

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, 2003.

☐ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES
EXCHANGE ACT OF 1934 (NO FEE REQUIRED).

For the transition period from _____ to _____.

Commission file number: 000-26966

ADVANCED ENERGY INDUSTRIES, INC.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of incorporation or organization)

84-0846841
(I.R.S. Employer Identification No.)

1625 Sharp Point Drive, Fort Collins, CO
(Address of principal executive offices)

80525
(Zip Code)

Registrant's telephone number, including area code: (970) 221-4670

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

None

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

Common Stock, \$0.001 par value

(Title of Class)

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

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

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Indicate by check mark whether the Registrant is an accelerated filer (as defined in Exchange Act Rule 12b-2). Yes ☒ No ☐ .

The [approximate] aggregate market value of voting and non-voting stock held by non-affiliates of the registrant was \$183.1 million (A) as of June 30, 2003.

(A) Excludes 19.4 million shares of common stock held by directors and officers, and any stockholders whose ownership exceeds 5% of the shares outstanding, at June 30, 2003. Exclusion of shares held by any person should not be construed to indicate that such person possesses the power, directly or indirectly, to direct or cause the direction of the management or policies of the registrant, or that such person is controlled by or under common control with the registrant.

32,590,201

(Number of shares of Common Stock outstanding as of February 17, 2004)

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive proxy statement for the 2004 Annual Meeting of Stockholders to be held on May 5, 2004, to be filed subsequently, are incorporated by reference into Part III of this Form 10-K.

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CERTIFICATIONS		
	Lease dated January 16, 2003	
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PART I

ITEM 1. BUSINESS

Overview

We incorporated in Colorado in 1981 and reincorporated in Delaware in 1995. In 1995, we effected the initial public offering of our Common Stock. Unless the context otherwise requires, as used in this Form 10-K, references to “Advanced Energy” refer to Advanced Energy Industries, Inc., and references to “we”, “us” or “our” refer to Advanced Energy and its consolidated subsidiaries. Our executive offices are located at 1625 Sharp Point Drive, Fort Collins, Colorado 80525, and our telephone number is 970-221-4670. Our website address is www.advanced-energy.com. We make available, free of charge on our website, our annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and all amendments to these reports as soon as reasonably practicable after filing such reports with, or furnishing them to, the Securities and Exchange Commission (the SEC). Such forms are also available at www.sec.gov.

We design, manufacture and support a group of key components and subsystems primarily for vacuum process systems. Our primary products are complex power conversion and control systems. Our products also control the flow of liquids into the process chambers and provide thermal control and sensing within the chamber. Our customers use our products in plasma-based thin-film processing equipment that is essential to the manufacture of, among other things:

- Semiconductor devices for electronics applications;
- Flat panel displays for hand-held devices, computer and television screens;
- Compact discs, DVDs and other digital storage media;
- Optical coatings for architectural glass, eyeglasses and solar panels; and
- Industrial laser and medical applications.

We also sell spare parts and repair services worldwide through our customer service and technical support organization.

We market and sell our products primarily to large, original equipment manufacturers (OEMs) of semiconductor, flat panel display, data storage and other industrial thin-film manufacturing equipment. Our principal customers include Applied Materials, Inc., Axcelis Technologies, Inc., Lam Research Corporation, Novellus Systems, Inc., ULVAC Technologies, Inc., The Unaxis Corporation and Tokyo Electron Limited. Sales to customers in the semiconductor capital equipment industry comprised 59% of our sales in 2003, 68% in 2002 and 64% in 2001. We sell our products primarily through direct sales personnel to customers in the United States, Europe and Asia, and through distributors in various regions both inside and outside the United States. International sales represented 53% of our sales in 2003, 40% in 2002, and 36% in 2001, although many of our products sold domestically are placed on systems shipped overseas by our customers.

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In 2001, 2002 and much of 2003 the semiconductor capital equipment industry experienced the steepest cutback in capital equipment purchases in industry history. This downturn resulted in a significant decrease in demand for semiconductor capital equipment and related components. Inventory buildups coupled with slower than expected personal electronics sales and slow global economic growth caused semiconductor companies to re-evaluate their capital spending and initiate cost reduction measures. These factors resulted in lower sales and downward gross margin pressure for our products during the periods presented herein. In mid 2003, the semiconductor capital equipment industry entered the early stages of what appears to be a return to higher product demand. We expect future sales to the semiconductor capital equipment industry to represent approximately 55% to 70% of our total revenue, depending upon the strength or weakness of the industry cycles.

Although we are beginning to see indications of increased demand for our products primarily from the semiconductor capital equipment and flat panel display manufacturing industries, we cannot provide any assurance that such revenue levels are sustainable through 2004. We incurred significant operating losses from the second quarter of 2001 through the third quarter of 2003, primarily as a result of lower revenues, and during 2003 due to our duplicative manufacturing facilities as a result of our new China-based manufacturing facility and transition to lower cost, higher quality suppliers primarily located in Asia, or Tier 1 Asian suppliers. We generated positive income from operations of approximately \$300,000 during the fourth quarter of 2003. Over the past eleven quarters, we have been unable to achieve profitability at current revenue levels, but are cautiously optimistic regarding an industry recovery in the short-term. At the end of 2002, we established a goal of reducing our operating cash flow breakeven point, while maintaining the flexibility to increase our spending level if projected revenue and new product opportunities support a higher spending level. As a result, our total operating expenses declined from \$130.7 million in 2002 to \$111.1 million in 2003.

To achieve our goal of reducing our operating cash flow breakeven point, we announced major changes in our operations to occur through the end of 2003. These included establishing a manufacturing location in China, consolidating worldwide sales forces, a move to Tier 1 suppliers, primarily in Asia, and the intention to close or sell certain facilities. As of December 31, 2003, we were manufacturing approximately 11% of our production in our manufacturing facility in China and have transitioned approximately 27% of our raw materials purchases to Tier 1 Asian suppliers. We expect to continue our progress on both of these objectives during 2004 and exit the year manufacturing approximately 70% of our Power and Flow Control production in our China-based facility and completing the transition of approximately 50% of our material purchases to Tier 1 Asian suppliers.

Products

Our major products fall into these categories: Power, Flow Control, Thermal Instrumentation and Temperature Control and Source Technology. Our products are designed to improve productivity and lower the cost of ownership for our customers.

Power

Our Power systems include direct current (DC), high power, low and mid frequency, and radio frequency (RF) power supplies, matching networks and RF instrumentation. Our Power systems refine, modify and control the raw electrical power from a utility and convert it into power that is uniform, predictable and repeatable. Our Power systems are primarily used by semiconductor manufacturers in the following applications: physical vapor deposition; chemical vapor deposition; reactive sputtering; electroplating; plasma vacuum processes and bias; oxide, poly and metal etch; and carbon dioxide laser excitation.

Flow Control

Our Flow Control products include thermal mass flow controllers (MFCs), pressure-based MFCs, liquid MFCs, liquid vapor delivery systems, pressure control systems and ultrasonic control systems. Our Flow Control products control or monitor the flow of high-purity liquids, liquid vapor, and gases encompassing a wide range of input pressures. Our Flow Control products are primarily used in semiconductor applications, fiber optics, safe delivery system applications, chemical vapor deposition and silica industries.

Thermal Instrumentation and Temperature Control

Our Thermal Instrumentation and Temperature Control products include thermal sensing systems, chillers and heat exchangers. Our Thermal Instrumentation and Temperature Control products provide thermal management and process control primarily to the semiconductor industry by maintaining wafer set points in plasma etch applications and providing dynamic real-time independent temperature control of the cathode, anode and chamber walls. Our Thermal Instrumentation and Temperature Control products are primarily used in physical vapor deposition, rapid thermal processing and other semiconductor applications requiring non-contact temperature measurement, chemical mechanical polishing, track and lithography.

Source Technology

Our Source Technology products include plasma and ion beam sources which are used in the direct deposition of thin films of diamond-like carbon, ion-assisted deposition, ion beam etching, optical coating, pre-cleaning and chamber clean. Our plasma-source platform fully integrates a remote plasma source, a power supply and an active matching network.

Other Products

We also offer DC-DC converters specifically designed to power low voltage, high current microprocessors, application-specific integrated circuits, logic and memory chips and servers.

	Products	Product Description	Major Process Applications
POWER	Direct Current	Power conversion and control systems	CVD
	DC Pulsing Product Suite, E-Chuck System, E'Wave™, MDX Series, MDX II Series, Pinnacle ® 3000, Pinnacle ® Diamond, Pinnacle ® Plus Series, Pinnacle ® Series		PVD
	High Power		o Reactive sputtering
	Astral® Series, Crystal®		o Vacuum sputtering
	Low and Mid Frequency		Etch
	LFGC Series, LFGS Series, PDX® Series, PE and PE II Series, RAS Split Inductor		o Oxide
	RF and High Frequency		o Poly
	Apex® Series, CESAR™ Series, DTG™ Series, HPG Series, HFV™ Variable Frequency Generators, RFG Series, VHF Series		o Metal
	Match Networks		Plasma vacuum process systems
	VarioMatch™ Series, Navigator™ Match Network Series		Electroplating
	RF Instrumentation		Wafer handling
	GenCal™ Instrument, Z'Scan ® Sensor		Bias
			CO2 laser excitation
FLOW CONTROL	Mass Flow Controllers	Digital and analog MFCs, large capacity thermal vaporizer and delivery system, compact thermal vaporizer and delivery system, thermal refill and vaporizer recharge system, ultrasonic flow controller	Semiconductor processes
	Aera ® FC-780CHT Series, Aera ® FC-790 Series, Aera ® FC-900 Series, Aera ® FC-1000 Series, Aera ® FC-7700 Series, Aera ® FC-7800 Series, Aera ® FC-D980 Series, Aera ® FC-P2000 Series, Aera ® FC-PA780 Series Digital, Aera ® LX-1200/1200C Series, Aera ® PrimAera ® Series Digital		Fiber optics
	Thermal Vaporizer Systems		Safe delivery systems
	Aera ® ADS-L200, Aera ® AS Series, Aera ® GS-440A		Vaporized liquids
	Mass Flow Meters		Silica industries
	Aera ® USF100 A-G Ultra-Sonic, Aera ® Mass Flow Meter Series		CVD diffusion
THERMAL INSTRUMENTATION AND TEMPERATURE CONTROL	Thermal Sensing Systems	Non-contact temperature sensing systems, thermoelectric heating and cooling	RTP
	Sekidenko OR1000F Optical Fiber Thermometer, Sekidenko OR2000 Optical Fiber Thermometer		PVD
	Chillers and Heat Exchangers		ETCH
	POU Model 3300, POU Model 3500, Noah Static Temperature Control Systems		CVD
SOURCE TECHNOLOGY	Ion Beam Sources	Direct deposition of thin films, ion-assisted deposition	CMP
	LIS Series, MCIS Series, SCIS Series		Track
	Plasma Source		Lithography
	Xstream™ with Active Matching Network™		CVD chamber clean
			Deposition
			Thin films
			Etch
			Optical coating
			Industrial coating

**OTHER
PRODUCTS**

DC to DC Converters

HDS High-Density 1.25 V 11 A, HDS
High-Density 1.5 V 36 A, HDS High-Density
2.5 V 43 A, HDS High-Density 3.3 V 34 A,
HDS High-Density 48 to 12 V, HDS
High-Density 5 V 18 A

Low voltage/high
current power
conversion

DC-DC conversion

Markets and Customers

MARKETS

Most of our sales have historically been to customers in the semiconductor capital equipment industry. Sales to customers in this industry represented 59% of our sales in 2003, 68% of our sales in 2002, and 64% in 2001. Our Power, Flow Control, Thermal Instrumentation and Temperature Control, Source Technology as well as other products are also used in the flat panel display, data storage and advanced product applications markets. Following is a discussion of the major markets for our products.

SEMICONDUCTOR CAPITAL EQUIPMENT MANUFACTURING MARKET. We sell our products primarily to semiconductor capital equipment manufacturers for incorporation into equipment used to make integrated circuits. Our products are currently used in the major semiconductor processing steps such as:

- Chemical vapor deposition
- Physical vapor deposition
- Oxide etch
- Poly etch
- Metal etch
- Wafer handling
- Other semiconductor processes

Our Power systems provide the energy to drive the chemical reaction for thin-film processes such as deposition and etch. Our Flow Control products control the fluid or gas being delivered to ensure high purity, our Thermal Instrumentation and Temperature Control products measure the temperature of the process chamber and either heat or cool the silicon wafer and our Source Technology products optimize CVD clean, deposition and etch processes while providing a low cost of ownership. The precise control over plasma-based processes enables the production of integrated circuits with reduced feature sizes and increased speed and performance. We anticipate that the semiconductor capital equipment industry will continue to be a substantial part of our business for the foreseeable future.

FLAT PANEL DISPLAY MANUFACTURING EQUIPMENT MARKET. We also sell our products to manufacturers of flat panel displays and flat panel projection devices, which have fabrication processes similar to those employed in manufacturing integrated circuits. Flat panel technology produces bright, sharp, large, color-rich images on flat screens for products ranging from hand-held devices to laptop and desktop computer monitors to plasma and liquid crystal display-screen televisions. The transition to larger panel sizes and higher display resolution is driving the need for tighter process controls to reduce manufacturing costs and defects. There are three major types of flat panel displays: liquid crystal displays, field emitter displays, and gas plasma displays. There are two types of flat panel projection devices: liquid crystal projection and digital micro-mirror displays. We sell our products to all five of these flat panel markets.

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DATA STORAGE MANUFACTURING EQUIPMENT MARKETS. We also sell products to manufacturers of data storage equipment and data storage devices for use in producing a variety of products, including CDs, CD-ROMs and DVDs; computer hard discs, including both media and thin-film heads; and optical storage media. These products use a PVD process to produce optical and magnetic thin-film layers as well as a protective-wear layer. In this market, the trend towards higher recording densities is driving the demand for denser, thinner and more precise films. The use of equipment incorporating magnetic media to store analog and digital data continues to expand with the growth of the laptop, desktop and workstation computer markets and the consumer electronics audio and video markets.

ADVANCED PRODUCT APPLICATIONS MARKETS. We also sell our products to OEMs and producers of end products in a variety of industrial markets. Thin-film optical coatings are used in the manufacture of many industrial products, including solar panels, architectural glass, eyeglasses, lenses, barcode readers and front surface mirrors. Thin films of diamond-like coatings and other materials are currently applied to products in plasma-based processes to strengthen and harden surfaces on such diverse products as tools, razor blades, automotive parts and hip joint replacements. Other thin-film processes that use our products also enable a variety of industrial packaging applications such as decorative wrapping and food packaging. The advanced thin-film production processes allow precise control of various optical and physical properties, including color, transparency and electrical and thermal conductivity. The improved adhesion and high film quality resulting from plasma-based processing make it the preferred method of applying the thin films. Many of these thin-film industrial applications require power levels substantially greater than those used in our other markets.

Also included in the advanced product applications markets are our sales to OEMs of high-end computing, automated test equipment and DataCom products.

APPLICATIONS

We have sold our products for use in connection with the following processes and applications:

Semiconductor	Data Storage	Flat Panel Display	Advanced Product Applications
Chemical vapor deposition	CD-ROMs	Active matrix LCDs	Advanced computer technology workstations and servers
Etch (metal and dielectric)	CDs DVDs	Digital micro-mirror Field emission displays	Automobile coatings Chemical, physical and materials research
High-density plasma CVD	Hard disc carbon wear coatings	Large flat panel displays	Circuit board etch-back and de-smear
Ion implantation	Hard disc magnetic media	LCD projection	Consumer product coatings
Magnet field controls	Magneto-optic CDs	Liquid crystal displays	Diamond-like coatings
Mass flow control	Recordable CDs	Medical applications	Food package coatings
Megasonic cleaning	Thin-film heads	Plasma displays	Glass coatings
Optical fiber thermometers			Optical coatings
Photo-resist stripping			Photovoltaics
Physical vapor deposition			Superconductors
Plasma-enhanced CVD			
Solid-state temperature controls			
Wafer handling			

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CUSTOMERS

Our products are sold worldwide to more than 100 OEMs and directly to more than 500 end users. Our ten largest customers accounted for 54% of our total sales in 2003 and 53% in 2002 and in 2001. We expect that sales of our products to these customers will continue to account for a large percentage of our sales in the foreseeable future.

Representative customers include:

Advanced Micro Devices	Mattson Technologies
Applied Films	Mitsubishi
Applied Materials	Motorola
Axcelis	National Semiconductor
Cardinal CG	Novellus
Celestica	Samsung
Guardian Glass	Siemens
Hewlett-Packard	Singulus
Hitachi	Texas Instruments
IBM	Tokyo Electron
Intel	Trikon
Intevac	ULVAC
Lam Research	Unaxis
LSI Logic	Veeco

Applied Materials, our largest customer, accounted for 20% of our sales in 2003, 27% in 2002 and 24% in 2001. No other customer exceeded 10% during these periods.

Our backlog increased from \$21.8 million at December 31, 2002, to \$53.7 million at December 31, 2003. We schedule production of our systems based on order backlog and customer commitments. Backlog includes only orders scheduled to ship in the following quarter for which written authorizations have been accepted and revenue has not been recognized. Due to possible customer changes in delivery schedules and cancellations of orders, our backlog at any particular date is not necessarily indicative of actual sales for any succeeding period. Delays in delivery schedules and/or a reduction of backlog during any particular period could have a material adverse effect on our business and results of operations.

Marketing, Sales and Service

We sell our products primarily through direct sales personnel to customers in the United States, Europe and Asia. Our sales personnel are located at our headquarters in Fort Collins, Colorado, and in sales offices in San Jose, California; Concord, Massachusetts; Voorhees, New Jersey; Austin and Dallas, Texas; and Vancouver, Washington. To serve customers in Asia and Europe, we have offices in Shenzhen and Shanghai, China; Bicester, England; Dresden, Filderstadt and Stolberg, Germany; Hachioji and Tokyo, Japan; Bundang, South Korea; and Hsinchu and Taipei Hsien, Taiwan. These offices have primary responsibility for sales in their respective markets. We also have distributors inside and outside the United States. We plan to close our Voorhees, New Jersey facility in the first half of 2004.

Sales outside the United States represented approximately 53% of our total sales in 2003, 40% in 2002 and 36% in 2001. We expect sales outside the United States to

continue to represent a significant portion of future sales. Although we have not experienced any significant difficulties involving international sales, such sales are subject to certain risks, including exposure to foreign currency fluctuations, the imposition of governmental controls, political and economic instability, trade restrictions, changes in tariffs and taxes and longer payment cycles typically associated with international sales.

We believe that customer service and technical support are important competitive factors and are essential to building and maintaining close, long-term relationships with our customers. We maintain customer service offices in Fort Collins, Colorado; San Jose, California; Austin and Dallas, Texas; Vancouver, Washington; Shanghai, China; Bicester, England; Dresden, Filderstadt and Stolberg, Germany; Hachioji and Tokyo, Japan; Bundang, South Korea; and Hsinchu and Taipei Hsien, Taiwan.

We offer warranty coverage for our products after shipment against defects in design, materials and workmanship for periods ranging from 12 to 60 months, with the majority of our products having terms ranging from 18 to 24 months.

Manufacturing

Our major manufacturing locations are in Fort Collins, Colorado; Shenzhen, China; Stolberg, Germany; and Hachioji, Japan. We also have manufacturing locations in Voorhees, New Jersey (to be closed in the first half of 2004); Vancouver, Washington; and Bundang, South Korea. With the exception of our Fort Collins, Colorado and Shenzhen, China facilities, we generally manufacture different products at each facility. During 2004, we plan to transition the manufacturing of our products in Voorhees, New Jersey to Fort Collins, Colorado, and to transition approximately 70% of our worldwide Power and Flow Control production to Shenzhen, China. Our manufacturing activities consist of the assembly and testing of components and subassemblies, which are then integrated into our final products. Once final testing of all electrical and electro-mechanical subassemblies is completed, the final product is subjected to a series of reliability-enhancing operations prior to shipment to our customers. We purchase a wide range of electronic, mechanical and electrical components, some of which are designed to our specifications. We are increasingly outsourcing more of our subassembly work.

We rely on sole and limited source suppliers for certain parts and subassemblies. This reliance creates a potential inability to obtain an adequate supply of required components and reduces control over pricing and delivery time of components. An inability to obtain adequate supplies would require us to seek alternative sources of supply or might require us to redesign our products to accommodate different components or subassemblies. We could be prevented from the timely shipping of our products to our customers if we are forced to seek alternative sources of supply, manufacture such components or subassemblies internally, or redesign our products. Further, due to our customers' "copy exact" requirements, most supplier changes require vendor requalification, which can be extensive and time consuming.

Intellectual Property

We have a policy of seeking patents on inventions governing new products or technologies as part of our ongoing research, development and manufacturing activities. We currently hold 73 United States patents and have over 100 patent applications pending in the United States, Europe and Asia. We do not have patent protection for our intellectual property in several countries in which we do business, and we have limited patent protection in certain other countries. The cost of applying for patents in foreign countries and translating the applications into foreign languages requires us to select carefully the inventions for which we apply for patent protection and the countries in which we seek such protection. Generally, our efforts to obtain international patents have been concentrated in the United Kingdom, Germany, France and Japan, because there are other manufacturers and developers of power conversion and control systems in those countries as well as customers for those systems.

Litigation may from time to time be necessary to enforce patents issued to us, to protect trade secrets or know-how owned by us, to defend us against claimed infringement of the rights of others or to determine the scope and validity of the proprietary rights of others. See “Cautionary Statements — Risk Factors — We are highly dependent on our intellectual property and are exposed to various risks related to legal proceedings and claims.”

Competition

The markets we serve are highly competitive and characterized by ongoing technological development and changing customer requirements. Significant competitive factors in our markets include product performance, price, quality and reliability and level of customer service and support. We believe that we currently compete effectively with respect to these factors, although there can be no assurance that we will be able to compete effectively in the future.

The markets in which we compete have seen an increase in global competition, especially from Asian- and European-based equipment vendors. We have several foreign and domestic competitors for each of our product lines. Some of these competitors are larger and have greater resources than we have. Our ability to continue to compete successfully in these markets depends on our ability to make timely introductions of system enhancements and new products. Our primary competitors are Celerity Group, Inc.; Comdel; Daihen Corp.; Huettinger Elektronik GmbH; Kyosan Electric Manufacturing Co. Ltd.; MKS Instruments, Inc.; Mykrolis Corp.; Shindengen; and STEC, Inc., a Horiba Group Company. We expect our competitors will continue to improve the design and performance of their products and to introduce new products with competitive performance characteristics. We believe we will be required to maintain a high level of investment in both research and development and sales and marketing in order to remain competitive.

Operating Segment

We operate and manage our business of manufacturing, marketing and servicing components and subsystems for plasma-based manufacturing processes as one segment. All material operating units qualify for aggregation under Statement of Financial Accounting Standards "SFAS" No. 131, because all of our products and systems have similar economic characteristics, procurement, production and distribution processes. To report revenues from external customers for each product and service or each group of similar products and services would be impracticable. Since we operate in one segment, all financial segment information required by SFAS No. 131 is found in the accompanying consolidated financial statements. Please refer to Footnote 12 Industry Segment, Foreign Operations and Major Customer, included in Part II, Item 8 of this Form 10-K for further discussion regarding our operations by geographic region.

Research and Development

The market for our subsystems for vacuum process systems and related accessories is characterized by ongoing technological changes. We believe that continued and timely development of new products and enhancements to existing products to support OEM requirements is necessary for us to maintain a competitive position in the markets we serve. Accordingly, we devote a significant portion of our personnel and financial resources to research and development projects and seek to maintain close relationships with our customers and other industry leaders in order to remain responsive to their product requirements. Research and development expenses were \$51.6 million in 2003, \$49.0 million in 2002 and \$45.2 million in 2001, representing 19.7% of total sales in 2003, 20.5% in 2002 and 23.3% in 2001. We believe that the continued investment in research and development and ongoing development of new products are essential to the expansion of our markets, and expect to continue to make significant investments in research and development activities.

Number of Employees

As of December 31, 2003, we had a total of 1,347 employees, 1,201 of whom were full-time continuous employees. There is no union representation of our employees, and we have never experienced a work stoppage. We utilize temporary employees as a means to provide additional staff. We consider our employee relations to be good.

Effect of Environmental Laws

We are subject to federal, state and local environmental laws and regulations, as well as the environmental laws and regulations of the foreign federal and local jurisdictions in which we have manufacturing facilities. We believe we are in material compliance with all such laws and regulations.

Cautionary Statements — Risk Factors

This Form 10-K includes “forward-looking statements” within the meanings of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. All statements contained or incorporated by reference in this Form 10-K, other than statements of historical fact, are “forward-looking statements.” For example, statements relating to our beliefs, expectations, plans and projections are forward-looking statements as are statements that specified actions or circumstances will continue or change. Forward-looking statements involve risks and uncertainties. In some cases, forward-looking statements can be identified by the inclusion of words such as “believe,” “expect,” “plan,” “anticipate,” “estimate” and similar words.

Some of the forward-looking statements in this Form 10-K are expectations or projections relating to:

- Reducing our operating cash flow breakeven point;
- Customer inventory levels, requirements and order levels;
- Our future revenues;
- Our future gross profit;
- Market acceptance of our products;
- Research and development expenses;
- Selling, marketing, general and administrative expenses;
- Sufficiency and availability of capital resources;
- Potential acquisitions;
- Capital expenditures;
- Restructuring activities and expenses; and
- General economic conditions in the U.S. and worldwide.

Our actual results could differ materially from those projected or assumed in our forward-looking statements, because forward-looking statements by their nature are subject to risks and uncertainties. Factors that could contribute to these differences or prove our forward-looking statements, by hindsight, to be overly optimistic or unachievable include the factors described in this section. Other factors, including factors which we do not now consider material, also might contribute to the differences between our forward-looking statements and our actual results. We assume no obligation to update any forward-looking statement or the reasons why our actual results might differ.

We have invested significant human and financial resources to establish a manufacturing facility in China and transition our supply base to Tier 1 Asian suppliers, but might not be able to achieve the intended benefits as quickly as anticipated, or at all.

As part of our strategy to reduce our operating cash flow breakeven point we are relying on lower labor and component costs associated with our new China-based manufacturing facility and transition to Tier 1 Asian suppliers. By the end of 2004, we

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expect to have transitioned approximately 70% of our Power and Flow Control manufacturing production to China. This strategy involves significant risks, including:

- Our customers may not accept products manufactured at our Chinese facility;
- Certain major customers have strict “copy exact” requirements which may delay or prevent acceptance of lower-cost components from Tier 1 Asian suppliers;
- We may face health-related risks, such as outbreaks of diseases, in the Asian countries in which we have manufacturing, distribution or sales facilities and the adverse impact of any quarantine or closure of such facilities;
- We may not be able to attract and retain key personnel in our Chinese facility;
- We may incur significant costs to test and repair products manufactured in our China facility to mitigate the risk of shipping lower-quality products to our customers;
- The Chinese government may allow the yuan to float against the U.S. dollar, which could significantly increase our operating costs; and
- Disruption of our United States employee base.

In addition to these risks, we may not be able to successfully comply with China’s governmental regulations. The regulatory environment in China is evolving, and officials in the Chinese government often exercise discretion in deciding how to interpret and apply applicable regulations. Consequently, actions by Chinese governmental regulators may limit or adversely affect our ability to conduct business in China.

Our inability to manage these risks among others could significantly impact our goal to reduce our operating cash flow breakeven point, as well as result in significant costs, expenditures, asset impairments and potentially damage our relationships with existing and prospective customers.

Intellectual property rights are difficult to enforce in China.

Commercial law in China is relatively undeveloped compared to the commercial law in the United States. Limited protection of intellectual property is available under Chinese law. Consequently, manufacturing our products in China may subject us to an increased risk that unauthorized parties may attempt to copy or otherwise obtain or use our intellectual property. We cannot assure you that we will be able to effectively protect our intellectual property rights or have adequate legal recourse in the event that we encounter difficulties with infringements of our intellectual property under Chinese law.

We have experienced sustained losses recently and might not be able to achieve profitability in the near future.

Demand for our products from the semiconductor capital equipment industry has declined substantially from its peak in 2000 and we incurred significant operating losses each quarter from the second quarter of 2001 through the third quarter of 2003. While

we were able to generate positive operating income in the fourth quarter of 2003, we still incurred a significant net loss for the year. Due to the highly cyclical nature of the semiconductor industry we cannot assure you when, or if, we will be able to return to sustained profitability. A failure on our part to increase our revenue and contain our expenditures will cause our liquidity to suffer and could cause the price of our securities to decrease.

Our quarterly and annual operating results fluctuate significantly and are difficult to predict.

Our quarterly and annual operating results have fluctuated significantly, and we expect them to continue to experience significant fluctuations. Fluctuations in our operating results historically have resulted in corresponding changes in the market prices of our securities. Our operating results are affected by a variety of factors, many of which are beyond our control and difficult to predict. These factors include:

- Changes in economic conditions in the semiconductor and semiconductor capital equipment industries and other industries in which our customers operate;
- The timing and nature of orders placed by our customers;
- The seasonal variations in capital spending by our customers;
- Changes in customers' inventory management practices;
- Customer cancellations of previously placed orders and shipment delays;
- Pricing competition from our competitors;
- Customer demands to reduce prices, enhance features, improve reliability, shorten delivery times and extend payment terms;
- Component shortages or allocations or other factors that change our levels of inventory or substantially increase our spending on inventory or result in manufacturing delays;
- The introduction of new products by us or our competitors;
- Declines in macroeconomic conditions;
- Potential litigation especially regarding intellectual property; and
- Our exposure to currency exchange rate fluctuations between the several functional currencies in foreign locations in which we have operations.

The semiconductor and semiconductor capital equipment industries are highly volatile, which impacts our operating results.

The semiconductor and semiconductor capital equipment industries have historically been cyclical because of sudden changes in demand for semiconductors and manufacturing capacity. The rate of changes in demand, including end demand, is accelerating, and the effect of these changes is occurring sooner, exacerbating the volatility of these cycles. These changes affect the timing and amount of our customers' equipment purchases and investments in new technology, as well as our costs and operations.

During periods of declining demand for semiconductor equipment components, our customers typically reduce purchases, delay delivery of products and cancel orders. We might incur significant charges as we seek to align our cost structure with the reduction in sales. In addition, we might not be able to respond adequately or quickly enough to the declining demand. We may also be required to record significant reserves for excess and obsolete inventory as demand for our products changes. Our inability to reduce costs and the charges resulting from other actions taken in response to changes in demand for our products would adversely affect our operating results.

During periods of growth in the semiconductor and semiconductor capital equipment industries, we might not be able to acquire or develop sufficient manufacturing capacity or inventory to meet our customers' increasing demand for our products. In addition, we might be required to make substantial capital investments to increase capacity.

During 2001, 2002 and much of 2003, the semiconductor capital equipment industry experienced the steepest cutback in capital equipment purchases in industry history. While we have experienced an increase in sales to semiconductor capital equipment manufacturers in the fourth quarter of 2003, we cannot be certain that there will be a sustained recovery for the semiconductor industry or that another severe and prolonged downturn will not occur in the near future. A decline in the level of orders as a result of any future downturn or slowdown in the semiconductor industry would harm our business, financial condition and results of operations.

A significant portion of our sales is concentrated among a few customers.

Our ten largest customers accounted for 54% of our total sales in 2003 and 53% of our total sales in 2002 and 2001. Our largest customer, Applied Materials, accounted for 20% of our total sales in 2003, 27% in 2002 and 24% in 2001. The loss of any of our significant customers or a material reduction in any of their purchase orders would significantly harm our business, financial condition and results of operations.

Our customers continuously exert pressure on us to reduce our prices and extend payment terms. Given the nature of our customer base and the highly competitive markets in which we compete, we may be required to issue price concessions to our customers to remain competitive. A ten percent reduction in our historical selling prices could lead to a seven percent or greater decline in gross margin. We may not be able to reduce our other operating expenses in an amount sufficient to offset potential margin declines.

The markets in which we operate are highly competitive.

We face substantial competition, primarily from established companies, some of which have greater financial, marketing and technical resources than we do. Our primary competitors are Celerity Group, Inc.; Comdel; Daihen Corp.; Huettinger Elektronik GmbH; Kyosan Electric Manufacturing Co. Ltd.; MKS Instruments, Inc.; Mykrolis Corp.; Shindengen; and STEC, Inc., a Horiba Group Company. We expect that our

competitors will continue to develop new products in direct competition with ours, improve the design and performance of their products and introduce new products with enhanced performance characteristics.

To remain competitive, we must improve and expand our products and product offerings. In addition, we may need to maintain a high level of investment in research and development and expand our sales and marketing efforts, particularly outside of the United States. We might not be able to make the technological advances and investments necessary to remain competitive. Our inability to improve and expand our products and product offerings would have an adverse affect on our sales and results of operations.

We are exposed to risks associated with previous acquisitions and potential future acquisitions.

In January 2002, we completed the acquisition of Aera Japan Limited and in March 2002, we completed the acquisition of Dressler HF Technik GmbH. Integrating the entities that we acquired into our business will require a substantial amount of our resources and management time. Moreover, the integration process may result in unforeseen operating difficulties and may require significant financial, operational and managerial resources that would otherwise be available for the operation, development and expansion of our existing business. We cannot assure you that the integration of our acquired entities will be successful or that we will realize the potential financial, operating or other benefits that we expect from these acquisitions.

We may in the future make additional acquisitions of, or significant investments in, businesses with complementary products, services and technologies. Acquisitions involve numerous risks, including but not limited to:

- Diversion of management's attention from other operational matters;
- The inability to realize expected synergies resulting from the acquisition;
- Failure to commercialize purchased technology;
- Significant and unanticipated capital investments required to integrate acquired businesses and technologies;
- Retaining existing customers and strategic partners of acquired companies;
- Increased levels of intangible asset amortization expense;
- Potential material charges for impairment of acquired intangible assets; and
- Dilution of earnings.

Mergers and acquisitions are inherently subject to multiple significant risks. If we are unable to effectively manage these risks, our business, financial condition and results of operations will be adversely affected.

We might not be able to compete successfully in international markets or meet the service and support needs of our international customers.

For the years ended December 31, 2003, 2002 and 2001, our sales to customers outside the United States were approximately 53%, 40% and 36% of our total sales. Our success in competing in international markets is subject to our ability to manage various risks and difficulties, including, but not limited to:

- Our ability to develop relationships with suppliers and other local businesses;
- Compliance with product safety requirements and standards that are different from those of the United States;
- Variations in enforcement of intellectual property and contract rights in different jurisdictions;
- Trade restrictions, political instability, disruptions in financial markets and deterioration of economic conditions;
- The ability to provide sufficient levels of technical support in different locations;
- Collecting past due accounts receivable from foreign customers; and
- Changes in tariffs, taxes and foreign currency exchange rates.

Our ability to implement our business strategies and maintain market share will be compromised if we are unable to manage these and other international risks successfully.

Component shortages exacerbated by our dependence on sole and limited source suppliers could affect our ability to manufacture products and systems and could delay our shipments.

Our business depends on our ability to manufacture products that meet the rapidly changing demands of our customers. Our ability to manufacture depends in part on the timely delivery of parts, components and subassemblies from suppliers. We rely on sole and limited source suppliers for some of our parts, components and subassemblies that are critical to the manufacturing of our products. This reliance involves several risks, including the following:

- The potential inability to obtain an adequate supply of required parts, components or subassemblies;
- The potential for a sole source provider to cease operations;
- Our potential need to fund the operating losses of a sole source provider;
- Reduced control over pricing and timing of delivery of parts, components and subassemblies; and
- The potential inability of our suppliers to develop technologically advanced products to support our growth and development of new products.

If we are unable to successfully qualify additional suppliers and manage relationships with our existing and future suppliers, we will experience shortages of parts, components or subassemblies, increased material costs and shipping delays for our products, which

will adversely affect our results of operations and relationships with current and prospective customers.

We are highly dependent on our intellectual property and are exposed to various risks related to legal proceedings and claims.

Our success depends significantly on our proprietary technology. We attempt to protect our intellectual property rights through patents and non-disclosure agreements; however, we might not be able to protect our technology, and competitors might be able to develop similar technology independently. In addition, the laws of some foreign countries might not afford our intellectual property the same protections as do the laws of the United States. Our intellectual property is not protected by patents in several countries in which we do business, and we have limited patent protection in other countries. If we are unable to successfully protect our intellectual property, our results of operations will be adversely affected.

Intellectual property litigation is costly. In May 2002, we recognized approximately \$5.3 million of litigation damages and related legal expenses pertaining to a judgment entered by a jury against us and in favor of MKS Instruments, Inc., in a patent-infringement suit in which we were the defendant. We have settled this lawsuit with MKS. Under the settlement agreement, royalties payable to MKS from sales of the related product were not material in any of the periods presented.

In May 2003, MKS Instruments, Inc. filed a patent infringement suit against us in the United States District Court in Wilmington, Delaware, alleging that our Xstream™ With Active Matching Network™ products infringe five patents held by MKS. We intend to defend vigorously against the MKS complaint. However, an adverse determination in the MKS or any future litigation could cause us to lose proprietary rights, subject us to significant liabilities to third parties, require us to seek licenses or alternative technologies from others or prevent us from manufacturing or selling our products and impact future revenue. Any of these events could adversely affect our business, financial condition and results of operations.

We must achieve design wins to retain our existing customers and to obtain new customers.

The constantly changing nature of semiconductor fabrication technology causes equipment manufacturers to continually design new systems. We must work with these manufacturers early in their design cycles to modify our equipment or design new equipment to meet the requirements of their new systems. Manufacturers typically choose one or two vendors to provide the components for use with the early system shipments. Selection as one of these vendors is called a design win. It is critical that we achieve these design wins in order to retain existing customers and to obtain new customers.

Once a manufacturer chooses a component for use in a particular product, it is likely to retain that component for the life of that product. Our sales and growth could experience material and prolonged adverse effects if we fail to achieve design wins. However, design wins do not always result in substantial sales or profits.

We believe that equipment manufacturers often select their suppliers based on factors such as long-term relationships. Accordingly, we may have difficulty achieving design wins from equipment manufacturers who are not currently customers. In addition, we must compete for design wins for new systems and products of our existing customers, including those with whom we have had long-term relationships. If we are not successful in achieving design wins our sales and results of operations will be adversely impacted.

Our success depends upon our ability to attract and retain key personnel.

Our success depends in large part upon our ability to attract, retain and motivate key employees, including our senior management team and our technical, marketing and sales personnel. We do not have employment agreements with any of our executive officers or other key employees. These employees may voluntarily terminate their employment with us at any time. In the past three years, we have experienced turnover in key management positions such as the chief financial officer and chief operating officer. The process of hiring employees with the combination of skills and attributes required to carry out our strategy can be extremely competitive and time consuming. We may not be able to successfully retain existing personnel or identify, hire and integrate new personnel. If we lose the services of key personnel for any reason, including retirement, or are unable to attract additional qualified personnel, our business, financial condition and results of operations will be adversely affected. Additionally, we do not maintain key-person life insurance policies on our executive officers.

Warranty costs on certain products may be in excess of historical experience.

In recent years, we have experienced higher than expected levels of warranty costs on certain products. We have been required to repair, rework and, in some cases, replace these products. Our warranty costs generally increase when we introduce newer, more complex products. We recorded warranty expense of approximately \$8.1 million, \$13.2 million and \$7.6 million in 2003, 2002 and 2001, respectively. If such levels of warranty costs persist or increase in the future, our financial condition and results of operations will be adversely affected.

We are subject to numerous governmental regulations.

We are subject to federal, state, local and foreign regulations, including environmental regulations and regulations relating to the design and operation of our products and control systems. We might incur significant costs as we seek to ensure that our products meet safety and emissions standards, many of which vary across the states and countries in which our products are used. In the past, we have invested significant resources to redesign our products to comply with these directives. We believe we are in

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compliance with current applicable regulations, directives and standards and have obtained all necessary permits, approvals and authorizations to conduct our business. However, compliance with future regulations, directives and standards could require us to modify or redesign some products, make capital expenditures or incur substantial costs. If we do not comply with current or future regulations, directives and standards:

- We could be subject to fines;
- Our production could be suspended; or
- We could be prohibited from offering particular products in specified markets.

Our inability to comply with current or future regulations, directives and standards will adversely affect our operating results.

Our Chief Executive Officer owns a significant percentage of our outstanding common stock, which could enable him to control our business and affairs.

Douglas S. Schatz, our Chief Executive Officer, owned approximately 33.1% of our common stock outstanding as of February 17, 2004. This stockholding gives Mr. Schatz significant voting power. Depending on the number of shares that abstain or otherwise are not voted on a particular matter, Mr. Schatz may be able to elect all of the members of our board of directors and to control our business affairs for the foreseeable future.

EXECUTIVE OFFICERS OF THE REGISTRANT

Our executive officers, their positions and their ages as of February 17, 2004, are as follows:

Name	Age	Position
Douglas S. Schatz	58	Chairman of the Board, President and Chief Executive Officer
Michael El-Hillow	52	Executive Vice President of Finance and Administration and Chief Financial Officer
D. Craig Jeffries	44	Executive Vice President and Chief Marketing Officer
Scott B. Burton	42	Senior Vice President of Worldwide Operations
James Guilmart	49	Senior Vice President of Global Customer Operations
Larry McCulloch	52	Senior Vice President and Chief Quality Officer
LuAnn Piccard	43	Senior Vice President and General Manager, Power
Stephen Rhoades	43	Senior Vice President and General Manager, CSI
Brenda M. Scholl	47	Senior Vice President and General Manager, Power
Richard A. Scholl	65	Senior Vice President and Chief Technical Officer

Douglas S. Schatz is a co-founder and has been our Chief Executive Officer and Chairman of the Board since our incorporation in 1981. From our incorporation to July 1999, Mr. Schatz also served as our President. In March 2001, Mr. Schatz was reappointed as President. Since December 1995, Mr. Schatz has also served as a Director of Advanced Power Technology, Inc. Mr. Schatz is a member of the CEO Committee of the Mountain States Council of the American Electronics Association and serves on the Engineering Advisory Board of Colorado State University.

Michael El-Hillow joined us in November 2001 as Senior Vice President of Finance and Administration and Chief Financial Officer, in February 2003 he was named

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Executive Vice President. From April 1997 to July 2001, Mr. El-Hillow was Senior Vice President and Chief Financial Officer of Helix Technology Corporation. He was Senior Vice President and Chief Financial Officer of Spike Broadband Systems, Inc. from July 2001 to October 2001. Prior to Helix he was Vice President, Finance, Treasurer and Chief Financial Officer at A.T. Cross Company and an audit partner at Ernst & Young LLP.

D. Craig Jeffries joined us in March 2003 as Executive Vice President and Chief Marketing Officer. From 2002 to 2003 Mr. Jeffries served as the founder and President of Ensenyo Software. From March 2001 to November 2001, he was Chief Marketing Officer at Exostar, LLC. He served as Vice President of Marketing and E-Business at Allied Signal/Honeywell International from October 1998 to November 2000. Prior to Allied Signal/Honeywell International, Mr. Jeffries was Strategic Marketing Manager at Hewlett-Packard Company.

Scott B. Burton joined us in June 2002 as Senior Vice President of Worldwide Operations. From 1999 to June 2002, he was Chief Operating Officer and Vice President of Operations, Far East Operations at Seagate Technology. Prior to Seagate, he was Director of Marketing and PLM at Conner Peripherals and Account Marketing Representative at International Business Machines.

James Guilmart joined us in September 1999 as Director of Applied Materials Account Team and was named Senior Vice President of Sales in October 2000. In October 2002, Mr. Guilmart was named Senior Vice President of Global Customer Operations. From October 1998 to August 1999, he was Senior Vice President, SAP Business Unit at Siemens Information and Communications Products, LLC. Prior to Siemens, he was Vice President, Business Implementation at Unisys Corporation.

Larry McCulloch joined us in May 2003 as Senior Vice President and Chief Quality Officer. In 2002, Mr. McCulloch was Business Escalations Manager for the Networked Storage Organization of Hewlett-Packard. Prior, he was General Manager in the Networked Storage Solutions Organization leading acquisition integration and strategic planning for storage. As General Manager he led the Workgroup Information Management Division and worked in research and development. Mr. McCulloch joined Hewlett-Packard in 1974.

LuAnn Piccard joined us in October 2003 as Senior Vice President and General Manager of our Power Business Unit. From 2001 to 2003, Ms. Piccard was Vice President and General Manager for the Communication Test Equipment Business Unit at Agilent Technologies. Before that, she was Vice President and General Manager for the Wireless Network Solutions Business Unit and Vice President and General Manager for the Communications Solutions Services Division at Agilent. Prior to Agilent's separation from Hewlett-Packard, she had a variety of senior leadership positions in engineering, marketing and alliance management. Ms. Piccard joined Hewlett-Packard in 1982.

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Stephen Rhoades joined us in September 2002 as Senior Vice President and General Manager of Control Systems and Instrumentation. From March 2000 to September 2002, Mr. Rhoades was Vice President, Corporate Development at Portera Systems. Prior to Portera Systems, he was Managing Director, Product Development at Lam Research.

Brenda M. Scholl joined us in 1988 as Product Manager for DC products and held several positions in marketing thereafter, before becoming Vice President and General Manager, DC Products in May 2001. In October 2002, Mrs. Scholl was named Senior Vice President and General Manager of our Power Strategic Business Unit. Prior to joining us, she held positions in marketing and sales for Varian Associates and LFE Corporation.

Richard A. Scholl joined us in 1988 as Vice President, Engineering. Mr. Scholl became our Chief Technology Officer in September 1995. Prior to joining us, Mr. Scholl was General Manager, Vacuum Products Division of Varian Associates, Inc., a manufacturer of high-technology systems and components.

ITEM 2. PROPERTIES

Information concerning our principal properties is set forth below:

Location	Type	Principal Use	Sq. Footage	Ownership
Campbell, CA	Office	Research and development	14,000	Leased
San Jose, CA	Office	Distribution	20,000	Leased
Fort Collins, CO	Office, plant	Headquarters, Research and development, Manufacturing, Distribution	224,000	Leased
Longmont, CO	Office	Distribution	4,000	Leased
Voorhees, NJ	Office, plant	Research and development, Manufacturing, Distribution	78,000	Leased
Beaverton, OR	Office	Distribution	3,000	Leased
Austin, TX	Office	Distribution	16,000	Leased
Dallas, TX	Office	Distribution	2,000	Leased
Vancouver, WA	Office, plant	Research and development, Manufacturing, Distribution	32,000	Leased
Shanghai, China	Office	Distribution	8,000	Leased
Shenzhen, China	Office, plant	Manufacturing, Distribution	88,000	Leased
Bicester, England	Office	Distribution	1,000	Leased
Dresden, Germany	Office	Distribution	2,000	Leased
Filderstadt, Germany	Office	Research and development, Distribution	9,000	Leased
Stolberg, Germany	Office, plant	Research and development, Manufacturing, Distribution	17,000	Leased
Hachioji, Japan	Office, plant	Research and development, Manufacturing, Distribution	46,000	Owned
Tokyo, Japan	Office	Distribution	4,000	Leased
Bundang, South Korea	Office	Distribution	4,000	Leased
Bundang, South Korea	Office, plant	Manufacturing, Distribution	4,000	Owned

Hsinchu, Taiwan	Office	Distribution	4,000	Leased
Taipei Hsien, Taiwan	Office	Distribution	9,000	Leased

We consider all of the above facilities suitable and adequate to meet our production and office space needs for the foreseeable future. We believe that suitable additional or alternative space will be available in the future on commercially reasonable terms as needed.

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In 2003, we sold our 45,000 square-foot Longmont, Colorado facility, and closed the following facilities:

Location	Type	Principal Use	Sq. Footage	Ownership
Tempe, AZ	Office	Distribution	2,000	Leased
Milpitas, CA	Office	Distribution	9,000	Leased
Matthews, NC	Office, plant	Manufacturing, Distribution, Research and development	10,000	Leased
Austin, TX	Office	Distribution	29,000	Leased
Kirchheim, Germany	Office, plant	Manufacturing, Distribution	2,000	Leased
Edinburgh, Scotland	Office	Distribution	2,000	Leased
Bundang, South Korea	Office	Distribution	2,000	Leased

In the first half of 2004, we expect to close our 78,000 square-foot facility in Voorhees, New Jersey, and our 3,000 square-foot facility in Beaverton, Oregon.

ITEM 3. LEGAL PROCEEDINGS

From time to time, we are party to various legal proceedings relating to our business. We are not currently party to any material legal proceedings, except as described below:

In April 2003, we filed a claim in the United States District Court for the District of Colorado seeking a declaratory ruling that our new plasma source products Xstream™ With Active Matching Network™ (“Xstream Products”) are not in violation of U.S. Patents held by MKS. This case was transferred by the Colorado court to the United States District Court for the District of Delaware for consolidation with a patent infringement suit filed in that court by MKS in May 2003, alleging that our Xstream Products infringe five patents held by MKS. We believe that the Delaware court, in its May 2002 judgment in prior litigation between us and MKS, clearly defined the limits of the MKS technology. We specifically designed our Xstream Products not to infringe MKS’s patents, with the advice of a team of independent experts. In February 2004, the Delaware court restated its rulings on the construction of claims in the MKS patents consistent with its holding in the prior litigation. We intend to defend vigorously against the MKS complaint. The current patent case has been set for trial in July 2004. Litigation costs to defend this case are expected to increase our operating expenses during 2004.

On September 17, 2001, Sierra Applied Sciences, Inc. filed for declaratory judgment asking the U.S. District Court for the District of Colorado to rule that their products did not infringe our U.S. patent no. 5,718,813 and that the patent was invalid. On March 24, 2003, the Court granted our motion to dismiss the case for lack of subject matter jurisdiction. Sierra has appealed the ruling of dismissal, and the decision on Sierra’s appeal from the Court of Appeals for the Federal Circuit is pending. We believe that, were the ruling of dismissal to be reversed and Sierra’s claim reinstated and tried, the validity of our patent will be upheld and Sierra’s products would be adjudged to infringe.

ITEM 4. SUBMISSION OF MATTERS TO A VOTE OF SECURITY HOLDERS

Not applicable.

PART II

ITEM 5. MARKET PRICE FOR REGISTRANT’S COMMON STOCK AND RELATED STOCKHOLDER MATTERS

Our common stock trades on the NASDAQ National Market under the symbol “AEIS.” At February 17, 2004, the number of common stockholders of record was 854, and the last sale price on that day was \$23.44.

Below is a table showing the range of high and low trades for the common stock as quoted (without retail markup or markdown and without commissions) on the NASDAQ National Market; quotations do not necessarily represent actual transactions:

2002 Fiscal Year	High Trade Price	Low Trade Price
First Quarter	36.58	23.50
Second Quarter	39.56	21.45
Third Quarter	22.40	8.43
Fourth Quarter	19.50	5.88
2003 Fiscal Year		
First Quarter	17.43	7.91
Second Quarter	16.83	7.37
Third Quarter	24.65	13.56
Fourth Quarter	29.99	18.66

We have not declared or paid any cash dividends on our capital stock since we terminated our election to be treated as an S-corporation for tax purposes, effective January 1, 1994. We currently intend to retain all future earnings to finance our business and do not anticipate paying cash or other dividends on our common stock in the foreseeable future. Furthermore, our revolving credit facility prohibits the declaration or payment of any cash dividends on our common stock.

Equity Compensation Plan Information

The following table presents information as of December 31, 2003 with respect to our equity compensation plans:

	(a) Number of Securities to be Issued Upon Exercise of Outstanding Options	Weighted-average Exercise Price of Outstanding Options	Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans (Excluding Securities Reflected in Column (a))
Equity compensation plans approved by security holders(1)	3,127,504(2)	\$19.39(2)	2,480,675
Equity compensation plans not approved by security holders	896,692	\$22.04	279,295
Total	4,024,196	\$19.98	2,759,970

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(1) Consists of the 2003 Stock Option Plan, the 2003 Non-Employee Directors' Stock Option Plan, 1995 Employee Stock Option Plan, the Non-Employee Directors Stock Option Plan, and the Employee Stock Purchase Plan. The 1995 Employee Stock Option Plan and the Non-Employee Directors Stock Option Plan terminated on May 7, 2003, upon shareholder approval of the 2003 Stock Option Plans, however existing stock options outstanding under the 1995 Employee Stock Option Plan and the Non-Employee Directors Stock Option Plan remain outstanding according to their original terms.

(2) Does not include purchase rights accruing under the Employee Stock Purchase Plan for the offering beginning on December 1, 2003, the number of shares and exercise price of which will not be determinable until the expiration of such offering period.

Please refer to Footnote 15 Stock Plans included in Part II, Item 8 of this Form 10-K for further discussion regarding the material features of these equity compensation plans.

ITEM 6. SELECTED CONSOLIDATED FINANCIAL DATA

The information below is not necessarily indicative of results of future operations and should be read in conjunction with Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations" of this Form 10-K in order to fully understand factors that may affect the comparability of the information presented below.

The selected consolidated statement of operations data for the years ended December 31, 2003 and 2002, and the related consolidated balance sheet data as of December 31, 2003 and 2002, were derived from consolidated financial statements audited by KPMG LLP, independent auditors, whose related audit report is included in this Form 10-K. The selected consolidated statement of operations data for the year ended December 31, 2001, was derived from consolidated financial statements audited by Arthur Andersen LLP, independent public accountants, whose related audit report is included in this Form 10-K. The selected consolidated statement of operations data for the years ended December 31, 2000 and 1999, and the related consolidated balance sheet data as of December 31, 2001, 2000 and 1999, were derived from audited consolidated financial statements not included in this Form 10-K.

	Years Ended December 31,				
	2003	2002	2001	2000	1999
	(In thousands, except per share data)				
Statement of Operations Data:					
Sales	\$262,402	\$238,898	\$193,600	\$359,782	\$202,849
Gross profit	87,947	68,760	57,432	176,453	92,202
Total operating expenses	111,079	130,745	104,319	91,253	62,876
(Loss) income from operations	(23,132)	(61,985)	(46,887)	85,200	29,326
Net (loss) income	<u>\$ (44,241)</u>	<u>\$ (41,399)</u>	<u>\$ (31,379)</u>	<u>\$ 68,034</u>	<u>\$ 19,066</u>
Diluted (loss) earnings per share	\$ (1.37)	\$ (1.29)	\$ (0.99)	\$ 2.10	\$ 0.62
Diluted weighted-average common shares outstanding	32,271	32,026	31,712	32,425	30,934
	December 31,				
	2003	2002	2001	2000	1999
	(In thousands)				
Balance Sheet Data:					
Cash, cash equivalents and marketable securities	\$135,213	\$172,347	\$271,978	\$189,527	\$207,483
Working capital	206,156	247,942	349,608	277,154	257,484
Total assets	414,731	455,733	450,195	365,835	325,433
Total debt	201,651	212,220	207,724	83,927	138,866
Stockholders' equity	151,834	183,339	214,345	238,798	156,989

ITEM 7. MANAGEMENT’S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion contains, in addition to historical information, forward-looking statements, within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. Statements that are other than historical information are forward-looking statements. For example, statements relating to our beliefs, expectations and plans are forward-looking statements, as are statements that certain actions, conditions or circumstances will continue. Forward-looking statements involve risks and uncertainties. As a result, our actual results may differ materially from the results discussed in the forward-looking statements. Factors that could cause or contribute to such differences or prove any forward-looking statements, by hindsight to be overly optimistic or unachievable, include, but are not limited to, the following:

- Acceptance by our customers of products manufactured at our China-based manufacturing facility;
- Strict customer “copy exact” requirements which may delay or prevent acceptance of lower-cost components from Tier 1 Asian suppliers;
- Changes or slowdowns in general economic conditions or conditions in the semiconductor and semiconductor capital equipment industries and other industries in which our customers operate;
- Significant fluctuations in our quarterly operating results that are difficult to predict;
- Timing and nature of orders placed by our customers, including their product acceptance criteria;
- Changes in our customers’ inventory management practices;
- Customer cancellations of previously placed orders and shipment delays;
- Pricing competition from our competitors as well as pricing pressure from our customers;
- The introduction of new products by us or our competitors;
- Component shortages or allocations or other factors that change our levels of inventory or substantially increase our spending on inventory;
- Costs incurred and judgments resulting from patent or other litigation;
- Timing and challenges of integrating recent and potential future acquisitions and strategic alliances;
- Periodic charges for excess and obsolete inventory; and
- Future warranty costs in excess of anticipated levels.

For a discussion of these and other factors that may impact our realization of our forward-looking statements, see Part I “Cautionary Statements — Risk Factors.”

Overview

We design, manufacture and support a group of key components and subsystems primarily for vacuum process systems. Our primary products are complex power conversion and control systems. Our products also control the flow of fluids into the process chambers, provide thermal control and sensing within the chamber, deposit thin-films of diamond-like carbon and clean the chamber. Our customers use our products in plasma-based thin-film processing equipment that is essential to the manufacture of, among other things:

- Semiconductor devices for electronics applications;
- Flat-panel displays for hand-held devices, computer and television screens;
- Compact discs, DVDs and other digital storage media;
- Optical coatings for architectural glass, eyeglasses and solar panels; and
- Industrial laser and medical applications.

We also sell spare parts and repair services worldwide through our customer service and technical support organization.

We provide solutions to a diversity of markets and geographic regions. However, we are focused on the semiconductor capital equipment industry, which accounted for approximately 59% of our sales in 2003, 68% of our sales in 2002 and 64% in 2001. We expect future sales to the semiconductor capital equipment industry to represent approximately 55% to 70% of our total revenue, depending upon the strength or weakness of industry cycles. Our sales to customers outside the United States represented approximately 53%, 40% and 36% of our sales in 2003, 2002 and 2001, respectively. We expect our international sales to continue to grow as a percentage of our total sales as more customers build or have their products built in lower-cost regions outside of the United States.

In 2001, 2002 and much of 2003 the semiconductor capital equipment industry experienced the steepest cutback in capital equipment purchases in industry history. As a result, demand for our products from the semiconductor capital equipment industry declined substantially from the peak in 2000, and we have incurred significant operating losses each quarter from the second quarter of 2001 through the third quarter of 2003. In mid 2003, the semiconductor capital equipment industry entered the early stages of what appears to be a return to higher product demand and in the fourth quarter of 2003, we generated positive operating income of approximately \$300,000. We are focused on returning to sustained profitability and achieving operating cash flow breakeven. To achieve this goal, we are in the process of developing a more variable operating model to allow us to remain profitable during industry downturns and continue to be successful during periods of expansion. We are taking the following actions:

- Establishing a China-based manufacturing facility;
- Transitioning a portion of our supply base to Tier 1 Asian suppliers;
- Closing certain facilities and reducing our permanent headcount; and

- Engaging contract manufacturers to manufacture certain products and components which were previously manufactured by us.

In April 2003, we opened our 88,000 square-foot China-based manufacturing facility in Shenzhen, China. At the end of 2003, approximately 11% of our worldwide production was manufactured in China. By the end of 2004, we expect to have transitioned approximately 70% of our Power and Flow Control manufacturing production to China. During the transition period we are running duplicate manufacturing facilities, which is placing pressure on our gross margin. We expect our gross margin to improve throughout 2004 if industry conditions continue to improve.

We plan to transition approximately 50% of our raw material purchasing to Tier 1 Asian suppliers. As of December 31, 2003, approximately 27% of our purchasing has been successfully transitioned and we expect to transition the remaining 23% by December 31, 2004. Our biggest obstacle in our Tier 1 supplier initiative is complying with certain major customers' stringent "copy exact" requirements. We are working closely with our largest original equipment manufacturers, or OEM's, to ensure the transition proceeds on schedule. However, our transition goals may prove difficult to realize because of customer needs.

During 2003, we closed manufacturing facilities in Longmont, Colorado; Matthews, North Carolina; and Austin, Texas. In the first half of 2004, we plan to close our manufacturing facility in Voorhees, New Jersey. We expect to incur between \$500,000 and \$700,000 in restructuring charges in 2004, however, this estimate is subject to change based upon changes in the demand for our products and potential changes to our operating model. We also closed various sales and services locations throughout the world in an effort to rationalize our manufacturing capacity and sales force with the current industry environment.

In the second quarter of 2003, as part of our ongoing cost reduction measures, we engaged a contract manufacturer to manufacture printed circuit boards for our direct current, radio frequency and computer workstation products. In the third quarter of 2003, we sold our Longmont, Colorado manufacturing facility to a contract manufacturer who continues to use this facility to manufacture our industrial flow products.

Critical Accounting Policies and Estimates

The following discussion and analysis of our financial condition and results of operations is based upon our consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States. In preparing our financial statements, we must make estimates and judgments that affect the reported amounts of assets and liabilities, revenues and expenses, and related disclosure of contingent assets and liabilities at the date of our financial statements. Actual results may differ from these estimates under different assumptions or conditions. We believe that the following critical accounting policies, among others, affect our more significant judgments and estimates used in the preparation of our consolidated financial statements.

VALUATION OF INTANGIBLE ASSETS AND GOODWILL — We have approximately \$88.9 million of intangible assets and goodwill as of December 31, 2003, including approximately \$19.4 million related to amortizable intangibles and \$69.5 million in goodwill. In addition to the original cost of these assets, their recorded value is impacted by a number of our policy elections, including estimated useful lives and impairment charges, as well as foreign currency fluctuations.

Due to our cost reduction initiatives we have restructured our business. As a result we have eliminated certain duplicative facilities and consolidated the operational and administrative activities of our reporting units. Based on our similar production characteristics, shared manufacturing facilities and blended financial reporting environment, our management reviews our results of operations as a single reporting unit.

We review our intangible assets and goodwill for impairment annually and whenever events or changes in circumstances indicate that the carrying amount of these assets may not be recoverable. Factors we consider important which could indicate impairment include under performance relative to historical or expected future operating results, changes in the manner of our use of the asset or the strategy for our overall business and negative industry or general economic trends.

In the fourth quarter of 2003, we engaged a third party valuation firm to perform the annual impairment analysis of our non-amortizable intangible assets and goodwill, which indicated that no charge for impairment was currently required. This assessment required estimates of future revenue, operating results and cash flows, as well as estimates of critical valuation inputs such as discount rates, terminal values and similar data. These projections of future results are by their nature subjective, and while they represent management's current best assessment of the future, they may be materially different than actual future results. We will continue to perform impairment analyses of our non-amortizable intangible assets and goodwill resulting from our acquisitions. As a result of future periodic, at least annual, impairment analyses we may record impairment charges that would have a material adverse impact on our operating results. Additionally, we may make strategic business decisions in future periods which impact the fair value of our intangible assets and goodwill, which could result in significant impairment charges.

LONG-LIVED ASSETS INCLUDING INTANGIBLES SUBJECT TO AMORTIZATION — Depreciation and amortization of our long-lived assets is provided using the straight-line method over their estimated useful lives. Changes in circumstances such as the passage of new laws or changes in regulations, technological advances, changes to our business model or changes in our strategy could result in the actual useful lives differing from initial estimates. In those cases where we determine that the useful life of a long-lived asset should be revised, we will depreciate the net book value in excess of the estimated residual value over its revised remaining useful life. Factors such as changes in the planned use of equipment, customer attrition, contractual amendments or mandated regulatory requirements could result in shortened useful lives.

Long-lived assets and asset groups are evaluated for impairment whenever events or changes in circumstances indicate that the carrying amount of such assets may not be recoverable. The estimated future cash flows are based upon, among other things, assumptions about expected future operating performance and estimated discount rates, and may differ from actual cash flows. Impairments will also be assessed when assets are determined to be held-for-sale, as opposed to held and used in operations.

RESERVE FOR EXCESS AND OBSOLETE INVENTORY— Inventory is valued at the lower of cost or market. Given the rapid change in technology, and volatility of the industries in which we serve, we monitor and forecast expected inventory needs based on our constantly changing sales forecast. Inventory is written down or written off when it becomes obsolete, generally because of engineering changes to a product or discontinuance of a product line, or when it is deemed excess. These determinations involve the exercise of significant judgment by management, and as demonstrated in recent periods, demand for our products is volatile and changes in expectations regarding the level of future sales can result in substantial charges against earnings for excess and obsolete inventory. For the years ended December 31, 2003, 2002 and 2001, we recorded charges of \$3.0 million, \$5.8 million and \$6.4 million, respectively, for excess and obsolete inventory. As of December 31, 2003, we had inventory balances of approximately \$65.7 million. A significant decrease in the demand for our products, technological change, or new product development could result in charges for excess and obsolete inventory that are material to our financial condition and results of operations.

RESERVE FOR WARRANTY — We provide warranty coverage for our products, ranging from 12 to 60 months, with the majority of our products ranging from 18 to 24 months, and estimate the anticipated cost of repairing our products under such warranties based on the historical cost of the repairs and expected product failure rates. The assumptions we use to estimate warranty accruals are reevaluated periodically in light of actual experience and, when appropriate, the accruals are adjusted. Our determination of the appropriate level of warranty accrual is subjective, and based on estimates. The industries in which we operate are subject to rapid technological change. As a result, we periodically introduce newer, more complex products, which tend to result in increased warranty costs. We expect the industries in which we operate to continue to require the introduction of new technologies, which could cause our warranty costs to increase in the future. Should product failure rates differ from our estimates, actual costs could vary significantly from our expectations. We recorded warranty charges of \$8.1 million, \$13.2 million and \$7.6 million in 2003, 2002 and 2001, respectively.

COMMITMENTS AND CONTINGENCIES — We are involved in disputes and legal actions arising in the normal course of our business. While we currently believe that the amount of any ultimate potential loss would not be material to our financial position, the outcome of these actions is inherently difficult to predict. In the event of an adverse outcome, the ultimate potential loss could have a material adverse effect on our financial position or reported results of operations in a particular quarter. An unfavorable decision, particularly in patent litigation, could require material changes in production processes and products or result in our inability to ship products or components found to have violated third-party patent rights. We accrue loss contingencies in connection with our

litigation when it is probable that a loss has occurred and the amount of the loss can be reasonably estimated.

REVENUE RECOGNITION — We generally recognize revenue upon shipment of our products and spare parts, at which time title passes to the customer, as our shipping terms are FOB shipping point, the price is fixed and collectability is reasonably assured. Generally, we do not have obligations to our customers after our products are shipped other than pursuant to warranty obligations. In limited instances we provide installation of our products. In accordance with Emerging Issues Task Force Issue 00-21 “Accounting for Revenue Arrangements With Multiple Deliverables”, we allocate revenue based on the fair value of the delivered item, generally the product, and the undelivered item, installation, based on their respective fair values. Revenue related to the undelivered item is deferred until the services have been completed. In certain limited instances, some of our customers have negotiated product acceptance provisions relative to specific orders. Under these circumstances we defer revenue recognition until the related acceptance provisions have been satisfied. Revenue deferrals are reported as customer deposits and deferred revenue.

In certain instances, we require our customers to pay for a portion or all of their purchases prior to our building or shipping these products. Cash payments received prior to shipment are recorded as customer deposits and deferred revenue in the accompanying balance sheets, and then recognized as revenue upon shipment of the products. We do not offer price protections to our customers or allow returns, unless covered by our normal policy for repair of defective products.

We may also deliver products to customers for evaluation purposes. In these arrangements, the customer retains the products for specified periods of time without commitment to purchase. On or before the expiration of the evaluation period, the customer either rejects the product and returns it to us, or accepts the product. Upon acceptance, title passes to the customer, we invoice the customer for the product, and revenue is recognized. Pending acceptance by the customer, such products are reported on our balance sheet at an estimated value based on the lower of cost or market, and are included in the amount for demonstration and customer service equipment, net of accumulated amortization.

STOCK-BASED COMPENSATION — In accordance with Statement of Financial Accounting Standards Nos. 123 and 148, we have elected to continue to account for our employee stock-based compensation plans using the intrinsic value method in accordance with Accounting Principles Board Opinion No. 25, “Accounting for Stock Issued to Employees,” and related interpretations, which do not require compensation expense to be recorded if the consideration to be received is at least equal to the fair value of the common stock to be received at the measurement date. We provide information as to what our earnings and earnings per share would have been had we used the fair value method prescribed by SFAS No. 123. In future periods the Financial Accounting Standards Board will likely require companies to expense the fair value of their stock-

based compensation over the respective vesting period. Such new accounting guidance is expected to have a material effect upon our results of operations.

DEFERRED INCOME TAXES — We account for income taxes in accordance with SFAS No. 109, “Accounting for Income Taxes.” SFAS No. 109 requires deferred tax assets and liabilities to be recognized for temporary differences between the tax basis and financial reporting basis of assets and liabilities, computed at current tax rates, as well as for the expected tax benefit of net operating loss and tax credit carryforwards. During 2003, we recorded valuation allowances against certain of our United States and foreign net deferred tax assets in jurisdictions where we have incurred significant losses in 2001, 2002 and 2003. Given such experience, management could not conclude that it was more likely than not that these net deferred tax assets would be realized. While there are indications that the markets in which we operate may improve in 2004 and 2005, these indications have not yet resulted in substantial taxable income. Accordingly, our management, in accordance with SFAS No. 109, in evaluating the recoverability of these net deferred tax assets, was required to place greater weight on our historical results as compared to projections regarding future taxable income. If we generate future taxable income, or should we be able to conclude that sufficient taxable income is reasonably assured based on profitable operations, in the appropriate tax jurisdictions, against which these tax attributes may be applied, some portion or all of the valuation allowance will be reversed and a corresponding reduction in income tax expense will be reported in future periods. A portion of the valuation allowance relates to the benefit from stock-based compensation. Any reversal of valuation allowances from this item will be reflected as a component of stockholders’ equity.

When recording acquisitions, we have recorded valuation allowances due to the uncertainty related to the realization of certain deferred tax assets existing at the acquisition dates. The amount of deferred tax assets considered realizable is subject to adjustment in future periods if estimates of future taxable income are changed. Any reversals of valuation allowances recorded in purchase accounting will be reflected as a reduction of goodwill in the period of reversal.

Recent Acquisitions

On March 28, 2002, we completed the acquisition of Dressler HF Technik GmbH, or Dressler, a privately owned Stolberg, Germany-based provider of power supplies and matching networks. We acquired Dressler to expand our product offerings to customers in the semiconductor, data storage and flat panel equipment markets with Dressler’s power product portfolio that includes a wide range of power levels and radio frequencies. In addition, with inroads already made into the laser and medical markets, Dressler enables us to explore new market opportunities. Dressler also strengthens our presence in the European marketplace and has well-established relationships with many European customers, who look to Dressler for innovative technical capability, high quality products, and highly responsive customer service.

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On January 18, 2002, we completed the acquisition of Aera Japan Limited, or Aera, a privately held Japanese corporation. Aera supplies the semiconductor capital equipment industry with product lines that include digital mass flow controllers, thermal-based mass flow controllers, pressure-based mass flow controllers, liquid mass flow controllers and liquid vapor delivery systems. Aera provides us with a key leadership position in the gas delivery market. In addition, Aera's products expand our offering of critical subsystem solutions that enable the plasma-based manufacturing processes used in the manufacture of semiconductors.

The results of operations of these acquired companies are included in our consolidated statements of operations as of and since the date of acquisition.

Results of Operations

The following table summarizes certain data as a percentage of sales extracted from our statements of operations:

	Years Ended December 31,		
	2003	2002	2001
Sales	100.0%	100.0%	100.0%
Cost of sales	66.5	71.2	70.3
Gross profit	33.5	28.8	29.7
Operating expenses:			
Research and development	19.7	20.5	23.3
Sales and marketing	11.8	14.6	12.3
General and administrative	8.7	12.8	11.1
Litigation damages and expenses (recovery)	—	2.2	(0.8)
Restructuring charges	1.7	3.8	1.6
Impairment of goodwill and other intangible assets	0.4	0.8	2.8
Impairment of investments and advances	—	—	3.6
Total operating expenses	42.3	54.7	53.9
Loss from operations	(8.8)	(25.9)	(24.2)
Other expense	(3.6)	(0.7)	(1.1)
Net loss before income taxes and minority interest	(12.4)	(26.6)	(25.3)
(Provision) benefit for income taxes	(4.5)	9.3	9.0
Minority interest in net loss	—	—	0.1
Net loss	(16.9)%	(17.3)%	(16.2)%

SALES

The following tables summarize annual net sales, and percentages of net sales, by customer type for each of the three years in the period ended December 31, 2003. Sales for the years ended December 31, 2003 and 2002 include combined sales from Aera and Dressler, subsequent to their acquisitions of approximately \$51.5 million and \$47.0 million, respectively:

	Years Ended December 31,		
	2003	2002	2001
		(In thousands)	
Semiconductor capital equipment	\$155,153	\$163,108	\$123,869
Data storage	26,397	13,570	10,974
Flat panel display	28,953	19,826	19,772
Advanced product applications	51,899	42,394	38,985
	\$262,402	\$238,898	\$193,600

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	Years Ended December 31,		
	2003	2002	2001
Semiconductor capital equipment	59%	68%	64%
Data storage	10	6	6
Flat panel display	11	8	10
Advanced product applications	20	18	20
	<u>100%</u>	<u>100%</u>	<u>100%</u>

The following tables summarize annual net sales, and percentages of net sales, by geographic region for each of the three years in the period ended December 31, 2003:

	Years Ended December 31,		
	2003	2002	2001
		(In thousands)	
United States and Canada	\$124,185	\$143,698	\$124,746
Europe	48,185	32,791	28,957
Asia Pacific	88,919	61,327	39,038
Rest of world	1,113	1,082	859
	<u>\$262,402</u>	<u>\$238,898</u>	<u>\$193,600</u>

	Years Ended December 31,		
	2003	2002	2001
United States and Canada	47%	60%	64%
Europe	19	14	15
Asia Pacific	34	26	21
Rest of world	—	—	—
	<u>100%</u>	<u>100%</u>	<u>100%</u>

Sales were \$262.4 million in 2003, \$238.9 million in 2002 and \$193.6 million in 2001, representing an increase of 10% from 2002 to 2003 and 23% from 2001 to 2002. Excluding the acquisitions of Aera and Dressler, our sales would have increased approximately 10% from 2002 to 2003 and would have been relatively flat from 2001 to 2002.

According to a leading industry research firm sales of semiconductor capital equipment have grown at a compounded annual growth rate in excess of 11% over the past 30 years. However, we believe the industry is highly cyclical and is impacted by changes in the macroeconomic environment, changes in semiconductor supply and demand and rapid technological advances in both semiconductor devices and wafer fabrication processes. Rapid growth and expansion during 2000 was followed by the most pronounced slump in industry history, with year-to-year revenues falling approximately 40% throughout the industry from 2000 to 2001 and declining nominally thereafter. Our sales over the last three years illustrate this cyclicity. Our sales to the semiconductor capital equipment industry declined by approximately 2% from 2001 to 2002, excluding the effect of the acquisitions of Aera and Dressler; and by approximately 5% from 2002 to 2003.

Our sales to the data storage, flat panel display and advanced product applications markets, increased each year from 2001 through 2003. This growth is primarily attributed to market share gains, order trends and the general expansion of end customer products including large flat panel displays, liquid crystal displays, DVD applications and applications dependent upon industrial coatings.

Looking forward to 2004, our revenue may increase due to the recovery of the semiconductor capital equipment industry. Our other markets are also expected to grow

in 2004. However, our average selling prices are likely to decline across all of our markets due to cost reduction initiatives by our major customers.

GROSS MARGIN

Our gross margin was 33.5% in 2003, 28.8% in 2002 and 29.7% in 2001. Our gross margin improved from 2002 to 2003 primarily due to our cost reduction measures, including our ongoing efforts to transition a portion of our manufacturing capacity to China and our supply base to Tier 1 Asian suppliers, as well as improved absorption due to the higher sales base; however, the transition of a portion of our manufacturing capacity to China has required us to operate duplicative manufacturing facilities which during 2003 impacted our gross margin. While we expect the transition of a portion of our production to China and our move to Tier 1 Asian suppliers will improve our gross margins in future periods, factors that could cause our gross margins to be negatively impacted include, but are not limited to the following:

- Continued pricing pressure from our major customers;
- Costs associated with transitioning a portion of our production to our new China facility, including costs incurred to operate duplicate manufacturing facilities;
- Unanticipated costs to comply with our customers' "copy exact" requirements, especially related to our China transition and move to Tier 1 Asian suppliers;
- Cost reduction programs initiated by semiconductor manufacturers and semiconductor capital equipment manufacturers that negatively impact our average selling price;
- Warranty costs in excess of historical rates and our expectations;
- Increased levels of excess and obsolete inventory, either due to market conditions, the introduction of new products by our competitors, or our decision to discontinue certain product lines; and
- Changes in foreign currency exchange rates that might affect our costs.

We recognized charges for excess and obsolete inventory of approximately \$3.0 million, \$5.8 million and \$6.4 million in 2003, 2002 and 2001, respectively. Our warranty charges in 2003, 2002 and 2001 were approximately \$8.1 million, \$13.2 million and \$7.6 million. Taken together, these charges represented approximately 4.2%, 8.0% and 7.2% of sales during 2003, 2002 and 2001, respectively.

The major items affecting our gross margin in these years follow:

- 2003, 2002 and 2001 represent the most severe downturn in the semiconductor industry's history. As a result, our sales declined significantly, which impacted our absorption of fixed costs.

- The semiconductor industry is moving to 300mm wafers and smaller line widths. Typical of products early in their life cycle and at low production levels, these products have lower margins than our established products.
- Our cost of sales was adversely affected by periodic write-downs of excess and obsolete inventory, particularly in the fourth quarter of 2002 when our management made a strategic decision to discontinue certain product offerings, which resulted in an increase in excess and obsolete inventory expense.
- We incurred warranty expense in excess of both historical rates and our expectations related to certain products, which required substantial rework, repair, and in some cases, replacement. The development of these products in 1999 and 2000 was accelerated to meet pressing customer needs in the midst of historically high product demand. During 2002 and 2003 a significant portion of our warranty reserves were used to address these products.

The following summarizes the activity in our warranty reserve during 2003 and 2002:

	Balance at Beginning of Period	Additions Charged To Expense	Deductions	Balance at End of Period
			(In thousands)	
2003	\$9,402	\$ 8,105	\$(10,895)	\$6,612
2002	\$4,471	\$13,150	\$ (8,219)	\$9,402

RESEARCH AND DEVELOPMENT

The market for our subsystems for vacuum process systems and related accessories is characterized by ongoing technological changes. We believe that continued and timely development of new products and enhancements to existing products to support OEM requirements is necessary for us to maintain a competitive position in the markets we serve. Accordingly, we devote a significant portion of our personnel and financial resources to research and development projects and seek to maintain close relationships with our customers and other industry leaders in order to remain responsive to their product requirements. We believe that the continued investment in research and development and ongoing development of new products are essential to the expansion of our markets, and expect to continue to make significant investments in research and development activities. Since our inception, all of our research and development costs have been expensed as incurred.

Our research and development expenses were \$51.6 million in 2003, \$49.0 million in 2002 and \$45.2 million in 2001. As a percentage of sales, research and development expenses decreased from 23.3% in 2001 to 20.5% in 2002 and 19.7% in 2003, due to the higher sales base. The 5.3% increase in research and development expenses from 2002 to 2003 was primarily due to increases in payroll and depreciation of equipment used for new product development. The 8.5% increase in research and development expenses from 2001 to 2002 was primarily due to the acquisitions of Aera and Dressler and expenditures to launch new products. Combined research and development expenses for

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Aera and Dressler were approximately \$2.7 million in 2002. We expect our 2004 research and development expenses, in dollar terms, to be in line with 2003.

SALES AND MARKETING EXPENSES

Due, in part, to our recent acquisitions, our sales and marketing efforts have become increasingly complex. We continue to rationalize our sales and marketing functions with current industry conditions, while at the same time striving to increase market share and net sales. We have continued the effort to market directly to end users of our products, in addition to our traditional marketing to manufacturers of plasma-based equipment. Our sales and marketing expenses support domestic and international sales and marketing activities that include personnel, trade shows, advertising, and other selling and marketing activities.

Sales and marketing expenses were \$31.0 million in 2003, \$34.9 million in 2002 and \$23.8 million in 2001. The 11.1% decrease in sales and marketing expenses from 2002 to 2003 was primarily due to the closing of certain sales and service locations. See Restructuring Charges below for further discussion on these site closures. As a percentage of sales, sales and marketing expenses decreased from 14.6% in 2002 to 11.8% in 2003 due to our cost reduction measures and the higher sales base. Sales and marketing expenses increased from 12.3% of sales in 2001 to 14.6% in 2002 primarily due to our acquisitions of Aera and Dressler in 2002. Combined sales and marketing expenses for these companies were approximately \$9.6 million in 2002. We expect sales and marketing expenses to increase in 2004, due to our higher anticipated sales level.

GENERAL AND ADMINISTRATIVE EXPENSES

Our general and administrative expenses support our worldwide corporate, legal, patent, tax, financial, corporate governance, administrative, information systems and human resource functions in addition to our general management. General and administrative expenses were \$22.9 million in 2003, \$30.5 million in 2002 and \$21.5 million in 2001. The 24.9% decrease in general and administrative expense from 2002 to 2003 was due to our ongoing cost reduction measures as discussed in Restructuring Charges. As a percentage of sales, general and administrative expenses decreased from 12.8% in 2002 to 8.7% in 2003 due to our cost reduction measures and the higher sales base. The 41.9% increase in general and administrative expenses from 2001 to 2002 was primarily due to the absorption of additional headcount as a result of our acquisitions of Aera and Dressler, which contributed approximately \$8.8 million to our general and administrative expenses in 2002. As a percentage of sales, general and administrative expenses increased from 11.1% in 2001 to 12.8% in 2002. We expect our general and administrative expenses in 2004 to be in line with 2003.

LITIGATION DAMAGES AND EXPENSES (RECOVERY)

During 2001, we received a \$1.5 million settlement for recovery of legal expenses pertaining to a patent infringement suit in which we were the plaintiff.

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During 2002, we recorded a charge of \$5.3 million pertaining to damages awarded by a jury in a patent infringement case in which we were the defendant, and legal expenses related to the judgment. The Applied Science and Technology, or ASTeX, division of MKS Instruments, Inc. was the plaintiff in the case, which was tried in a Delaware court. Sales of the product in question have accounted for less than five percent of our total sales each year since the product's introduction. We have entered into a settlement agreement with MKS allowing us to sell the infringing product to one of our customers subsequent to the date of the jury award. Under the settlement agreement, royalties payable to MKS from sales of the infringing product were not material in 2003.

During 2003, litigation with MKS recommenced involving claims that one of our new products infringed certain patents held by MKS. The current patent case has been set for trial in July 2004 and we anticipate significantly increased spending for legal and other trial related expenses in 2004.

RESTRUCTURING CHARGES

During 2001, in response to the downturn in the semiconductor capital equipment industry, we implemented several reductions in force totaling 240 regular employees and 90 temporary employees and closed our manufacturing facilities in Austin, Texas and San Jose, California. Total restructuring charges for 2001 were approximately \$3.1 million.

We recorded restructuring charges totaling \$9.1 million in 2002, primarily associated with changes in operations designed to reduce redundancies and better align Aera's mass flow controller business within its operating framework. Our restructuring plans and associated costs consisted of \$6.0 million to close and consolidate certain manufacturing facilities, and \$3.1 million for related headcount reductions of approximately 223 employees.

At the end of 2002, we announced major changes in our operations to occur through 2003. These included establishing a manufacturing location in China; consolidating worldwide sales forces; a move to Tier 1 suppliers, primarily in Asia; and the intention to close or sell certain facilities.

Associated with the above plan, we recognized restructuring charges of approximately \$4.3 million during 2003. These charges consisted of the recognition of expense for involuntary employee termination benefits for 109 employees in our United States operations and voluntary employee termination benefits, primarily in our Japanese operations for 36 employees, and asset impairments incurred as a result of closing our Longmont, CO manufacturing facilities.

GOODWILL AND OTHER INTANGIBLE ASSET IMPAIRMENTS

During 2003, we determined that one of our mass flow controller products would not conform to changing customer requirements, and as such would no longer be accepted by our customers. As a result, we performed an assessment of the carrying value of the related intangible asset. This assessment consisted of estimating the intangible asset's fair value and comparing the estimated fair value to the carrying value of the asset. We estimated the intangible asset's fair value by applying a hypothetical royalty rate to the projected revenue stream and using a cash flow model discounted at discount rates consistent with the risk of the related cash flows. Based on this analysis we determined that the fair value of the intangible asset was minimal and recorded an impairment of the carrying value of approximately \$1.2 million. Sales of this product represented less than 1% of our total sales during 2001, 2002 and 2003.

During 2000, we made periodic advances and investments totaling approximately \$9.5 million to Symphony Systems, Inc. In 2001, Symphony's financial situation began to deteriorate significantly, and we determined that due to Symphony's need for immediate liquidity, its declining business prospects, including the indefinite postponement of a significant order for its products from a major semiconductor capital equipment manufacturer, the value of our investment in and advances to Symphony had substantially declined. We valued our investments in and advances to Symphony at December 31, 2001, at approximately \$1 million, which reflected our assessment of the value of the Symphony technology license, which we believed had continuing value to us. The amount of the impairment related to Symphony was \$6.8 million.

Symphony effectively ceased operations in February 2002. We hired Symphony's key employees, and acquired Symphony's remaining assets in a foreclosure and liquidation sale of such assets in April 2002. We recorded the assets acquired at their estimated fair values. The excess purchase price over the estimated fair value of tangible assets acquired of approximately \$2.5 million was allocated to amortizable intangibles, with a weighted-average estimated useful life of approximately 5 years.

In the fourth quarter of 2002, our sales to the semiconductor capital equipment industry declined substantially from the third quarter of 2002. As a result we evaluated the carrying amount of assets acquired from Symphony by comparing its estimated future cash flows to its carrying value. This analysis indicated that our investment was impaired and we recorded an intangible impairment charge of \$1.9 million, which was the remaining book value of Symphony's intangible assets.

During 2001 we terminated the operations of our Tower Electronics, Inc. subsidiary and our Fourth State Technology, or FST, product line due to significant softening in the projected demand for these products. Revenue contributed by Tower and FST operations for 2001 represented less than five percent of our total revenue. As a result of these actions, estimated related future cash flows no longer supported the carrying amounts of related goodwill, and we recorded goodwill impairment charges of \$5.4 million in 2001 related to Tower and FST.

OTHER INCOME (EXPENSE)

Other income (expense) consists primarily of interest income and expense, foreign exchange gains and losses and other miscellaneous gains, losses, income and expense items.

Interest income was approximately \$1.7 million in 2003, \$3.3 million in 2002 and \$6.6 million in 2001. The decline in interest income from 2002 to 2003 was due to our lower level of investment in marketable securities and the overall lower rate of interest paid on our investments which resulted from the Federal Reserve lowering interest rates during the period. The prime rate declined by 0.75% from January 2002 to December 2003. Additionally, during 2003 we used approximately \$37.1 million of cash and marketable securities to fund our operations.

Our interest income in 2002 was lower than in 2001 due to our use of cash and marketable securities to finance the acquisitions of Aera in January 2002 and Dressler in March 2002, and to repurchase a portion of our 5.25% and 5.00% convertible subordinated notes in the open market in the fourth quarter of 2002. Interest income also declined throughout 2002 and 2001 due to the Federal Reserve lowering interest rates during the period. The prime rate declined from 9.5% in January 2001 to 4.25% in December 2002.

Interest expense consists principally of interest on our convertible subordinated notes, amortization of our deferred offering costs on these notes, and bank loans and capital leases assumed in the acquisition of Aera. Interest expense was approximately \$11.3 million in 2003, \$12.5 million in 2002 and \$7.4 million in 2001. Interest expense decreased from 2002 to 2003 due to the repurchase of approximately \$15.4 million and \$3.5 million of our 5.25% and 5.00% convertible subordinated notes in the fourth quarter of 2002 and due to the repayment of approximately \$12.8 million of notes payable and capital lease obligations during 2003.

The increase in interest expense from 2001 to 2002 was primarily due to the issuance of our 5.00% convertible subordinated notes in August 2001 and debt and capital leases assumed in the acquisition of Aera in January 2002.

Our foreign subsidiaries' sales are primarily denominated in currencies other than the U.S. dollar. We recorded net foreign currency gains of \$869,000 in 2003, \$5.3 million in 2002 and a loss of \$235,000 in 2001.

Our foreign currency gain in 2002 was primarily related to an intercompany loan of Japanese yen, which was settled in January 2003, that we made to our wholly owned subsidiary Advanced Energy Japan K.K., or AE-Japan, which has a functional currency of yen, for the purpose of effecting the acquisition of Aera. The loan was transacted in the first quarter of 2002, for approximately 5.7 billion yen, approximately \$44 million based upon an exchange rate of 130:1. During the first half of that year, the U.S. dollar weakened significantly against the yen to approximately 119:1, resulting in a gain of \$4.9

million. In July and September 2002, we entered into various foreign currency forward contracts with our primary banks to mitigate the effects of potential future currency fluctuations between the dollar and the yen until the associated intercompany obligations were settled.

In the fourth quarter of 2002, we repurchased approximately \$15.4 million of our 5.25% convertible subordinated notes and \$3.5 million of our 5.00% convertible subordinated notes in the open market at an aggregate cost of approximately \$14.5 million. These purchases resulted in a gain of \$4.2 million. In prior financial statements this gain was reflected as an extraordinary item. In April 2002 the Financial Accounting Standards Board issued Statement of Financial Accounting Standards No. 145, "Rescission of FASB Statements No. 4, 44, and 64, Amendment of FASB Statement No. 13, and Technical Corrections." We adopted the provisions of SFAS No. 145 on January 1, 2003. The adoption of this Statement required us to reclassify our pretax extraordinary gain of \$4.2 million recorded during 2002 to other (expense) income in these financial statements.

Miscellaneous expense items were \$644,000 in 2003, \$2.1 million in 2002 and \$1.0 million in 2001. Miscellaneous expense in 2003 and 2002 was primarily related to the impairment of a marketable equity security. During the fourth quarter of 2002, the fair value of this security continued a substantial decline, and we determined the decline was other than temporary as defined by the Financial Accounting Standards Board. As a result we recorded an impairment charge of approximately \$1.5 million. In the first quarter of 2003, this security continued to decline in value, and we recorded an additional impairment charge of \$175,000. Since the first quarter of 2003, the value of this security has appreciated from \$1.8 million to \$3.3 million at December 31, 2003. However the increase in the fair value of this security will not be reflected in income until the security is sold.

(PROVISION) BENEFIT FOR INCOME TAXES

We account for income taxes in accordance with SFAS No. 109, "Accounting for Income Taxes." SFAS No. 109 requires deferred tax assets and liabilities to be recognized for temporary differences between the tax basis and financial reporting basis of assets and liabilities, computed at current tax rates, as well as for the expected tax benefit of net operating loss and tax credit carryforwards. During 2003, we recorded valuation allowances against certain of our United States and foreign net deferred tax assets in jurisdictions where we have incurred significant losses in 2001, 2002 and 2003. Given such experience, management could not conclude that it was more likely than not that these net deferred tax assets would be realized. While there are indications that the markets in which we operate may improve in 2004 and 2005, we have not yet been able to generate significant taxable income in the jurisdictions in which we operate. Accordingly, our management, in accordance with SFAS No. 109, in evaluating the recoverability of these net deferred tax assets, was required to place greater

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weight on our historical results as compared to projections regarding future taxable income.

Due to the valuation allowances we recorded in 2003, we expect our 2004 effective tax rate to be approximately 15% to 25%, subject to variations in the relative earnings or losses in the tax jurisdictions in which we have operations. If we generate future taxable income, or should we be able to conclude that sufficient taxable income is reasonably assured based on profitable operations, in the appropriate tax jurisdictions, against which these tax attributes may be applied, some portion or all of the valuation allowance will be reversed and a corresponding reduction in income tax expense will be reported in future periods. A portion of the valuation allowance relates to the benefit from stock-based compensation. Any reversal of valuation allowance from this item will be reflected as a component of stockholders' equity.

The income tax provision of \$11.8 million for 2003 represented a negative effective tax rate of 36%. The income tax benefit of \$22.3 million for 2002 represented an effective tax rate of 35%. The income tax benefit of \$17.4 million for 2001 represented an effective rate of 36%.

When recording acquisitions, we have recorded valuation allowances due to the uncertainty related to the realization of certain deferred tax assets existing at the acquisition dates. The amount of deferred tax assets considered realizable is subject to adjustment in future periods if estimates of future taxable income are changed. Reversals of valuation allowances recorded in purchase accounting will be reflected as a reduction of goodwill in the period of reversal.

Quarterly Results of Operations

The following tables present unaudited quarterly results in dollars and as a percentage of sales for each of the eight quarters in the period ended December 31, 2003. We believe that all necessary adjustments have been included in the amounts stated below to present fairly such quarterly information. Due to the volatility of the industries in which our customers operate the operating results for any quarter are not necessarily indicative of results for any subsequent period.

	Quarters Ended							
	Mar. 31, 2002	June 30, 2002	Sept. 30, 2002	Dec. 31, 2002	Mar. 31, 2003	June 30, 2003	Sept. 30, 2003	Dec. 31, 2003
	(In thousands, except per share data)							
Sales	\$ 42,887	\$67,893	\$70,674	\$ 57,444	\$ 56,158	\$62,946	\$ 68,567	\$74,731
Gross profit	13,374	24,312	26,600	4,474	17,950	20,273	23,093	26,631
(Loss) income from operations	(11,423)	(9,330)	(5,788)	(35,444)	(10,885)	(6,825)	(5,741)	319
Other (expense) income	(1,997)	1,424	(2,797)	1,663	(2,750)	(2,340)	(2,261)	(1,957)
Net loss	\$ (8,723)	\$ (5,139)	\$ (5,580)	\$ (21,957)	\$ (8,590)	\$ (5,774)	\$ (27,438)	\$ (2,439)
Basic and diluted loss per share	\$ (0.27)	\$ (0.16)	\$ (0.17)	\$ (0.68)	\$ (0.27)	\$ (0.18)	\$ (0.85)	\$ (0.08)
	Quarters Ended							
	Mar. 31, 2002	June 30, 2002	Sept. 30, 2002	Dec. 31, 2002	Mar. 31, 2003	June 30, 2003	Sept. 30, 2003	Dec. 31, 2003
Percentage of Sales:								
Sales	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Gross margin	31.2	35.8	37.6	7.8	32.0	32.2	33.7	35.6
(Loss) income from operations	(26.6)	(13.7)	(8.2)	(61.7)	(19.4)	(10.8)	(8.4)	0.4
Other (expense) income	(4.7)	2.1	(4.0)	2.9	(4.9)	(3.7)	(3.3)	(2.6)
Net loss	(20.3)%	(7.6)%	(7.9)%	(38.2)%	(15.3)%	(9.2)%	(40.0)%	(3.3)%

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Due to the cyclical nature of the semiconductor capital equipment industry as well as the other industries in which our customers operate, and the sudden changes resulting in severe downturns and upturns, we have experienced and expect to continue to experience significant fluctuations in our quarterly operating results. Our levels of operating expenditures are based, in part, on expectations of future revenues that such expenses support. If revenue levels in a particular quarter do not meet expectations, operating results may be adversely affected.

Our quarterly operating results in 2002 and 2003 reflect the fluctuating demand for our products during this period, principally from manufacturers of semiconductor capital equipment, data storage equipment and flat panel displays, and our ability to adjust our manufacturing capacity and infrastructure to meet this demand. Additionally our average selling prices across all markets declined approximately 2% during 2003.

Sales to the semiconductor capital equipment industry increased 66% in the second quarter of 2002 from the prior quarter, then declined 5% in the third quarter of 2002 from the second quarter of 2002, and a further 42% in the fourth quarter of 2002 from the third quarter of 2002, due to the market conditions discussed above. In the first quarter of 2003 sales to the semiconductor capital equipment industry decreased another 3%. In the second, third and fourth quarters, sales to this industry increased 14%, 1% and 22%, respectively, quarter over quarter.

Data storage sales fluctuated significantly throughout 2002. Flat panel sales increased substantially in the third and fourth quarters of 2002 due to seasonal fluctuations. Data storage sales increased by 128%, 113% and 11% during the first, second and third quarters of 2003. In the fourth quarter of 2003, data storage sales declined 44%. The improvement in data storage sales through the third quarter of 2003, was primarily caused by the growth of DVD applications which are demanding more capacity, density and refined power. The decline in the fourth quarter of 2003 was due to the seasonal demand for end consumer products. Flat panel sales declined by 26% and 22% in the first and second quarters of 2003, then increased by 36% and 38% in the third and fourth quarters of 2003. The volatility of the flat panel market was partially caused by seasonal factors and the increased demand for products utilizing this technology as well as the increasing size and resolution of displays associated with consumer electronic products. Our revenue from all sectors is heavily influenced by general economic conditions and consumer spending patterns in each of the industries we serve.

As a result of the semiconductor capital equipment industry slowdown which started in 2001, we periodically evaluated our reserves for excess and obsolete inventory and income tax valuation allowances, as well as assessed the carrying value of our long-lived assets. As a result of these periodic assessments, our management deemed increased amounts of our inventory to be excess or obsolete particularly in the fourth quarter of 2002; certain intangible assets' fair values did not support their carrying value in the fourth quarter of 2002 and third quarter of 2003; warranty costs associated with certain products were in excess of historical experience and our expectations which also

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adversely affected margins, particularly in the fourth quarter of 2002; and in the third quarter of 2003, due to our continued losses, we recorded a significant valuation allowance against certain of our United States and foreign net deferred tax assets.

In 2002, gross margins improved each quarter through the third quarter, primarily due to better absorption from our increasing sales base. In the fourth quarter of 2002, our gross margin declined substantially as the sudden decline of 19% in our sales base hampered our fixed cost absorption and caused us to adjust our excess and obsolete inventory reserves to reflect our revised sales outlook.

During 2003, as we began the implementation of our China-based manufacturing facility and transition of a portion of our supply base to Tier 1 Asian suppliers, our gross margin was negatively affected due to the costs of running duplicative facilities and new supplier qualification efforts.

Off-Balance Sheet Arrangements

The following table sets forth our significant off-balance sheet arrangements, long-term debt and capital lease obligations as of December 31, 2003.

Contractual obligations	Payments Due by Period (In thousands)						Total
	2004	2005	2006	2007	2008	Thereafter	
Convertible subordinated notes	\$ —	\$ —	\$ 187,718	\$ —	\$ —	\$ —	\$ 187,718
Senior borrowings	8,028	3,484	2,098	323	—	—	13,933
Capital lease obligations	571	157	87	22	5	—	842
Operating lease obligations	6,570	5,560	4,690	3,927	3,384	11,959	36,090
Inventory purchase obligations	13,263	—	—	—	—	—	13,263
Total obligations	\$ 28,432	\$9,201	\$ 194,593	\$4,272	\$3,389	\$ 11,959	\$ 251,846

Please refer to Footnote 7 Notes Payable, Footnote 8 Convertible Subordinated Notes Payable, Footnote 11 Commitments And Contingencies and Footnote 13 Related Party Transactions included in Part II, Item 8 of this Form 10-K for further discussion regarding our significant off-balance sheet arrangements, long-term debt and capital lease obligations.

Our inventory purchase obligations consist of minimum purchase commitments we entered into with various suppliers to ensure we have an adequate supply of critical components to meet the demand of our customers. We believe that these purchase commitments will be consumed in our on-going operations during 2004.

We have also committed to advance up to \$1.5 million to a privately held company in exchange for an exclusive intellectual property license. At December 31, 2003, approximately \$500,000 has been advanced under this agreement and expensed as research and development costs. The amount and

timing of this advance is dependent upon the privately held company achieving certain business development milestones.

Liquidity and Capital Resources

At December 31, 2003, our principle sources of liquidity consisted of cash, cash equivalents and marketable securities of \$135.2 million, and a credit facility consisting of a \$25.0 million revolving line of credit, none of which was outstanding at December 31, 2003. Advances under the revolving line of credit would bear interest at the prime rate (4.00% at February 17, 2004) minus 1%. Any advances under this revolving line of credit will be due and payable in May 2004. We are subject to covenants on our line of credit that provide certain restrictions related to working capital, net worth, acquisitions and payment and declaration of dividends. We were in compliance with all such covenants at December 31, 2003.

During 2003, our cash, cash equivalents and marketable securities decreased \$37.1 million from \$172.3 million at December 31, 2002. In 2006, when our convertible subordinated notes become due, it is possible we may need substantial funds to repay such debt, which totaled \$187.7 million at December 31, 2003. Our 5.00% convertible subordinated notes with a principal balance of \$121.5 million are due September 1, 2006, and our 5.25% convertible subordinated notes with a principal balance of \$66.2 million are due November 15, 2006. Payment would be required if our common stock price remains below approximately \$30 per share for the 5.00% convertible subordinated notes and approximately \$50 per share for the 5.25% convertible subordinated notes. In such a situation, there can be no assurance that we will be able to refinance the debt.

To address our liquidity requirements, we have set a goal to move to a more variable operating model where we will reduce our operating cash flow breakeven point. Additionally, we may raise capital through the public markets during 2004 by issuing common stock or convertible debt securities, or a combination of the two. Such proceeds will be used to realign our capital structure and provide liquidity for the next semiconductor capital equipment up-cycle. However, we cannot provide assurance that such sources of liquidity will be available to us on acceptable terms.

We have historically financed our operations and capital requirements through a combination of cash provided by operations, the issuance of long-term debt and common stock, bank loans, capital lease obligations and operating leases. However, we have not generated positive cash flow from operations since 2001.

Operating activities used cash of \$13.0 million in 2003, reflecting our net loss of \$44.2 million partially offset by non-cash items of \$35.2 million and increased by net working capital changes of approximately \$4.0 million. Non-cash items primarily consisted of the following:

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- Depreciation of property and equipment of \$12.7 million. We expect depreciation expense to increase to a range of \$15.0 million to \$16.0 million in 2004. This increase is primarily due to capital expenditures incurred in 2003 to launch our China-based manufacturing facility and information technology systems expenditures in 2003 and 2004;
- Amortization of intangible assets and demonstration and customer service equipment of \$7.5 million;
- Amortization of deferred debt issuance costs of \$1.1 million;
- Provision for excess and obsolete inventory of \$3.0 million;
- Provision for deferred income taxes of \$6.4 million. In 2003, we recorded valuation allowances against certain of our United States and foreign deferred income tax assets. We may generate taxable income in 2004, enabling us to reverse a portion of our valuation allowance. This reversal would create a use of cash from operations as the benefit from deferred income taxes is a non-cash item;
- A loss on the disposal of property and equipment of \$2.8 million. During 2003, we closed multiple facilities resulting in the disposal of certain property and equipment. We plan to close our Voorhees, New Jersey manufacturing facility in the first half of 2004. Such closure may result in additional capital equipment disposals, if the related equipment cannot be utilized elsewhere in our organization; and
- Intangible asset impairment of \$1.2 million. In the third quarter of 2003, the fair value of one of our intangible assets did not support its carrying value and an impairment loss was recognized. Based on our forecasts, we do not expect to incur additional intangible asset impairments in 2004. However, our forecast is subject to numerous factors that are beyond our control, therefore we can provide no assurance regarding the future recoverability of our intangible assets.

Net working capital changes used cash of \$5.3 million and primarily consisted of the following:

- Collection of \$16.5 million of net income tax receivables during 2003;
- An increase in accounts receivable of \$14.6 million. We expect our accounts receivable to remain high during 2004 if industry conditions continue to improve;
- An \$11.3 million increase in inventory. Due to the establishment of our China-based manufacturing facility and increased sales orders we have built our inventory level to mitigate the risk of not being able to meet increasing customer demand for our products;
- A \$5.9 million increase in trade accounts payable, which was primarily incurred to finance our inventory purchases;
- A \$5.0 million increase in customer deposits and other accrued expenses;
- A \$2.8 million decrease in accrued warranty; and
- A \$2.8 million decrease in accrued restructuring.

Operating activities used cash of \$15.3 million in 2002, reflecting our net loss of \$41.4 million partially offset by non-cash items of \$20.8 million and net working capital

changes of approximately \$5.3 million. Non-cash items primarily consisted of the following:

- A \$4.2 million pretax gain on the retirement of a portion of our convertible notes, repurchased at a discount below face value;
- A \$4.9 million gain on an intercompany foreign currency loan. We do not expect to realize significant gains from intercompany indebtedness in the future as a result of a change in our currency risk management policy;
- A \$6.9 million benefit for deferred income taxes;
- Depreciation of property and equipment of \$13.4 million;
- Amortization of intangible assets and demonstration and customer service equipment of \$8.1 million;
- Provision for excess and obsolete inventory of \$5.8 million;
- Provision for doubtful accounts of \$1.9 million; and
- Impairments of \$5.1 million consisting of intangible assets of \$1.9 million, property and equipment of \$1.6 million and marketable securities of \$1.5 million.

Net working capital changes provided cash of \$5.3 million and primarily consisted of the following:

- A \$5.1 million increase in accounts receivable;
- A \$2.9 million increase in demonstration and customer service equipment;
- A \$4.9 million increase in accrued warranty costs; and
- A \$4.6 million increase in accrued restructuring charges.

Operating activities generated cash of \$7.9 million in 2001, reflecting our net loss of \$31.4 million adjusted for non-cash items of \$32.6 million and changes in working capital of \$6.7 million. Non-cash items primarily consisted of the following:

- A \$3.6 million benefit for deferred income taxes;
- Depreciation of property and equipment of \$10.0 million;
- Amortization of intangible assets and demonstration equipment of \$5.9 million;
- A provision for excess and obsolete inventory of \$6.4 million; and
- Impairments of \$12.3 million. Our impairments consisted of goodwill of \$5.4 million and an investment of \$6.8 million.

Net working capital changes provided cash of \$6.7 million and primarily consisted of:

- A \$45.0 million decrease in accounts receivable;
- A \$5.5 million increase in inventory;
- A \$5.5 million decrease in accounts payable;
- A \$5.1 million decrease in accrued payroll and employee benefits; and
- A \$22.0 million increase in net income taxes receivable.

Our near-term future operating activities may continue to use cash. Periods of rapidly increasing sales may cause increased working capital requirements, thereby requiring the use of cash to fund our operations.

Investing activities used cash of \$8.6 million in 2003 and primarily consisted of the purchase of equipment for \$20.5 million and the settlement of the escrow deposit liability related to our acquisition of Dressler in 2002 of \$1.7 million, partially offset by proceeds from the sale of assets of \$5.2 million and the net sale of marketable securities of \$8.8 million. We expect to spend between \$12.5 million and \$14.0 million for the purchase of property and equipment in 2004. Our planned level of capital expenditures is subject to frequent revisions because our business experiences sudden changes as we move into industry upturns and downturns and expected sales levels change. In addition, changes in foreign currency exchange rates may significantly impact our capital expenditures and depreciation expense recognized in a particular period.

Investing activities provided cash of \$24.3 million in 2002 and consisted of cash generated by the net sale of marketable securities of \$87.9 million; partially offset by cash used for the acquisition of Aera for \$35.7 million net of \$8.3 million of cash acquired; the acquisition of Dressler for \$14.4 million net of \$680,000 of cash acquired; the acquisition of the minority interest of Litmas for \$400,000 in addition to our common stock valued at approximately \$4.2 million; the purchase of property and equipment of \$10.7 million and the purchase of other investments of \$2.8 million. Although investing activities provided cash of \$24.3 million in 2002, our total cash and marketable securities declined approximately \$99.6 million during 2002. Our marketable securities are not considered cash equivalents, and a significant portion of these securities were sold during 2002, to finance the above transactions as well as to fund our operating activities.

Investing activities used cash of \$81.2 million in 2001, and consisted of the acquisition of EMCO for \$29.9 million net of \$459,000 of cash acquired, the net purchase of marketable securities of \$31.6 million, the purchase of investments and advances of \$7.2 million and the purchase of property and equipment of \$12.4 million.

Investing cash flows experience significant fluctuations from year to year as we buy and sell marketable securities, which we convert to cash to fund strategic investments and our operating cash flow, and as we transfer cash into marketable securities when we attain levels of cash that are greater than needed for current operations. However, we do not expect to generate significant levels of cash that are greater than needed for our current operations in the near term.

Financing activities used cash of \$8.6 million in 2003, and consisted of payments on our senior borrowings and capital lease obligations of \$12.8 million, partially offset by proceeds from the exercise of employee stock options and sale of common stock through our employee stock purchase plan, or ESPP of \$4.2 million.

We expect our financing activities to continue to fluctuate in the future. If market

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conditions and our financial position are deemed appropriate, we may repurchase additional convertible notes in the open market. Our payments under capital lease obligations and notes payable may also increase in the future if we enter into additional capital lease obligations or change the level of our bank financing. Our estimated payments under capital lease obligations and bank debt during 2004 will be approximately \$8.6 million. However, a significant portion of these obligations are held in countries other than the United States; therefore, future foreign currency fluctuations, especially between the dollar and the yen, could cause significant fluctuations in our estimated 2004 payment obligations.

Financing activities used cash of \$22.6 million in 2002, and consisted primarily of open market repurchases of our convertible notes of \$14.5 million, the repayment of our senior borrowings and capital lease obligations of \$10.2 million, partially offset by proceeds from the exercise of employee stock options and sale of common stock through our ESPP of \$2.1 million.

Financing activities provided cash of \$124.1 million in 2001, and consisted primarily of proceeds from convertible debt of \$121.25 million and proceeds from the exercise of employee stock options and sale of common stock through our ESPP of \$4.0 million.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Interest Rate Risk

Our exposure to market risk for changes in interest rates relates primarily to our investment portfolio and long-term debt obligations. We generally place our investments with high credit quality issuers and by policy are averse to principal loss and seek to protect and preserve our invested funds by limiting default risk, market risk and reinvestment risk. As of December 31, 2003, our investments in marketable securities consisted primarily of commercial paper, municipal and state bonds and notes and institutional money markets. These securities are highly liquid. Earnings on our marketable securities are typically invested into similar securities. In 2003, the rates we earned on our marketable securities approximated 1.8% on a before tax equivalent basis. Because the Federal Reserve repeatedly lowered interest rates throughout 2001, 2002 and 2003, the interest rates we earned on our investments likewise decreased substantially. This, in conjunction with using our available cash and cash reserves to fund our operations and for acquisitions, including the EMCO acquisition in January 2001, the Aera acquisition in January 2002, the Dressler acquisition in March 2002, and the repurchase of a portion of our convertible subordinated notes in the fourth quarter of 2002, has greatly reduced our recent and anticipated interest income. The impact on interest income of a 10% decrease in the average interest rate would have resulted in approximately \$170,000 less interest income in 2003, \$300,000 in 2002 and \$700,000 in 2001.

The interest rates on our subordinated debt are fixed, specifically, at 5.25% for the \$66.2 million of our debt due November 2006, and at 5.00% for the \$121.5 million of our

debt that is due September 2006. Our offerings of subordinated debt in 1999 and 2001 increased our fixed interest expense upon each issuance, though interest expense was partially reduced by the repurchase of a portion of these offerings. Because these rates are fixed, we believe there is no risk of increased interest expense with regard to these instruments.

The interest rates on our Aera Japan subsidiary's credit lines are variable and currently range from 1.5% to 3.1%. We believe a 10% increase in the average interest rate on these instruments would not have a material effect on our financial position or results of operations.

Foreign Currency Exchange Rate Risk

We transact business in various foreign countries. Our primary foreign currency cash flows are generated in countries in Asia and Europe. During 2003, the U.S. dollar weakened approximately 10% against the Japanese yen and 17% against the euro. It is highly uncertain how currency exchange rates will fluctuate in the future. We have entered into various foreign currency forward exchange contracts to mitigate against currency fluctuations in the Japanese yen, euro, Taiwanese dollar and Chinese yuan. The notional amount of our foreign currency contracts at December 31, 2003 was \$10.2 million. The potential fair value loss for a hypothetical 10% adverse change in foreign currency exchange rates at December 31, 2003, would be approximately \$1.0 million, which would be essentially offset by corresponding gains related to the underlying assets. We will continue to evaluate various methods to minimize the effects of currency fluctuations when we translate the financial statements of our foreign subsidiaries into U.S. dollars. At December 31, 2003 we held foreign currency forward exchange contracts, maturing through March 2004, to purchase U.S. dollars and sell various foreign currencies. The following table summarizes our outstanding contracts as of December 31, 2003:

	Notional Amounts	Market Settlement Amounts	Unrealized (Loss)/Gain
Japanese yen contracts	\$ 3,500,000	\$ 3,650,000	\$(150,000)
Euro contract	200,000	222,000	(22,000)
Taiwanese dollar contract	4,000,000	3,992,000	8,000
Chinese yuan contract	2,500,000	2,496,000	4,000
	<hr/>	<hr/>	<hr/>
Balance at December 31, 2003	\$10,200,000	\$10,360,000	\$(160,000)
	<hr/>	<hr/>	<hr/>

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

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INDEPENDENT AUDITORS' REPORT

The Board of Directors and Stockholders of Advanced Energy Industries, Inc.:

We have audited the accompanying consolidated balance sheets of Advanced Energy Industries, Inc. (a Delaware corporation) and subsidiaries as of December 31, 2003 and 2002 and the related consolidated statements of operations, stockholders' equity and comprehensive loss, and cash flows for the years then ended. In connection with our audits of the 2003 and 2002, consolidated financial statements, we also have audited the 2003 and 2002 financial statement schedules as listed in the accompanying index. These consolidated financial statements and financial statement schedules are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements and financial statement schedules based on our audits. The consolidated financial statements of Advanced Energy Industries, Inc. and subsidiaries for the year ended December 31, 2001 were audited by other auditors who have ceased operations. Those auditors expressed an unqualified opinion on those financial statements, before the revision described in Note 1 to the financial statements, in their report dated February 28, 2002.

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

In our opinion, the 2003 and 2002 consolidated financial statements referred to above present fairly, in all material respects, the financial position of Advanced Energy Industries, Inc. and subsidiaries as of December 31, 2003 and 2002, and the results of their operations and their cash flows for the years then ended, in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the related 2003 and 2002 financial statement schedules, when considered in relation to the basic 2003 and 2002 consolidated financial statements taken as a whole, present fairly, in all material respects, the information set forth therein.

As discussed in Notes 1 and 2 to the consolidated financial statements, Advanced Energy Industries, Inc. and subsidiaries adopted the provisions of Statements of Financial Accounting Standards No. 141, *Business Combinations*, and No. 142, *Goodwill and Other Intangible Assets*, effective January 1, 2002.

As discussed in Note 1 to the consolidated financial statements, Advanced Energy Industries, Inc. and subsidiaries adopted the provisions of Statement of Financial Accounting Standards No. 145, *Rescission of FASB Statements No. 4, 44, and 64, Amendment of FASB Statement No. 13, and Technical Corrections*, effective January 1, 2003.

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As discussed above, the consolidated statements of operations, stockholders' equity and comprehensive loss, and cash flows of Advanced Energy Industries, Inc. and subsidiaries for the year ended December 31, 2001 were audited by other auditors who have ceased operations. As described in Note 1, the consolidated financial statements for the fiscal year ended December 31, 2001 have been revised to include the transitional disclosures required by Statement of Financial Accounting Standards No. 142, *Goodwill and Other Intangible Assets*, which was adopted by the Company as of January 1, 2002. In our opinion, the disclosures for 2001 in Note 1 are appropriate. However, we were not engaged to audit, review, or apply any procedures to the 2001 financial statements of the Company other than with respect to such disclosures and, accordingly, we do not express an opinion or any other form of assurance on the 2001 consolidated financial statements taken as a whole.

KPMG LLP

Denver, Colorado
February 20, 2004

REPORT OF INDEPENDENT PUBLIC ACCOUNTANTS

To Advanced Energy Industries, Inc.:

We have audited the accompanying consolidated balance sheets of Advanced Energy Industries, Inc. (a Delaware corporation) and subsidiaries as of December 31, 2001 and 2000, and the related consolidated statements of operations, stockholders' equity and cash flows for each of the three years in the period ended December 31, 2001. These consolidated financial statements and the schedule referred to below are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements and schedule based on our audits.

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

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of Advanced Energy Industries, Inc. and subsidiaries as of December 31, 2001 and 2000, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2001, in conformity with accounting principles generally accepted in the United States.

Our audits were made for the purpose of forming an opinion on the basic financial statements taken as a whole. The schedule listed in the index to consolidated financial statements is presented for purposes of complying with the Securities and Exchange Commission's rules and is not part of the basic financial statements. This schedule has been subjected to the auditing procedures applied in the audits of the basic financial statements and, in our opinion, fairly states in all material respects the financial data required to be set forth therein in relation to the basic financial statements taken as a whole.

Denver, Colorado,
February 28, 2002.

ARTHUR ANDERSEN LLP

The report of Arthur Andersen LLP (Andersen) is a copy of a report previously issued by Andersen on February 28, 2002. The report has not been reissued by Andersen nor has Andersen consented to its inclusion in this Annual Report on Form 10-K. The Andersen report refers to the consolidated balance sheets as of December 31, 2001 and 2000, and the consolidated statements of operations, stockholders' equity and cash flows for the years ended December 31, 2000 and 1999 which are no longer included in the accompanying financial statements.

ADVANCED ENERGY INDUSTRIES, INC. AND SUBSIDIARIES

CONSOLIDATED BALANCE SHEETS
(In thousands)

	December 31,	
	2003	2002
ASSETS		
CURRENT ASSETS:		
Cash and cash equivalents	\$ 41,522	\$ 70,188
Marketable securities — available-for-sale	93,691	102,159
Accounts receivable —		
Trade (less allowances for doubtful accounts of approximately \$1,303 and \$3,056 at December 31, 2003 and 2002, respectively)	57,156	40,797
Other	4,771	3,088
Income tax receivable	151	14,720
Inventories	65,703	57,306
Other current assets	5,486	6,828
Deferred income tax assets, net	—	17,510
	<hr/>	<hr/>
Total current assets	268,480	312,596
	<hr/>	<hr/>
PROPERTY AND EQUIPMENT , at cost, net of accumulated depreciation of \$50,848 and \$43,109 at December 31, 2003 and 2002, respectively	44,725	41,178
	<hr/>	<hr/>
OTHER ASSETS:		
Deposits and other	5,630	5,181
Goodwill and intangibles, net of accumulated amortization of \$11,197 and \$7,886 at December 31, 2003 and 2002, respectively	88,943	86,601
Demonstration and customer service equipment, net of accumulated amortization of \$5,688 and \$4,549 at December 31, 2003 and 2002, respectively	3,934	6,086
Deferred debt issuance costs, net	3,019	4,091
	<hr/>	<hr/>
	101,526	101,959
	<hr/>	<hr/>
Total assets	\$414,731	\$455,733
	<hr/>	<hr/>

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

ADVANCED ENERGY INDUSTRIES, INC. AND SUBSIDIARIES

CONSOLIDATED BALANCE SHEETS (In thousands, except per share data)

	December 31,	
	2003	2002
LIABILITIES AND STOCKHOLDERS' EQUITY		
CURRENT LIABILITIES:		
Trade accounts payable	\$ 23,066	\$ 16,055
Taxes payable	445	—
Accrued payroll and employee benefits	7,953	9,348
Accrued warranty expense	6,612	9,402
Accrued restructuring charges	3,175	5,989
Other accrued expenses	7,079	4,573
Acquisition related escrow	—	1,675
Customer deposits and deferred revenue	2,952	77
Capital lease obligations, current portion	554	691
Senior borrowings, current portion	8,028	14,506
Accrued interest payable on convertible subordinated notes	2,460	2,338
	<hr/>	<hr/>
Total current liabilities	62,324	64,654
	<hr/>	<hr/>
LONG-TERM LIABILITIES:		
Capital leases, net of current portion	263	669
Senior borrowings, net of current portion	5,905	9,996
Deferred income tax liabilities, net	4,672	8,663
Convertible subordinated notes payable	187,718	187,718
Other long-term liabilities	2,015	694
	<hr/>	<hr/>
	200,573	207,740
	<hr/>	<hr/>
Total liabilities	262,897	272,394
	<hr/>	<hr/>
COMMITMENTS AND CONTINGENCIES		
STOCKHOLDERS' EQUITY:		
Preferred stock, \$0.001 par value, 1,000 shares authorized, none issued and outstanding	—	—
Common stock, \$0.001 par value, 70,000 and 55,000 shares authorized; 32,573 and 32,140 shares issued and outstanding at December 31, 2003 and 2002, respectively	33	32
Additional paid-in capital	142,667	138,429
Retained (deficit) earnings	(48)	44,193
Deferred compensation	(60)	(542)
Unrealized holding gains (losses) on available-for-sale securities, net	1,491	(33)
Cumulative translation adjustments, net	7,751	1,260
	<hr/>	<hr/>
Total stockholders' equity	151,834	183,339
	<hr/>	<hr/>
Total liabilities and stockholders' equity	\$414,731	\$455,733
	<hr/>	<hr/>

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

ADVANCED ENERGY INDUSTRIES, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF OPERATIONS
(In thousands, except per share amounts)

	Years Ended December 31,		
	2003	2002	2001
SALES	\$262,402	\$238,898	\$193,600
COST OF SALES	174,455	170,138	136,168
GROSS PROFIT	87,947	68,760	57,432
OPERATING EXPENSES:			
Research and development	51,647	48,995	45,151
Sales and marketing	31,015	34,940	23,784
General and administrative	22,936	30,533	21,522
Litigation damages and expenses (recovery)	—	5,313	(1,500)
Restructuring charges	4,306	9,060	3,070
Impairment of goodwill and other intangible assets	1,175	1,904	5,446
Impairment of investments and advances	—	—	6,846
Total operating expenses	111,079	130,745	104,319
LOSS FROM OPERATIONS	(23,132)	(61,985)	(46,887)
OTHER INCOME (EXPENSE):			
Interest income	1,721	3,314	6,581
Interest expense	(11,254)	(12,460)	(7,399)
Foreign currency gain (loss)	869	5,280	(235)
Gain on retirement of convertible subordinated notes	—	4,223	—
Other (expense) income, net	(644)	(2,064)	(1,025)
	(9,308)	(1,707)	(2,078)
Net loss before income taxes and minority interest	(32,440)	(63,692)	(48,965)
(PROVISION) BENEFIT FOR INCOME TAXES	(11,801)	22,293	17,441
MINORITY INTEREST IN NET LOSS	—	—	145
NET LOSS	\$ (44,241)	\$ (41,399)	\$ (31,379)
BASIC AND DILUTED NET LOSS PER SHARE	\$ (1.37)	\$ (1.29)	\$ (0.99)
BASIC AND DILUTED WEIGHTED-AVERAGE COMMON SHARES OUTSTANDING	32,271	32,026	31,712

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

ADVANCED ENERGY INDUSTRIES, INC. AND SUBSIDIARIES

**CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY AND
COMPREHENSIVE LOSS**
(In thousands)

FOR THE YEARS ENDED DECEMBER 31, 2003, 2002 AND 2001

	Common Stock		Additional	Retained Earnings (Deficit)	Deferred Compensation	Accumulated Other Comprehensive (Loss) Income	Total Stockholders' Equity
	Shares	Amount	Paid-in Capital				
BALANCES, December 31, 2000	31,537	32	124,930	116,971	(1,620)	(1,515)	238,798
Exercise of stock options for cash	273	—	3,342	—	—	—	3,342
Sale of common stock through employee stock purchase plan	38	—	628	—	—	—	628
Tax benefit related to shares acquired by employees under stock compensation plans	—	—	1,588	—	—	—	1,588
Fair value of stock options assumed in EMCO acquisition	—	—	1,126	—	—	—	1,126
Deferred compensation on stock options issued	—	—	84	—	(84)	—	—
Amortization of deferred compensation	—	—	—	—	610	—	610
Comprehensive loss:							
Equity adjustment from foreign currency translation, net of tax	—	—	—	—	—	(260)	—
Unrealized holding losses, net of tax	—	—	—	—	—	(108)	—
Net loss	—	—	—	(31,379)	—	—	—
Total comprehensive loss	—	—	—	—	—	—	(31,747)
BALANCES, December 31, 2001	31,848	32	131,698	85,592	(1,094)	(1,883)	214,345
Exercise of stock options for cash	118	—	1,389	—	—	—	1,389
Issuance of common stock for acquisition of minority interest of Litmas	120	—	4,219	—	—	—	4,219
Sale of common stock through employee stock purchase plan	54	—	689	—	—	—	689
Tax benefit related to shares acquired by employees under stock compensation plans	—	—	468	—	—	—	468
Amortization of deferred compensation	—	—	—	—	518	—	518
Adjustment for forfeited options	—	—	(34)	—	34	—	—
Comprehensive loss:							
Equity adjustment from foreign currency translation, net of tax	—	—	—	—	—	4,400	—
Unrealized holding losses, net of tax	—	—	—	—	—	(2,641)	—
Less: reclassification adjustment for amounts included in net loss	—	—	—	—	—	1,351	—
Net loss	—	—	—	(41,399)	—	—	—
Total comprehensive loss	—	—	—	—	—	—	(38,289)
BALANCES, December 31, 2002	32,140	32	138,429	44,193	(542)	1,227	183,339
Exercise of stock options for cash	360	1	3,499	—	—	—	3,500

Sale of common stock through employee stock purchase plan	73	—	739	—	—	—	739
Amortization of deferred compensation	—	—	—	—	482	—	482
Comprehensive loss:							
Equity adjustment from foreign currency translation, net of tax	—	—	—	—	—	6,491	—
Unrealized holding gains, net of tax	—	—	—	—	—	1,524	—
Net loss	—	—	—	(44,241)	—	—	—
Total comprehensive loss	—	—	—	—	—	—	(36,226)
	<u>32,573</u>	<u>\$33</u>	<u>\$142,667</u>	<u>\$ (48)</u>	<u>\$ (60)</u>	<u>\$ 9,242</u>	<u>\$151,834</u>
BALANCES, December 31, 2003	<u>32,573</u>	<u>\$33</u>	<u>\$142,667</u>	<u>\$ (48)</u>	<u>\$ (60)</u>	<u>\$ 9,242</u>	<u>\$151,834</u>

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

ADVANCED ENERGY INDUSTRIES, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands)

	Years Ended December 31,		
	2003	2002	2001
CASH FLOWS FROM OPERATING ACTIVITIES:			
Net loss	\$(44,241)	\$(41,399)	\$(31,379)
Adjustments to reconcile net loss to net cash (used in) provided by operating activities - Depreciation of property and equipment	12,718	13,411	9,973
Amortization of intangibles and demonstration and customer service equipment	7,529	8,059	5,930
Amortization of deferred debt issuance costs	1,100	1,301	775
Amortization of deferred compensation	482	518	610
Minority interest	—	—	(145)
Provision (benefit) for deferred income taxes	6,429	(6,888)	(3,579)
Provision for excess and obsolete inventory	3,016	5,803	6,412
Impairment of goodwill and other intangible assets	1,175	1,904	5,446
Impairment of investment	—	—	6,846
Impairment of property and equipment	—	1,618	—
Impairment of marketable security	175	1,544	—
(Recovery of) provision for doubtful accounts	(429)	1,870	282
Unrealized loss on foreign currency forward contracts	160	388	—
Loss on disposal of property and equipment	2,846	359	13
Gain on retirement of convertible subordinated notes	—	(4,223)	—
Unrealized gain on intercompany foreign currency loan	—	(4,879)	—
Changes in operating assets and liabilities, net of assets and liabilities acquired -			
Accounts receivable-trade	(14,556)	(5,067)	44,972
Other receivables	(1,464)	1,386	(128)
Inventories	(11,339)	3,021	(5,484)
Other current assets	1,402	(2,232)	(1,752)
Deposits and other	1,512	(901)	(180)
Demonstration and customer service equipment	(846)	(2,859)	(2,754)
Trade accounts payable	5,873	2,366	(5,528)
Accrued payroll and employee benefits	(439)	(292)	(5,099)
Accrued warranty expense	(2,775)	4,896	496
Accrued restructuring charges	(2,814)	4,562	952
Customer deposits and other accrued expenses	4,970	(179)	3,134
Income taxes payable/receivable, net	16,530	608	(21,949)
Net cash (used in) provided by operating activities	(12,986)	(15,305)	7,864
CASH FLOWS FROM INVESTING ACTIVITIES:			
Purchase of marketable securities	(1,308)	(2,499)	(64,925)
Sale of marketable securities	10,106	90,439	33,312
Proceeds from sale of equipment	5,196	350	—
Purchase of property and equipment	(20,509)	(10,714)	(12,435)
Purchase of investments and advances	(400)	(2,781)	(7,186)
Acquisition of Aera Japan Limited, net of cash acquired	—	(35,689)	—
Acquisition of Dressler HF Technik GmbH, net of cash acquired	(1,675)	(14,395)	—
Acquisition of interest in Litmas, net of cash acquired	—	(400)	—
Acquisition of Engineering Measurements Company, net of cash acquired	—	—	(29,932)
Net cash (used in) provided by investing activities	(8,590)	24,311	(81,166)
CASH FLOWS FROM FINANCING ACTIVITIES:			
Proceeds from notes payable	—	—	837
Repayment of notes payable and capital lease obligations	(12,847)	(10,190)	(1,973)
Proceeds from convertible debt, net	—	—	121,250
Repurchase of convertible debt, net	—	(14,522)	—
Sale of common stock through employee stock purchase plan	739	689	628
Proceeds from exercise of stock options	3,500	1,389	3,342

Net cash (used in) provided by financing activities	(8,608)	(22,634)	124,084
EFFECT OF CURRENCY TRANSLATION ON CASH	1,518	1,861	(543)
(DECREASE) INCREASE IN CASH AND CASH EQUIVALENTS	(28,666)	(11,767)	50,239
CASH AND CASH EQUIVALENTS, beginning of year	70,188	81,955	31,716
CASH AND CASH EQUIVALENTS, end of year	\$ 41,522	\$ 70,188	\$ 81,955
SUPPLEMENTAL DISCLOSURE OF NON-CASH INVESTING AND FINANCING ACTIVITIES:			
Tax benefit related to shares acquired by employees under stock option plans	\$ —	\$ 468	\$ 1,588
Deferred compensation on stock options issued	\$ —	\$ —	\$ 84
SUPPLEMENTAL DISCLOSURE OF CASH FLOW INFORMATION:			
Cash paid for interest	\$ 10,521	\$ 11,517	\$ 4,457
Cash (received) paid for income taxes, net	\$ (9,642)	\$(16,086)	\$ 9,572

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

ADVANCED ENERGY INDUSTRIES, INC. AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

(1) COMPANY OPERATIONS AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Advanced Energy Industries, Inc. (the “Company”), a Delaware corporation, is primarily engaged in the development and production of components and subsystems critical to plasma-based manufacturing processes, which are used by manufacturers of semiconductors and in industrial thin-film manufacturing processes. The Company owns 100% of each of the following subsidiaries: Advanced Energy Japan K.K. (“AE-Japan”), Advanced Energy Industries GmbH (“AE-Germany”), Advanced Energy Industries U.K. Limited (“AE-UK”), Advanced Energy Industries Korea, Inc. (“AE-Korea”), Advanced Energy Taiwan, Ltd. (“AE-Taiwan”), Advanced Energy Industries (ShenZhen) Co., Ltd. and Advanced Energy Industries (Shanghai) Co., Ltd., collectively (“AE-China”), Aera Corporation, Dressler HF Technik GmbH (“Dressler”) and Sekidenko, Inc. (“Sekidenko”).

On March 28, 2002, the Company acquired 100% of Dressler, a privately held Germany-based provider of power supplies and matching networks. On January 18, 2002, the Company acquired 100% of Aera Japan, Ltd. (“Aera”), a privately held Japanese corporation. Aera supplies digital, pressure-based and liquid mass flow controllers, ultrasonic liquid flow meters and liquid vapor delivery systems to the semiconductor capital equipment industry. Aera is 100% owned by various subsidiaries of Advanced Energy Industries, Inc. On January 2, 2001, the Company acquired 100% of Engineering Measurements Company (“EMCO”), a publicly held Longmont, Colorado based manufacturer of electronic and electromechanical precision instruments. The Company completed its acquisition of the 40.5% of Litmas that it did not previously own on April 2, 2002.

Prior to 2002, the Company also owned 100% of the following subsidiaries: Noah Holdings, Inc. (“Noah”), Advanced Energy Voorhees, Inc. (“AEV”), Tower Electronics, Inc. (“Tower”) and EMCO, as well as 59.5% of Litmas.

During 2002, AEV, Tower, Noah, EMCO and Litmas were combined with and into the Company, and Aera was combined with and into AE-Japan.

The acquisitions of Litmas, Aera, Dressler and EMCO were accounted for under the purchase method of accounting and the results of operations of Litmas, Aera, Dressler and EMCO are included since their respective acquisition dates. These acquisitions are discussed in more detail in Note 2.

The Company is subject to many risks, some of which are similar to other companies in its industry. These risks include those which may be associated with the Company’s strategy to reduce operating costs by establishing a new China-based manufacturing facility and transitioning a portion of its supply base to Tier 1 Asian suppliers, significant fluctuations of quarterly operating results, the volatility of the semiconductor and semiconductor capital equipment industries, customer concentration within the markets the Company serves, competition, recent and potential future acquisitions, international operating risks, supply constraints and dependencies, intellectual property rights, dependence on design wins, dependence on key personnel, unanticipated warranty costs, and governmental regulations. Any of these or other risk factors could have a material impact on the Company’s business.

BASIS OF PRESENTATION — The consolidated financial statements include the accounts of the Company and its wholly owned subsidiaries. All significant intercompany accounts and transactions have been eliminated in consolidation. The consolidated financial statements are stated in U.S. dollars and are prepared in accordance with accounting principles generally accepted in the United States of America.

GOODWILL AND INTANGIBLES — Goodwill and certain other intangible assets with indefinite lives, if any, are not amortized. Instead, goodwill and other indefinite-lived intangible assets are subject to periodic (at least annual) tests for impairment. For the periods presented the Company does not have any

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indefinite-lived intangible assets, other than goodwill. Impairment testing is performed in two steps: (i) the Company assesses goodwill for a potential impairment loss by comparing the fair value of its reporting unit with its carrying value, and (ii) if an impairment is indicated because the reporting unit's fair value is less than its carrying amount, the Company measures the amount of impairment loss by comparing the implied fair value of goodwill with the carrying amount of that goodwill.

During 2003, the Company began integrating the operations of its prior stand-alone entities by consolidating certain manufacturing facilities and product groups, thereby transitioning the manufacturing of a portion of its products from previously recognized reporting units to common facilities. As the Company's products possess similar economic characteristics, production processes, customer types and methods to distribute products and provide services, the Company's management reviews financial information at the consolidated level. As a result, the Company reorganized into a single reporting unit during 2003.

In the fourth quarter of 2003, the Company performed its annual goodwill impairment test, and concluded that because the estimated fair value of the Company's reporting unit exceeded its carrying amount, no impairment of goodwill was indicated. As the Company is required to perform the test for impairment at least annually, it is reasonably possible that a future test may indicate impairment, and the amount of the impairment may be material to the Company.

Amortization expense and net loss for the Company for the year of initial application of Statement of Financial Accounting Standards ("SFAS") No. 142 "Goodwill and Other Intangible Assets" and the subsequent and prior year follow:

	Years Ended December 31,		
	2003	2002	2001
		(In thousands)	
Goodwill amortization	\$ —	\$ —	\$ (3,900)
Impairment of goodwill	—	—	(5,446)
Net loss	<u>\$(44,241)</u>	<u>\$(41,399)</u>	<u>\$(31,379)</u>

The following table presents adjusted net loss and loss per share data restated to include the retroactive impact of the adoption of SFAS No. 142:

	Years Ended December 31,		
	2003	2002	2001
		(In thousands)	
Net loss	<u>\$(44,241)</u>	<u>\$(41,399)</u>	<u>\$(31,379)</u>
Add back: Impact of goodwill amortization, net of taxes	<u>—</u>	<u>—</u>	<u>3,900</u>
Adjusted net loss	<u>\$(44,241)</u>	<u>\$(41,399)</u>	<u>\$(27,479)</u>
Net loss per share:			
Basic and diluted	<u>\$ (1.37)</u>	<u>\$ (1.29)</u>	<u>\$ (0.99)</u>
Add back: Impact of goodwill amortization, net of taxes	<u>—</u>	<u>—</u>	<u>0.12</u>
Adjusted net loss per share:			
Basic and diluted	<u>\$ (1.37)</u>	<u>\$ (1.29)</u>	<u>\$ (0.87)</u>

During 2003, the Company determined that one of its mass flow controller products would not conform to changing customer technology requirements, and as such would no longer be accepted by the Company's customers. As a result, the Company performed an assessment of the carrying value of the related intangible asset. This assessment consisted of estimating the intangible asset's fair value and comparing the estimated fair value to the carrying value of the asset. The Company estimated the intangible asset's fair value by applying a hypothetical royalty rate to the projected revenue stream and using a cash flow model discounted at discount rates consistent with the risk of the related cash flows. Based on this analysis the Company determined that the fair value of the intangible asset was minimal and recorded an impairment of the carrying value of approximately \$1.2 million, which has been reported as an intangible asset impairment in the accompanying consolidated financial statements.

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During 2000 and 2001, the Company made periodic advances and investments totaling approximately \$9.5 million to Symphony Systems, Inc., (“Symphony”) a privately held, early-stage developer of equipment productivity management software. In addition, Symphony received investments of approximately \$7.0 million from other parties. In 2001, the Company received an exclusive license and a security interest in all of Symphony’s intellectual and proprietary property.

During 2001, Symphony’s financial situation began to deteriorate significantly, and the Company determined that due to Symphony’s need for immediate liquidity, its declining business prospects, including the indefinite postponement of a significant order for its products from a major semiconductor capital equipment manufacturer, the value of the Company’s investment in and advances to Symphony had substantially declined. The Company valued its investments in and advances to Symphony at December 31, 2001, at approximately \$1 million, which reflected the Company’s assessment of the value of the Symphony technology license, which was believed to have continuing value to the Company. The amount of the impairment related to Symphony was \$6.8 million, all of which was recorded as an operating expense in 2001.

Symphony effectively ceased operations in February 2002. The Company hired Symphony’s key employees, and acquired Symphony’s remaining assets in a foreclosure and liquidation sale of such assets in April 2002. At no time prior to the foreclosure and liquidation sale did the Company’s percentage ownership in the voting stock of Symphony exceed 1.7%, and the Company did not have the ability to exercise significant influence over Symphony. The Company recorded the assets acquired at their estimated fair values. The excess purchase price over the estimated fair value of tangible assets acquired of approximately \$2.5 million was allocated to amortizable intangibles, with a weighted-average estimated useful life of approximately 5 years.

In the fourth quarter of 2002, the Company’s sales to the semiconductor capital equipment industry declined substantially from the third quarter of 2002. As a result the Company evaluated the carrying amount of assets acquired from Symphony by comparing its estimated future cash flows to its carrying value. This analysis indicated that the Company’s investment was impaired by approximately \$1.9 million, which has been reflected as impairment of goodwill and other intangible assets in the accompanying financial statements.

During 2001, the Company reviewed certain amounts recorded as goodwill for impairment under the SFAS No. 121 model. Due to declines in the related businesses and changes in the Company’s strategy, it was determined that the related expected future cash flows no longer supported the recorded amounts of goodwill, and the Company recorded an impairment in the amount of approximately \$5.4 million. Approximately \$3.6 million of this was related to impairment of goodwill associated with Tower and approximately \$1.8 million was related to impairment of goodwill associated with the Company’s Fourth State Technology product line.

The Company’s goodwill and identifiable intangible assets have primarily resulted from purchases of Japanese and German companies, and accordingly, carrying amounts for these assets are impacted by changes in foreign currency exchange rates.

Goodwill and identifiable intangible assets consisted of the following as of December 31, 2002:

	Gross Carrying Amount	Accumulated Amortization	Effect of Changes in Exchange Rates	Net Carrying Amount	Weighted- average Useful Life
	(In thousands, except weighted-average useful life)				
Amortizable intangibles:					
Technology-based	\$ 9,378	\$(3,715)	\$ 937	\$ 6,600	6
Contract-based	9,210	(3,634)	936	6,512	4
Other	8,500	(537)	1,298	9,261	17
	<u>27,088</u>	<u>(7,886)</u>	<u>3,171</u>	<u>22,373</u>	
Total amortizable intangibles	27,088	(7,886)	3,171	22,373	10
	<u>58,629</u>	<u>—</u>	<u>5,599</u>	<u>64,228</u>	
Goodwill	58,629	—	5,599	64,228	
	<u>\$85,717</u>	<u>\$(7,886)</u>	<u>\$8,770</u>	<u>\$86,601</u>	
Total goodwill and intangibles	\$85,717	\$(7,886)	\$8,770	\$86,601	

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Goodwill and identifiable intangible assets consisted of the following as of December 31, 2003:

	Gross Carrying Amount	Accumulated Amortization	Effect of Changes in Exchange Rates	Net Carrying Amount	Weighted- average Useful Life
(In thousands, except weighted-average useful life)					
Amortizable intangibles:					
Technology-based	\$ 7,304	\$ (3,906)	\$ 1,544	\$ 4,942	6
Contract-based	9,210	(5,882)	1,709	5,037	4
Other	8,500	(1,409)	2,363	9,454	17
Total amortizable intangibles	25,014	(11,197)	5,616	19,433	11
Goodwill	58,629	—	10,881	69,510	
Total goodwill and intangibles	\$83,643	\$(11,197)	\$16,497	\$88,943	

Aggregate amortization expense related to goodwill and other intangibles for the years ended December 31, 2003, 2002 and 2001, was \$4.6 million, \$5.5 million and \$4.9 million, respectively. Estimated amortization expense related to the Company's acquired intangibles fluctuates with changes in foreign currency exchange rates between the U.S. dollar and the Japanese yen and the euro. Estimated amortization expense related to acquired intangibles for each of the five years 2004 through 2008 is as follows:

	(In thousands)
2004	\$4,766
2005	4,766
2006	2,385
2007	1,018
2008	825

REVENUE RECOGNITION — The Company generally recognizes revenue upon shipment of its products and spare parts, at which time title passes to the customer, as the Company's shipping terms are FOB shipping point, the price is fixed and collectability is reasonably assured. Generally, the Company does not have obligations to its customers after its products are shipped other than pursuant to warranty obligations. In limited instances the Company provides installation of its products. In accordance with Emerging Issues Task Force Issue 00-21 "Accounting for Revenue Arrangements With Multiple Deliverables", the Company allocates revenue based on the fair value of the delivered item, generally the product, and the undelivered item, installation, based on their respective fair values. Revenue related to the undelivered item is deferred until the services have been completed. In certain limited instances, some of the Company's customers have negotiated product acceptance provisions relative to specific orders. Under these circumstances the Company defers revenue recognition until the related acceptance provisions have been satisfied. Revenue deferrals are reported as customer deposits and deferred revenue.

In certain instances, the Company requires its customers to pay for a portion or all of their purchases prior to the Company building or shipping these products. Cash payments received prior to shipment are recorded as customer deposits and deferred revenue in the accompanying balance sheets, and then recognized as revenue upon shipment of the products. The Company does not offer price protections to its customers or allow returns, unless covered by its normal policy for repair of defective products.

The Company may also deliver products to customers for evaluation purposes. In these arrangements, the customer retains the products for specified periods of time without commitment to purchase. On or before the expiration of the evaluation period, the customer either rejects the product and returns it to the Company, or accepts the product. Upon acceptance, title passes to the customer, the Company invoices the customer for the product, and revenue is recognized. Pending acceptance by the customer, such products are reported on the Company's balance sheet at an estimated value based on the lower of cost or market, and are included in the amount for demonstration and customer service equipment, net of accumulated amortization.

INCOME TAXES — The Company accounts for income taxes in accordance with SFAS No. 109, “Accounting for Income Taxes.” SFAS No. 109 requires deferred tax assets and liabilities to be recognized for temporary differences between the tax basis and financial reporting basis of assets and liabilities, computed at current tax rates, as well as for the expected tax benefit of net operating loss and tax credit carryforwards. During 2003, the Company recorded valuation allowances against certain of its United States and foreign net deferred tax assets in jurisdictions where the Company has incurred significant losses in 2001, 2002 and 2003. Given such experience, the Company’s management could not conclude that it was more likely than not that these net deferred tax assets would be realized. While there are indications that the markets in which the Company operates may improve in 2004 and 2005, these indications have not yet resulted in substantial taxable income. Accordingly, the Company’s management, in accordance with SFAS No. 109, in evaluating the recoverability of these net deferred tax assets, was required to place greater weight on the Company’s historical results as compared to projections regarding future taxable income. If the Company generates future taxable income, or should the Company be able to conclude that sufficient taxable income is reasonably assured based on profitable operations, in the appropriate tax jurisdictions, against which these tax attributes may be applied, some portion or all of the valuation allowance will be reversed and a corresponding reduction in income tax expense will be reported in future periods. A portion of the valuation allowance relates to the benefit from stock-based compensation. Any reversal of valuation allowance from this item will be reflected as a component of stockholders’ equity.

When recording acquisitions, the Company has recorded valuation allowances due to the uncertainty related to the realization of certain deferred tax assets existing at the acquisition dates. The amount of deferred tax assets considered realizable is subject to adjustment in future periods if estimates of future taxable income are changed. Any reversals of valuation allowances recorded in purchase accounting will be reflected as a reduction of goodwill in the period of reversal.

STOCK-BASED COMPENSATION — At December 31, 2003, the Company had five active stock-based compensation plans, which are more fully described in Note 15. The Company accounts for employee stock-based compensation using the intrinsic value method prescribed by Accounting Principles Board Opinion No. 25, “Accounting for Stock Issued to Employees” and related interpretations. With the exception of certain options granted in 1999 and 2000 by a shareholder of Sekidenko, prior to its acquisition by the Company (which was accounted for as a pooling of interests), all options granted under these plans have an exercise price equal to the market value of the underlying common stock on the date of grant, therefore no stock-based compensation cost is reflected in the Company’s net loss.

Had compensation cost for the Company’s plans been determined consistent with the fair value-based method prescribed by SFAS No. 123, “Accounting for Stock-Based Compensation,” the Company’s net loss would have increased to the following adjusted amounts:

	2003	2002	2001
	(In thousands, except per share data)		
Net loss:			
As reported	\$(44,241)	\$(41,399)	\$(31,379)
Adjustment for stock-based compensation determined under fair value-based method for all awards, net of related tax effects in 2002 and 2001	(12,410)	(9,794)	(6,975)
Less: Compensation expense recognized in net loss, net of related tax effects in 2002 and 2001	482	324	329
As adjusted	\$(56,169)	\$(50,869)	\$(38,025)
Basic and diluted loss per share:			
As reported	\$ (1.37)	\$ (1.29)	\$ (0.99)
As adjusted	(1.74)	(1.59)	(1.20)

Compensation expense in 2003 is presented prior to income tax effects due to the Company recording valuation allowances against certain deferred tax assets in 2003 (see Income Taxes). Cumulative compensation cost recognized with respect to options that are forfeited prior to vesting is reflected as a

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reduction of compensation expense in the period of forfeiture. Compensation expense related to awards granted under the Company's employee stock purchase plan is estimated until the period in which settlement occurs, as the number of shares of common stock awarded and the purchase price are not known until settlement.

For SFAS No. 123 purposes, the fair value of each option grant and purchase right granted under the Employee Stock Purchase Plan ("ESPP") are estimated on the date of grant using the Black-Scholes option pricing model with the following weighted-average assumptions:

	2003	2002	2001
OPTIONS:			
Risk-free interest rates	2.96%	3.89%	4.51%
Expected dividend yield rates	0.0%	0.0%	0.0%
Expected lives	2.9 years	2.9 years	7.0 years
Expected volatility	85.64%	88.05%	87.94%
ESPP:			
Risk-free interest rates	1.34%	1.91%	5.68%
Expected dividend yield rates	0.0%	0.0%	0.0%
Expected lives	0.5 years	0.5 years	0.5 years
Expected volatility	83.82%	76.62%	107.11%

During 2003, the Company reassessed the estimated expected lives of its option grants. This assessment was based on a study of historical experience that indicated that such lives were substantially less than had previously been estimated. As a result of this assessment, the Company revised its estimated expected lives for the Company's 2003 and 2002 option grants. Based on the Black-Scholes option pricing model, the weighted-average estimated fair value of employee stock option grants was \$7.88, \$12.54 and \$25.60 for the years ended December 31, 2003, 2002 and 2001, respectively. The weighted-average estimated fair value of purchase rights granted under the ESPP was \$4.99, \$8.92 and \$8.47 for the years ended December 31, 2003, 2002 and 2001, respectively.

WARRANTY POLICY — The Company offers warranty coverage for its products for periods ranging from 12 to 60 months after shipment, with the majority of its products ranging from 18 to 24 months. The Company estimates the anticipated costs of repairing products under warranty based on the historical cost of the repairs and expected failure rates. The assumptions used to estimate warranty accruals are reevaluated periodically in light of actual experience and, when appropriate, the accruals are adjusted. The Company's determination of the appropriate level of warranty accrual is subjective and based on estimates. The industries in which the Company operates are subject to rapid technological change and, as a result, the Company periodically introduces newer, more complex products, which tend to result in increased warranty costs. Estimated warranty costs are recorded at the time of sale of the related product, and are considered a cost of sales. The Company recorded warranty charges of \$8.1 million, \$13.2 million and \$7.6 million for the years ended December 31, 2003, 2002 and 2001, respectively. The following summarizes the activity in the Company's warranty reserves during 2003 and 2002:

	Balance at Beginning of Period	Additions Charged To Expense	Deductions	Balance at End of Period
	(In thousands)			
2003	\$9,402	\$ 8,105	\$(10,895)	\$6,612
2002	\$4,471	\$13,150	\$ (8,219)	\$9,402

RESTRUCTURING COSTS — Restructuring charges include the costs associated with actions taken by the Company in response to the downturn in the semiconductor capital equipment industry and as a result of the ongoing execution of the Company's strategy. These charges consist of costs that are incurred to exit an activity or cancel an existing contractual obligation, including the closure of facilities and employee termination related charges.

Effective January 1, 2003, the Company adopted SFAS No. 146, "Accounting for Exit or Disposal Activities." This statement addresses significant issues regarding the recognition, measurement and reporting of costs that are associated with exit and disposal activities, including restructuring activities that were previously accounted for pursuant to the guidance set forth in Emerging Issues Task Force ("EITF")

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Issue No. 94-3, “Liability Recognition for Certain Employee Termination Benefits and Other Costs to Exit an Activity.” SFAS No. 146 was effective for exit or disposal activities that are initiated after December 31, 2002. The adoption of SFAS No. 146 did not have a material effect on the Company’s financial position or results of operations, however expense recognition of certain restructuring activities in 2003 have been reported in later periods under SFAS No. 146 than would have been the case under EITF Issue No. 94-3.

At the end of 2002, the Company announced major changes in its operations to occur through the end of 2003. These included establishing a new manufacturing facility in China, consolidating worldwide sales forces, a move to Tier 1 suppliers, primarily in Asia, and the intention to close or sell certain facilities.

Associated with the above plan, the Company recognized charges during 2003 as follows:

- In the fourth quarter of 2003, the Company recognized approximately \$1.0 million that consisted primarily of the recognition of expense for involuntary employee termination benefits associated with the Company’s second quarter 2003 headcount reduction and involuntary employee termination benefits of 34 manufacturing and administrative personnel in the Company’s U.S. operations.
- In the third quarter of 2003, the Company recognized charges of approximately \$1.0 million that consisted primarily of the recognition of expense for involuntary employee termination benefits associated with the Company’s second quarter 2003 headcount reduction, asset impairments incurred as a result of exiting its Longmont, Colorado manufacturing facilities, and the involuntary termination of 20 employees in this period.
- In the second quarter of 2003, the Company recognized charges that consisted primarily of the involuntary termination of 55 manufacturing and administrative personnel in the Company’s U.S. operations. Certain of the employees were terminated and paid prior to the end of the second quarter of 2003, which resulted in restructuring charges totaling approximately \$768,000. In addition, certain employees were required to render service beyond a minimum retention period (generally 60 days). In accordance with SFAS No. 146, the Company measured the termination benefits at the communication date, but approximately \$170,000 was recognized as expense during the third quarter of 2003, and approximately \$170,000 was recognized as expense in the fourth quarter of 2003 as these employees completed their service requirement.
- The Company recorded charges totaling approximately \$1.5 million in the first quarter of 2003 primarily associated with manufacturing and administrative personnel headcount reductions in the Company’s Japanese operations. In accordance with Japanese labor regulations the Company offered voluntary termination benefits to all of its Japanese employees. The voluntary termination benefits were accepted by 36 employees, with termination dates in the second quarter of 2003.

The Company recorded restructuring charges totaling \$9.1 million in 2002, primarily associated with changes in operations designed to reduce redundancies and better align the Company’s Aera mass flow controller business within its operating framework. The Company’s restructuring plans and associated costs consisted of \$6.0 million to close and consolidate certain manufacturing facilities, and \$3.1 million for related headcount reductions of approximately 223 employees.

The employee termination costs of \$3.1 million included severance benefits. All terminations and termination benefits were communicated to the affected employees prior to the accrual of the related charges. The affected employees were all part of the Company’s U.S. operations and included full-time permanent and temporary employees, and consisted primarily of manufacturing and administrative personnel.

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Included in the 2002 expense are charges for the closure of a portion of the Company's Voorhees, New Jersey manufacturing facilities, due to the transfer of the manufacturing of these products to Fort Collins, Colorado; the closure of a manufacturing facility in Fort Collins; the closure of EMCO's manufacturing facilities due to the transfer of the manufacturing of these products to Fort Collins, Colorado and Shenzhen, China; and the closure of Litmas. During the fourth quarter of 2002, the Company closed its San Jose, California sales and service location; and the Company's Austin, Texas manufacturing facility for the Aera-brand mass flow controller products, due to the transfer of the manufacturing of these products to Hachioji, Japan, to be co-located with Aera Japan Limited. These costs consisted primarily of payments required under operating lease contracts and costs for writing down related leasehold improvements.

At December 31, 2003, outstanding liabilities related to the 2003 and 2002 restructuring charges were approximately \$3.2 million. At December 31, 2002, outstanding liabilities related to the 2002 restructuring charges were approximately \$6.0 million.

The Company recorded approximately \$3.1 million of restructuring charges in 2001. The Company's restructuring plans and associated costs consisted of \$2.1 million to terminate 330 employees and \$946,000 to close three facilities.

The employee termination costs of \$2.1 million included severance benefits. All terminations and termination benefits were communicated to the affected employees prior to December 31, 2001, and the Company paid the severance benefits in full in 2002. The affected employees were all part of the Company's U.S. operations and included full-time permanent and temporary employees, and consisted primarily of manufacturing and administrative personnel.

The facility related costs of \$946,000 resulted from the phase out of the Company's Austin, Texas manufacturing facility to begin outsourcing the assembly of certain DC power products; the transition of its Voorhees, New Jersey facility from a manufacturing site to a design center; and the closure of Noah's manufacturing and office facilities in San Jose, California, due to the transfer of Noah's manufacturing to Vancouver, Washington, to be co-located with Sekidenko. These accrued costs reflect payments required under operating lease contracts and costs for writing down related leasehold improvements of facilities.

The following table summarizes the components of the restructuring charges, the payments and non-cash charges, and the remaining accrual as of December 31, 2003, 2002 and 2001:

	Employee Severance and Termination Costs	Facility Closure Costs	Total Restructuring Charges
	(In thousands)		
Accrual balance December 31, 2000	\$ 301	\$ 174	\$ 475
Second quarter 2001 restructuring charge	614	—	614
Fourth quarter 2001 restructuring charge	1,510	946	2,456
	<hr/>	<hr/>	<hr/>
Total restructuring charges 2001	2,124	946	3,070
Payments in 2001	(1,460)	(658)	(2,118)
	<hr/>	<hr/>	<hr/>
Accrual balance December 31, 2001	965	462	1,427
	<hr/>	<hr/>	<hr/>
Third quarter 2002 restructuring charge	1,033	2,187	3,220
Fourth quarter 2002 restructuring charge	2,021	3,819	5,840
	<hr/>	<hr/>	<hr/>
Total restructuring charges 2002	3,054	6,006	9,060
Payments in 2002	(2,412)	(2,086)	(4,498)
	<hr/>	<hr/>	<hr/>
Accrual balance December 31, 2002	1,607	4,382	5,989
	<hr/>	<hr/>	<hr/>
First quarter 2003 restructuring charge	1,509	—	1,509
Second quarter 2003 restructuring charge	670	98	768
Third quarter 2003 restructuring charge	704	307	1,011
Fourth quarter 2003 restructuring charge	994	24	1,018
	<hr/>	<hr/>	<hr/>
Total restructuring charges 2003	3,877	429	4,306
Payments in 2003	(4,924)	(2,196)	(7,120)
	<hr/>	<hr/>	<hr/>
Accrual balance December 31, 2003	\$ 560	\$ 2,615	\$ 3,175
	<hr/>	<hr/>	<hr/>

CASH AND CASH EQUIVALENTS — For purposes of reporting cash flows, the Company considers all amounts on deposit with financial institutions and highly liquid investments with an original maturity of 90 days or less to be cash and cash equivalents.

MARKETABLE SECURITIES — The Company has investments in marketable equity securities and municipal bonds, which have original maturities of 90 days or more. In accordance with SFAS No. 115, “Accounting for Certain Investments in Debt and Equity Securities,” the investments are classified as available-for-sale securities and reported at fair value with unrealized gains and losses included in other comprehensive income. Due to the short-term, highly liquid nature of the marketable securities held by the Company, the cost, including accrued interest of such investments, is typically the same as their fair value.

The Company also has investments in marketable equity securities which have been included with deposits and other in the accompanying consolidated balance sheets. In accordance with SFAS No. 115, these investments are classified as available-for-sale securities and reported at fair value with unrealized holding gains and losses included in other comprehensive income. During the fourth quarter of 2002, the fair value of one of these securities continued a substantial decline, and the Company determined the decline was other than temporary as defined by the Financial Accounting Standards Board. As a result the Company recorded an impairment of approximately \$1.5 million. In the first quarter of 2003, this security continued to decline in value, and the Company recorded an impairment of \$175,000. Since the first quarter of 2003, the value of this security has appreciated from \$1.8 million to \$3.3 million at December 31, 2003. In accordance with SFAS No. 115, this increase in value has been reflected as a component of other comprehensive income.

INVENTORIES — Inventories include costs of materials, direct labor and manufacturing overhead. Inventories are valued at the lower of market or cost, computed on a first-in, first-out basis and are presented net of reserves for obsolete and excess inventory. Inventory is written down or written off when it becomes obsolete, generally because of engineering changes to a product or discontinuance of a product line, or when it is deemed excess. These determinations involve the exercise of significant judgment by management, and as demonstrated in recent periods, demand for the Company’s products is volatile and changes in expectations regarding the level of future sales can result in substantial charges against earnings for obsolete and excess inventory.

PROPERTY AND EQUIPMENT — Property and equipment is stated at cost or estimated fair value upon acquisition. Additions, improvements, and major renewals are capitalized. Maintenance, repairs, and minor renewals are expensed as incurred.

Depreciation is provided using the straight-line method over three to ten years for machinery, equipment, furniture and fixtures, with computers and communication equipment depreciated over a three-year life. Amortization of leasehold improvements and leased equipment is provided using the straight-line method over the lease term or the estimated useful life of the assets, whichever period is shorter.

DEMONSTRATION AND CUSTOMER SERVICE EQUIPMENT — Demonstration and customer service equipment are manufactured products that are utilized for sales demonstration and evaluation purposes. The Company also utilizes this equipment in its customer service function as replacement and loaner equipment to existing customers.

The Company amortizes this equipment based on its estimated useful life. Amortization is computed based on a two-year life.

CONCENTRATIONS OF CREDIT RISK — Financial instruments, which potentially subject the Company to credit risk include cash and trade accounts receivable. The Company maintains cash and cash equivalents, investments, and certain other financial instruments with various major financial institutions. The Company performs periodic evaluations of the relative credit standing of these financial institutions and limits the amount of credit exposure with any one institution. The Company’s customers generally are concentrated in the semiconductor capital equipment industry. As a result the Company is generally exposed to credit risk associated with this industry. Sales by the Company’s foreign subsidiaries are

primarily denominated in currencies other than the United States dollar. The Company establishes an allowance for doubtful accounts based upon factors surrounding the credit risk of specific customers, historical trends and other information.

FOREIGN CURRENCY TRANSLATION — The functional currency of the Company's foreign subsidiaries is their local currency. Assets and liabilities of international subsidiaries are translated to United States dollars at yearend exchange rates, and statement of operations activity and cash flows are translated at average exchange rates during the year. Resulting translation adjustments are recorded as a separate component of stockholders' equity.

Transactions denominated in currencies other than the local currency are recorded based on exchange rates at the time such transactions arise. Subsequent changes in exchange rates result in foreign currency transaction gains and losses which are reflected in income as unrealized (based on period-end translation) or realized (upon settlement of the transactions). Unrealized transaction gains and losses applicable to permanent investments by the Company in its foreign subsidiaries are included as cumulative translation adjustments, and unrealized translation gains or losses applicable to non-permanent intercompany receivables from or payables to the Company and its foreign subsidiaries are included in income.

The Company recognized gains of \$869,000 and \$5.3 million during 2003 and 2002, respectively, and losses of \$235,000 in 2001 on foreign currency transactions.

EARNINGS PER SHARE — Basic Earnings Per Share ("EPS") is computed by dividing (loss) income available to common stockholders by the weighted-average number of common shares outstanding during the period. The computation of diluted EPS is similar to the computation of basic EPS except that the numerator is increased to exclude certain charges which would not have been incurred, and the denominator is increased to include the number of additional common shares that would have been outstanding (using the if-converted and treasury stock methods), if securities containing potentially dilutive common shares (convertible subordinated notes payable and options) had been converted to such common shares, and if such assumed conversion is dilutive. Due to the Company's net loss for the years ended December 31, 2003, 2002 and 2001, basic and diluted EPS are the same, as the assumed conversion of all potentially dilutive securities would be anti-dilutive. Potential shares of common stock issuable under options for common stock at December 31, 2003, 2002 and 2001 were approximately 4.0 million, 3.6 million and 2.2 million, respectively. Potential shares of common stock issuable upon conversion of the Company's convertible subordinated notes payable was 5.4 million at December 31, 2003 and 2002, and 5.8 million at December 31, 2001.

COMPREHENSIVE LOSS — Comprehensive loss for the Company consists of net loss, foreign currency translation adjustments and net unrealized holding gains (losses) on available-for-sale marketable investment securities and is presented in the consolidated statement of stockholders' equity.

SEGMENT REPORTING — The Company operates in one segment for the manufacture, marketing and servicing of key subsystems, primarily to the semiconductor capital equipment industry. In accordance with SFAS No. 131, "Disclosures About Segments of an Enterprise and Related Information," the Company's chief operating decision maker has been identified as the Office of the Chief Executive Officer, which reviews operating results to make decisions about allocating resources and assessing performance for the entire company. SFAS No. 131, which is based on a management approach to segment reporting, establishes requirements to report selected segment information quarterly and to report annually entity-wide disclosures about products and services, major customers, and the countries in which the entity holds material assets and reports revenue. All material operating units qualify for aggregation under SFAS No. 131 due to their similar customer base and similarities in: economic characteristics; nature of products and services; and procurement, manufacturing and distribution processes. To report revenues from external customers for each product and service or group of similar products and services would not be practicable. Since the Company operates in one segment, all financial information required by SFAS No. 131 can be found in the accompanying consolidated financial statements.

LONG-LIVED ASSETS — In August 2001, the FASB issued SFAS No. 144, “Accounting for the Impairment or Disposal of Long-Lived Assets.” SFAS No. 144 supersedes SFAS No. 121, “Accounting for the Impairment of Long-Lived Assets and for Long-Lived Assets to Be Disposed Of.” SFAS No. 121 did not address the accounting for a segment of a business accounted for as a discontinued operation, which resulted in two accounting models for long-lived assets to be disposed of. SFAS No. 144 establishes a single accounting model for long-lived assets to be disposed of by sale, and requires that those long-lived assets be measured at the lower of carrying amount or fair value less cost to sell, whether reported in continuing operations or in discontinued operations. SFAS No. 144 is effective for fiscal years beginning after December 15, 2001. The Company adopted SFAS No. 144 on January 1, 2002. In the fourth quarter of 2002, in conjunction with the restructuring of its operations discussed above, the Company determined that its EMCO facilities would be closed. As a result the Company performed an analysis of the fair value of EMCO’s long-lived assets. This analysis included an appraisal of EMCO’s land and building, which indicated an impairment of approximately \$560,000, which has been reflected as restructuring charges in the accompanying statement of operations.

ESTIMATES AND ASSUMPTIONS — The preparation of the Company’s consolidated financial statements in conformity with accounting principles generally accepted in the United States requires the Company’s 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 revenue and expenses during the reporting period. Significant estimates are used when establishing allowances for doubtful accounts, determining useful lives for depreciation and amortization, assessing the need for impairment charges, establishing restructuring accruals and warranty reserves, allocating purchase price among the fair values of assets acquired and liabilities assumed, accounting for income taxes, and assessing excess and obsolete inventory and various others items. The Company evaluates these estimates and judgments on an ongoing basis and bases its estimates on historical experience, current conditions and various other assumptions that are believed to be reasonable under the circumstances. The results of these estimates form the basis for making judgments about the carrying values of assets and liabilities as well as identifying and assessing the accounting treatment with respect to commitments and contingencies. Actual results may differ from these estimates under different assumptions or conditions.

NEW ACCOUNTING PRONOUNCEMENTS — In May 2003, the FASB issued SFAS No. 150, “Accounting for Certain Financial Instruments with Characteristics of both Liabilities and Equity”. SFAS No. 150 establishes standards on the classification and measurement of financial instruments with characteristics of both liabilities and equity. SFAS No. 150 is effective for financial instruments entered into or modified after May 31, 2003 and for all financial instruments at the beginning of the first interim period beginning after June 15, 2003. The adoption of SFAS No. 150 did not have an impact on the Company’s financial position or results of operations.

In April 2003, the FASB issued SFAS No. 149, “Amendment of Statement 133 on Derivative Instruments and Hedging Activities”. SFAS No. 149 amends SFAS No. 133 to provide clarification on the financial accounting and reporting of derivative instruments and hedging activities and requires contracts with similar characteristics to be accounted for on a comparable basis. SFAS No. 149 is effective for contracts entered into or modified after June 30, 2003. The adoption of SFAS No. 149 did not have an impact on the Company’s financial position or results of operations.

In January 2003 the FASB issued FASB Interpretation No. 46, “Consolidation of Variable Interest Entities” (“FIN No. 46”). This interpretation clarifies existing accounting principles related to the preparation of consolidated financial statements when the equity investors in an entity do not have the characteristics of a controlling financial interest or when the equity at risk is not sufficient for the entity to finance its activities without additional subordinated financial support from others parties. FIN No. 46 requires a company to evaluate all existing arrangements to identify situations where a company has a “variable interest” (commonly evidenced by a guarantee arrangement or other commitment to provide financial support) in a “variable interest entity” (commonly a thinly capitalized entity) and further determine when such variable interests require a company to consolidate the variable interest entities’ financial statements with its own. FIN No. 46 is effective immediately for all variable interest entities

created after January 31, 2003, and is effective for all variable interest entities created prior to that date beginning January 1, 2004. The adoption of FIN No. 46 did not, nor is it expected to, have a material impact on the Company's financial position or results of operations.

In November 2002 the EITF reached a consensus on Issue No. 00-21, "Revenue Arrangements with Multiple Deliverables." EITF Issue No. 00-21 addresses revenue recognition on arrangements encompassing multiple elements that are delivered at different points in time, defining criteria that must be met for elements to be considered to be a separate unit of accounting, and addressing the allocation of consideration among determined separate units of accounting. EITF Issue No. 00-21 is effective for revenue arrangements entered into by the Company after June 30, 2003. The adoption of EITF Issue No. 00-21 did not have a material impact on the Company's financial position or results of operations.

In November 2002 the FASB issued FASB Interpretation No. 45, "Guarantor's Accounting and Disclosure Requirements for Guarantees, Including Indirect Guarantees of Indebtedness of Others" ("FIN No. 45"). This interpretation requires a liability to be recognized at the time a company issues a guarantee for the fair value of obligations assumed under certain guarantee agreements. Additional disclosures about guarantee agreements are also required in interim and annual financial statements, including a roll forward of a company's product warranty liabilities. The disclosure provisions of FIN No. 45 were effective for the Company as of December 31, 2002. The provisions for initial recognition and measurement of guarantee agreements are effective on a prospective basis for guarantees that are issued or modified after December 31, 2002. The adoption of FIN No. 45 did not have a material impact on the Company's financial position or results of operations.

In April 2002 the FASB issued SFAS No. 145, "Rescission of FASB Statements No. 4, 44, and 64, Amendment of FASB Statement No. 13, and Technical Corrections." This statement rescinds SFAS No. 4, "Reporting Gains and Losses from Extinguishment of Debt," which required all gains and losses from extinguishments of debt to be aggregated and, if material, classified as an extraordinary item, net of income taxes. As a result, the criteria in Accounting Principles Board Opinion No. 30 will now be used to classify those gains and losses. Any gain or loss on the extinguishment of debt that was classified as an extraordinary item in prior periods presented that does not meet the criteria in APB 30 for classification as an extraordinary item shall be reclassified. The Company adopted the provisions of SFAS No. 145 on January 1, 2003. The adoption of this Statement required the Company to reclassify its pretax extraordinary gain of \$4,223,000 recorded during 2002 to other (expense) income in these financial statements.

RECLASSIFICATIONS — Certain prior period amounts have been reclassified to conform to the current period presentation.

(2) ACQUISITIONS

LITMAS — During 1998, the Company acquired a 29% ownership interest in Litmas, a privately held, North Carolina-based early-stage company that designed and manufactured plasma gas abatement systems and high-density plasma sources. The purchase price consisted of \$1 million in cash. On October 1, 1999, the Company acquired an additional 27.5% interest in Litmas for an additional \$560,000. The purchase price consisted of \$385,000 in the Company's common stock and \$175,000 in cash. The acquisition was accounted for using the purchase method of accounting and resulted in \$523,000 allocated to intangible assets as goodwill. The results of operations of Litmas have been consolidated in the Company's financial statements from the date the controlling interest of 56.5% was acquired. In October 2000, the Company acquired an additional 3.0% interest in Litmas for an additional \$250,000, bringing the Company's ownership interest in Litmas to 59.5%. In April 2002, the Company completed its acquisition of the 40.5% of Litmas that it did not previously own, by issuing approximately 120,000 shares of the Company's common stock valued at approximately \$4.2 million, and approximately \$400,000 of cash. The acquisition of the remaining minority interest in Litmas resulted in approximately \$5.0 million of additional goodwill. In the fourth quarter of 2003, the Company reviewed this asset for impairment under the provisions of SFAS No. 142. Based on this evaluation, an impairment was not indicated. The Company will continue to review this asset in the future for impairment.

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DRESSLER — On March 28, 2002, the Company completed its acquisition of Dressler HF Technik GmbH (“Dressler”), a privately owned Stolberg, Germany-based provider of power supplies and matching networks, for a purchase price of approximately \$15.0 million in cash and a \$1.7 million escrow. The escrow fund was retained by the Company until January 2003, at which time the related escrow liability was settled. The purchase price was also subject to a \$3.0 million earn-out provision if Dressler achieved certain key business objectives by March 30, 2003. These business objectives were not met prior to the expiration date.

The Company believes that Dressler expands the Company’s product offerings to customers in the semiconductor, data storage, and flat panel equipment markets due to its strong power product portfolio that includes a wide range of power levels and radio frequencies. In addition, with inroads already made into the laser and medical markets, Dressler is used to explore new market opportunities for the Company. Dressler also strengthens the Company’s presence in the European marketplace. Dressler has well- established relationships with many European customers, who look to Dressler for innovative technical capability, quality products, and highly responsive customer service. The Company also expects to achieve synergies in product technology, production efficiency, logistics and worldwide service.

The acquisition was accounted for using the purchase method of accounting in accordance with SFAS No. 141, “Business Combinations,” and the operating results of Dressler are reflected in the accompanying consolidated financial statements prospectively from the date of acquisition. The tangible assets acquired and liabilities assumed were recorded at estimated fair values as determined by the Company’s management. Goodwill and other intangible assets were recorded at estimated fair values based upon independent appraisals.

The purchase price was allocated to the net assets of Dressler as summarized below:

	(In thousands)
Cash and cash equivalents	\$ 680
Accounts receivable	1,939
Inventories	1,111
Other current assets	83
Fixed assets	260
Goodwill	9,405
Intangibles	7,750
Other assets	19
Accounts payable	(314)
Accrued payroll	(39)
Other accrued expenses	(474)
Deferred tax liability	(2,945)
Income taxes payable	(725)
	<hr/>
	\$16,750
	<hr/>

The excess purchase price over the estimated fair value of tangible net assets acquired was allocated to goodwill and intangibles (see Note 1). In the fourth quarter of 2003, the Company reviewed these assets for impairment under the provisions of SFAS No. 142. Based on this evaluation, an impairment was not indicated. The Company will continue to review these assets in the future for impairment. The Company recognized approximately \$2.5 million and \$769,000 of amortization expense related to these amortizable intangibles acquired from Dressler in the years ended December 31, 2003 and 2002, respectively.

Prior to the combination, there were transactions between the Company and Dressler in 2001 and the first three months of 2002. In 2001, the Company purchased approximately \$2.0 million of inventory from Dressler, and Dressler purchased approximately \$200,000 of inventory from the Company. In the first three months of 2002, the Company purchased approximately \$500,000 of inventory from Dressler. These purchases were made in the normal course of the Company’s business.

AERA — On January 18, 2002, the Company completed its acquisition of Aera Japan Limited (“Aera”), a privately held Japanese corporation. The Company effected the acquisition through its wholly owned

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subsidiary, AE-Japan, which purchased all of the outstanding stock of Aera. The aggregate purchase price paid by AE-Japan was 5.73 billion Japanese yen (approximately \$44.0 million, based upon an exchange rate of 130:1), which the Company funded from its available cash. In connection with the acquisition, AE-Japan assumed approximately \$34.0 million of Aera's debt. Aera supplies the semiconductor capital equipment industry with product lines that include digital mass flow controllers, pressure-based mass flow controllers, liquid mass flow controllers, ultrasonic liquid flow meters and liquid vapor delivery systems.

The Company believes that Aera provides it with a key leadership position in the gas delivery market and expands the Company's offering of critical sub-system solutions that enable the plasma-based manufacturing process used in the manufacture of semiconductors, as well as providing improved access to potential Asian-based customers for the Company's other products.

The acquisition was accounted for using the purchase method of accounting in accordance with SFAS No. 141 and the operating results of Aera are reflected in the accompanying consolidated financial statements prospectively from the date of acquisition. The tangible assets acquired and liabilities assumed were recorded at estimated fair values as determined by the Company's management. Goodwill and other intangible assets were recorded at estimated fair values based upon independent appraisals.

The purchase price was allocated to the net assets of Aera as summarized below:

	(In thousands)
Cash and cash equivalents	\$ 8,276
Marketable securities	115
Accounts receivable	8,405
Inventories	19,243
Other current assets	530
Fixed assets	13,388
Goodwill	24,869
Other intangibles	12,500
Other assets	427
Accounts payable	(2,329)
Accrued payroll	(2,924)
Other liabilities	(2,164)
Deferred tax liability	(4,765)
Current portion of long-term debt	(12,008)
Long-term debt	(19,598)
	<hr/>
	\$ 43,965
	<hr/>

There were no transactions between the Company and Aera prior to the combination. The excess purchase price over the estimated fair value of tangible net assets acquired was allocated to goodwill and intangibles (see Note 1). In the fourth quarter of 2003, the Company reviewed these assets for impairment under the provisions of SFAS No. 142. Based on this evaluation, an impairment was not indicated. The Company will continue to review these assets in the future for impairment. The Company recognized approximately \$1.4 million and \$3.0 million of amortization expense related to the amortizable intangibles acquired from Aera for the years ended December 31, 2003 and 2002, respectively.

Had the acquisitions of Aera and Dressler occurred on January 1, 2001, the pro forma, unaudited, combined results of operations for the Company, Aera and Dressler for the year ended December 31, 2001 would have generated revenue of approximately \$267.8 million, net loss of approximately \$50.1 million and basic and diluted loss per share of \$1.58. However, pro forma results are not necessarily indicative of future results. Pro forma results for the year ended December 31, 2002 are not presented, as the difference between the pro forma results and actual results are not material.

EMCO — On January 2, 2001, EMCO, a publicly held, Longmont, Colorado-based manufacturer of electronic and electromechanical precision instruments for measuring and controlling the flow of liquids, steam and gases, was merged with a wholly owned subsidiary of the Company. The Company paid the EMCO shareholders cash in an aggregate amount of approximately \$30.0 million. In connection with the acquisition, the Company issued stock options to purchase approximately 71,000 shares of its common stock for the assumption of outstanding, fully vested options for EMCO common stock. The fair value of

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the options granted was estimated by the Company (using the Black-Scholes option pricing model) to be approximately \$1.1 million.

The acquisition was accounted for using the purchase method of accounting, and the operating results of EMCO are reflected in the accompanying consolidated financial statements prospectively from the date of acquisition. The assets acquired and liabilities assumed were recorded based upon independent appraisals of the fair values of the acquired property, plant and equipment, identified intangible assets and goodwill.

The purchase price was allocated to the net assets of EMCO as summarized below:

	(In thousands)
Cash and cash equivalents	\$ 459
Marketable securities	674
Accounts receivable	1,167
Inventories	1,678
Deferred income tax assets, current	584
Other current assets	88
Fixed assets	4,596
Goodwill	20,878
Other intangibles	3,400
Accounts payable	(355)
Accrued payroll	(405)
Other accrued expenses	(391)
Deferred tax liability	(856)
	<hr/>
	\$31,517
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There were no transactions between the Company and EMCO prior to the combination. The excess purchase price over the estimated fair value of tangible net assets acquired was allocated to goodwill and intangibles, which were amortized in 2001 over an average of a seven-year life. In accordance with SFAS Nos. 141 and 142, the Company ceased amortization of goodwill on January 1, 2002. In the fourth quarter of 2003, the Company reviewed these assets for impairment under the provisions of SFAS No. 142. Based on this evaluation, an impairment was not indicated. The Company will continue to review these assets in the future for impairment. The amount of annual goodwill amortization, which will no longer be recorded, is approximately \$3.3 million.

(3) MARKETABLE SECURITIES

Marketable securities consisted of the following:

	December 31,	
	2003	2002
	<hr/>	<hr/>
	(In thousands)	
Commercial paper	\$41,113	\$ 65,250
Municipal bonds and notes	46,762	34,100
Institutional money markets	5,816	2,809
	<hr/>	<hr/>
	\$93,691	\$102,159
	<hr/>	<hr/>

These marketable securities are stated at period end market value. The commercial paper consists of high credit quality, short-term money market common and preferreds, with maturities or reset dates of 120 days or less.

(4) ACCOUNTS RECEIVABLE – TRADE

Accounts receivable — trade consisted of the following:

	December 31,	
	2003	2002
	(In thousands)	
Domestic	\$17,100	\$16,475
Foreign	41,359	27,378
Allowance for doubtful accounts	(1,303)	(3,056)
Total accounts receivable	\$57,156	\$40,797

(5) INVENTORIES

Inventories consisted of the following:

	December 31,	
	2003	2002
	(In thousands)	
Parts and raw materials	\$47,120	\$40,147
Work in process	4,385	4,435
Finished goods	14,198	12,724
Total inventories	\$65,703	\$57,306

Inventories include costs of materials, direct labor and manufacturing overhead. Inventories are valued at the lower of market or cost, computed on a first-in, first-out basis. Inventory is expensed as cost of sales upon recognition of revenue.

(6) PROPERTY AND EQUIPMENT

Property and equipment consisted of the following:

	December 31,	
	2003	2002
	(In thousands)	
Land	\$ 5,663	\$ 5,946
Buildings	4,293	7,123
Machinery and equipment	36,039	35,432
Computers and communication equipment	24,324	18,872
Furniture and fixtures	6,268	5,666
Vehicles	1,368	159
Leasehold improvements	17,618	11,089
	95,573	84,287
Less – accumulated depreciation	(50,848)	(43,109)
Total property and equipment	\$ 44,725	\$ 41,178

(7) NOTES PAYABLE

Notes payable consisted of the following:

December 31,

	2003	2002
	(In thousands)	
Revolving line of credit of \$25,000,000, expiring May 2004, interest at bank's prime rate minus 1%, (3.00% at December 31, 2003). Loan covenants provide certain financial restrictions related to working capital, leverage, net worth, payment and declaration of dividends and profitability	\$ —	\$ —
Senior borrowings (assumed in the acquisition of Aera), maturing serially through May 2007, interest at 1.5% to 3.1% at December 31, 2003	13,933	24,502
Less – current portion	(8,028)	(14,506)
	<u>\$ 5,905</u>	<u>\$ 9,996</u>

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Scheduled maturities of the Company's senior borrowings and convertible subordinated notes payable (see Note 8) are as follows at December 31, 2003:

	Bank Loans	Convertible Subordinated Notes	Total
		(In thousands)	
2004	\$ 8,028	\$ —	\$ 8,028
2005	3,484	—	3,484
2006	2,098	187,718	189,816
2007	323	—	323
Total	\$13,933	\$187,718	\$201,651

The Company is subject to covenants on its line of credit that provide certain restrictions related to working capital, leverage, net worth, and payment and declaration of dividends. The Company was in compliance with these covenants at December 31, 2003.

(8) CONVERTIBLE SUBORDINATED NOTES PAYABLE

In August 2001, the Company issued \$125 million of 5.00% convertible subordinated notes. These notes mature September 1, 2006, with interest payable on March 1st and September 1st of each year beginning March 1, 2002. Net proceeds to the Company were \$121.25 million, after deducting \$3.75 million of offering costs, which have been capitalized and are being amortized as additional interest expense over a period of five years. Holders of the notes may convert the notes at any time before maturity into shares of the Company's common stock at a conversion rate of 33.5289 shares per each \$1,000 principal amount of notes, equivalent to a conversion price of approximately \$29.83 per share. The conversion rate is subject to adjustment in certain circumstances. The Company may redeem the notes, in whole or in part, at any time before September 4, 2004, at specified redemption prices plus accrued and unpaid interest, if any, to the date of redemption if the closing price of the Company's common stock exceeds 150% of the conversion price then in effect for at least 20 trading days within a period of 30 consecutive trading days ending on the trading day before the date of mailing of the provisional redemption notice. Upon any provisional redemption, the Company will make an additional payment in cash with respect to the notes called for redemption in an amount equal to \$150.56 per \$1,000 principal amount of notes, less the amount of any interest paid on the note. The Company may also make this additional payment in shares of its common stock, and any such payment will be valued at 95% of the average of the closing prices of the Company's common stock for the five consecutive trading days ending on the day prior to the redemption date. The Company will be obligated to make an additional payment on all notes called for provisional redemption. The Company may also redeem the notes from September 4, 2004 through August 31, 2005 at 102% times the principal amount, from September 1, 2005 through August 31, 2006 at 101% times the principal amount, and thereafter at 100% of the principal amount. The notes are subordinated to the Company's present and potential future senior debt, and are effectively subordinated in right of payment to all indebtedness and other liabilities of the Company's subsidiaries. At December 31, 2003, approximately \$2.0 million of interest expense related to these notes was accrued as a current liability.

In November 1999, the Company issued \$135 million of 5.25% convertible subordinated notes. These notes mature November 15, 2006, with interest payable on May 15th and November 15th each year beginning May 15, 2000. Net proceeds to the Company were approximately \$130.5 million, after deducting \$4.5 million of offering costs, which have been capitalized and are being amortized as additional interest expense over a period of seven years. Holders of the notes may convert the notes at any time into shares of the Company's common stock, at \$49.53 per share. The Company may redeem the notes on or after November 19, 2002 at a redemption price of 103.00% of the principal amount, and may redeem at successively lesser amounts thereafter until November 15, 2006, at which time the Company may redeem at a redemption price equal to the principal amount. At December 31, 2003, approximately \$400,000 of interest expense related to these notes was accrued as a current liability.

In October and November 2000, the Company repurchased an aggregate of approximately \$53.4 million principal amount of its 5.25% convertible subordinated notes in the open market, for a cost of approximately \$40.8 million.

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In October and November 2002, the Company repurchased approximately \$15.4 million and \$3.5 million principal amounts of its 5.25% and 5.00% convertible subordinated notes, respectively. These purchases were made in the open market, for a cost of approximately \$14.5 million, resulting in a pre-tax gain of \$4.2 million. At December 31, 2003 and 2002, approximately \$66.2 million and \$121.5 million principal amounts of the 5.25% and 5.00% notes remained outstanding.

The Company may continue to purchase additional notes in the open market from time to time, if market conditions and the Company's financial position are deemed favorable for such purposes.

(9) INCOME TAXES

The income tax provision of \$11.8 million in 2003 represents an effective rate of negative 36%. This effective income tax rate reflects the establishment of a valuation allowance against the Company's deferred tax assets as discussed below. The income tax benefit of \$22.3 million for 2002 represents an effective rate of 35%. The income tax benefit of \$17.4 million for 2001 represented an effective rate of 36%. The provision (benefit) for income taxes for the years ended December 31, 2003, 2002 and 2001 were as follows:

	December 31,		
	2003	2002	2001
	(In thousands)		
Federal	\$ 8,437	\$(18,575)	\$(17,468)
State and local	784	(2,178)	(469)
Foreign taxes	2,580	(1,540)	496
	<u>\$11,801</u>	<u>\$(22,293)</u>	<u>\$(17,441)</u>
Current	\$ 5,372	\$(15,405)	\$(13,462)
Deferred	6,429	(6,888)	(3,979)
	<u>\$11,801</u>	<u>\$(22,293)</u>	<u>\$(17,441)</u>

The following reconciles the Company's effective tax rate to the federal statutory rate for the years ended December 31, 2003, 2002 and 2001:

	December 31,		
	2003	2002	2001
	(In thousands)		
Income tax benefit per federal statutory rate	\$(11,354)	\$(22,293)	\$(17,138)
State income taxes, net of federal deduction	(1,328)	(1,414)	(1,259)
Foreign sales corporation	(350)	(262)	(688)
Nondeductible intangible and goodwill amortization	98	183	2,818
Other permanent items, net	(456)	760	(1,716)
Effect of foreign taxes	(333)	(272)	2
Change in valuation allowance	29,130	1,255	790
Tax credits and other items	(3,606)	(250)	(250)
	<u>\$ 11,801</u>	<u>\$(22,293)</u>	<u>\$(17,441)</u>

The Company's deferred income tax assets and liabilities are summarized as follows:

	December 31,	
	2003	2002
	(In thousands)	
Current		
Employee bonuses and commissions	\$ 314	\$ 401
Warranty reserve	2,463	3,291
Bad debt reserve	533	1,131

Vacation accrual	806	1,077
Restructuring accrual	1,222	2,096
Obsolete and excess inventory	4,093	8,168
Net operating loss and tax credit carryforward	—	6,670
Other	988	401
Valuation allowance	(10,419)	(5,725)
	<u> </u>	<u> </u>
Net Current	—	17,510
Long-term		
Net operating loss and tax credit carryforward	38,246	—
Accumulated other comprehensive income	(5,464)	(756)
Depreciation and amortization	(7,898)	(6,777)
Other, net	3,340	5,675
Valuation allowance	(32,896)	(6,805)
	<u> </u>	<u> </u>
	\$ (4,672)	\$ (8,663)
	<u> </u>	<u> </u>

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The following reconciles the change in the net deferred income tax asset from December 31, 2002 to December 31, 2003, to the deferred income tax benefit:

	2003
	(In thousands)
Net change in deferred income tax asset from the preceding table	\$13,519
Net change in deferred tax liabilities associated with foreign currency fluctuation	(2,382)
Increase in deferred tax liabilities associated with other comprehensive income	(4,708)
	<hr/>
Deferred income tax provision for the period	\$ 6,429
	<hr/>

During 2003, the Company recorded valuation allowances against certain of its United States and foreign net deferred tax assets in jurisdictions where the Company has incurred significant losses (see Note 1). If the Company generates future taxable income, or should the Company be able to conclude that sufficient taxable income is reasonably assured based on profitable operations, in the appropriate tax jurisdictions, against which these tax attributes may be applied, some portion or all of the valuation allowance will be reversed and a corresponding reduction in income tax expense will be reported in future periods. A portion of the valuation allowance relates to the benefit from stock-based compensation. Any reversal of valuation allowance from this item will be reflected as a component of stockholders' equity. When recording acquisitions, the Company has recorded valuation allowances against certain deferred tax assets due to the uncertainty related to the realization of those deferred tax assets. The amount of deferred tax assets considered realizable is subject to adjustment in future periods if estimates of future taxable income are changed. Reversals of valuation allowances recorded in purchase accounting will be reflected as a reduction of goodwill in the period of reversal.

As of December 31, 2003, the Company had a gross federal net operating loss, alternative minimum tax credit and research and development credit carryforwards of approximately \$65 million, \$2 million and \$4 million, respectively, which may be available to offset future federal income tax liabilities. The federal net operating loss and research and development credit carryforwards expire at various dates through December 31, 2023, the alternative minimum tax credit carryforward has no expiration date. In addition, as of December 31, 2003, the Company had a gross foreign net operating loss carryforward of \$11 million, which may be available to offset future foreign income tax liabilities and expire at various dates through December 31, 2008.

The domestic versus foreign component of the Company's net loss before income taxes for the years ended December 31, 2003, 2002 and 2001, was as follows:

	December 31,		
	2003	2002	2001
		(In thousands)	
Domestic	\$(35,137)	\$(60,070)	\$(50,377)
Foreign	2,697	(3,622)	1,412
	<hr/>	<hr/>	<hr/>
	\$(32,440)	\$(63,692)	\$(48,965)
	<hr/>	<hr/>	<hr/>

(10) RETIREMENT PLANS

The Company has 401(k) profit sharing plans which cover most full-time employees age eighteen or older. Participants may defer up to the maximum amount allowed as determined by law. Participants are immediately vested in their contributions.

The Company may make discretionary contributions based on corporate financial results. In 2001, the Company's contributions for participants in its 401(k) Plans was 50% matching on contributions by employees up to 6% of the employee's compensation. In 2002, as part of its cost reduction measures, the Company reduced its contributions to 10% matching on contributions by employees up to 6% of the employee's compensation. In 2003, the Company increased its matching contributions to 25% matching on contributions by employees up to 6% of the employee's compensation. The Company's total contributions to the plans were approximately \$635,000, \$272,000 and \$1,433,000 for the years ended December 31, 2003, 2002 and 2001, respectively. Vesting in the profit sharing contribution account is based on years of service, with most participants fully vested after four years of credited service.

(11) COMMITMENTS AND CONTINGENCIES

The Company has committed to advance up to \$1.5 million to a privately held company in exchange for an exclusive intellectual property license. At December 31, 2003, approximately \$500,000 has been advanced under this agreement and expensed as research and development costs. The amount and timing of this advance is dependent upon the privately held company achieving certain business development milestones.

The Company has committed to purchase approximately \$13.3 million of parts, components and subassemblies from various suppliers in 2004. These inventory purchase obligations consist of minimum purchase commitments to ensure the Company has an adequate supply of critical components to meet the demand of its customers. The Company believes that these purchase commitments will be consumed in its on-going operations during 2004.

DISPUTES AND LEGAL ACTIONS

The Company is involved in disputes and legal actions arising in the normal course of its business. Historically, the Company's most significant legal actions have involved the application of patent law to complex technologies and intellectual property. The determination of whether such technologies infringe upon the Company's or other's patents is highly subjective. This high level of subjectivity introduces substantial additional risk with regard to the outcome of the Company's disputes and legal actions related to intellectual property. While the Company currently believes that the amount of any ultimate potential loss would not be material to the Company's financial position, the outcome of these actions is inherently difficult to predict. In the event of an adverse outcome, the ultimate potential loss could have a material adverse effect on the Company's financial position or reported results of operations in a particular period. An unfavorable decision, particularly in patent litigation, could require material changes in production processes and products or result in the Company's inability to ship products or components found to have violated third-party patent rights. The Company accrues loss contingencies in connection with its litigation when it is probable that a loss has occurred and the amount of the loss can be reasonably estimated.

In April 2003, the Company filed a claim in the United States District Court for the District of Colorado seeking a declaratory ruling that its new plasma source products Xstream™ With Active Matching Network™ ("Xstream Products") are not in violation of U.S. Patents held by MKS. This case was transferred by the Colorado court to the United States District Court for the district of Delaware for consolidation with a patent infringement suit filed in that court by MKS in May 2003, alleging that the Company's Xstream Products infringe five patents held by MKS. The Company believes that the Delaware court, in its May 2002 judgment in prior litigation between the Company and MKS, clearly defined the limits of the MKS technology. The Company specifically designed its Xstream Products not to infringe MKS's patents, with the advice of a team of independent experts. In February 2004, the Delaware court restated its rulings on the construction of claims in the MKS patents consistent with its holding in the prior litigation. The Company intends to defend vigorously against the MKS complaint. The current patent case has been set for trial in July 2004.

In May 2002, the Company recognized approximately \$5.3 million of litigation damages and related legal expenses pertaining to a judgment entered by a jury against the Company and in favor of MKS in a patent-infringement suit in which the Company was the defendant. The Company has entered into a settlement agreement with MKS allowing it to sell the infringing product subsequent to the date of the jury award. The settlement agreement is in effect until all patents subject to the litigation expire. Under the settlement agreement, royalties payable to MKS from sales of the related product were not material in any of the periods presented.

On September 17, 2001, Sierra Applied Sciences, Inc. filed for declaratory judgment asking the U.S. District Court for the District of Colorado to rule that their products did not infringe the Company's U.S. patent no. 5,718,813 and that the patent was invalid. On March 24, 2003, the Court granted the Company's motion to dismiss the case for lack of subject matter jurisdiction. Sierra has appealed the ruling of dismissal, and the decision on Sierra's appeal from the Court of Appeals for the Federal Circuit is pending. The Company believes that, were the ruling of dismissal to be reversed and Sierra's claim reinstated and tried, the validity of the Company's patent will be upheld and Sierra's products would be adjudged to infringe.

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CAPITAL LEASES

The Company finances a portion of its property and equipment under capital lease obligations at interest rates of approximately 3%. The future minimum lease payments under capitalized lease obligations as of December 31, 2003 are as follows:

	(In thousands)
2004	\$ 571
2005	157
2006	87
2007	22
2008	5
	<hr/>
Total minimum lease payments	842
Less -- amount representing interest	(25)
Less -- current portion	(554)
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	\$ 263
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OPERATING LEASES

The Company has various operating leases for automobiles, equipment, and office and production facilities (see Note 13). Lease expense under operating leases was approximately \$6,277,000, \$6,493,000 and \$5,770,000 for the years ended December 31, 2003, 2002 and 2001, respectively.

The future minimum rental payments required under noncancelable operating leases as of December 31, 2003 are as follows:

	(In thousands)
2004	\$ 6,570
2005	5,560
2006	4,690
2007	3,927
2008	3,384
Thereafter	11,959
	<hr/>
	\$36,090
	<hr/>

(12) INDUSTRY SEGMENT, FOREIGN OPERATIONS AND MAJOR CUSTOMER

The Company has operations in the U.S., Europe and Asia Pacific. The following is a summary of the Company's operations by region:

	Years Ended December 31,		
	2003	2002	2001
	(In thousands)		
Sales:			
Originating in U.S. and sold to domestic customers	\$ 124,128	\$ 141,637	\$124,746
Originating in U.S. and sold to foreign customers	35,509	24,607	19,687
Originating in Europe and sold to domestic customers	57	2,108	—
Originating in Europe and sold to foreign customers	24,492	18,672	18,239
Originating in Asia Pacific and sold to foreign customers	78,216	51,874	30,928
	<hr/>	<hr/>	<hr/>
	\$ 262,402	\$ 238,898	\$193,600
	<hr/>	<hr/>	<hr/>
Loss from operations:			
U.S.	\$ (27,639)	\$ (57,305)	\$ (47,532)
Europe	559	(725)	1,517
Asia Pacific	4,811	1,865	1,157
Intercompany eliminations	(863)	(5,820)	(2,029)
	<hr/>	<hr/>	<hr/>
	\$ (23,132)	\$ (61,985)	\$ (46,887)

Identifiable assets:			
U.S.	\$ 424,661	\$ 498,906	
Europe	48,150	41,485	
Asia Pacific	210,585	137,295	
Intercompany eliminations	(268,665)	(221,953)	
	<u>\$ 414,731</u>	<u>\$ 455,733</u>	

Intercompany sales among the Company's geographic areas are recorded on the basis of intercompany prices established by the Company.

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The Company has a major customer (sales in excess of 10% of total sales) that is a manufacturer of semiconductor capital equipment. Sales to this customer accounted for the following percentages of sales for the years ended December 31, 2003, 2002 and 2001:

	December 31,		
	2003	2002	2001
Applied Materials, Inc.	20%	27%	24%

The Company had trade accounts receivable from this customer of approximately \$6.1 million as of December 31, 2003, which was approximately 11% of the Company's total trade accounts receivable. The Company had no other trade accounts receivable from any customers in excess of 10% of its total trade accounts receivable as of December 31, 2003.

(13) RELATED PARTY TRANSACTIONS

The Company leases its executive offices and manufacturing facilities in Fort Collins, Colorado from two limited liability partnerships. The ownership of these limited liability partnerships consists of a director of the Company who is also an officer and other individuals unrelated to the Company. The leases relating to these spaces expire in 2009, 2011 and 2016, and contain monthly payments of approximately \$85,000, \$67,000 and \$83,000, respectively.

Approximately \$2,779,000, \$2,660,000 and \$2,229,000 was paid and charged to rent expense attributable to these leases for the years ended December 31, 2003, 2002 and 2001, respectively.

The Company also has an agreement whereby monthly payments of approximately \$12,000 are made to one of the above mentioned limited liability partnerships, which secures future leasing rights on a parcel of land in Colorado. Approximately \$156,000 was paid and charged to operating expense attributable to this agreement for each of the years ended December 31, 2003 and 2002.

The Company leases, for business purposes, a condominium owned by a partnership of certain stockholders. The Company paid the partnership \$60,000, \$67,000 and \$47,000 in 2003, 2002 and 2001, respectively. In February 2004, this lease agreement was terminated.

The Company charts aircraft from time to time from companies owned by a certain stockholder and officer. Aggregate payments for the use of such aircraft were \$6,000, \$103,000 and \$0 in 2003, 2002 and 2001, respectively.

(14) CONCENTRATIONS OF CREDIT RISK

FORWARD CONTRACTS — The Company, including its subsidiaries, enters into foreign currency forward contracts with counterparties to mitigate foreign currency exposure from foreign currency denominated trade purchases and intercompany receivables and payables. These derivative instruments are not held for trading or speculative purposes.

To the extent that changes occur in currency exchange rates, the Company is exposed to market risk on its open derivative instruments. This market risk exposure is generally offset by the gain or loss recognized upon the translation of its trade purchases and intercompany receivables and payables. Foreign currency forward contracts are entered into with major commercial U.S., Japanese and German banks that have high credit ratings, and the Company does not expect the counterparties to fail to meet their obligations under outstanding contracts. Foreign currency gains and losses under these arrangements are not deferred. The Company generally enters into foreign currency forward contracts with maturities ranging from one to eight months, with contracts outstanding at December 31, 2003 maturing through March 2004. The Company did not seek specific hedge accounting treatment for its foreign currency forward contracts.

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At December 31, 2003, the Company held the following foreign currency forward contracts to buy U.S. dollars and sell various foreign currencies:

	Notional Amounts	Market Settlement Amounts	Unrealized (Loss)/Gain
Japanese yen contracts	\$ 3,500,000	\$ 3,650,000	\$(150,000)
Euro contract	200,000	222,000	(22,000)
Taiwanese dollar contract	4,000,000	3,992,000	8,000
Chinese yuan contract	2,500,000	2,496,000	4,000
Balance at December 31, 2003	\$10,200,000	\$10,360,000	\$(160,000)

OTHER CONCENTRATIONS OF CREDIT RISK — The Company uses financial instruments that potentially subject it to concentrations of credit risk. Such instruments include cash equivalents, short-term investments, accounts receivable, and foreign currency forward contracts. The Company invests its cash in cash deposits, money market funds, commercial paper, certificates of deposit and readily marketable debt securities. The Company places its investments with high credit quality financial institutions and limits the credit exposure from any one financial institution or instrument. To date, the Company has not experienced significant losses on these investments. The Company performs ongoing credit evaluations of its customers' financial condition and generally requires no collateral. Because the Company's receivables are primarily related to companies in the semiconductor capital equipment industry, the Company is exposed to credit risk generally related to this cyclical industry.

(15) STOCK PLANS

Prior to May 7, 2003 the Company had five stock-based compensation plans. On May 7, 2003 the Company's stockholders approved the 2003 Stock Option Plan (the "2003 Plan"), the 2003 Non-Employee Directors' Stock Option Plan (the "2003 Directors' Plan") and an amendment to the Employee Stock Purchase Plan ("ESPP").

The 2003 Plan provides for the issuance of up to 3,250,000 shares of common stock. Shares may be issued under the 2003 Plan on exercise of incentive stock options or non-qualified stock options granted under the 2003 Plan or as restricted stock awards. Stock appreciation rights may also be granted under the 2003 Plan, and the shares represented by the stock appreciation rights will be deducted from shares issuable under the 2003 Plan. The exercise price of incentive stock options and non-qualified stock options may not be less than the market value of the Company's common stock on the date of grant. The Company has the discretion to determine the vesting period of options granted under the 2003 Plan, however option grants will generally vest over four years, contingent upon the optionee continuing to be an employee, director or consultant of the Company. As of December 31, 2003, approximately 2.4 million shares of common stock were available for grant under this plan.

The 2003 Directors' Plan provides for the issuance of up to 150,000 shares of common stock upon the exercise of non-qualified stock options granted under the 2003 Directors' Plan. The exercise price of options granted under the 2003 Directors' Plan may not be less than the market value of the Company's common stock on the date of grant. Non-employee directors are automatically granted an option to purchase 15,000 shares on the first date elected or appointed as a member of the Company's board, and 5,000 shares on any date re-elected as a member of the board. Options granted on the date first elected or appointed as a member of the Company's board immediately vest as to one-third of the shares subject to the grant, then another one-third on each of the first two anniversaries of the date granted, provided the optionee continues to be a director. Options granted upon re-election are immediately exercisable. As of December 31, 2003, 125,000 shares of common stock were available for grant under this plan.

1995 EMPLOYEE STOCK OPTION PLAN — The Company's 1995 Employee Stock Option Plan terminated upon stockholder approval of the 2003 Plan, however existing stock options outstanding under the 1995 Employee Stock Option Plan remain outstanding according to their original terms. At December

31, 2003, options to purchase approximately 2.1 million shares of common stock remained outstanding under this plan.

NON-EMPLOYEE DIRECTORS STOCK OPTION PLAN — The Company's Non-Employee Directors Stock Option Plan terminated upon stockholder approval of the 2003 Directors' Plan, however existing stock options outstanding under the Non-Employee Directors Stock Option Plan remain outstanding according to their original terms. At December 31, 2003, options to purchase approximately 80,000 shares of common stock remained outstanding under this plan.

2002 EMPLOYEE STOCK OPTION PLAN — In 2002, the Company adopted the 2002 Employee Stock Option Plan (the "2002 Option Plan"). The 2002 Option Plan is a broad-based plan for employees and consultants in which executive officers and directors of the Company are not allowed to participate. The board of directors currently administers the plan, and makes all decisions concerning which employees and consultants are granted options, how many to grant to each optionee, when options are granted, how the plan should be properly interpreted, whether to amend or terminate the plan, and whether to delegate administration of the plan to a committee. The 2002 Option Plan allows issuance of only non-qualified options. The exercise price of the options shall not be less than 100% of the stock's fair market value on the date of grant, and the options vest over four years. The options are exercisable for ten years from the date of grant. The Company has reserved up to 600,000 shares of common stock under the plan. The 2002 Option Plan will expire in January 2012, unless the administrator of the plan terminates it earlier. At December 31, 2003, approximately 142,000 shares of common stock were available for grant under this plan.

2001 EMPLOYEE STOCK OPTION PLAN — In 2001, the Company adopted the 2001 Employee Stock Option Plan (the "2001 Option Plan"). The 2001 Option Plan is a broad-based plan for employees and consultants in which executive officers and directors of the Company are not allowed to participate. The board of directors currently administers the plan, and makes all decisions concerning which employees and consultants are granted options, how many to grant to each optionee, when options are granted, how the plan should be properly interpreted, whether to amend or terminate the plan, and whether to delegate administration of the plan to a committee. The 2001 Option Plan allows issuance of only non-qualified options. The exercise price of the options shall not be less than 100% of the stock's fair market value on the date of grant, and the options vest over four years. The options are exercisable for ten years from the date of grant. The Company has reserved up to 600,000 shares of common stock under the plan. The 2001 Option Plan will expire in January 2011, unless the administrator of the plan terminates it earlier. At December 31, 2003, approximately 137,000 shares of common stock were available for grant under this plan.

EMPLOYEE STOCK PURCHASE PLAN — In September 1995, stockholders approved an employee stock purchase plan (the "ESPP") covering an aggregate of 200,000 shares of common stock. On May 7, 2003, the Company's stockholders' approved an amendment to increase the number of common shares reserved for issuance under the plan from 200,000 shares to 400,000 shares. Employees are eligible to participate in the ESPP if employed by the Company for at least 20 hours per week during at least five months per calendar year. Participating employees may have up to 15% (subject to a 5% limitation set by the Company) of their earnings or a maximum of \$1,250 per six-month period withheld pursuant to the ESPP. The purchase price of common stock purchased under the ESPP is equal to 85% of the lower of the fair value on the commencement date of each offering period or the relevant purchase date. During 2003, 2002 and 2001, employees purchased an aggregate of approximately 73,000, 54,000 and 38,000 shares of common stock under the ESPP, respectively. At December 31, 2003, approximately 155,000 shares remained available for future issuance.

During 1999, prior to its acquisition by the Company, a shareholder of Sekidenko granted employees options under a preexisting arrangement to purchase shares of his common stock already outstanding at exercise prices below fair value. Under this agreement, 29,700 and 34,250 of such options were granted in 1999 and 2000, respectively. These options result in the Company recognizing approximately \$2.1 million as compensation expense over the four-year vesting period of the options. Compensation expense of \$482,000, \$518,000 and \$526,000 was recognized in 2003, 2002 and 2001, respectively. These amounts

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are presented as a reduction of stockholders' equity. At December 31, 2003, approximately \$60,000 of deferred compensation remained outstanding and will be recognized as expense in the first quarter of 2004. During 2002, options to purchase approximately 15,000 shares under this plan were forfeited as a result of terminations, and the related deferred compensation of \$34,000 was reversed.

The following summarizes the activity relating to options for the years ended December 31, 2003, 2002 and 2001:

	2003		2002		2001	
			(In thousands, except share prices)			
	Shares	Weighted-average Exercise Price	Shares	Weighted-average Exercise Price	Shares	Weighted-average Exercise Price
Stock options:						
Employee stock options —						
Options outstanding at beginning of period	3,475	\$23.18	2,108	\$25.07	1,719	\$23.39
Granted	1,790	14.66	1,920	21.73	845	25.64
Exercised	(352)	9.89	(118)	11.70	(273)	12.13
Terminated	(993)	25.28	(435)	29.02	(183)	31.22
Options outstanding at end of period	3,920	19.95	3,475	23.18	2,108	25.07
Options exercisable at end of period	1,230	25.50	1,239	23.25	938	20.45
Weighted-average fair value of options granted during the period.	\$ 7.88		\$ 12.55		\$ 25.61	
Price range of outstanding options	\$0.67 - \$60.75		\$0.67 - \$60.75		\$0.67 - \$60.75	
Price range of options terminated	\$0.83 - \$60.75		\$0.83 - \$60.75		\$7.50 - \$60.75	
Non-employee directors stock options—						
Options outstanding at beginning of period	112	\$22.64	90	\$26.92	75	\$27.25
Granted	25	10.67	22	15.58	15	24.44
Exercised	(8)	6.75	—	—	—	—
Terminated	(25)	30.90	—	—	—	—
Options outstanding at end of period	104	19.00	112	22.64	90	26.92
Options exercisable at end of period	80	21.91	62	22.24	45	16.97
Weighted-average fair value of options granted during the period	\$ 7.84		\$ 11.33		\$ 24.85	
Price range of outstanding options	\$6.13 - \$60.75		\$6.13 - \$64.94		\$6.13 - \$64.94	
Price range of options terminated	\$6.13 - \$64.94		\$ —		\$ —	

SFAS No. 123 defines a fair value based method of accounting for employee stock options or similar equity instruments. However, SFAS No. 123 allows the continued measurement of compensation cost for such plans using the intrinsic value based method prescribed by APB No. 25, provided that pro forma disclosures are made of net income or loss and net income or loss per share, assuming the fair value based method of SFAS No. 123 had been applied. The Company has elected to account for employee stock-based compensation plans under APB No. 25, under which compensation expense, if any, is recognized based on the intrinsic value of stock options and other stock awards, generally measured at the date of grant (see Note 1).

The total fair value of options granted was computed to be approximately \$14.3 million, \$24.4 million and \$17.7 million for the years ended December 31, 2003, 2002 and 2001, respectively. These amounts are amortized ratably over the vesting period of the options. During the fourth quarter of 2003, the Company revised its estimated expected lives for options granted in 2003 and 2002.

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The following table summarizes information about the stock options outstanding at December 31, 2003:

Range of Exercise Prices	Number Outstanding	Options Outstanding		Options Exercisable	
		Weighted-average Remaining Contractual Life	Weighted-average Exercise Price	Number Exercisable	Weighted-average Exercise Price
\$0.67 to \$2.19	1,000	0.4 years	\$ 1.43	1,000	\$ 1.42
\$2.53 to \$7.61	439,000	8.7 years	\$ 7.32	41,000	\$ 4.55
\$7.62 to \$9.12	721,000	8.1 years	\$ 8.48	149,000	\$ 8.20
\$9.53 to \$17.85	675,000	7.5 years	\$15.98	310,000	\$15.15
\$18.00 to \$18.38	122,000	7.8 years	\$18.01	58,000	\$18.00
\$19.24 to \$19.24	495,000	9.6 years	\$19.24	—	—
\$21.16 to \$22.52	401,000	9.6 years	\$22.49	8,000	\$21.74
\$23.67 to \$28.16	432,000	7.3 years	\$25.83	262,000	\$26.32
\$28.55 to \$38.55	555,000	7.7 years	\$35.14	314,000	\$34.53
\$40.00 to \$60.75	183,000	6.2 years	\$48.49	167,000	\$48.13
	<u>4,024,000</u>	<u>8.2 years</u>	<u>\$19.98</u>	<u>1,310,000</u>	<u>\$25.28</u>

(16) FAIR VALUE OF FINANCIAL INSTRUMENTS

The Company's financial instruments include cash, trade receivables, trade payables, marketable securities, short-term and long-term debt, and foreign currency forward exchange contracts (see Note 14). The fair values of cash, trade receivables, trade payables and short-term debt approximate the carrying values due to the short-term nature of these instruments. Marketable securities are stated at fair value (see Note 3). At December 31, 2003 and 2002, the carrying value of long-term debt was \$201.7 million and \$212.2 million, respectively. The carrying value of senior borrowings approximates their fair value due to the variable interest rates associated with the borrowings. At December 31, 2003, the estimated fair value of the Company's 5.25% convertible subordinated notes that are due November 15, 2006, was approximately \$65.7 million, compared to a book value of \$66.2 million. The estimated fair value of the Company's 5.00% convertible subordinated notes that are due September 1, 2006, was approximately \$139.3 million, compared to a book value of \$121.5 million.

(17) QUARTERLY FINANCIAL DATA — Unaudited

The following table presents unaudited quarterly financial data for each of the eight quarters in the period ended December 31, 2003. The Company believes that all necessary 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							
	Mar. 31, 2002	June 30, 2002	Sept. 30, 2002	Dec. 31, 2002	Mar. 31, 2003	June 30, 2003	Sept. 30, 2003	Dec. 31, 2003
	(In thousands, except per share data)							
Sales	\$ 42,887	\$67,893	\$70,674	\$ 57,444	\$ 56,158	\$62,946	\$ 68,567	\$74,731
Gross profit	13,374	24,312	26,600	4,474	17,950	20,273	23,093	26,631
(Loss) income from operations	(11,423)	(9,330)	(5,788)	(35,444)	(10,885)	(6,825)	(5,741)	319
Net loss	\$ (8,723)	\$ (5,139)	\$ (5,580)	\$ (21,957)	\$ (8,590)	\$ (5,774)	\$ (27,438)	\$ (2,439)
	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
Basic and diluted loss per share	\$ (0.27)	\$ (0.16)	\$ (0.17)	\$ (0.68)	\$ (0.27)	\$ (0.18)	\$ (0.85)	\$ (0.08)
	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>

The Company had a loss in the fourth quarter of 2002 of \$22.0 million. Pretax charges recorded to cost of sales for excess and obsolete inventory of \$4.6 million and warranty costs of \$6.9 million contributed significantly to the Company's fourth quarter results. The Company increased its reserve for excess and obsolete inventory in the fourth quarter of 2002, as a result of the Company's sales declining substantially from the third quarter of 2002 to the fourth quarter of 2002, and the Company's fourth quarter strategic management decision to discontinue certain product offerings. The Company increased its warranty reserve to reflect higher than expected repair costs on certain products. The Company also

recorded charges for uncollectible accounts receivable of \$1.6 million, restructuring of \$5.8 million and an impairment of marketable securities of \$1.6 million (see Note 1). The Company had a loss of \$27.4 million in the third quarter of 2003. During this quarter the Company recorded a valuation allowance against certain of its U.S. and foreign net deferred tax assets in jurisdictions where significant losses have been recognized.

ADVANCED ENERGY INDUSTRIES, INC. AND SUBSIDIARIES

SCHEDULE II — VALUATION AND QUALIFYING ACCOUNTS

	Balance at Beginning of Period	Additions Due to Acquisitions	Additions Charged to Expense (Recoveries)	Deductions	Balance at End of Period
	(In thousands)				
Year ended December 31, 2001:					
Inventory obsolescence reserve	\$ 2,253	\$ 180	\$6,412	\$ 3,214	\$ 5,631
Allowance for doubtful accounts	784	100	282	117	1,049
	<u>\$ 3,037</u>	<u>\$ 280</u>	<u>\$6,694</u>	<u>\$ 3,331</u>	<u>\$ 6,680</u>
Year ended December 31, 2002:					
Inventory obsolescence reserve	\$ 5,631	\$13,704	\$5,803	\$ 4,719	\$20,419
Allowance for doubtful accounts	1,049	416	1,870	279	3,056
	<u>\$ 6,680</u>	<u>\$14,120</u>	<u>\$7,673</u>	<u>\$ 4,998</u>	<u>\$23,475</u>
Year ended December 31, 2003:					
Inventory obsolescence reserve	\$20,419	\$ —	\$3,016	\$13,944	\$ 9,491
Allowance for doubtful accounts	3,056	—	(429)	1,324	1,303
	<u>\$23,475</u>	<u>\$ —</u>	<u>\$2,587</u>	<u>\$15,268</u>	<u>\$10,794</u>

ITEM 9. CHANGE IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURES

Not applicable.

ITEM 9.A. CONTROLS AND PROCEDURES

Evaluation of disclosure controls and procedures: The principal executive and financial officers reviewed and evaluated Advanced Energy's disclosure controls and procedures (as defined in Exchange Act Rule 13a-15(e)) as of December 31, 2003. Based on that evaluation, the principal executive and financial officers concluded that Advanced Energy's disclosure controls and procedures are effective in timely providing them with material information relating to Advanced Energy, as required to be disclosed in the reports Advanced Energy files under the Exchange Act.

Changes in internal controls: There were no significant changes in Advanced Energy's internal controls over financial reporting or other factors that could significantly affect those controls subsequent to the date of Advanced Energy's evaluation, including any corrective actions with regard to significant deficiencies and material weaknesses.

PART III

In accordance with General Instruction G(3) of Form 10-K, the information required by this Part III is incorporated by reference to Advanced Energy’s definitive proxy statement relating to its 2004 Annual Meeting of Stockholders (the “2004 Proxy Statement”), as set forth below. The 2004 Proxy Statement will be filed with the Securities and Exchange Commission within 120 days after the end of 2003.

ITEM 10. DIRECTORS AND EXECUTIVE OFFICERS OF THE REGISTRANT

The information set forth in the 2004 Proxy Statement under the headings “Proposal No. 1/ Election of Directors—Nominees” and “Section 16(a) Beneficial Ownership Reporting Compliance” is incorporated herein by reference. The information under the heading “Executive Officers of the Registrant” in Part I of this Form 10-K is also incorporated herein by reference.

We have adopted a Code of Ethical Conduct that applies to our directors. In addition, we have adopted a Code of Ethical Conduct for our executives, managers and finance employees which imposes additional standards. These Codes of Ethical Conduct are available through our website at www.advanced-energy.com. Information contained on the website is not part of this report. If we grant any waiver of either code with respect to the conduct of executive officers or directors, we will publicly disclose such waivers as required by applicable law.

ITEM 11. EXECUTIVE COMPENSATION

The information set forth in the 2004 Proxy Statement under the heading “Executive Compensation” is incorporated herein by reference.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The information set forth in the 2004 Proxy Statement under the headings “Common Stock Ownership by Management and Other Stockholders” and “Equity Compensation Plan Information” is incorporated herein by reference.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS

The information set forth in the 2004 Proxy Statement under the caption “Certain Transactions with Management” is incorporated herein by reference.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

The information set forth in the 2004 Proxy Statement under the caption “Fees Billed by Independent Public Accountants” is incorporated herein by reference.

PART IV

ITEM 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULES AND REPORTS ON FORM 8-K

	page
(a) The following documents are included as part of this Form 10-K:	
1. Financial Statements:	
Report of KPMG LLP	54
Report of Arthur Andersen LLP	56
Consolidated Financial Statements:	
Balance Sheets at December 31, 2003 and 2002	57
Statements of Operations for each of the three years in the period ended December 31, 2003	59
Statements of Stockholders' Equity for each of the three years in the period ended December 31, 2003	60
Statements of Cash Flows for each of the three years in the period ended December 31, 2003	61
Notes to Consolidated Financial Statements	62
2. Financial Statement Schedules for each of the three years in the period ended December 31, 2003	
Schedule II—Valuation and Qualifying Accounts	88
3. Exhibits:	
2.1 Agreement and Plan of Reorganization, dated as of June 1, 1998, by and among Advanced Energy Industries, Inc., Warpspeed, Inc. and RF Power Products, Inc.(1)	
2.2 Stock Purchase Agreement dated November 16, 2001, by and among Advanced Energy Industries, Inc., Advanced Energy Japan K.K., Aera Japan Limited and Certain Stockholders of Aera Japan Limited.(2)	
2.3 Amendment No. 1 to Stock Purchase Agreement, dated December 25, 2001, by and among Advanced Energy Industries, Inc., Advanced Energy Japan K.K., Aera Japan Limited and Certain Stockholders of Aera Japan Limited.(3)	
2.4 Forms of Minority Stock Purchase Agreement.(3)	
3.1 Restated Certificate of Incorporation, as amended.(14)	
3.2 By-laws.(4)	
4.1 Form of Specimen Certificate for Common Stock.(4)	
4.2 Indenture dated November 1, 1999, by and between State Street Bank and Trust Company of California, N.A., as trustee, and Advanced Energy Industries, Inc. (including form of 51/4% Convertible Subordinated Note due 2006).(5)	
4.3 Indenture dated August 27, 2001, by and between State Street Bank and Trust Company of California, N.A., as trustee, and Advanced Energy Industries, Inc. (including form of 5.00% Convertible Subordinated Note due September 1, 2006).(6)	
4.4 Registration Rights Agreement, dated as of August 22, 2001, by and between Advanced Energy Industries, Inc., and Goldman, Sachs and Co.(6)	
4.5 The Registrant hereby agrees to furnish to the SEC, upon request, a copy of the instruments which define the rights of holders of long-term debt of Advanced Energy Industries, Inc. None of such instruments not included as exhibits herein represents long-term debt in excess of 10% of the consolidated total assets of Advanced Energy Industries, Inc.	
10.1 Loan and Security Agreement dated May 9, 2003, by and among Silicon Valley Bank, as a bank, and Advanced Energy Industries, Inc., as borrower.(13)	

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10.2	Lease, dated June 12, 1984, amended June 11, 1992, by and between Prospect Park East Partnership and Advanced Energy Industries, Inc., for property located in Fort Collins, Colorado.(4)
10.3	Lease, dated March 14, 1994, as amended, by and between Sharp Point Properties, L.L.C., and Advanced Energy Industries, Inc., for property located in Fort Collins, Colorado.(4)
10.4	Lease, dated May 19, 1995, by and between Sharp Point Properties, L.L.C. and Advanced Energy Industries, Inc., for a building located in Fort Collins, Colorado.(4)
10.5	Form of Indemnification Agreement.(4)
10.6	1995 Stock Option Plan, as amended and restated through February 7, 2001.(7)*
10.7	1995 Non-Employee Directors' Stock Option Plan, as amended and restated through February 7, 2001.(7)*
10.8	2003 Stock Option Plan.(14)*
10.9	2003 Non-Employee Directors' Stock Option Plan.(14)*
10.10	2001 Employee Stock Option Plan.(14)*
10.11	2002 Employee Stock Option Plan.(14)*
10.12	Lease dated March 20, 2000, by and between Sharp Point Properties, L.L.C. and Advanced Energy Industries, Inc., for a building located in Fort Collins, Colorado.(8)
10.13	Agreement and Plan of Reorganization, dated April 5, 2000, by and among Advanced Energy Industries, Inc., Noah Holdings, Inc. and AE Cal Merger Sub, Inc.(9)
10.14	Escrow and Indemnity Agreement, dated April 5, 2000, by and among Advanced Energy Industries, Inc., the former stockholders of Noah Holdings, Inc. and Commercial Escrow Services, Inc.(9)
10.15	Agreement and Plan of Reorganization, dated July 21, 2000, by and among Advanced Energy Industries, Inc., Mercury Merger Corporation, Sekidenko, Inc. and Dr. Ray R. Dils.(10)
10.16	Agreement and Plan of Reorganization, dated July 6, 2000, amended and restated as of October 20, 2000, by and among Advanced Energy Industries, Inc., Flow Acquisition Corporation, and Engineering Measurements Company.(11)
10.17	License Agreement, dated January 3, 2003, by and among Advanced Energy Industries, Inc., and APJeT, Inc.(12)
10.18	Lease dated January 16, 2003, by and between China Great Wall Computer Shenzhen Co., Ltd. Great Wall Limited and Advanced Energy Industries (Shenzhen) Co., Ltd. for a building located in Shenzhen, China
21.1	Subsidiaries of Advanced Energy Industries, Inc.
23.1	Consent of KPMG LLP, Independent Auditors
24.1	Power of Attorney (included on the signature pages to this Annual Report on Form 10-K)
31.1	Certification of the Chief Executive Officer Pursuant to Rule 13a-14(a) under the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2	Certification of the Chief Financial Officer Pursuant to Rule 13a-14(a) under the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32.1	Certification of the Chief Executive Officer Pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
32.2	Certification of the Chief Financial Officer Pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002

(b) Reports on Form 8-K

We filed the following report on Form 8-K:



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- (i) We filed with the Securities and Exchange Commission a Current Report on Form 8-K on October 16, 2003 to furnish under Item 12 our press release announcing our results of operations for the three- and nine-month periods ended September 30, 2003.

-
- (1) Incorporated by reference to the Registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 1998 (File No. 000-26966), filed August 7, 1998.
 - (2) Incorporated by reference to the Registrant's Registration Statement on Form S-3 (File No. 333-72748), filed February 8, 2002, as amended.
 - (3) Incorporated by reference to the Registrant's Current Report on Form 8-K (File No. 000-26966), filed February 1, 2002.
 - (4) Incorporated by reference to the Registrant's Registration Statement on Form S-1 (File No. 33-97188), filed September 20, 1995, as amended.
 - (5) Incorporated by reference to the Registrant's Annual Report on Form 10-K for the year ended December 31, 1999 (File No. 000-26966), filed March 20, 2000.
 - (6) Incorporated by reference to the Registrant's Current Report on Form 8-K (File No. 000-26966), filed September 10, 2001.
 - (7) Incorporated by reference to the Registrant's Quarterly Report on Form 10-Q for the quarter ended March 31, 2001 (File No. 000-26966), filed May 9, 2001.
 - (8) Incorporated by reference to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2000 (File No. 000-26966), filed March 27, 2001.
 - (9) Incorporated by reference to the Registrant's Registration Statement on Form S-3 (File No. 333-37378), filed May 19, 2000.
 - (10) Incorporated by reference to the Registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2000 (File No. 000-26966), filed August 4, 2000.
 - (11) Incorporated by reference to the Registrant's Quarterly Report on Form 10-Q for the quarter ended September 30, 2000 (File No. 000-26966), filed October 30, 2000.
 - (12) Incorporated by reference to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2002 (File No. 000-26966), Filed March 27, 2003.
 - (13) Incorporated by reference to the Registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2003 (File No. 000-26966), Filed August 13, 2003.
 - (14) Incorporated by reference to the Registrant's Quarterly Report on Form 10-Q for the quarter ended September 30, 2003 (File No. 000-26966), Filed November 4, 2003.

* Compensation Plan

+ Confidential treatment has been granted for portions of this agreement.

SIGNATURES

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

ADVANCED ENERGY INDUSTRIES, INC.

(Registrant)

/s/ Douglas S. Schatz

Douglas S. Schatz
Chief Executive Officer, President and Chairman of the Board

Each person whose signature appears below hereby appoints Douglas S. Schatz and Michael El-Hillow, and each of them severally, acting alone and without the other, his true and lawful attorney-in-fact with authority to execute in the name of each such person, and to file with the Securities and Exchange Commission, together with any exhibits thereto and other documents therewith, any and all amendments to this Annual Report on Form 10-K necessary or advisable to enable the registrant to comply with the Securities Exchange Act of 1934, as amended, and any rules, regulations and requirements of the Securities and Exchange Commission in respect thereof, which amendments may make such other changes in the Annual Report on Form 10-K as the aforesaid attorney-in-fact deems appropriate.

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.

Signatures	Title	Date
<u>/s/ Douglas S. Schatz</u> Douglas S. Schatz	Chief Executive Officer, President and Chairman of the Board (Principal Executive Officer)	February 24, 2004
<u>/s/ Michael El-Hillow</u> Michael El-Hillow	Executive Vice President and Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	February 24, 2004
<u>/s/ Richard P. Beck</u> Richard P. Beck	Director	February 24, 2004
<u>/s/ Robert L. Bratter</u> Robert L. Bratter	Director	February 24, 2004
<u>/s/ Arthur A. Noeth</u> Arthur A. Noeth	Director	February 24, 2004
<u>/s/ Elwood Spedden</u> Elwood Spedden	Director	February 24, 2004
<u>/s/ Gerald Starek</u> Gerald Starek	Director	February 24, 2004

INDEX TO EXHIBITS

2.1	Agreement and Plan of Reorganization, dated as of June 1, 1998, by and among Advanced Energy Industries, Inc., Warpspeed, Inc. and RF Power Products, Inc.(1)
2.2	Stock Purchase Agreement dated November 16, 2001, by and among Advanced Energy Industries, Inc., Advanced Energy Japan K.K., Aera Japan Limited and Certain Stockholders of Aera Japan Limited.(2)
2.3	Amendment No. 1 to Stock Purchase Agreement, dated December 25, 2001, by and among Advanced Energy Industries, Inc., Advanced Energy Japan K.K., Aera Japan Limited and Certain Stockholders of Aera Japan Limited.(3)
2.4	Forms of Minority Stock Purchase Agreement.(3)
3.1	Restated Certificate of Incorporation, as amended.(14)
3.2	By-laws.(4)
4.1	Form of Specimen Certificate for Common Stock.(4)
4.2	Indenture dated November 1, 1999, by and between State Street Bank and Trust Company of California, N.A., as trustee, and Advanced Energy Industries, Inc. (including form of 51/4% Convertible Subordinated Note due 2006).(5)
4.3	Indenture dated August 27, 2001, by and between State Street Bank and Trust Company of California, N.A., as trustee, and Advanced Energy Industries, Inc. (including form of 5.00% Convertible Subordinated Note due September 1, 2006).(6)
4.4	Registration Rights Agreement, dated as of August 22, 2001, by and between Advanced Energy Industries, Inc., and Goldman, Sachs and Co.(6)
4.5	The Registrant hereby agrees to furnish to the SEC, upon request, a copy of the instruments which define the rights of holders of long-term debt of Advanced Energy Industries, Inc. None of such instruments not included as exhibits herein represents long-term debt in excess of 10% of the consolidated total assets of Advanced Energy Industries, Inc.
10.1	Loan and Security Agreement dated May 9, 2003, by and among Silicon Valley Bank, as a bank, and Advanced Energy Industries, Inc., as borrower.(13)
10.2	Lease, dated June 12, 1984, amended June 11, 1992, by and between Prospect Park East Partnership and Advanced Energy Industries, Inc., for property located in Fort Collins, Colorado.(4)
10.3	Lease, dated March 14, 1994, as amended, by and between Sharp Point Properties, L.L.C., and Advanced Energy Industries, Inc., for property located in Fort Collins, Colorado.(4)
10.4	Lease, dated May 19, 1995, by and between Sharp Point Properties, L.L.C. and Advanced Energy Industries, Inc., for a building located in Fort Collins, Colorado.(4)
10.5	Form of Indemnification Agreement.(4)
10.6	1995 Stock Option Plan, as amended and restated through February 7, 2001.(7)*
10.7	1995 Non-Employee Directors' Stock Option Plan, as amended and restated through February 7, 2001.(7)*
10.8	2003 Stock Option Plan.(14)*
10.9	2003 Non-Employee Directors' Stock Option Plan.(14)*
10.10	2001 Employee Stock Option Plan.(14)*
10.11	2002 Employee Stock Option Plan.(14)*

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10.12	Lease dated March 20, 2000, by and between Sharp Point Properties, L.L.C. and Advanced Energy Industries, Inc., for a building located in Fort Collins, Colorado.(8)
10.13	Agreement and Plan of Reorganization, dated April 5, 2000, by and among Advanced Energy Industries, Inc., Noah Holdings, Inc. and AE Cal Merger Sub, Inc.(9)
10.14	Escrow and Indemnity Agreement, dated April 5, 2000, by and among Advanced Energy Industries, Inc., the former stockholders of Noah Holdings, Inc. and Commercial Escrow Services, Inc.(9)
10.15	Agreement and Plan of Reorganization, dated July 21, 2000, by and among Advanced Energy Industries, Inc., Mercury Merger Corporation, Sekidenko, Inc. and Dr. Ray R. Dils.(10)
10.16	Agreement and Plan of Reorganization, dated July 6, 2000, amended and restated as of October 20, 2000, by and among Advanced Energy Industries, Inc., Flow Acquisition Corporation, and Engineering Measurements Company.(11)
10.17	License Agreement, dated January 3, 2003, by and among Advanced Energy Industries, Inc., and APJeT, Inc.(12)
10.18	Lease dated January 16, 2003, by and between China Great Wall Computer Shenzhen Co., Ltd., Great Wall Limited and Advanced Energy Industries (Shenzhen) Co., Ltd., for a building located in Shenzhen, China
21.1	Subsidiaries of Advanced Energy Industries, Inc.
23.1	Consent of KPMG LLP, Independent Auditors
24.1	Power of Attorney (included on the signature pages to this Annual Report on Form 10-K)
31.1	Certification of the Chief Executive Officer Pursuant to Rule 13a-14(a) under the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2	Certification of the Chief Financial Officer Pursuant to Rule 13a-14(a) under the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32.1	Certification of the Chief Executive Officer Pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
32.2	Certification of the Chief Financial Officer Pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002

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- (1) Incorporated by reference to the Registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 1998 (File No. 000-26966), filed August 7, 1998.
 - (2) Incorporated by reference to the Registrant's Registration Statement on Form S-3 (File No. 333-72748), filed February 8, 2002, as amended.
 - (3) Incorporated by reference to the Registrant's Current Report on Form 8-K (File No. 000-26966), filed February 1, 2002.
 - (4) Incorporated by reference to the Registrant's Registration Statement on Form S-1 (File No. 33-97188), filed September 20, 1995, as amended.
 - (5) Incorporated by reference to the Registrant's Annual Report on Form 10-K for the year ended December 31, 1999 (File No. 000-26966), filed March 20, 2000.
 - (6) Incorporated by reference to the Registrant's Current Report on Form 8-K (File No. 000-26966), filed September 10, 2001.
 - (7) Incorporated by reference to the Registrant's Quarterly Report on Form 10-Q for the quarter ended March 31, 2001 (File No. 000-26966), filed May 9, 2001.

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- (8) Incorporated by reference to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2000 (File No. 000-26966), filed March 27, 2001.
- (9) Incorporated by reference to the Registrant's Registration Statement on Form S-3 (File No. 333-37378), filed May 19, 2000.
- (10) Incorporated by reference to the Registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2000 (File No. 000-26966), filed August 4, 2000.
- (11) Incorporated by reference to the Registrant's Quarterly Report on Form 10-Q for the quarter ended September 30, 2000 (File No. 000-26966), filed October 30, 2000.
- (12) Incorporated by reference to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2002 (File No. 000-26966), Filed March 27, 2003.
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- * Compensation Plan
- + Confidential treatment has been granted for portions of this agreement.

HOUSE LEASE CONTRACT

Formulated by the Shenzhen Urban Planning & Land & Resources Bureau

HOUSE LEASE CONTRACT

Lesser (Party A):	China Great Wall Computer Shenzhen Co., Ltd, Great Wall Technology Limited
Address:	2 Kefa Road, Technology Industrial Park, Nanshan District, Shenzhen City
House lease permit No.:	Not Applicable
Authorized agent:	Not Applicable
Address:	Not Applicable
Lessee (Party B):	Advance Energy Industries (Shenzhen) Co., Ltd
Address:	910, Anhui Building, No. 6007, Shennan Road, Shenzhen City

Business license or ID number:

This contract is made in accordance with stipulations of the Regulations of Shenzhen Special Economic Zone on House Lease and the implementation rules thereof by and between Party A and Party B through consultation. The parties agree as follows:

Article 1. Party A will lease to Party B for the latter's use the premises located on the 3rd floor (four stories in total), Factory Building #1 of the Great Wall Technology Building, Sci-tech Industrial Park, Nanshan District, Shenzhen City. The total leased construction area is 8135.36 square meters.

Article 2. The lease period of the premises of Party B shall be 5 year(s) and month(s), starting on the 16th day of April, 2003 and ending on the 15th day of April, 2008.

Article 3. The premises leased by Party A to Party B shall be used for manufacturing and general office purpose.

If Party B intends to use the rented premises for other purpose, written approval shall be first obtained from Party A and Party B shall in addition complete approval formalities in connection with the alteration of premises use as per relevant laws and regulations and ensure that relevant State regulations on fire safety are complied.

Article 4. Party A shall guarantee that the purpose of the premises as listed in article 3 conform to the stipulations of relevant laws, regulations and rules.

Party B undertakes that his actions during the use of the leased premises will conform to the stipulations of relevant laws, regulations and rules.

Article 5. The unit rent of the leased premises shall be _____ RMB Yuan (in words) per square meter per month, and the total monthly rent shall be _____ RMB Yuan (in words), where rent payable to Great Wall Technology is _____ RMB Yuan, and rent to Great Wall Computer is _____ RMB Yuan.

Party B shall pay the rent to Party A before the ____ day of every and each month (the ____ day of the ____ month of each quarter).

(LEFT BLANK FOR ARTICLE 5. TO REFER TO ADDITIONAL CLAUSES 4 AND 5.)

Article 6. Party A shall deliver the leased premises to Party B before the day of the 16th day of January, 2003.

Should Party A fail to deliver the leased premises by the above-mentioned date, Party B shall be entitled to request extension of the contract period which shall be confirmed by signatures of both parties.

Article 7. During the term of the lease, house property tax, land use fees of the leasehold, premises lease administration fee and other taxes shall be borne by Party A; expenses for water, power, cleaning, management fee of the premises (building) and communication fees shall be borne by Party B.

Article 8 (deleted)

Article 9. A guarantee money is permitted under this contract. Upon delivery of the leased premises, Party A may demand from Party B a payment amounting to 1.5 months' rent, that is four hundred twenty-seven thousand eight hundred ninety-four RMB Yuan (in words) as guarantee money.

Party A shall issue a receipt to Party B for the guarantee money paid by Party B.

Both parties shall perform the articles agreed upon under this contract; and the Party in default shall bear liability for breach of contract in accordance of the law.

Article 10. Party A shall ensure for the safety of the premises and the interior facilities and the conformity with requirements of relevant laws, regulations and rules. Party B shall use the facilities within the premises in a normal way, protect and safeguard them against damages from unusual application. Upon termination of this contract, Party B shall immediately return the premises and ensure for the intactness of the premises and the internal facilities (except for normal wear and tear), and pay up all charges and fees borne by Party B.

Article 11. During the utilization of the leasehold, upon damage or failure of or occurring to the leased premises or/and their internal facilities which may affect safety or the normal use thereof, Party B shall immediately notify Party A and take effective measures; Party A shall carry out maintenance thereof within 1 day(s) after receipt of Party B's notice; If Party B can in no way notify Party A or if Party A refuses to undertake maintenance, Party B may, after examination and certification by the registry organ of this contract, carry out repair and maintenance on behalf of Party A.

The maintenance and repair costs (including those for maintenance carried out by Party B on behalf of Party A) shall be borne by Party A.

Article 12. Party B shall be responsible for the repair and maintenance of damages, of the premises or the failure or faults of their internal facilities caused by the improper or unreasonable use of Party B. In case Party B refuses to repair or compensate, Party A shall, after examination and certification by the registry organ of this contract, conduct maintenance on behalf of Party B; the expenses incurred thereby shall be borne by Party B.

Article 13. During the term of this contract, rebuilding, expansion, or decorating of the leased premises by Party A, if reasonably necessitated, may be carried out by Party A with approval from Party B and after obtaining permit from relevant governmental departments, on which an extra agreement in writing shall be signed by both parties.

Article 14. Without prior written consent from Party A, Party B shall not sublease the leased premises, whether in whole or in part, to any third Party. Sublease with approval from Party A shall be registered with the administrative department for leased houses, but the sublease shall not expire later than the original expiry date of this Contract. Party B shall warrant that the leased premises will not be further subleased by his sublessee.

Article 15. During the term of this contract, if Party A needs to sell any or all parts of the leased premises, Party A shall notify Party B one month in advance, and Party B shall have a preemptive to buy the leased premises under the same conditions.

Should the premises be sold to others, Party A shall assure continued performance of this contract by the purchaser.

Article 16. During its term, this contract will automatically terminate in any of the following events:

- (1) Non-performance of contract caused by force majeure or accidental events;
- (2) Leased premises must be demolished because governmental decision of requisition of the land on which the premises are built.

Article 17. Party A may terminate this contract under the following events; Party B shall compensate Party A for any loss caused to Party A thereof:

- (1) Party B has not paid rent for more than one month(s);
- (2) All aggregate outstanding payment of Party B amounts to more than thirty thousand Yuan;
- (3) Party B uses the leased premises for other purposes without neither consent from Party A nor approval from relevant department;
- (4) The leased premises or facilities have been seriously damaged as a result of Party B's default of maintenance responsibility or payment of repair fees in violation of article 12 hereunder;
- (5) Renovation of the leased premises by Party B without prior written consent or approval from relevant department; and
- (6) Party B has subleased the leased premises to others without written consent from Party A.

If under above circumstances, this contract is dissolved by Party A on its part, a written notice shall be issued to Party B, who shall vacate and return the leased premises to Party A; any balance of advanced payments of Party B shall be refunded to Party B; notwithstanding the foregoing, the guarantee money may be withheld by Party A.

Article 18. Party B may terminate this contract under the following events and be compensated by Party A for any loss caused to Party B thereof:

- (1) Party A has delayed delivering the leased premises to Party B for more than one month(s);
- (2) Party A's violation of article 4 herein makes it impossible for Party B's continuous use of the leased premises for the intended purpose;
- (3) Party A's non-performance of the maintenance responsibility or payment of repair charges in breach of article 11 herein makes it impossible for Party B to continue the lease of the premises;
- (4) Party A has rebuilt, expanded or renovated the leased premises by without consent from Party B or approval from relevant department.

If for any of the above reasons, Party B unilaterally terminates this contract, a written notice shall be issued to Party A immediately; Party B shall vacate the leased premises without delay and shall have the right to demand payment of double guarantee money, the amount of eight hundred fifty-five thousand seven hundred eighty-eight RMB Yuan (in words) as liquidated damages, as well as refunding of any balance of advanced payments.

Article 19. Upon the expiry of the contract term, if Party B needs to further rent the houses, Party B shall propose to Party A his wish of renewal within one month before the expiry; if Party A intends to continue leasing the premises, Party B shall have preemptive right to rent the premises under the same conditions.

When agreement is reached on renewal of lease, a new contract shall be entered by both parties, to be registered again with contract registry organ.

Article 20. After expiry of this contract, Party B shall vacate and return to Party A the leased premises within 10 days after termination. Party B fails to vacate and return the leased premises, Party A can bring legal actions against Party B with the people's court.

Article 21. Party B shall pay Party A for any overdue rent a late payment fee at a daily rate of 3% of the monthly rent for the overdue amount.

Article 22. If Party B subleases any or all parts of the leased premises without Party A's approval, Party B shall pay Party A a penalty fee of seventy RMB Yuan (in words) for every square meter subleased per month (day).

Article 23. Either party in default of the obligations hereunder, which leads to loss to the other party, shall compensate the other party for any actual loss and predictable gains.

Article 24. Any addition or deletion to this form contract by the parties can be listed in the annex, which is as equally authentic as this contract.

Any matter not covered by this contract can be consulted by and between both parties and dealt with in supplementary agreement, which shall be registered with the original contract registry organ and shall be equally effective as this contract.

Article 25. Any disputes between the parties arising out of the performance of this contract shall be resolved through consultation, or upon failure of such effort, be submitted to the registry organ of this contract for conciliation or (X) submitted to Shenzhen Arbitration Commission for arbitration; or () litigation with the people's court. (The parties shall choose either one of the above two methods and tick in the square where appropriate).

Article 26. This contract shall be rendered in Chinese text, with copies in English language.

Article 27. This contract is in quadruplicate, one copy (copies) to be held by Party A, one copy (copies) to be held by Party B, one copy (copies) for the contract registry organ, and one copy (copies) for the relevant departments.

Article 28. This contract is effective upon the date of signing.

Party A (seal or signature):
Legal representative:
Contact telephone:
Bank A/C:
Authorized agent (seal or signature):

Party B (seal or signature):
Legal representative:
Contact telephone:
Bank A/C:
Authorized agent (seal or signature):

Registered by (seal or signature):

On behalf of contract registry organ (seal or signature):

on

on

on

Additional Clauses

1. The Real Property Ownership Certificate

(1) (Shenzhen Nan Shan District Science and Technology Industry Park Great Wall Science and Technology Development and Production Base #1 Plant) (1# Plant") was built and owned by Great Wall Science and Technology Stock Company ("Great Wall Technology") and China Great Wall Computer Shenzhen Stock Company ("Great Wall Computer"). Great Wall Technology has entrusted Great Wall Computer as its agent to "lease, operate and manage" its share in the 1# Plant (The Power of Attorney is attached herewith)

(2) The Real Property Ownership Certificate has not been granted yet. Party A promises that it will be responsible for all the losses caused to Party B during the term of this Lease Contract in connection with the title of the Leased Premises.

2. Real Property Leasing Contract Registration

(1) Upon the execution of this Lease Contract, the parties should apply to the Real Property Leasing Administration Authority of Nanshan District for registration of the Lease as soon as possible. The rent, water and power charges and management fee payable by Party B under this Lease shall be paid only after this Lease Contract has been registered with the Real Property Leasing Administration Authority of Nanshan District (or the Real Property Leasing Certificate has been granted).

(2) If the Nanshan District Real Property Leasing Administration Authority refuses to register this Lease Contract (or issue the Real Property Leasing Certificate) due to Party A's fault, Party B may rescind the Lease and Party A shall be responsible for any losses suffered by Party B there of.

3. Management of the Premises

Party A shall be responsible for the safety, environment hygiene and the maintenance of the public area and facilities while Party B shall be responsible for the safety, hygiene and other matters within the Leased Premises.

4. Rent, Utility Charge and Management Fee

(1) Party B will rent 8,150.36 m(2) construction areas (including corridors, site for the Nitrogen tank, the "Leased Premises"), and the rent and management fee (which shall be RMB5.5 m(2)/month) payable shall be as follows:

The Lease Period	Rent Per m(2)(RMB)	Monthly Rent (RMB)	Mngt. Fee (RMB)
03/4/16--03/4/30	35	142,631.3	22,413.5
03/5/01--06/4/30	35	285,262.6	44,827
06/5/01--08/3/31	36.75	299,525.7	44,827
08/4/01--08/4/15	36.75	149,762.9	22,413.5

(2) Utility charge shall be paid at the government rate accordance with the actual amount of consumption.

(3) At any point during the term of the lease, Party A should not charge any rental increment should Party B make any improvement to the building. Party B will need to get pre-approval from Party A and all improvement charges will be bear by Party B.

5. Payment

(1) Rent shall be paid to Great Wall Technology and Great Wall Computer at the ratio of 66:34 as set out in the following chart. Both Great Wall Technology and Great Wall Computer shall issue tax invoice separately to Part B for the payments.

The Lease Period	Monthly Rent (RMB)	Great Wall Technology	Great Wall Computer
03/4/16--03/4/30	142,631.3	94,136.7	48,494.6
03/5/01--06/4/30	285,262.6	188,273.3	96,989.3
06/5/01--08/3/31	299,525.7	197,687	101,838.7
08/4/01--08/4/15	149,762.9	98,843.5	50,919.4

(2) Utility charge and management fee shall be paid to Great Wall Computer in accordance with the invoice.

6. Renovation

- (1) Party A shall build the partition between the Leased Premises and the rest area of the third floor in accordance with Party B's design.
- (2) Party B shall be responsible for the renovation within the Leased Premises. Before Party B starts the renovation, it must obtain Party A's consent, which may not be unreasonably withheld, and necessary government approvals (if any).
- (3) If Party B's renovation of the Leased Area requires technical support, such as structure renovation, from Party A, the parties shall deal with such issues in a separate contract.
- (4) Party A shall grant Party B 3 month rent-free renovation period, from 16 January 2003 to 15 April 2003. Party B shall be responsible for the utility charge and management fee incurred in the period. Party B shall pay Party A the 3 month management fee in the amount of RMB134,233 with 5 days from the date when this Lease Contract has been registered with the Real Property Leasing Administration Authority of Nanshan District (or the Real Property Leasing Registration Certificate has been granted). Party B shall pay party A RMB142,631.3 as the rent for the period of 16 April 2003 to 30 April 2003. From 1 May 2003, Party B shall pay Party A the monthly rent within the first 10 days of the month. The rent for April 2003 and May 2003 shall be paid together in May 2003.

7. During the term of the lease, Party B will be granted un-obstructed access to the Leased Premises 24 hours a day, seven days a week for all 52 weeks of each year by Party A

8. Cargo Lift and Public Passages

Party A agrees to allocate and provide the exclusive use of one cargo lift (the number of the lift is). Party A shall be responsible for the maintenance of the cargo lift while Party B shall be responsible for the operation of the lift. Party A shall undertake and ensure that the allocated cargo lift is in good working condition at all times. Party B shall undertake and ensure proper usage of the cargo lift.

9. Site for Nitrogen Tank

Party A agrees to provide a site of about 15 m(2) at appropriate location outside of the 1 # Plant to Party B for the its nitrogen tank. The rent and management fee for this site shall be at the same rates as applied to the Leased Premises.

10. Parking Space

Party A shall provide Party B allocated free of charge parking space for 4 automobiles at the parking lot of 1 # Factory Building.

11. Environment Protection

(1) Party B shall have the right to conduct radioactive and environmental pollution survey and testing of the inner and outer Leased Premises prior to initiating its Initial Interior Improvements and to inform Party A of all results of the survey and testing. In case that the radioactive and other environmental pollution levels do not conform to the relevant National and local standards of the PRC, Party A shall be responsible for eliminating the environmental pollution, and shall deliver Party B with the Leased Premises that comply with the National and local standards of the PRC. In this event, the 3 month rent-free period as mentioned in Additional Clause 6 (4) herein shall start from the date of delivery of the Leased Premises which comply with the National and local standards, and the term of the lease shall also be postponed accordingly.

(2) Party A shall undertake and ensure to hold Party B harmless against any damages arising out of or in connection with any environmental pollution caused by or in connection with Party A or other tenants of the Great Wall Technology Building. IF the pollution is caused by Party A, Party A shall promptly eliminate the pollution. If the pollution is caused by other tenants, Party A shall undertake procure that such tenants promptly eliminate the pollution. If such tenant fails to do so within a reasonable period of time, Party A shall be responsible for eliminating the pollution.

(3) Party B shall comply with the National and local standards in the PRC in relation to the pollution levels using the Leased Premises. Party B shall undertake and ensure to hold Party A harmless against any damages arising out of or in connection with any environmental pollution caused by or in connection with Party B's activities.

(4) If Party A or Party B is in breach of the aforesaid obligations, it shall compensate the other party for any and all direct losses (including but without limitation the losses due to its employees or any third party's claim), but excluding any indirect losses and losses which are unforeseeable at the time when both parties sign this contract, provided always that written documents evidencing the environmental pollution certified by relevant governmental authorities shall have been provided to such party by the party making claims.

12. Right of First Refusal

Party A agrees to reserve the rest area of the third floor of 1 # Plant for Party B until 31 December 2003. Party B may lease part or the whole of that area at the same price as applied to the Leased Area before 31 December 2003. After that date, Party B shall have first refusal right for the leasing of that area.

13. Renewal Option

The term of this Lease is 5 years. Party B may choose to renew the Lease for another 5 years. The rent for the renewal shall be agreed by the parties but shall not be higher than the average rent for similar factory buildings in the same area.

14. Vacating Premises

On vacating the Leased Premises, Party B will be allowed to remove all equipment belonging to them.

15. Company Registration

If Party B's company registration has been rejected by the industry and commerce administration department, Party B may terminate this Lease Contract. Party B should in such case restore the Leased Premises to its original state, and reimburse Party A the costs incurred for the execution of this Lease Contract.

Party A:

Great Wall Science and Technology Stock Company

Signature and Chop:

China Great Wall Computer Shenzhen Stock Company

Signature and Chop

Party B:

Advanced Energy

Signature and Chop

SUBSIDIARIES OF THE REGISTRANT

Name	Jurisdiction of Incorporation or Organization
Advanced Energy Industries GmbH	Germany
Advanced Energy Industries, Inc., Shanghai	China
Advanced Energy Industries Korea, Inc.	South Korea
Advanced Energy Industries (Shenzhen) Co., Ltd. (manufacturing)	China
Advanced Energy Industries (Shenzhen) Co., Ltd. (service)	China
Advanced Energy Industries U.K. Limited	United Kingdom
Advanced Energy Japan K.K.	Japan
Advanced Energy N.K.	Japan
Advanced Energy Taiwan, Ltd.	Taiwan
AEI International Holdings CV	Netherlands
AEI US Subsidiary, Inc.	Delaware
Aera Corporation	Texas
Aera Korea Ltd.	South Korea
Aera U.K. Ltd.	United Kingdom
Dressler Hochfrequenztechnik, GmbH	Germany
Sekidenko, Inc.	Washington
Shenzhen Representative Office of Advanced Energy Industries, Inc.	China

Exhibit 23.1

Independent Auditors' Consent

The Board of Directors and Stockholders
Advanced Energy Industries, Inc.:

We consent to the incorporation by reference in the registration statements (Nos. 333-37378, 333-47114, 333-72748, 333-87720, and 333-110534) on Form S-3 and the registration statements (Nos. 333-01616, 333-04073, 333-46705, 333-57233, 333-65413, 333-79425, 333-79429, 333-62760, 333-69148, 333-69150, 333-87718, 333-105365, 333-105366, and 333-105367) on Form S-8 of Advanced Energy Industries, Inc. of our report dated February 20, 2004, with respect to the consolidated balance sheets of Advanced Energy Industries, Inc. as of December 31, 2003 and 2002, and the related consolidated statements of operations, stockholders' equity and comprehensive loss, and cash flows, and the related financial statement schedules, for each of the years then ended, which report appears in the December 31, 2003 annual report on Form 10-K of Advanced Energy Industries, Inc.

Our report dated February 20, 2004 contains an explanatory paragraph relating to the fact that effective January 1, 2002 the Company adopted Statements of Financial Accounting Standards No. 141, Business Combinations, and No. 142, Goodwill and Other Intangible Assets.

Our report dated February 20, 2004 contains an explanatory paragraph relating to the fact that effective January 1, 2003, Advanced Energy Industries, Inc. and subsidiaries adopted the provisions of Statement of Financial Accounting Standards No. 145, Rescission of FASB Statements 4, 44, and 64, Amendment of FASB Statement No. 13, and Technical Corrections.

Our report dated February 20, 2004 contains a paragraph relating to the fact that the consolidated financial statements of Advanced Energy Industries, Inc. and subsidiaries for the year ended December 31, 2001 were audited by other auditors who have ceased operations. As described in Note 1 to the consolidated financial statements, those consolidated financial statements have been revised to include the transitional disclosures required by Statement of Financial Accounting Standards No. 142, Goodwill and Other Intangible Assets, which was adopted by the Company as of January 1, 2002. However, we were not engaged to audit, review, or apply any procedures to the 2001 consolidated financial statements of Advanced Energy Industries, Inc. and subsidiaries other than with respect to such disclosures and, accordingly, we do not express an opinion or any other form of assurance on the 2001 consolidated financial statements taken as a whole.

/s/ KPMG LLP

Denver, Colorado
February 20, 2004

Exhibit 31.1

I, Douglas S. Schatz, certify that:

1. I have reviewed this annual report on Form 10-K of Advanced Energy Industries, 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 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)) 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 year 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 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:
 - 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: February 24, 2004

/s/ Douglas S. Schatz

Douglas S. Schatz
Chief Executive Officer, President
and Chairman of the Board

Exhibit 31.2

I, Michael El-Hillow, certify that:

1. I have reviewed this annual report on Form 10-K of Advanced Energy Industries, 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 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)) 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 year 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 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:
 - 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: February 24, 2004

/s/ Michael El-Hillow

Michael El-Hillow
Executive Vice President, Chief Financial
Officer (Principal Financial Officer)

Exhibit 32.1

Certification of the Chief Executive Officer 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 accompanying Form 10-K of Advanced Energy Industries, Inc. (the "Company") for the year ended December 31, 2003 (the "Report"), I, Douglas S. Schatz, Chief Executive Officer and President 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, that:

- (1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; 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: February 24, 2004

/s/ Douglas S. Schatz

Douglas S. Schatz

Chief Executive Officer and President

A signed original of this written statement required by Section 906 has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.

Exhibit 32.2

Certification of the Chief Financial Officer 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 accompanying Form 10-K of Advanced Energy Industries, Inc. (the "Company") for the year ended December 31, 2003 (the "Report"), I, Michael El-Hillow, 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, that:

- (1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; 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: February 24, 2004

/s/ Michael El-Hillow

Michael El-Hillow
Chief Financial Officer

A signed original of this written statement required by Section 906 has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.