of time sufficient to allow for any anticipated recovery in our carrying value.

Stock-Based Compensation

We have employee stock option plans, which are described more fully in Note 11—Employee Benefit Plans. We account for stock-based employee compensation arrangements using the intrinsic value method as prescribed in Accounting Principles Board Opinion No. 25, *Accounting for Stock Issued to Employees*, and related interpretations thereof. Accordingly, compensation cost for stock options is measured as the excess, if any, of the market price of AXT's stock at the date of grant over the stock option exercise price. The following table illustrates the effect on our net loss and net loss per share if we had applied the fair value recognition provisions of SFAS No. 123, *Accounting for Stock-Based Compensation*, as amended by SFAS No. 148, *Accounting for Stock-Based Compensation Transition and Disclosure*, to options granted

under our stock option plans. For purposes of this pro forma disclosure, the value of the options is estimated using a Black-Scholes option pricing model and amortized to expense over the options' vesting periods. Because the estimated value is determined as of the date of grant, the actual value ultimately realized by the employee may be significantly different.

	<u>Years Ended December 31,</u>		
	<u>2004</u>	<u>2003</u>	<u>2002</u>
	(in thousands, except per share data)		
Net loss to common stockholders:			
As reported	\$ (13,810)	\$ (26,908)	\$ (81,358)
Add: Stock-based employee compensation expense included in net loss as reported	6	28	—
Less: Stock-based compensation expense using the fair value based method, net of related tax	(1,330)	(7,323)	(9,182)
Pro forma net loss	<u>\$ (15,134)</u>	<u>\$ (34,203)</u>	<u>\$ (90,540)</u>
Basic and diluted net loss per share:			
As reported	\$ (0.60)	\$ (1.18)	\$ (3.63)
Pro forma	<u>\$ (0.66)</u>	<u>\$ (1.50)</u>	<u>\$ (4.04)</u>
Shares used in computing basic and diluted net loss per share	<u>23,063</u>	<u>22,781</u>	<u>22,433</u>

The weighted average estimated value of employee stock options granted during 2004, 2003, and 2002 was \$1.17, \$1.70, and \$2.39, respectively. The value of options granted was estimated at the date of grant using the following weighted average assumptions:

	<u>Years Ended December 31,</u>		
	<u>2004</u>	<u>2003</u>	<u>2002</u>
Risk-free interest rate	3.6%	2.9%	3.0%
Expected life (in years)	5.0	5.0	5.0
Dividend yield	—	—	—
Volatility	103.0%	109.0%	101.0%

An analysis of historical information is used to determine the above assumptions, to the extent that historical information is relevant, based on the terms of the grants being issued in any given period. Assumptions related to the Employee Stock Purchase Plan are not presented as the related compensation expense amounts are insignificant.

SFAS No. 123 requires the use of option pricing models that were not developed for use in valuing employee stock options. The Black-Scholes option pricing model was developed for use in estimating the fair value of short-lived exchange-traded options that have no vesting restrictions and are fully transferable. In addition, option pricing models require the input of highly subjective assumptions, including the option's expected life and the price volatility of the underlying stock. Because our employee stock options have characteristics significantly different from those of traded options, and because changes in the subjective input assumptions can materially affect the fair value estimate, in the opinion of management, the existing models do not necessarily provide a reliable single measure of the fair value of employee stock options.

Research and Development

Research and development costs are expensed as incurred.

Advertising Costs

Advertising costs, included in selling and administrative, are expensed as incurred. Advertising costs for the years ended December 31, 2004, 2003, and 2002 were \$51,000, \$53,000 and \$63,000, respectively.

Shipping and Handling costs

We include fees billed to customers and costs incurred for shipping and handling as a component of cost of sales.

Income Taxes

We account for deferred income taxes using the liability method, under which the expected future tax consequences of timing differences between the book and tax basis of assets and liabilities are recognized as deferred tax assets and liabilities. Valuation allowances are established when necessary to reduce net deferred tax assets when management estimates, based on available objective evidence, that it is more likely than not that the future income tax benefit represented by the net deferred tax asset will not be realized.

Comprehensive Income

We report comprehensive income or loss in accordance with the provisions of SFAS No. 130, "*Reporting Comprehensive Income*," which establishes standards for reporting comprehensive income and its components in the financial statements. The components of other comprehensive income (loss) consist of unrealized gains and losses on marketable securities and foreign currency translation adjustments. Comprehensive income (loss) and the components of accumulated other comprehensive income are presented in the accompanying consolidated statements of stockholders' equity.

Net Income (Loss) Per Share

Basic net income (loss) per share is computed using the weighted average number of common shares outstanding during the periods. Diluted net income (loss) per share is computed using the weighted average number of common shares outstanding and potentially dilutive common shares outstanding during the periods. Potentially dilutive common shares consist of common shares issuable upon the exercise of stock options. Potentially dilutive common shares are excluded in net loss periods, as their effect would be anti-dilutive.

Recent Accounting Pronouncements

In June 2004, the Financial Accounting Standards Board (FASB) ratified Emerging Issues Task Force Issue No. 03-1 (EITF 03-1), "*The Meaning of Other-Than-Temporary Impairment and Its Application to Certain Investments*." EITF 03-1 includes new guidance for evaluating and recording impairment losses on debt and equity investments, as well as new disclosure requirements for investments that are deemed to be temporarily impaired. Adoption of the recognition and measurement guidance of EITF 03-1 has been temporarily deferred by the FASB, but the disclosure requirements of EITF 03-1 are effective for our 2004 annual consolidated financial statements. Accordingly, additional disclosures as required by EITF 03-1 are included in Note 3 to the consolidated financial statements.

In October 2004, the FASB issued Emerging Issues Task Force Issue No. 04-1 (EITF 04-1), "*Accounting for Preexisting Relationships between the Parties to a Business Combination*," which provides new guidance for the accounting for preexisting relationships between the parties to a business combination. Additionally, EITF 04-1 includes additional disclosure requirements for business combinations between parties with a preexisting relationship. EITF 04-1 is effective for fiscal periods beginning after October 13,

2004. We do not expect the adoption of EITF 04-1 to have a material impact on our consolidated financial position, results of operations or cash flows.

In November 2004, the FASB issued SFAS No. 151, *Inventory Costs, an amendment of ARB No. 43, Chapter 4*. This Statement amends the guidance in ARB No. 43, Chapter 4, "Inventory Pricing," to clarify the accounting for abnormal amounts of idle facility expense, freight, handling costs, and wasted material (spoilage). Paragraph 5 of ARB 43, Chapter 4, previously stated that "...under some circumstances, items such as idle facility expense, excessive spoilage, double freight, and rehandling costs may be so abnormal as to require treatment as current period charges...." This Statement requires that those items be recognized as current period charges regardless of whether they meet the criterion of "so abnormal." In addition, this Statement requires that allocation of fixed production overheads to the costs of conversion be based on the normal capacity of the production facilities. The provisions of this Statement are effective for inventory costs incurred during fiscal years beginning after June 15, 2005. The adoption of this Statement is not expected to have a material effect on our consolidated financial position, results of operations or cash flows.

In December 2004, the FASB issued SFAS No. 123 revised 2004 (SFAS 123R), *"Share-Based Payment,"* which requires companies to measure and recognize compensation expense for all stock-based payments at fair value. SFAS 123R is effective for all interim periods beginning after June 15, 2005 and, thus, will be effective for us beginning with the third quarter of fiscal 2005. Early adoption is encouraged and retroactive application of the provisions of SFAS 123R to the beginning of the fiscal year that includes the effective date is permitted, but not required. We are currently evaluating the impact of SFAS 123R on our financial position and results of operations. See *Stock-Based Compensation* above for information related to the pro forma effects on our reported net loss and net loss per share when applying the fair value recognition provisions of the previous SFAS No. 123, *"Accounting for Stock-Based Compensation,"* to stock-based employee compensation.

In December 2004, the FASB issued SFAS No. 153 (SFAS 153), *"Exchanges of Nonmonetary Assets—An Amendment of APB Opinion No. 29, Accounting for Nonmonetary Transactions."* SFAS 153 eliminates the exception from fair value measurement for nonmonetary exchanges of similar productive assets in paragraph 21(b) of APB Opinion No. 29, "Accounting for Nonmonetary Transactions," and replaces it with an exception for exchanges that do not have commercial substance. SFAS 153 specifies that a nonmonetary exchange has commercial substance if the future cash flows of the entity are expected to change significantly as a result of the exchange. SFAS 153 is effective for the fiscal periods beginning after June 15, 2005. We do not expect the adoption of SFAS 153 to have a material impact on our consolidated financial position, results of operations or cash flows.

Note 2. Discontinued Operations and Related Assets Held for Sale

In June 2003, we announced the discontinuation of our opto-electronics division, which we had established as part of our acquisition of Lyte Optronics, Inc. in May 1999. The discontinued opto-electronics division manufactured blue, cyan, and green high-brightness light emitting diodes (HBLEDs) for the illumination markets, including full-color displays, wireless handset backlighting and traffic signals, and also manufactured vertical cavity surface emitting lasers (VCSELs) and laser diodes for fiber optic communications and storage area networks. Accordingly, the results of operations of the opto-electronics division have been segregated from continuing operations and are reported separately as discontinued operations in our consolidated statements of operations for all periods presented.

In September 2003, we completed the sale of substantially all of the assets of our opto-electronics business to Lumei Optoelectronics Corp. (Lumei) and Dalian Luming Science and Technology Group, Co., Ltd. for the Chinese Renminbi (RMB) equivalent of \$9.6 million. A portion of the purchase price equal to \$1.0 million was held in escrow to satisfy any claims that the purchaser might make for breaches of

representations or warranties by us. Of this total escrow, \$750,000 could be released after the one year anniversary of the sale of the opto-electronics business and the remainder could be released after the second anniversary of the sale. Given the difficult negotiations we encountered with the acquiring company when negotiating the sale of the opto-electronics business, as well as the historical operating problems of the business, we determined there was significant uncertainty regarding the recoverability of the escrowed amounts. Accordingly, we did not recognize the cash held in escrow in recording the sale of the opto-electronics division. We will only record amounts as and when they are received. To date, we have resolved all claims made against the first \$750,000 held in escrow by the acquiring company, and will record amounts as they are received from the escrow. As of December 31, 2004, approximately \$419,000 was released from escrow and accordingly we recorded a gain on discontinued operations in 2004. In February 2005, we received an additional \$300,000 from escrow which was the remaining portion of the first \$750,000 held in escrow due to us, as we had resolved a claim of approximately \$31,000 in favor of the buyer. The remaining \$250,000 held in escrow will not be released until September 2005, if the buyer makes no claims against it by such date. In the second quarter of 2004, we recorded a gain of \$222,000 as a result of our reversal of accrued liabilities of general and administrative expenses no longer required.

In addition, we retain a building located in Monterey Park, California that we have listed on the market for sale. This asset has been classified as "Assets held for sale" on the consolidated balance sheets as of December 31, 2004 and 2003. In January 2005, we accepted an offer from a real estate developer to purchase the property for net proceeds of approximately \$1.25 million, after deducting estimated commission and selling expenses. We expect the sale to complete by the second quarter of 2005.

Our consolidated financial statements have been presented to reflect the opto-electronics business as a discontinued operation for all periods presented. Operating results of the discontinued operation are as follows (in thousands):

	<u>Years Ended December 31,</u>		
	<u>2004</u>	<u>2003</u>	<u>2002</u>
Revenue	\$ —	\$ 7,245	\$ 18,310
Cost of revenue	—	9,972	20,273
Gross loss	—	(2,727)	(1,963)
Operating expenses:			
Selling, general and administrative	(222)	2,297	4,788
Research and development	—	814	2,529
Impairment charges	—	—	24,454
Total operating expenses	(222)	3,111	31,771
Gain (loss) from operations	222	(5,838)	(33,734)
Other (income) expense, net	(250)	—	—
Interest expense	—	325	891
Gain (loss) from discontinued operations before benefit for			
income taxes and gain (loss) on disposal	472	(6,163)	(34,625)
Income tax benefit	—	—	(8,427)
Gain (loss) on disposal	419	(9,475)	—
Net gain (loss) from discontinued operations	<u>\$ 891</u>	<u>\$ (15,638)</u>	<u>\$ (26,198)</u>

The carrying value of the assets and liabilities of the discontinued opto-electronics business included in the consolidated balance sheets are as follows (in thousands):

	<u>As of December 31,</u>	
	<u>2004</u>	<u>2003</u>
Current assets:		
Cash	\$ 537	\$ 539
Accounts receivable, net	19	250
Assets held for sale	1,250	1,000
Total current assets	1,806	1,789
Other assets	200	200
Total assets	<u>\$2,006</u>	<u>\$1,989</u>
Current liabilities:		
Accounts payable	\$ —	\$ 43
Accrued liabilities	359	1,232
Total liabilities	359	1,275
Net assets	1,647	714
Total liabilities and net assets	<u>\$2,006</u>	<u>\$1,989</u>

Assets held for sale consist of a building and are carried at management's estimated fair value less costs to sell, totaling \$1.25 million and \$1.0 million as of December 31, 2004 and 2003, respectively. We recorded in the fourth quarter 2004 a \$0.25 million market value adjustment after we accepted an offer from a real estate developer to purchase the property for net proceeds of approximately \$1.25 million, after deducting estimated commission and selling expenses in January 2005. We expect the sale to complete by the second quarter of 2005.

Note 3. Cash, Cash Equivalents and Short-Term Investments

Our cash, cash equivalents and short term investments are classified as follows (in thousands):

	December 31, 2004				December 31, 2003			
	Amortized Cost	Gross Unrealized Gain	Gross Unrealized (Loss)	Fair Value	Amortized Cost	Gross Unrealized Gain	Gross Unrealized (Loss)	Fair Value
Classified as:								
Cash	\$ 8,638	\$ —	\$ —	\$ 8,638	\$ 6,843	\$ —	\$ —	\$ 6,843
Cash equivalents:								
Money market fund	1,681	—	—	1,681	2,961	—	—	2,961
US Treasury and agency securities	—	—	—	—	1,498	—	—	1,498
Commercial paper	398	—	—	398	8,387	—	—	8,387
Repurchase agreements	1,400	—	—	1,400	4,650	—	—	4,650
Total cash equivalents	3,479	—	—	3,479	17,496	—	—	17,496
Total cash and cash equivalents	12,117	—	—	12,117	24,339	—	—	24,339
Short-term investments:								
US Treasury and agency securities	10,468	—	(16)	10,452	14,567	18	—	14,585
Asset-backed securities	4,410	—	(25)	4,385	2,506	7	—	2,513
Commercial paper	1,708	—	(1)	1,707	1,300	—	—	1,300
Corporate bonds	8,737	—	(30)	8,707	1,890	8	—	1,898
Corporate equity securities	1,465	1,561	—	3,026	1,115	2,560	—	3,675
Total short-term investments	26,788	1,561	(72)	28,277	21,378	2,593	—	23,971
Total cash, cash equivalents and short-term investments	\$ 38,905	\$ 1,561	\$ (72)	\$ 40,394	\$ 45,717	\$ 2,593	\$ —	\$ 48,310
Contractual maturities on short-term investments:								
Due within 1 year	\$ 21,879			\$ 23,394	\$ 18,190			\$ 20,775
Due after 1 through 5 years	4,909			4,883	3,188			3,196
	\$ 26,788			\$ 28,277	\$ 21,378			\$ 23,971

The short-term investments amounts include \$8.2 million and \$9.3 million recorded as restricted deposits on the consolidated balance sheets as of December 31, 2004 and 2003, respectively.

We manage our short-term investments as a single portfolio of highly marketable securities that is intended to be available to meet our current cash requirements. For the years ended December 31, 2004 and 2003, we had no gross realized gain or loss on sales of our available-for-sale securities.

The gross unrealized losses related to our portfolio of available-for-sale securities were primarily due to a decrease in the fair value of debt securities as a result of an increase in interest rates during 2004. We have determined that the gross unrealized losses on our available-for-sale securities as of December 31, 2004 are temporary in nature. We reviewed our investment portfolio to identify and evaluate investments that have indications of possible impairment. Factors considered in determining whether a loss is temporary include the magnitude of the decline in market value, the length of time the market value has been below cost (or adjusted cost), credit quality, and our ability and intent to hold the securities for a period of time sufficient to allow for any anticipated recovery in market value. The following table provides a breakdown of our available-for-sale securities with unrealized losses as of December 31, 2004 (in thousands):

	In Loss Position < 12 months		Total in Loss Position	
	Fair Value	Gross Unrealized (Loss)	Fair Value	Gross Unrealized (Loss)
Short-term investments:				
US Treasury and agency securities	\$ 9,452	\$ (16)	\$ 9,452	\$ (16)
Assets-backed securities	4,385	(25)	4,385	(25)
Commercial paper	1,312	(1)	1,312	(1)
Corporate bonds	8,706	(30)	8,706	(30)
Total in loss position	<u>\$ 23,855</u>	<u>\$ (72)</u>	<u>\$ 23,855</u>	<u>\$ (72)</u>

Note 4. Inventories, Net

The components of inventory are summarized below (in thousands):

	As of December 31,	
	2004	2003
Inventories:		
Raw materials	\$ 4,416	\$ 7,086
Work in process	10,474	16,027
Finished goods	1,572	970
	<u>\$16,462</u>	<u>\$ 24,083</u>

Note 5. Property, Plant and Equipment

The components of our property, plant and equipment are summarized below (in thousands):

	As of December 31,	
	2004	2003
Property, plant and equipment:		
Land	\$ 1,120	\$ 1,120
Building	15,751	17,180
Machinery and equipment	16,176	8,275
Leasehold improvements	828	443
Construction in progress	634	1,150
	<u>34,509</u>	<u>28,168</u>
Less: accumulated depreciation and amortization	<u>(15,464)</u>	<u>(6,373)</u>
	<u>\$ 19,045</u>	<u>\$ 21,795</u>

Depreciation expenses were \$4.9 million, \$5.8 million, and \$9.5 million for the years ended 2004, 2003, and 2002, respectively.

Note 6. Corporate Affiliates

We have made strategic investments in private companies located in China in order to gain access to raw materials at competitive cost that are critical to our substrate business. We are currently negotiating a new joint venture investment in China for a germanium business opportunity, and upon the fulfillment of certain conditions, we may invest up to \$1.0 million in the new joint venture in 2005. Our corporate affiliates are summarized below (in thousands) :

Affiliate	Investment Balance As of December 31,		Accounting Method	Ownership Percentage
	2004	2003		
Beijing Ji Ya Semiconductor Material Co., Ltd	\$ 1,071	\$ 1,071	Consolidated	51%
Nanjing Jin Mei Gallium Co., Ltd	616	616	Consolidated	88
Beijing BoYu Manufacturing Co., Ltd	409	409	Consolidated	70
Xilingol Tongli Ge Co. Ltd	863	822	Equity	25
Emeishan Jia Mei High Pure Metals Co., Ltd	593	603	Equity	25

The investment balances for the two affiliates accounted for under the equity method are included in other assets in the consolidated balance sheets. We own 25% of the ownership interests in each of these affiliates. These two affiliates are not considered variable interest entities because:

- both affiliates have sustainable businesses of their own;
- our voting power is proportionate to our ownership interests; and
- we only recognize our respective share of the losses and/or residual returns generated by the affiliates if they occur, or both.

We do not have controlling financial interests in either affiliate, do not maintain operational or management control, nor control of the board of directors, and are not required to provide additional investment or financial support to either affiliate.

Undistributed retained earnings relating to our corporate affiliates were \$1.4 million and \$769,000 as of December 31, 2004 and 2003, respectively. Net income (loss) recorded from our corporate affiliates were \$668,000 and (\$92,000) for the years ended December 31, 2004 and 2003, respectively.

Note 7. Investments

We invest in equity instruments of privately-held companies for business and strategic purposes. These investments are classified as other assets in the consolidated balance sheets and are accounted for under the cost method as we do not have the ability to exercise significant influence over their operations. We monitor our investments for impairment and record reductions in carrying value when events or changes in circumstances indicate that the carrying value may not be recoverable. In 2004, we recorded a \$210,000 charge related to impairment in one of these U.S. private companies. In 2003, we recorded \$2.0 million in charges to write-down its investment in two private U.S. companies. As of December 31, 2004, the investments we continue to hold totaled approximately \$392,000.

Note 8. Restructuring Costs

As of December 31, 2004, our restructuring accrual is as follows (in thousands):

Description	Restructuring Accrual as of December 31, 2003	Addition	Payments	Restructuring Accrual as of December 31, 2004
Future lease payments related to abandoned facilities	\$ —			
	—	\$ 845	\$ (327)	\$ 518
Workforce reduction	—	463	(429)	34
Total	\$ —			
	—	\$ 1,308	\$ (756)	\$ 552

During the second quarter of 2004, we announced plans to cease all production activities in the United States and to manufacture our products only in China. In June 2004, we incurred a restructuring charge of \$1.1 million as a result of our decision to close down our remaining manufacturing facilities in the United States. In the third and fourth quarter of 2004, we incurred additional restructuring charges of \$231,000 for a total of \$1.3 million in 2004. These charges comprised costs related to the reduction in work force effected in June 2004, and lease costs associated with the facilities located in California that are no longer required to support production. In aggregate, we eliminated 50 positions, 47 of which are production workers. The above accrued restructuring balance is included in accrued liabilities in the consolidated balance sheet. As of December 31, 2004, we saved approximately \$560,000 in payroll and related expenses. On an annual basis, we anticipate payroll and related expense savings of \$1.5 million. In 2005, we will continue to reduce costs by qualifying new lower cost suppliers, moving more of our administrative functions to China, and streamlining our organization structure and costs in the United States and China to bring them in line with market and product demand.

Note 9. Debt

Credit Facility

As of December 31, 2004, the credit facility maintained by us with a bank included a letter of credit supporting repayment of our industrial bonds with an outstanding amount of \$8.2 million. We have pledged and placed cash and certain investment securities with the trust department of the bank as additional collateral for this facility. Accordingly, \$8.2 million of cash and short-term investments are restricted.

Long-Term Debt

The components of long-term debt are summarized below (in thousands):

	<u>As of December 31,</u>	
	<u>2004</u>	<u>2003</u>
Debenture loan to Bay Area Employment Development Company, guaranteed by the U.S. Small Business Administration, bearing interest at a fixed rate of 7.27%, maturing October 2016	\$ —	\$ 788
Taxable revenue bonds, secured by a letter of credit from a bank, bearing interest at the H15 30 day bond yield for commercial paper which was 2.49% on December 31, 2004, maturing December 2023	8,050	8,450
Notes payable to a bank, secured by certain equipment in China, bearing interest at a fixed rate of 5.49%, maturing December 2004	—	3,298
	<u>8,050</u>	<u>12,536</u>
Less current portion	<u>(450)</u>	<u>(3,694)</u>
	<u>\$7,600</u>	<u>\$ 8,842</u>
Maturities of long-term debt as of December 31, 2004 were as follows:		
2005	\$ 450	
2006	450	
2007	450	
2008	520	
2009	450	
Thereafter	<u>5,730</u>	
	<u>\$ 8,050</u>	

Note 10. Stockholders' Equity

In August 2004, we announced the adoption of a stock repurchase program in accordance with Rule 10b5-1 of the Securities Exchange Act of 1934 to provide for the repurchase of up to \$2 million of our common stock. Repurchases may be made from time to time in the open market during the twelve-month period ending July 31, 2005, at prevailing market prices using our own cash resources. As of December 31, 2004, we had 23.1 million shares of common stock outstanding and none were repurchased in 2004 under this program. In January 2005, 10,000 shares were repurchased.

Note 11. Employee Benefit Plans

Stock Option Plans

In March 1993, our board of directors approved the 1993 Stock Option Plan (1993 Plan), which provided for granting of incentive and non-qualified stock options to our employees and directors. Under the 1993 Plan, 880,000 shares of common stock were authorized for issuance. Options granted under the 1993 Plan were generally for periods not to exceed ten years and were granted at the fair market value of the stock at the date of grant as determined by the board of directors. Options granted under the 1993 Plan generally vested 25% upon grant and 25% each year thereafter, with full vesting occurring on the third anniversary of the grant date. This plan terminated on March 12, 2003.

In July 1997, our board of directors approved the 1997 Stock Option Plan (1997 Plan), which provides for granting of incentive and non-qualified stock options to our employees and directors. Under the 1997 Plan, 5,423,583 shares of common stock have been authorized for issuance. Options granted under the 1997 Plan are generally for periods not to exceed ten years (five years if the option is granted to a 10% stockholder) and are granted at the fair market value of the stock at the date of grant as determined by the

board of directors. Options granted under the 1997 Plan generally vest 25% at the end of one year and 2.1% each month thereafter, with full vesting after four years.

In May 2003, we announced a voluntary stock option exchange program for our employees. Under the program, option holders, excluding our executive officers and independent directors, had the opportunity to cancel outstanding options with an exercise price in excess of \$2.10 per share in exchange for new options to be granted at a future date that was at least six months and one day after the date of cancellation, which was June 30, 2003. The number of shares of common stock subject to the new options was equal to 75% of the number subject to the exchanged options. Under the exchange program, options to purchase an aggregate of 738,027 shares of our common stock, representing approximately 48% of the options that were eligible to be tendered in the offer as of May 27, 2003, were tendered and cancelled. New options will vest at the same rate as the exchanged options and have an exercise price equal to the fair market value of our common stock at the new grant date, which was \$3.11 per share. On December 31, 2003, the Company granted options to purchase an aggregate of 522,754 shares of our common stock in exchange for such tendered options. In 2004, several officers voluntarily cancelled 771,000 options granted to them previously.

The following summarizes our stock option activity under the 1993 Plan and the 1997 Plan, and related weighted average exercise price within each category for each of the years ended December 31, 2002, 2003, and 2004 (in thousands):

	Available For Grant	Number of Options Outstanding	Weighted Average Exercise Price
Balance as of December 31, 2001	1,729	3,314	\$ 19.63
Granted	(1,137)	1,137	3.06
Exercised	—	(24)	6.94
Cancelled	863	(863)	20.10
Balance as of December 31, 2002	1,455	3,564	14.15
Granted	(1,117)	1,117	2.29
Exercised	—	(33)	2.19
Cancelled	2,060	(2,060)	15.64
Balance as of December 31, 2003	2,398	2,588	10.79
Granted	(600)	600	1.51
Exercised	—	(56)	2.73
Cancelled	822	(822)	15.47
Balance as of December 31, 2004	<u>2,620</u>	<u>2,310</u>	\$ 2.70

Information about stock options outstanding as of December 31, 2004 is summarized below (in thousands):

Range of Exercise Prices	Options Outstanding			Options Exercisable	
	Number Outstanding	Weighted Average Remaining Contractual Life (Years)	Weighted Average Exercise Price	Number Exercisable	Weighted Average Exercise Price
\$1.18 - \$ 1.37	435	9.58	\$ 1.24	1	\$ 1.34
\$1.38 - \$ 1.42	463	8.55	1.38	274	1.38
\$1.43 - \$ 2.23	674	8.04	2.15	330	2.18
\$2.24 - \$ 4.99	529	9.07	2.96	317	3.11
\$5.00 - \$41.50	209	3.91	9.78	192	8.86
	<u>2,310</u>	8.29	\$ 2.70	<u>1,114</u>	\$ 3.40

As of December 31, 2004 options to purchase 1,059,533 shares of our common stock were exercisable.

Employee Stock Purchase Plan

In February 1998, our board of directors approved the 1998 Employee Stock Purchase Plan (1998 Purchase Plan). Our stockholders approved the 1998 Purchase Plan in March 1998. As of December 31, 2004, a total of 900,000 shares of our common stock were reserved for issuance under the 1998 Purchase Plan. A total of approximately 789,000 shares were purchased as of December 31, 2004. The 1998 Purchase Plan permits eligible employees to acquire shares of our common stock through payroll deductions. The common stock purchase price was 85% of the lower of the market price of the common stock at the purchase date or the date of offer to the employee. A total of 106,459, 206,375 and 74,262 shares, respectively, of common stock have been issued under the 1998 Purchase Plan for the years ended December 31, 2004, 2003, and 2002, respectively.

Retirement Savings Plan

We have a 401(k) Savings Plan (Savings Plan) which qualifies as a thrift plan under Section 401(k) of the Internal Revenue Code. All full-time U.S. employees are eligible to participate in the Savings Plan after 90 days from the date of hire. In 2005 we changed this to make all full-time Participants may contribute up to 10% of their earnings to the Savings Plan with a discretionary matching amount provided AXT. Our contributions to the Savings Plan were \$177,000, \$191,000, and \$315,000 for the years ended December 31, 2004, 2003 and 2002, respectively.

Note 12. Guarantees

Indemnification Agreements

We enter into standard indemnification arrangements in the ordinary course of business. Pursuant to these arrangements, we indemnify, hold harmless, and agree to reimburse the indemnified parties for losses suffered or incurred by the indemnified party, generally their business partners or customers, in connection with any U.S. patent, or any copyright or other intellectual property infringement claim by any third party with respect to our products. The term of these indemnification agreements is generally perpetual anytime after the execution of the agreement. The maximum potential amount of future payments we could be required to make under these agreements is unlimited. We have never incurred costs to defend lawsuits or settle claims related to these indemnification agreements. As a result, we believe the estimated fair value of these agreements is minimal.

We have entered into indemnification agreements with our directors and officers that may require us to indemnify our directors and officers against liabilities that may arise by reason of their status or service as directors or officers, other than liabilities arising from wilful misconduct of a culpable nature; to advance their expenses incurred as a result of any proceeding against them as to which they could be indemnified; and to obtain directors' and officers' insurance if available on reasonable terms, which we currently have in place.

Product Warranty

We warrant our products for a specific period of time, generally twelve months, against material defects. We provide for the estimated future costs of warranty obligations in cost of sales when the related revenue is recognized. The accrued warranty costs represents the best estimate at the time of sale of the total costs that we expect to incur to repair or replace product parts, which fail while still under warranty. The amount of accrued estimated warranty costs are primarily based on historical experience as to product

failures as well as current information on repair costs. On a quarterly basis, we review the accrued balances and updates the historical warranty cost trends. The following table reflects the change in our warranty accrual during fiscal year 2004 (in thousands):

	<u>Amount</u>
Warranty accrual, beginning of year	\$ —
Charged to cost of sales	135
Actual warranty expenditures	—
Warranty accrual, end of year	<u>\$ 135</u>

In March 2004, we determined that we had not followed certain requirements for testing of products and provision of testing data and information relating to customer requirements for certain shipments made over the past several years. Since April 2004, we have continued to notify the affected customers concerning our findings. We recorded a reserve for sale returns of \$745,000 and believed this was adequate to cover any product returns related to this matter. We are unable to assess the impact that this matter might have, if any, on our future revenues or gross margins. Approximately \$285,000 of the \$745,000 sales returns reserve has been utilized as of December 31, 2004.

Note 13. Income Taxes

The components of the provision (benefit) for income taxes are summarized below (in thousands):

	<u>Years Ended December 31,</u>		
	<u>2004</u>	<u>2003</u>	<u>2002</u>
Current:			
Federal	\$ —	\$ —	\$ (8,841)
Foreign	71	—	—
Total current	<u>71</u>	<u>—</u>	<u>(8,841)</u>
Deferred:			
Federal	—	—	1,301
State	—	—	1,232
Total deferred	<u>—</u>	<u>—</u>	<u>2,533</u>
Total net benefit for income taxes	<u>\$ 71</u>	<u>\$ —</u>	<u>\$ (6,308)</u>

A reconciliation of the effective income tax rates and the U.S. statutory federal income tax rate is summarized below:

	<u>Years Ended December 31,</u>		
	<u>2004</u>	<u>2003</u>	<u>2002</u>
Statutory federal income tax rate	(35.0)%	(35.0)%	(35.0)%
State income taxes, net of federal tax benefits	(1.7)	(1.7)	(2.7)
Unbenefited losses and credits	0.0	0.0	2.8
Change in valuation allowance	30.1	35.8	29.9
Other	<u>7.1</u>	<u>0.9</u>	<u>(2.2)</u>
Effective tax rate	<u>0.5%</u>	<u>0.0%</u>	<u>(7.2)%</u>

Deferred tax assets and liabilities are summarized below (in thousands):

	<u>As of December 31,</u>	
	<u>2004</u>	<u>2003</u>
Deferred tax assets:		
Accruals and reserves not yet deductible	\$ 5,491	\$ 7,624
Net operating loss	32,605	28,170
Credits	4,329	4,212
	<u>42,425</u>	<u>40,006</u>
Deferred tax liabilities:		
State taxes	(151)	(526)
Unrepatriated foreign earnings	(1,239)	(1,239)
Depreciation	(2,270)	(3,634)
	<u>(3,660)</u>	<u>(5,399)</u>
Net deferred tax assets	38,765	34,607
Valuation allowance	(38,765)	(34,607)
Net deferred tax assets	<u>\$ —</u>	<u>\$ —</u>

As of December 31, 2004, we had federal and state net operating loss carryforwards of approximately \$89.5 million and \$39.4 million, respectively, which will expire beginning in 2020 and 2007, respectively. In addition, we had federal tax credit carryforwards of approximately \$1.6 million, which will expire beginning in 2020. We also had state tax credit carryforwards of approximately \$2.7 million which will expire beginning 2008.

The deferred tax assets valuation allowance as of December 31, 2004 is attributed to U.S. federal, and state deferred tax assets, which result primarily from future deductible accruals, reserves, net operating loss carryforwards, and tax credit carryforwards. We believe that, based on a number of factors, the available objective evidence creates sufficient uncertainty regarding our ability to realize the deferred tax assets such that a full valuation allowance has been recorded. These factors include our history of losses, and the lack of carryback capacity to realize deferred tax assets.

In accordance with Section 382 of the Internal Revenue Code, the amounts of and benefits from net operating loss and tax credit carryforwards may be impaired or limited in certain circumstances. Events which cause limitations in the amount of net operating losses or credits that we may utilize in any one year include, but are not limited to, a cumulative ownership change of more than 50% as defined, over a three year period.

Note 14. Net loss per Share

A reconciliation of the numerators and denominators of the basic and diluted net loss per share calculations is as follows (in thousands, except per share data):

	Years Ended December 31,		
	2004	2003	2002
Numerator:			
Loss from continuing operations	\$ (14,524)	\$ (11,093)	\$ (54,983)
Gain (loss) from discontinued operations	891	(15,638)	(26,198)
Less: Preferred stock dividends	(177)	(177)	(177)
Net loss to common stockholders	<u>\$ (13,810)</u>	<u>\$ (26,908)</u>	<u>\$ (81,358)</u>
Denominator:			
Denominator for basic net loss per share—weighted average common shares	23,063	22,781	22,433
Effect of dilutive securities:			
Common stock options	—	—	—
Denominator for dilutive net loss per share	<u>23,063</u>	<u>22,781</u>	<u>22,433</u>
Basic and diluted income (loss) per share:			
Loss from continuing operations	\$ (0.64)	\$ (0.49)	\$ (2.46)
Gain (loss) from discontinued operations	0.04	(0.69)	(1.17)
Net loss to common stockholders	<u>\$ (0.60)</u>	<u>\$ (1.18)</u>	<u>\$ (3.63)</u>
Options excluded from diluted net loss per share as the impact is anti-dilutive	<u>2,310</u>	<u>2,588</u>	<u>3,564</u>

Note 15. Segment Information and Foreign Operations***Segment Information***

We operate in one segment for the design, development, manufacture and distribution of high-performance compound semiconductor substrates and sale of materials. In accordance with SFAS No. 131, "Disclosures about Segments of an Enterprise and Related Information," our chief operating decision-maker has been identified as the Interim Chief Executive Officer, who reviews operating results to make decisions about allocating resources and assessing performance for the company. All material operating units qualify for aggregation under SFAS No. 131 due to their identical customer base and similarities in economic characteristics, nature of products and services, and procurement, manufacturing and distribution processes. Since we operate in one segment, all financial segment and product line information required by SFAS No. 131 can be found in the consolidated financial statements.

Geographical Information

The following table represents revenue amounts (in thousands) reported for products shipped to customers in the corresponding geographic region:

	Years Ended December 31,		
	2004	2003	2002
Product revenue:			
North America*	\$ 7,514	\$ 12,009	\$ 26,208
Europe	6,840	5,638	5,508
Japan	5,156	4,167	3,000
Taiwan	8,397	7,055	4,246
Asia Pacific (excluding Japan and Taiwan)	7,547	5,844	5,903
	<u>\$35,454</u>	<u>\$ 34,713</u>	<u>\$ 44,865</u>

* Primarily the United States

Long-lived assets consist primarily of property, plant and equipment, and are attributed to the geographic location in which they are located. Long-lived assets by geographic region were as follows (in thousands):

	As of December 31,	
	2004	2003
Long-lived assets:		
North America	\$ 7,163	\$ 7,583
Asia Pacific	11,882	14,212
	<u>\$19,045</u>	<u>\$21,795</u>

Significant Customers

No customer represented greater than 10% of product revenues for the years ended December 31, 2004, 2003 and 2002. Our top five customers represented 30.1%, 28.9%, and 31.4% of product revenue for the years ended December 31, 2004, 2003, and 2002, respectively.

Note 16. Foreign Exchange Contracts and Transaction Gains/Losses

We use short-term forward exchange contracts for hedging purposes to reduce the effects of adverse foreign exchange rate movements. We have purchased foreign exchange contracts to hedge against certain trade accounts receivable denominated in Japanese yen. The change in the fair value of the forward contracts is recognized as part of the related foreign currency transactions as they occur. As of December 31, 2004, we had no outstanding commitments with respect to foreign exchange contracts.

We incurred foreign currency transaction exchange gains of \$60,000, \$110,000, and \$19,000 for the years ended December 31, 2004, 2003, and 2002, respectively.

Note 17. Related Party Transactions

Since January 2002, there has not been, nor is there currently proposed, any transaction or series of similar transactions to which AXT was or is to be a party in which the amount involved exceeds \$60,000, and in which any director, executive officer or holder of more than 5% of any class of our voting securities or members of that person's immediate family had or will have a direct or indirect material interest other than the transactions described below.

We entered into an operating lease in July 2001 for warehouse space in Fremont, CA with 4160 Business Center, LLC, a real estate holding company, in which Davis Zhang, the president of our China

Operations, is the sole shareholder. Lease payments to 4160 Business Center, LLC were approximately \$484,000 for the year ended December 31, 2002 and \$121,000 for the three months ended March 31, 2003. In April of 2003, Mr. Zhang sold this warehouse to a party unrelated to us. We began leasing this warehouse from the new owner on the date of sale. Mr. Zhang will continue to hold a \$3.7 million note on the property through April 2005.

Note 18. Commitments and Contingencies

Legal Matters

On June 11, 2003, Cree, Inc. filed a complaint in the United States Court for the Northern District of California against AXT alleging patent infringement. The complaint sought damages and injunction against infringement. On July 23, 2003, we filed a counter complaint in the United States Court for the Northern District of California, denying any patent infringement and alleging that Cree's actions were intentionally designed to interfere with our prospective business relationships. We reached an agreement with Cree resolving the disputes between us and signed a settlement agreement on March 5, 2004. The resolution of the disputes did not have a material adverse impact on our consolidated financial position or results of operations. All parties signed a final release regarding all disputes between them on April 15, 2004.

On October 15, 2004, a purported securities class action lawsuit was filed in the United States Court for the Northern District of California. City of Harper Woods Employees Retirement System v. AXT, Inc. et al., No. C 04 4362 MJJ. The lawsuit names AXT, Inc. and our chief executive officer, China operations, as defendants, and is brought on behalf of a class of all purchasers of our securities from February 6, 2001 through April 27, 2004. The complaint alleges that we announced financial results during this period that were false and misleading. No specific amount of damages is claimed. On February 4, 2005, the Court consolidated the case with a related case making similar allegations, and appointed a lead plaintiff, who will file a consolidated complaint. We believe that there are meritorious defenses against this litigation and intends to vigorously defend it. However, due to the inherent uncertainties of litigation, we cannot accurately predict the ultimate outcome of the litigation. Any unfavorable outcome of the litigation could have an adverse impact on our business, financial condition and results of operations.

On December 2, 2004, we executed an agreement with Sumitomo Electric Industries, Ltd. ("SEI"), a Japanese corporation, to settle litigation commenced by SEI against AXT in Japan alleging infringement of certain SEI patents, and an interference action between an AXT patent and an SEI reissue application brought in the United States. We and SEI entered into a four-year cross-licensing agreement for all intellectual property used by either company related to compound semiconductor substrates, which will expire on December 31, 2008, with the exception of the patents that were the basis for the litigation in Japan and the interference in the U.S. where the license agreement shall last for the life of these patents. Under the terms of the settlement, we made a payment to SEI in the amount of Japanese Yen one hundred and forty-seven million (¥147,000,000) on January 4, 2005, and we will make on-going royalty payments through 2012 on certain products sold by us in Japan. Subsequent to that payment, SEI dropped the litigation in Japan and we abandoned the interference proceedings in the U.S.

Leases

We lease certain office space, manufacturing facilities and property under long-term operating leases expiring at various dates through March 2013. Total rent expenses under these operating leases were \$1.3 million, \$1.2 million and \$0.9 million for the years ended December 31, 2004, 2003 and 2002, respectively. Total minimum lease payments under these leases as of December 31, 2004 are summarized below (in thousands):

	<u>Lease Payment</u>
2005	\$1,319
2006	940
2007	645
2008	714
2009	733
Thereafter	2,486
	<u>\$6,837</u>

Contract Commitment

We have entered into contracts to supply several large customers with GaAs wafers. The contracts guaranteed delivery of a certain number of wafers between January 1, 2001 and December 31, 2004 with a current contract value of \$130,000. The contract sales prices are subject to review quarterly and can be adjusted in the event that raw material prices change. In the event of non-delivery of the determined wafer quantities in any monthly delivery period, we could be subject to non-performance penalties of between 5% and 10% of the value of the delinquent monthly deliveries. We have not received any claims for non-performance penalties due to non-delivery. Partial prepayments received for these supply contracts totaling \$130,000 and \$994,000 are included in accrued liabilities in the accompanying condensed consolidated balance sheets as of December 31, 2004 and 2003, respectively. During the third quarter of 2004, the Company refunded a portion of a prepayment on future purchases of goods and recorded a \$237,000 gain for the amount of deposit forfeited by a private company, which investment was impaired by AXT. As of December 31, 2004, we have met all of our current delivery obligations under these contracts and expect to continue to meet delivery requirements during the remainder of the contract terms.

We are currently negotiating a new joint venture investment in China for a germanium business opportunity, and upon the fulfillment of certain conditions, we may invest up to \$1.0 million to the new joint venture in 2005.

Note 19. Unaudited Quarterly Consolidated Financial Data

	<u>Quarter</u>			
	<u>First</u>	<u>Second</u>	<u>Third</u>	<u>Fourth</u>
	(in thousands, except per share data)			
2003:				
Revenue	\$ 8,536	\$ 8,519	\$ 8,529	\$ 9,129
Gross profit	273	675	500	787
Net loss	(4,317)	(17,736)	(2,563)	(2,115)
Net loss per share, basic and diluted	\$ (0.19)	\$ (0.78)	\$ (0.11)	\$ (0.09)
2004:				
Revenue	\$ 9,776	\$ 9,524	\$ 8,531	\$ 7,623
Gross profit (loss)	533	829	(2,236)	623
Net loss	(2,560)	(3,847)	(4,964)	(2,262)
Net loss per share, basic and diluted	\$ (0.11)	\$ (0.17)	\$ (0.21)	\$ (0.10)

Note 20. Subsequent Event

In January 2005, we accepted an offer from a real estate developer to purchase our Monterey Park facility for net proceeds of approximately \$1.25 million, after deducting estimated commission and selling expenses. This asset has been classified as held for sale on the consolidated balance sheets as of December 31, 2004 and 2003. We expect the sale to be completed in the second quarter of 2005.

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, thereto duly authorized.

AXT, INC.

By: /s/ DONALD L. TATZIN
Donald L. Tatzin
Interim Chief Executive Officer

Date: March 18, 2005

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below hereby constitutes and appoints Donald L. Tatzin and Wilson W. Cheung, and each of them, his true and lawful attorney-in-fact and agent, with full power of substitution, each with power to act alone, to sign and execute on behalf of the undersigned any and all amendments to this Report on Form 10-K, and to perform any acts necessary in order to file the same, with all exhibits thereto and other documents in connection therewith with the Securities and Exchange Commission, granting unto said attorney-in-fact and agent full power and authority to do and perform each and every act and thing requested and necessary to be done in connection therewith, as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming all that said attorney-in-fact and agent, or their or his or her substitutes, shall do or cause to be done by virtue hereof.

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 dates indicated.

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u> /s/ DONALD L. TATZIN </u> Donald L. Tatzin	Interim Chief Executive Officer and Director <i>(Principal Executive Officer)</i>	March 18, 2005
<u> /s/ WILSON W. CHEUNG </u> Wilson W. Cheung	Chief Financial Officer <i>(Principal Financial Officer and Principal Accounting Officer)</i>	March 18, 2005
<u> /s/ JESSE CHEN </u> Jesse Chen	Chairman of the Board of Directors	March 18, 2005
<u> /s/ MORRIS S. YOUNG </u> Morris S. Young	Chief Executive Officer, China Operations and Director	March 18, 2005
<u> /s/ DAVID C. CHANG </u> David C. Chang	Director	March 15, 2005
<u> /s/ LEONARD LEBLANC </u> Leonard LeBlanc	Director	March 18, 2005

AXT, Inc.
EXHIBITS
TO
FORM 10-K ANNUAL REPORT
For the Year Ended December 31, 2004

Exhibit Number	Description
3.1(3)	Restated Certificate of Incorporation
3.2(4)	Certificate of Designation, Preferences and Rights of Series A Preferred Stock (which is incorporated herein by reference to Exhibit 2.1 to the registrant's form 8-K dated May 28, 1999).
3.3(5)	Second Amended and Restated By Laws
4.2(5)	Rights Agreement dated April 24, 2001 by and between AXT, Inc. and ComputerShare Trust Company, Inc.
10.1(1)	Form of Indemnification Agreement for directors and officers.*
10.2(1)	1993 Stock Option Plan and forms of agreements thereunder.*
10.3(1)	1997 Stock Option Plan and forms of agreements thereunder.*
10.5(1)	1998 Employee Stock Purchase Plan and forms of agreements thereunder.*
10.7(2)	Purchase and Sale Agreement by and between Limar Realty Corp #23 and AXT, Inc. dated April 1998.
10.10(3)	Bond Purchase Contract between Dain Rauscher Incorporated and AXT, Inc. dated December 1, 1998.
10.11(3)	Remarketing Agreement between Dain Rauscher Incorporated and AXT, Inc. dated December 1, 1998.
10.15(7)	Reimbursement Agreement between Wells Fargo Bank National Association and AXT, Inc. dated April 7, 2003.
10.16(8)	Asset purchase agreements dated September 4, 2003 by and between Dalian Luming Science and Technology Group, Ltd and AXT, Inc. and by and between Lumei Optoelectronics Corp., AXT, Inc., Lyte Optronics, Inc., Beijing Tongmei Xtal Technology and Xiamen Advanced Semiconductor Co., Ltd.
21.1(1)	List of Subsidiaries.
23.1	Consent of Independent Registered Public Accounting Firm, Burr, Pilger, Mayer LLP.
23.2	Consent of Independent Registered Public Accounting Firm, PricewaterhouseCoopers LLP.
24.1	Power of Attorney (see signature page).
31.1	Certification by Interim Chief Executive Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Certification by Chief Financial Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1	Certification by Interim Chief Executive Officer Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2	Certification by Chief Financial Officer Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.

(1) Incorporated by reference to the exhibit as of the same number as filed with the SEC in our Registration Statement on Form S-1 on March 17, 1998.

- (2) Incorporated by reference to the exhibit as of the same number as filed with the SEC in our Registration Statement on Amendment No. 2 to Form S-1 on May 11, 1998.
- (3) Incorporated by reference to the exhibit as of the same number as filed with the SEC in our Annual Report on Form 10-K for the year ended December 31, 1998
- (4) Incorporated by reference to the exhibit as of the same number as filed with the SEC in our Form 8-K on June 14, 1999
- (5) Incorporated by reference to the exhibit as of the same number as filed with the SEC in our Form 8-K on May 30, 2001
- (6) Incorporated by reference to the exhibit as of the same number as filed with the SEC in our Form 10-Q on November 12, 2002
- (7) Incorporated by reference to the exhibit as of the same number as filed with the SEC in our Form 10-Q on May 9, 2003
- (8) Incorporated by reference to the exhibit as of the same number as filed with the SEC in our Form 10-Q on November 13, 2003

* Indicates a management contract

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statements on Form S-8 (Nos. 333-38858 and 333-67297) of AXT, Inc. of our report dated February 4, 2005, relating to the consolidated financial statements, which appears in this Form 10-K.

/s/ Burr, Pilger & Mayer LLP
Palo Alto, California
March 17, 2005

Exhibit 23.2

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statements on Form S-8 (Nos. 333-38858 and 333-67297) of AXT, Inc. of our report dated March 5, 2004, relating to the financial statements, which appears in this Form 10-K.

/s/ PricewaterhouseCoopers LLP
San Jose, California
March 18, 2005

Exhibit 31.1

CERTIFICATION PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Donald L. Tatzin, Interim Chief Executive Officer of AXT, Inc., certify that:

1. I have reviewed this Annual Report on Form 10-K of AXT, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (c) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 18, 2005

/s/ DONALD L. TATZIN

Donald L. Tatzin

Interim Chief Executive Officer

Exhibit 31.2

CERTIFICATION PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Wilson W. Cheung, Chief Financial Officer of AXT, Inc., certify that:

1. I have reviewed this Annual Report on Form 10-K of AXT, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (c) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 18, 2005

/s/ WILSON W. CHEUNG

Wilson W. Cheung
Chief Financial Officer

EXHIBIT 32.1

**CERTIFICATION PURSUANT TO 18 U.S.C. SECTION 1350, AS ADOPTED
PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Annual Report of AXT, Inc. (the "Company") on Form 10-K for the year ended December 31, 2004, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Donald L. Tatzin, Interim Chief Executive Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 ("Section 906"), that, to the best of my knowledge:

- (1) The Report fully complies with the requirements of section 13(a) of the Securities and Exchange Act of 1934 (15 U.S.C. 78m); and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: March 18, 2005

/s/ DONALD L. TATZIN

Donald L. Tatzin

Interim Chief Executive Officer

EXHIBIT 32.2

**CERTIFICATION PURSUANT TO 18 U.S.C. SECTION 1350, AS ADOPTED
PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Annual Report of AXT, Inc. (the "Company") on Form 10-K for the year ended December 31, 2004, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Wilson W. Cheung, Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 ("Section 906"), that, to the best of my knowledge:

- (1) The Report fully complies with the requirements of section 13(a) of the Securities and Exchange Act of 1934 (15 U.S.C. 78m); and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: March 18, 2005

/s/ WILSON W. CHEUNG

Wilson W. Cheung
Chief Financial Officer
