

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 (FEE REQUIRED).

For the fiscal year ended December 31, 2002.

☐ 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 (Section 229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.



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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 \$251.9 million (A) as of June 28, 2002.

(A) Excludes 20,716,508 shares of common stock held by directors and officers, and any stockholders whose ownership exceeds 5% of the shares outstanding, at June 28, 2002. 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.

32,177,067

(Number of shares of Common Stock outstanding as of March 17, 2003)

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive proxy statement for the 2003 Annual Meeting of Stockholders to be held on May 7, 2003, to be filed subsequently, are incorporated by reference into Part III of this Form 10-K.

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PART I

ITEM 1. BUSINESS

Overview

We design, manufacture and support a group of key components and subsystems for vacuum process systems. Our customers use our products in plasma-based thin-film processing equipment that is essential to the manufacture of semiconductors; compact disks, DVDs and other digital storage media; flat-panel computer and television screens; coatings for architectural glass and optics; and power converters for advanced technology computer workstations and servers.

Our direct current (DC) and radio frequency (RF) power systems refine, modify and control the raw electrical power from a utility and convert it into power that is uniform and predictable. This allows manufacturing equipment to produce and deposit very thin films at an even thickness on a mass scale. Our acquisition of Dressler HF Technik GmbH (Dressler) in March 2002, has further enhanced our power systems.

Through our acquisitions of Engineering Measurements Company (EMCO) in January 2001 and Aera Japan Limited (Aera) in January 2002, which provide gas flow products, and Noah Holdings, Inc. (Noah) in April 2000 and Sekidenko, Inc. in August 2000, which provide thermal control and measurement products, we are a company that can provide “best-of-breed” components and systems, bringing together technologies that provide our customers increased precision and productivity.

We use ion source technology for products that produce a beam of ions for surface modification and other ion beam processes. We have developed a sophisticated pulsing power supply specifically for electroplating processes on semiconductor wafers.

In collaboration with a major microprocessor manufacturer we have developed the IKOR™ product group of DC-DC converters specifically designed to power the new low voltage, high current microprocessors, application-specific integrated circuits (ASICs), logic and memory chips.

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. We have sold our products worldwide to more than 100 OEMs and directly to more than 500 end users. 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 62% of our sales in 2002, 59% in 2001 and 70% in 2000. We sell our products primarily through direct sales personnel to customers in the United States, Europe and Asia, and through distributors in various regions outside the United States. International sales represented 40% of our sales in 2002, 36% in 2001 and 28% in 2000, although many of our products sold domestically are placed on systems shipped overseas by our customers.

Development of Company Business

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-

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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).

Products

The following summarizes our portfolio of products:

	Product Description	Power/Current Level	Major Process Applications
DIRECT CURRENT AND LOW FREQUENCY PRODUCTS	Power control and conversion system	400W – 200kW	CVD PVD •Reactive sputtering •Metal sputtering •Dual magnetron •Large Area Coating Electroplating Wafer handling Medical and Laser
RADIO FREQUENCY PRODUCTS	Power control and conversion system	500W – 10kW	Etch CVD Surface modification
	Metrology	50W – 10kW	Diagnostic/control
FLOW PRODUCTS	Hydro and ultrasonic flow meters	N/A	Flow measurement Non-invasive measurement
	Mass flow controllers	N/A	Semiconductor processes Fiber optics CVD CMP
TEMPERATURE CONTROL PRODUCTS	Dynamic point-of-use and static thermoelectric chillers	1.5kW – 4.25kW	Etch Strip Track
	Non-contact optical fiber thermometry	N/A	RTP CVD Strip
SOURCES PRODUCTS	Closed drift	1kW – 10kW	PVD Cleaning Surface modification
	Inductively coupled plasma source	1kW – 10kW	Chamber cleaning Abatement
IKOR™ PRODUCTS	Low voltage/high current power conversion	<1kW	Powering of next generation microprocessors and ASICs

DIRECT CURRENT PRODUCTS

The MDX Series. These products are most commonly used as DC power supplies for PVD sputtering where precise control, superior arc prevention and suppression and low stored energy characteristics are required. They are also used as bias supplies for RF sputtering, tool coating and some etching systems. The MDX series consists of six different product lines that provide a range of power levels from 500W to 120kW. Our second-generation product, the MDX II, was introduced to support higher power levels, to provide wider output range, and to meet strict European regulatory requirements. A model in the MDX series, the MDX-L, was designed for especially high reliability.

The Pinnacle™ Platform. The Pinnacle platform, which we updated with Pinnacle™ –II is the most recent general-purpose platform in the DC product line. We developed the Pinnacle primarily for use in DC PVD sputtering processes, and it provides substantial improvements in arc prevention, arc suppression capability, reduced size, higher precision and expanded control capability. The low stored energy of Pinnacle, a basic feature of our DC power conversion equipment, is due to the patented basic circuit topology.

The Pinnacle™ Plus Platform. This platform is a pulsed DC power system designed principally for use in reactive sputtering to produce insulating films. It is capable of producing up to 10kW of power in short pulses at frequencies up to 350kHz, for virtual elimination of arcing in difficult processes.

The Pinnacle™ 3000. The Pinnacle 3000 power supply, which we introduced in 2002, offers a high feature set that enables precision optical coatings, hard disk thin-film deposition and other related PVD applications. The Pinnacle 3000 offers user-selectable and programmable parameters, up to 3kW of power from less than 50 to 1000V DC and delivers process consistency and control that reduces process variation and improves yields.

Sparc-le® Accessories. Our Sparc-le line of DC accessories have been updated several times since its introduction, and are designed both to reduce the number of arcs that occur in plasma-based processes and to reduce the energy delivered if arcs do occur. The Sparc-le accessories are especially effective in applications involving the deposition of

insulating materials where the reaction between the plasma and target is likely to produce more severe arc conditions. The Sparc-le accessories are most commonly used with the MDX product lines.

Electrostatic Chuck Power Systems. We designed this system of power conversion units for a specific customer for use in wafer handling systems for the semiconductor fabrication market. The electrostatic chuck is a device that uses electric fields to hold or “chuck” a wafer in a vacuum environment without mechanical holding force. This permits more gentle handling of the wafer and simultaneous heating or cooling of the wafer during processing. When our power system applies voltage to the wafer, electric fields are created which hold the wafer in position. Exact control and careful ramping of the voltage permits the wafer to be picked and placed with precision. The system permits multiple power units to be held in a single chassis for ease of integration into the customer’s system.

Astral™ Products . The Astral products, made in 20kW, 120kW and 200kW versions, offer a technology, called “current pulsed dual magnetron sputtering.” These units are used for development of coatings for CRT and flat panel displays, automotive applications and new types of glass coatings.

Crystal™. The Crystal 180kW power conversion unit was developed for use in industrial PVD applications such as architectural glass coating, but is also useful in Plasma Enhanced Chemical Vapor Deposition. The latter may be used for deposition of oxygen- and water-vapor-barrier coatings on films used in food packaging. In PVD the unit is typically used as a powering source for a pair of magnetron sputtering sources in the “dual” configuration in a reactive sputtering system.

The PE Series . The PE low frequency power products are air cooled and primarily intended for use in certain PVD, chemical vapor deposition (CVD) and industrial surface modification applications, including dual cathode sputtering and printed circuit board de-smearing. The PE series products range in frequency from 25kHz to 100kHz. The PE-II products are water cooled and produce 10kW at 40kHz.

The ID Series. The ID power conversion and control systems were the first products we designed. These systems were specifically designed to power broad-beam ion sources. ID series products are composed of a coordinated set of multiple special purpose power supplies that are used for ion-beam deposition and sputtering, implantation, etching and milling.

The E’Wave™ . The E’Wave is designed for the semiconductor industry for electroplating copper onto a wafer. The power supply can produce up to four channels of multi-step, bipolar, square waveforms, which permit the copper to be alternatively plated and etched in precisely controlled ways, in order to fill very small cavities on the wafer surface. Each channel can produce 400W continuous and up to 2kW peak, for a total supply output of 1.6kW continuous and 8kW peak.

RADIO FREQUENCY PRODUCTS

RF POWER GENERATORS

Low Frequency (LF) Generators. The LF-5 is a 500W unit and the LF-10 is a 1kW unit. Both of these units are variable-frequency, microprocessor-controlled systems. With a frequency range extending from 50kHz to 460kHz, these generators are a good complement to the PD and PE series.

PDX Series. The PDX series of mid-frequency power conversion and control systems apply cost-effective, single conversion, switchmode techniques to higher frequencies. Depending upon power levels and application, they are available as air or water cooled generators and are used primarily in semiconductor etch and CVD applications. Unlike the LF series, which is frequency agile, the PDX platform products are supplied at discrete frequencies from 275kHz to 400kHz. Some versions provide pulsed operation.

HFV Series. Three versions of the HFV generator produce 3, 5, or 8kW of power at a variable frequency centered at about 2MHz for powering inductively coupled plasma (ICP) systems through a fixed element matching network. This platform is water cooled and ultra compact, providing up to 8kW of power in a 5-1/4 inch rack mount enclosure 20-1/4 inches deep.

The RFG Series. The RFG and RFXII are water cooled, full switchmode RF power conversion generators that make extensive use of custom hybrid technologies. Versions of the RFG, targeted at OEM installations, and the full-featured microprocessor controlled RFXII, are currently available at frequencies of 4MHz and 13.56MHz, and in power levels up to 5kW. They are extensively used in semiconductor processes, including CVD, RF sputtering, plasma etching/deposition and reactive ion etching.

APEX Series. The APEX series of power control and conversion systems feature extremely high power densities and sophisticated microprocessor control. This product line addresses the latest semiconductor industry trends, associated with 300mm wafer processing, for higher power levels and tighter control. The APEX series is highly configurable for OEM applications and includes models from 1.5kW to 10kW as well as many custom versions, intended for direct tool mounting, which include selectable fixed matches and post-match network RF instrumentation. The instrumentation can be used for plasma, chamber and/or process diagnostics or closed-loop control in conjunction with some of our other integrated system control products.

The RF Series. The RF series products generate power between 500W and 5kW, and are selectively available with frequencies from 2MHz to 40MHz. They use simple, reliable alternating current (AC) transformer front ends and employ linear RF sections, permitting variable frequency and high-speed pulse operation.

The Atlas™ Series. The Atlas power products combine the advantages of a modernized version of the linear RF sections of the RF series with a switchmode AC

front end. These products currently range in power up to 4kW and are targeted at applications requiring agile frequency control in the high frequency (HF) range or fixed frequency VHF operation up to 200MHz. These units complement the APEX series of fixed frequency, high efficiency HF range generators. Our customers can choose to have either the compact package of the fixed frequency APEX or, where required, the frequency agility or VHF capability of the Atlas products.

RF MATCHING NETWORKS

Analog Control Matching Networks. The AZX, AM and Mercury series impedance matching networks represent several generations of auto match networks. These match networks are designed as accessories to match the complex electrical impedance of the plasma to the 50-Ohm-output impedance of the generators, in order to permit maximum power transfer. These networks use servo-motor driven, ceramic envelope, variable vacuum capacitors and are designed for specific impedance ranges. Some models handle input powers up to 30kW. Different mechanical packages and various servo control schemes are employed in the different series, supporting a wide variety of applications.

Fixed and No-Moving-Part Variable Match Networks. We pioneered the use of fixed element and/or electronically variable element matches for use in load power regulated and frequency-agile RF power delivery products. We introduced the RFG 2K2V and Multi-function Adapter with fixed-element matching networks for use in a chamber-mount dielectric CVD system. This system provides significant cost savings and performance enhancements. In 1998, we introduced Frequency Transformation Matching System, which is a solid-state variable matching network with no moving parts. Used with the Atlas series of generators in a frequency-agile, tuned poly-etch system, this delivery system provides a wide impedance matching range, yet requires no servo controls or moving parts. We use this product in conjunction with our frequency-agile Atlas generators. The extension of this technology continues and is reflected in the incorporation of selectable fixed matches within custom APEX generator packages.

Microprocessor Controlled Matching Networks. The Navigator series is the most recent matching network platform we have introduced. This platform is highly modular and employs direct-coupled, microprocessor-controlled stepper motors to drive variable vacuum capacitors. This platform makes provisions for pre- and post-match RF parameter measurements. The microprocessor control enables sophisticated control algorithms to handle tough plasma matching applications that would be impossible with analog control schemes. The provision for post-match RF instrumentation (Navigator Z variations), within the controlled environment at the input to the chamber, has significant potential for improved processes through closed-loop control. Navigator series matching networks are being well received by OEMs for use in their next generation tools.

RF INSTRUMENTATION

Z-Scan™ Voltage-Current (V-I) Probe. This unit replaces the RFZ impedance probe. Z-Scan measures the RF properties of a plasma process and provides condensed

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information through its Z-Ware software. The sensing technology incorporated in the Z-Scan probe allows accurate, real-time measurement of power, voltage, current and impedance levels at both fundamental and harmonic frequencies, under actual powered process conditions. Such measurements not only help our customers design their process systems, but are also used as sensitive detectors of process conditions, including etch endpoint.

FLOW PRODUCTS

Our acquisition of EMCO in 2001 expanded our product offerings to flow meters, providing applications to measure de-ionized, ultra-pure and waste water steams and gases, among other materials. Our acquisition of Aera in January 2002 expanded our offerings to thermal-based, pressure-based and liquid-based mass flow controllers for applications in semiconductor processes, fiber optics, CVD and chemical mechanical planarization (CMP).

TEMPERATURE CONTROL PRODUCTS

Our acquisition of Noah in 2000 expanded our product offerings to temperature control products, including dynamic point-of-use thermoelectric chillers and static thermoelectric chillers with power levels from 500W to 4.25kW for etch, strip and track applications. Our acquisition of Sekidenko, Inc., also in 2000, expanded our offerings to non-contact optical fiber thermometry for rapid thermal processing (RTP), CVD and strip applications.

IKOR™ PRODUCTS

IKOR™. IKOR is a technology-driven supplier of low voltage, high current power delivery solutions for integrated circuits applications at original equipment manufacturers in the high-end computing, automated test equipment and DataCom markets.

The newer generations of microprocessors require the support of higher current at lower voltages, and must be extremely agile (able to handle rapidly changing power outputs). IKOR products deliver high performance, high efficiency, and high power density including: sub-one volt high current supplies, isolated and non-isolated DC-DC converter modules, and AC-DC power solutions. The IKOR patented basic circuit topology permits smaller, cost-effective solutions, which are stable under high rates of change of current draw, without the use of expensive and unreliable electrolytic capacitors.

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 62% of our sales in 2002, 59% in 2001 and 70% in 2000. Our power conversion and control products, flow products, and ion and plasma sources are also used in the flat panel display, data storage and advanced product applications markets. Our other brand, IKOR™ products, are used in the advanced product applications market. 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 a variety of applications including dielectric and metal film deposition, etch, ion implantation, photo-resist strip and megasonic cleaning. 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.

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 and computer hard disks, including both media and thin-film heads. 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.

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 computer games to laptop and desktop computer monitors to large-screen televisions. 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.

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.

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

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 53% of our total sales in 2002 and in 2001, and 72% in 2000. We expect that sales of our products to these customers will continue to account for a high percentage of our sales in the foreseeable future. Representative customers include:

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

Applied Materials, our largest customer, accounted for 27% of our sales in 2002, 24% in 2001 and 39% in 2000. No other customer exceeded 10%. See Note 13 to our financial statements.

Our backlog increased from \$16.3 million at December 31, 2001 to \$21.8 million at December 31, 2002. Approximately \$2.8 million of this increase was a result of our acquisitions of Aera and Dressler in 2002. We schedule production of our systems based on order backlog and customer commitments. Backlog includes only orders 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 Concord, Massachusetts; San Jose, California; Tempe, Arizona; Vancouver, Washington; and Voorhees, New Jersey. To serve customers in Asia and Europe, we have offices in Tokyo and Hachioji, Japan; Bundang, South Korea; Taipei Hsien and Hsinchu, Taiwan; Shenzhen and Shanghai, China; Filderstadt, Kirchheim, Stolberg and Dresden, Germany; Bicester, England; and Edinburgh, Scotland. These offices have primary responsibility for sales in their respective markets. We also have distributors outside the United States.

Sales outside the United States represented approximately 40% of our total sales during in 2002, 36% in 2001 and 28% in 2000. We expect sales outside the United States

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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 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; Longmont, Colorado; San Jose, California; Vancouver, Washington; Voorhees, New Jersey; Tokyo and Hachioji, Japan; Bundang, South Korea; Taipei Hsien and Hsinchu, Taiwan; Shenzhen and Shanghai, China; Filderstadt, Kirchheim and Dresden, Germany; Bicester, England; and Edinburgh, Scotland, but plan to close our Longmont, Colorado and Voorhees, New Jersey customer service locations during 2003.

We offer warranty coverage for our products after shipment against defects in design, materials and workmanship, for periods ranging from 12 to 36 months, with the majority of our products having terms ranging from 18 to 24 months.

Manufacturing

We have manufacturing locations in Fort Collins and Longmont, Colorado; Voorhees, New Jersey; and Vancouver, Washington. In connection with the acquisitions of Aera and Dressler, we now have manufacturing facilities in Hachioji, Japan; Bundang, South Korea; and Kirchheim and Stolberg, Germany. We generally manufacture different products at each facility. During 2003, we plan to transition the manufacturing of our products in Longmont, Colorado and Voorhees, New Jersey to Fort Collins, Colorado and a new facility in 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 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 timing of delivery 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.

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 63 United States patents and have over 50 patent applications pending in the United States, Europe and Japan. 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, Italy 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 but may not be able to protect it adequately” and “—Intellectual property litigation is costly.”

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 Japanese- and European-based equipment vendors. We have several

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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 MKS Instruments, Inc.; Huettinger Elektronik GmbH and Co. KG; Shindengen; Kyosan Electric Manufacturing Co. Ltd.; Comdel; STEC, Inc.; Celerity Group, Inc. (formerly Kinetics); Mykrolis Corp.; and Daihen Corp. 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.

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 \$49.0 million in 2002, \$45.2 million in 2001 and \$37.0 million in 2000, representing 20.5% of total sales in 2002, 23.3% in 2001 and 10.2% in 2000. We believe that continued research and development investment 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, 2002, we had a total of 1,398 employees, 1,319 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 while reviewing the performance of the temporary employee. We consider our employee relations to be good.

Effects 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:

- customer inventory levels, needs 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;
- capital resources sufficiency and availability;
- 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.

Our quarterly operating results are subject to significant fluctuations, which could negatively impact the market prices of our securities.

Our quarterly operating results have fluctuated significantly and we expect them to continue to experience significant fluctuations. Downward fluctuations in our quarterly results historically have resulted in decreases in the price of our common stock. Quarterly operating results are affected by a variety of factors, many of which are beyond our control. These factors include:

- changes or slowdowns 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;
- changes in customers' inventory management practices;
- customer cancellations of previously placed orders and shipment delays;
- pricing competition from our competitors;
- 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;
- costs incurred by responding to specific feature requests by customers;
- declines in macroeconomic conditions;
- timing and challenges of integrating recent and potential future acquisitions and strategic alliances;
- 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.

In addition, companies in the semiconductor capital equipment industry and other electronics companies experience pressure to reduce costs. Our customers exert pressure on us to reduce prices, enhance features, improve reliability, shorten delivery times and extend payment terms. These pressures could lead to significant changes in our operating results from quarter to quarter. These changes often occur quickly and make it difficult for us to predict our revenues or operating results. For example, our ability to predict future operating results is quite low given the continued uncertainty in virtually all forms of technology spending.

We have incurred significant charges and costs related to inventory obsolescence and warranty. These costs may be driven by many factors, including new technologies introduced to the marketplace by our competitors and others, volatility in the demand for our products and our introduction of newer, more complex products, which required substantial rework and in some cases replacement in accordance with the terms of our warranties.

In the past, we have incurred charges and costs related to events such as acquisitions, restructuring and storm damages. In addition, we have from time to time incurred

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charges and costs related to new technologies that are being developed by others. The occurrence of similar events in the future could adversely affect our operating results in the applicable quarter.

Our operating results in one or more future quarters may fall below the expectations of analysts and investors. In those circumstances, the trading price of our common stock would likely decrease and, as a result, any trading price of our convertible notes may decrease as well.

The semiconductor and semiconductor capital equipment industries are highly volatile, and our operating results are affected to a large extent by events in those industries.

The semiconductor industry historically has been highly volatile and has experienced periods of oversupply resulting in significantly reduced demand for semiconductor capital equipment. These reductions, in turn, have significantly reduced demand for our products. A rapid decrease in demand for our products can occur with limited advance notice because we supply subsystems to equipment manufacturers and make a substantial portion of our shipments on a just-in-time basis. This decrease in demand can adversely impact our business and financial results disproportionately because of its unanticipated nature.

During downturns, some of our customers have drastically reduced their orders to us and have implemented substantial cost reduction programs. The semiconductor industry is currently involved in one of the most significant downturns in its history and there is no reason to believe that this situation will significantly improve in the near term. Sales to customers in the semiconductor capital equipment industry accounted for 62% of our total sales in 2002, 59% in 2001 and 70% in 2000. We expect that our business will continue to depend significantly on the volatile semiconductor and semiconductor capital equipment industries for the foreseeable future.

The market price of our common stock is highly volatile, which could lead to fluctuating prices for our convertible notes, losses for individual investors and costly securities class action litigation.

The market for technology stocks, including our common stock, has experienced significant price and volume fluctuations. These fluctuations often have been unrelated or disproportionate to the operating performance of the companies. From our IPO in November 1995 through March 17, 2003, the closing prices of our common stock on the NASDAQ National Market have ranged from \$3.50 to \$73.25. The market for our common stock, and any market for our convertible notes, likely will continue to be subject to severe fluctuations. Many factors could cause the trading price of our common stock and notes to fluctuate substantially, including the following:

- future announcements concerning our business, technology, customers or competitors;

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- variations in our operating results;
- introduction of new products or changes in product pricing policies by us, our competitors or our customers;
- changes in earnings estimates by securities analysts or announcements of operating results that are not aligned with the expectations of analysts and investors;
- reduced spending for consumer electronic items;
- the economic and competitive conditions in the industries in which our customers operate;
- 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;
- changes in the general geopolitical environment; and
- general stock market trends.

In the past, following periods of volatility in the market price of a particular company's securities, securities class action litigation often has been brought against that company. Many technology companies have been subject to this type of litigation. We may also become involved in this type of litigation. Litigation is often expensive and diverts management's attention and resources, which could significantly 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 53% of our total sales in 2002 and 2001, and 72% in 2000. Our largest customer, Applied Materials, accounted for 27% of our total sales in 2002, 24% in 2001 and 39% in 2000. The loss of any of our larger customers or a material reduction in any of their purchase orders would significantly harm our business, financial condition and results of operations.

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 MKS Instruments, Inc.; Huettinger Elektronik GmbH and Co. KG; Shindengen; Kyosan Electric Manufacturing Co. Ltd.; Comdel; STEC, Inc.; Celerity Group, Inc. (formerly Kinetics); Mykrolis Corp.; and Daihen Corp. 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 need to continue to improve and expand our products and product offerings. In addition, we 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 may not be able to make the technological advances and investments necessary to remain competitive.

New products developed by competitors or more efficient production of their products could increase pressure on the pricing of our products. In addition, electronics companies, including companies in the semiconductor capital equipment industry, have been facing pressure to reduce costs. Either of these factors may require us to make significant price reductions to avoid losing orders. Further, our current and prospective customers consistently exert pressure on us to lower prices, shorten delivery times and improve the capability of our products. Failure to respond adequately to these pressures could result in a loss of customers and orders.

We recently acquired a number of companies and technologies, and may continue seeking acquisitions, but might not be able to integrate our acquisitions successfully or efficiently and may record significant charges related to these acquisitions.

We have significantly expanded our product offerings through acquisitions and continue to seek acquisition opportunities actively. Prior to 1997, we did not make any significant acquisitions. In the three years from 1997 through 1999, we acquired five companies. In 2000 and 2001, we acquired three companies and entered into a strategic partnership arrangement with one other company. In January 2002, we acquired Aera, a privately owned Japanese corporation with approximately 220 employees in six locations worldwide. In March 2002, we acquired Dressler, a privately owned Stolberg, Germany-based provider of power supplies and networks.

Integrating the companies and technologies that we have acquired has placed substantial demands on our management team. Further, the increased pace of our acquisitions has required us to try to integrate multiple acquisitions simultaneously. This has decreased the time and effort that management can give to integrating each acquisition, while continuing to manage our existing business.

Some of our acquisitions have been in technology and geographic markets in which we have limited experience. We might not be able to compete successfully in these markets or operate the acquired businesses efficiently. While we may be able to reduce some costs through consolidation, such as the elimination of redundant locations and personnel, other unanticipated costs of operating acquired companies or integrating them into our operations may continue to emerge. Our business and results of operations could be adversely affected if integrating our acquisitions results in substantial charges, costs, delays or other operational or financial problems. Our acquisitions in 2002 and 2001 created significant goodwill and other intangible assets, resulting in increased amortization expense. We may also recognize significant goodwill and other intangible asset impairment charges depending upon the success of the operations of our acquisitions and Advanced Energy as a whole.

Future acquisitions could place additional strain on our operations and management. Our ability to manage future acquisitions will depend on our success in:

- evaluating new markets and investments;
- monitoring operations of acquired companies;

- controlling costs and unanticipated expenses of acquired companies;
- integrating acquired operations and personnel;
- retaining existing customers and strategic partners of acquired companies;
- leveraging our existing distribution channels;
- maintaining effective quality controls of acquired companies; and
- expanding our internal management, technical and accounting systems.

Future acquisitions may result in dilution to existing stockholders, adversely affect our financial results or the market price of our securities or limit our financial flexibility.

In connection with future acquisitions we may issue equity securities, incur or assume debt, recognize substantial one-time expenses or create goodwill and other intangible assets that could result in future charges for impairment or in the case of other intangible assets, significant amortization expense. Parties to whom we issue equity securities in acquisitions may seek to liquidate their ownership following an acquisition, which may lead to increased pressure on the market price of our stock and convertible notes. The market price of our securities may also decline upon announcement of an acquisition, if investors do not view it favorably. Also, many acquisition opportunities are for foreign companies or for divisions of larger companies, for whom cash is generally a more attractive consideration than securities. The use of cash for these acquisitions may reduce our future financial flexibility.

We might not be successful in acquiring the companies or developing the technologies necessary to implement our business strategy.

We continue to look for ways to expand our product offerings to new and existing customers and expand into new markets through acquisitions, internal development and refinement of technologies, and sales and marketing efforts. However, whether or not we are successful in implementing our goal of becoming a single-source provider of integrated solutions will depend on many factors, several of which are out of our control. For example, we may not be able to identify or acquire companies or develop internally products which complement our present product offerings. If we identify appropriate target companies or technologies, we may not be able to afford to acquire them or may be otherwise unsuccessful in doing so due to market conditions, competition, failure to agree on terms and other circumstances. Implementation of our growth, acquisition and product integration strategy may be delayed or altered as these factors affect management's acquisition and development decisions.

Our newly acquired foreign operations, as well as our foreign sales and service offices, present difficulties that we have limited experience addressing.

Our acquisitions of Aera and Dressler significantly increased our operations outside of the United States. In addition to our operations in Japan and Germany, we maintain sales and service offices in Germany, the United Kingdom, South Korea, Taiwan and China. In implementing our business strategy, we may acquire other companies or relocate some

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of our current domestic operations outside of the United States. In February 2003, we announced that we plan to move selected power supply and mass flow production lines to a new facility in China. We have limited experience in operating manufacturing facilities in China, and may face difficulties in the following areas among others:

- integrating our production processes;
- maintaining effective quality controls;
- meeting our customers' demand schedules;
- integrating operations and administrative personnel;
- complying with local laws, regulations and trade barriers; and
- controlling costs and expenses

Our foreign operations subject us to risks and uncertainties that we have limited experience addressing. For example, we face greater difficulty outside the United States:

- managing and staffing our offices;
- safeguarding our intellectual property;
- understanding and complying with local business customs and laws;
- maintaining consistent standards of internal accounting controls and compliance with accounting policies in our operations around the world; and
- competing for customers and supplies with companies based in the foreign country.

In addition, our foreign operations are subject to risks in each country, including:

- currency controls and exchange rate fluctuations;
- governmental regulations and controls; and
- political and economic instability.

Our ability to integrate the operations of Aera and Dressler, transition selected manufacturing processes to China, as well as our overall financial results might be adversely affected, if we are unable to address these difficulties and risks successfully.

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

Our customers increasingly require service and support on a worldwide basis as the markets in which we compete become increasingly globalized. Our success in competing in international markets is subject to our ability to manage various risks and difficulties, including:

- compliance with product safety requirements and standards that are different from those of the United States;
- barriers to entry;
- import and export requirements and controls;

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- trade restrictions;
- collecting past due accounts receivable from foreign customers; and
- changes in tariffs and taxes.

Sales to customers outside the United States accounted for 40% of our total sales in 2002, 36% in 2001 and 28% in 2000. As a result of our acquisitions of Aera and Dressler, we expect international sales to represent a larger portion of our future sales. Providing support services for our products on a worldwide basis also is subject to various risks, including:

- our ability to hire qualified support personnel;
- maintenance of our standard level of support;
- difficulties managing overseas distributors and representatives; and
- differences in local customs and practices.

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

Fluctuations in the currency exchange rate between the U.S. dollar and foreign currencies could adversely affect our operating results.

A portion of our sales is subject to currency exchange risk as a result of our international operations. Approximately 40% of our revenues in 2002 were subject to this risk. As a result of our expanded international operations and sales, including those acquired through the acquisitions of Aera and Dressler, we expect a greater portion of our future revenues to be subject to this risk.

We have experienced fluctuations in foreign currency exchange rates, particularly against the Japanese yen and the euro, which have negatively affected our operating results from time to time. We have in the past entered into various forward foreign exchange contracts to mitigate currency fluctuations in the yen and intend to continue to do so. We have not employed derivative techniques with respect to any other currencies. Our current or any future derivative techniques might not protect us adequately against substantial currency fluctuations and may increase our foreign currency exposure and the volatility of our results of operations.

Shortages of components necessary for our product assembly can delay our shipments.

Manufacturing our products and control systems for the semiconductor capital equipment industry requires numerous electronic components. Dramatic growth in the electronics industry has significantly increased demand for these components. This demand has resulted in periodic shortages and allocations of needed components, and we expect to experience additional shortages and allocations from time to time. Shortages and allocations could cause shipping delays for our products, adversely affecting our

results of operations. Shipping delays also could damage our relationships with current and prospective customers as well as our perception in the markets in which we operate.

Our dependence on sole and limited suppliers could affect our ability to manufacture products and systems.

We rely on sole and limited source suppliers for some of our 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 components;
- the potential for a sole source provider to cease operations;
- our need to fund the operating losses of a sole source provider;
- reduced control over pricing and timing of delivery of components; and
- the potential inability of our suppliers to develop technologically advanced products to support our growth and development of new products.

We believe that in time we could obtain and qualify alternative sources for most sole and limited source parts or could manufacture the parts ourselves. Seeking alternative sources or commencing internal manufacture of the parts could require us to redesign our products, resulting in increased costs and likely shipping delays. We may be unable to manufacture the parts internally or redesign our products, which could result in further costs and shipping delays. These increased costs would decrease our profit margins if we could not pass the costs to our customers. Further, shipping delays could damage our relationships with current and potential customers and have a material adverse effect on our business and results of operations.

Our current and future investments in start-up or early stage companies might not be economically beneficial or otherwise rewarding and might cause us to realize losses.

We have invested in start-up and early stage companies that develop products and technologies that we believe may provide us with future benefits. These investments may not provide us with any benefit, and we may not achieve any economic return on any of these investments. Our investments in these companies are subject to all of the risks inherent in investing in companies that are not established. We could lose all or any part of our investments in these companies. Over the last twelve months the implied value of a number of companies has decreased dramatically and a number of technology companies have been forced to write off all or a portion of their investments in these companies. In 2002 and 2001, we recorded impairment charges related to an investment in an early stage company totaling \$1.9 million and \$6.8 million, respectively.

As we make additional investments, we may be required to reflect all or a portion of such investments as a charge against earnings or record our share of the company's income or losses. As of December 31, 2002, we have committed to advance \$2.3 million to several privately held companies over the next two years.

We are highly dependent on our intellectual property but may not be able to protect it adequately.

Our success depends in part 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 some other countries. The costs 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 protection. Generally, we have concentrated our efforts to obtain international patents in the United Kingdom, Germany, France, Italy and Japan because there are other manufacturers and developers of similar products and control systems in those countries, as well as customers for those products. Our inability or failure to obtain adequate patent protection in a particular country could threaten our ability to compete effectively in that country.

Our patents also might not be sufficiently broad to protect our technology, and any existing or future patents might be challenged, invalidated or circumvented. Additionally, our rights under our patents may not provide meaningful competitive advantages.

Intellectual property litigation is costly.

We have recently faced significant intellectual property litigation, which resulted in us recording approximately \$5.3 million in litigation damages and expenses in 2002. As a result of this judgment we have entered into a settlement agreement allowing us to sell the infringing product subsequent to the date of the jury award. Under the terms of the settlement agreement, we are required to pay royalties to MKS Instruments for each unit of the infringing products we sell. We charged approximately \$530,000 to cost of sales in 2002 related to this agreement.

Subject to the foregoing, we do not believe that any of our products are infringing any patents or proprietary rights of others, although infringements may exist or might occur in the future. Litigation may be necessary to enforce patents issued to us, to protect our trade secrets or know-how, to defend ourselves against claimed infringement of the rights of others or to determine the scope and validity of the proprietary rights of others. This type of litigation often requires substantial management time and attention, as well as financial and other resources.

An adverse determination in any current or 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 threaten our business, financial condition and results of operations.

We must constantly develop and sell new products in order to keep up with rapid technological change.

The markets for our products and the markets in which our customers compete are characterized by ongoing technological developments and changing customer requirements. We must continue to improve existing products and to develop new products that keep pace with technological advances and meet the needs of our customers in order to succeed. We might not be able to continue to improve our products or develop new products. The products we do develop might not be cost-effective or introduced in a timely manner. Developing and introducing new products may involve significant and uncertain costs. Our business, financial condition and results of operations, as well as our customer relationships, could be adversely affected if we fail to develop or introduce improved products and new products in a timely manner.

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 often must work with these manufacturers early in their design cycles to modify our equipment to meet the requirements of the new systems. Manufacturers typically choose one or two vendors to provide the power conversion equipment 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.

We typically must customize our products for particular customers to use in their equipment to achieve design wins. This customization increases our research and development expenses and can strain our engineering and management resources. These investments do not always result in design wins.

Once a manufacturer chooses a power conversion and control system for use in a particular product, it is likely to retain that system for the life of that product. Our sales and growth could experience material and prolonged adverse effects if we fail to achieve design wins. In addition, 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.

Our efforts to be responsive to customers may lead to incurring costs that are not readily recoverable.

We may incur manufacturing overhead and other costs, many of which are fixed, to meet anticipated customer demand. Accordingly, operating results could be adversely affected if orders or revenues in a particular period or for a particular system do not meet expectations.

We often require long lead times for development of our products during which times we must expend substantial funds and management effort. We may incur significant development and other expenses as we develop our products without realizing corresponding revenue in the same period, or at all.

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

Our success depends upon the continued efforts of our senior management team and our technical, marketing and sales personnel. These employees may voluntarily terminate their employment with us at any time. Our success also depends on our ability to attract and retain additional highly qualified management, technical, marketing and sales personnel. 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 could be materially and adversely affected.

We conduct manufacturing at only a few sites and our sites are not generally interchangeable.

We conduct the majority of our manufacturing at our facilities in Fort Collins and Longmont, Colorado; Voorhees, New Jersey; Vancouver, Washington; Stolberg, Germany; and Hachioji, Japan. In 2003, we plan to transition the manufacturing of our products in Longmont, Colorado and Voorhees, New Jersey to Fort Collins, Colorado and a new facility in Shenzhen, China. We also have smaller sites in Bundang, South Korea; and Kirchheim, Germany. Each facility generally manufactures different products and, therefore, is not readily interchangeable. In July 1997, a severe rainstorm in Fort Collins caused substantial damage to our Fort Collins facilities and to some equipment and inventory. The damage caused us to stop manufacturing at that facility temporarily and prevented us from resuming full production there until mid-September 1997. Our insurance policies did not cover all of the costs that we incurred in connection with the rainstorm. Future natural or other uncontrollable occurrences at any of our primary manufacturing facilities that negatively impact our manufacturing processes may not be fully covered by insurance and could cause significant harm to our operations and results of operations.

We must maintain minimum levels of customized inventory to support some customer delivery requirements.

We must keep a relatively large number and variety of customized products in our inventory to meet customer delivery requirements. Our inventory may become obsolete as we develop new products, as our customers develop new systems, and due to products developed by competitors. Recent inventory obsolescence has had a material impact on our financial condition and results of operations. We recorded approximately \$5.8 million of inventory obsolescence charges in 2002, \$6.4 million in 2001 and \$654,000 in 2000. We cannot provide any assurance that we will not recognize significant future inventory obsolescence charges.

Warranty costs on certain products may be excessive.

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, the products. Our warranty costs generally increase when we introduce newer, more complex products. We recorded warranty costs of approximately \$13.2 million in 2002, \$7.6 million in 2001 and \$4.6 million in 2000. If such levels of warranty costs persist in the future, our financial condition and results of operations may be materially 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 must ensure that our products meet safety and emissions standards, many of which vary across the states and countries in which our products are used. For example, the European Union has published directives specifically relating to power supplies. We must comply with these directives in order to ship our products into countries that are members of the European Union. In the past, we have invested significant resources to redesign our products to comply with these directives. We believe we are in 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.

We lease a portion of our Fort Collins, Colorado facilities and a condominium from entities in which a major stockholder and insider has financial interests.

We lease our executive offices and manufacturing facilities in Fort Collins, Colorado from Prospect Park East Partnership and from Sharp Point Properties, LLC. Douglas S. Schatz, our Chairman, President and Chief Executive Officer, holds a 26.7% interest in each of the leasing entities. Aggregate rental payments under these leases for 2002 totaled approximately \$2.7 million. We also lease a condominium in Breckenridge, Colorado to provide rewards and incentives to our customers, suppliers and employees. We lease the condominium from AEI Properties, a partnership in which Mr. Schatz holds a 60% interest. Aggregate rental and other payments under the condominium lease for 2002 totaled approximately \$67,000. As of December 31, 2002, Mr. Schatz owned approximately 34.3% of our common stock. It is possible that the interests of Mr. Schatz may not coincide with our interests with respect to these properties.

Our executive officers and directors own a significant percentage of our outstanding common stock, which could enable them to control our business and affairs.

Our executive officers and directors owned approximately 39.4% of our common stock outstanding as of December 31, 2002. Douglas S. Schatz, our Chairman, President and Chief Executive Officer, owned approximately 34.3% of our common stock outstanding as of December 31, 2002. These stockholdings give our executive officers and directors collectively, and Mr. Schatz individually, significant voting power. Depending on the number of shares that abstain or otherwise are not voted on a particular matter, our executive officers collectively may be able to elect all of the members of our board of directors and to control our business affairs for the foreseeable future.

We recently have increased our leverage significantly.

As a result of our acquisition of Aera in January 2002, we assumed approximately \$34 million in bank loans and other debt. In August 2001, we issued \$125 million of convertible notes. In October and November of 2002, we repurchased an aggregate of approximately \$18.9 million principal amount of our convertible notes in the open market. As a result of these transactions, our principal and interest payment obligations increased and such debt increased from approximately \$83.9 million at December 31, 2000 to approximately \$212.2 million at December 31, 2002. Our bank loans assumed in the acquisition of Aera mature through May 2007 and our convertible notes are due in 2006. The degree to which we will be leveraged could adversely affect our ability to obtain financing for working capital, acquisitions or other purposes and could make us more vulnerable to industry downturns and competitive pressures. Our ability to meet our debt service obligations will be dependent upon our future performance, which will be subject to the financial, business and other factors affecting our operations, many of which are beyond our control. Our note holders and other creditors might require us to sell some of our assets, terminate some of our operations or take other actions, including

completely liquidating the company, if we are unable to meet our debt service obligations.

Anti-takeover provisions limit the ability of a person or entity to acquire control of us and may adversely affect the value of our common stock and our convertible notes.

Our certificate of incorporation and bylaws include provisions which:

- allow the board of directors to issue preferred stock with rights senior to those of the common stock without any vote or other action by the holders of the common stock;
- limit the right of our stockholders to call a special meeting of stockholders; and
- impose procedural and other requirements that could make it difficult for stockholders to effect particular corporate actions.

In addition, we are subject to the anti-takeover provisions of the Delaware General Corporation Law. Any of these provisions could delay or prevent a person or entity from acquiring control of us. The effect of these provisions may be to limit the price that investors are willing to pay in the future for our securities. These provisions might also discourage potential acquisition proposals or could diminish the opportunities for our stockholders to participate in a tender offer, even if the acquisition proposal or tender offer is at a price above the then current market price for our common stock.

EXECUTIVE OFFICERS OF THE REGISTRANT

Our executive officers, their positions and their ages as of February 28, 2003, are as follows:

Name	Age	Position
Douglas S. Schatz	57	Chief Executive Officer, President and Chairman of the Board
Dennis A. Faerber	50	Executive Vice President and Chief Operating Officer
Michael El-Hillow	51	Executive Vice President of Finance and Administration and Chief Financial Officer
Richard A. Scholl	64	Senior Vice President and Chief Technology Officer
Charles S. Rhoades	42	Senior Vice President and General Manager, CSI
Brenda M. Scholl	46	Senior Vice President and General Manager, Power SBU
Scott B. Burton	41	Senior Vice President of Worldwide Operations
James Guilmart	48	Senior Vice President of Global Customer Operations
Monica Moloney	40	Vice President of Human Resources
Thomas K. Werning	42	Vice President of Finance and Corporate Controller
Joseph P. Kovach	42	Vice President and Chief Information Officer
Mario Guerrero	52	Vice President of Strategic Planning
John Wagner	38	President of IKOR

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. From September 2002 until February 2003, Mr. Schatz served

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as our interim Chief Operating Officer. Since December 1995, Mr. Schatz has also served as a director of Advanced Power Technology, Inc., a publicly held company which provides high power, high voltage and high performance semiconductors and power modules.

Dennis A. Faerber joined us in February 2003 as Executive Vice President and Chief Operating Officer. From July 2001 to February 2003, Mr. Faerber was Vice President and General Manager of U.S. Operations at Agilent Technologies' Electronic Products and Solutions Group. Prior to Agilent, he held a variety of management positions in research and development, manufacturing, marketing and services throughout a twenty-four year career with Hewlett-Packard Corporation.

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

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.

Charles S. 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.

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 August 1999 as Director of Applied Business Unit, and was named Senior Vice President of Sales in October 2000. In October 2002, Mr.

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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.

Monica Moloney joined us in January 1991 as Human Resources Manager. Ms. Moloney held progressive positions in human resources thereafter, before becoming Vice President of Human Resources in February 1999. From 1985 to 1991, Ms. Moloney held a variety of human resources positions at TRW Electronic Products, Inc.

Thomas K. Werning joined us in March 2002 as Vice President of Finance and Corporate Controller. From January 2000 to November 2001, Mr. Werning was Senior Vice President, Chief Operating Officer at Cirilium Corporation. Prior to Cirilium, he was Vice President of Finance and Operations at Hypercom Network Systems, and the European Controller for Marion Merrell Dow.

Joseph P. Kovach joined us in June 2002 as Vice President and Chief Information Officer. From November 2000 to May 2002, Mr. Kovach was Chief Operating Officer at Interlink Group. Prior to Interlink, he was Senior Vice President and Chief Information Officer at R.L. Polk & Co. Mr. Kovach has also held management positions at Electronic Data Systems in operations and information technology.

Mario Guerrero joined us in December 2001 as Vice President of Strategic Planning. From 1991 to December 2001, Mr. Guerrero was an Independent Management Consultant. Prior to being an Independent Management Consultant he was a partner and consultant at The Canaan Group, Ltd.

John Wagner joined us in October 2002 as President of IKOR™. From October 1996 to November 2001, he was Vice President, Product Development/Management at Visiontek. Prior to Visiontek, he was Group Manager, GSM Business at Motorola.

ITEM 2. PROPERTIES

Information concerning our principal properties is set forth below:

Location	Type	Principal Use	Sq. Footage	Ownership
Tempe, AZ	Office	Distribution	2,000	Leased
Milpitas, CA	Office	Distribution	9,000	Leased
San Jose, CA	Office	Distribution	20,000	Leased
Fort Collins, CO	Office, plant	Headquarters, Research and development, Manufacturing, Distribution	297,000	Leased
Longmont, CO	Office, plant	Research and development, Manufacturing, Distribution	45,000	Owned
Matthews, NC	Office, plant	Research and development, Manufacturing, Distribution	10,000	Leased
Voorhees, NJ	Office, plant	Research and development, Manufacturing, Distribution	78,000	Leased
Beaverton, OR	Office	Distribution	3,000	Leased
Austin, TX	Office	Distribution	45,000	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	87,000	Leased
Bicester, England	Office	Distribution	1,000	Leased
Dresden, Germany	Office	Distribution	1,000	Leased
Filderstadt, Germany	Office	Research and development, Distribution	9,000	Leased
Kirchheim, Germany	Office, plant	Distribution, Manufacturing	2,000	Leased
Stolberg, Germany	Office, plant	Research and development, Manufacturing, Distribution	14,000	Leased
Hachioji, Japan	Office, plant	Research and development, Manufacturing, Distribution	46,000	Owned
Tokyo, Japan	Office	Distribution	8,000	Leased
Bundang, South Korea	Office	Distribution	6,000	Leased
Bundang, South Korea	Office, plant	Manufacturing, Distribution	4,000	Owned
Edinburgh, Scotland	Office	Distribution	2,000	Leased
Hsinchu, Taiwan	Office	Distribution	3,000	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.

In 2002, we closed one of our San Jose, California sales and service locations and co-located this facility with another sales and service center in San Jose. We also closed our manufacturing facility in Austin, Texas, which was acquired in our acquisition of Aera, as a result of the transfer of the manufacturing of these products to Hachioji, Japan.

In 2003, we expect to close and sell our Longmont, Colorado facility and close a 92,000 square foot facility in Fort Collins, Colorado, the Matthews, North Carolina facility, the Milpitas, California facility and the Edinburgh, Scotland facility as these leases expire.

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:

We were a defendant in an action filed by Sierra Applied Sciences, Inc., a Colorado corporation. The civil action was filed in the U.S. District Court for the District of Colorado on September 17, 2001. The action was a Complaint for Declaratory Judgment in which the plaintiffs sought a Declaratory Judgment from the court that our patent is invalid or that the plaintiffs' products do not infringe on the patent. On March 24, 2003, this action was dismissed by the U.S. District Court for the District of Colorado.

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In November 2001, an interference action was filed in the United States Patent and Trademark Office (PTO) by The Unaxis Corporation, wherein The Unaxis claims prior invention of one of our concepts, for which we filed a patent application in 1992 and which ultimately resulted in U.S. Patent No. 6,001,224 being issued to us. Should Unaxis prevail, the effective result would be transference of the patent rights over the concept to Unaxis. Unaxis could then choose to license those rights to us. We have reason to believe that we will prevail in the interference proceeding, and are vigorously defending ourselves before the Board of Interference in the United States PTO. This litigation involves our Sparc, Sparc-le®, Pinnacle™ and Astral™ product lines, which have represented less than 4% of our total revenues since January 1, 2000.

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 March 17, 2003, the number of common stockholders of record was 880, and the last sale price on that day was \$8.98.

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:

	High Trade Price	Low Trade Price
2001 Fiscal Year		
First Quarter	35.75	19.81
Second Quarter	45.06	22.25
Third Quarter	43.40	16.35
Fourth Quarter	29.25	15.40
2002 Fiscal Year		
First Quarter	36.58	23.50
Second Quarter	39.56	21.45
Third Quarter	22.40	8.43
Fourth Quarter	19.50	5.88

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.

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 year ended December 31, 2002, and the related consolidated balance sheet data as of and for the year ended December 31, 2002, were derived from consolidated financial statements audited by KPMG LLP, independent auditors, whose related audit report is included in this Form

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10-K. The selected consolidated statement of operations data for the years ended December 31, 2001 and 2000, and the related consolidated balance sheet data as of and for the year ended December 31, 2001, were 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, 1999 and 1998, and the related consolidated balance sheet data as of December 31, 2000, 1999 and 1998, were derived from audited consolidated financial statements not included in this Form 10-K.

	Years Ended December 31,				
	2002	2001	2000	1999	1998
(In thousands, except per share data)					
Statement of Operations Data:					
Sales	\$238,898	\$193,600	\$359,782	\$202,849	\$134,019
Gross profit	68,760	57,432	176,453	92,202	40,019
Total operating expenses	130,745	104,319	91,253	62,876	54,767
(Loss) income from operations	(61,985)	(46,887)	85,200	29,326	(14,748)
Net (loss) income	<u>\$ (41,399)</u>	<u>\$ (31,379)</u>	<u>\$ 68,034</u>	<u>\$ 19,066</u>	<u>\$ (11,025)</u>
Diluted (loss) earnings per share	\$ (1.29)	\$ (0.99)	\$ 2.10	\$ 0.62	\$ (0.38)
Diluted weighted-average common shares outstanding	32,026	31,712	32,425	30,934	29,007
December 31,					
	2002	2001	2000	1999	1998
(In thousands)					
Balance Sheet Data:					
Cash, cash equivalents and marketable securities	\$172,347	\$271,978	\$189,527	\$207,483	\$ 28,714
Working capital	247,942	349,608	277,154	257,484	63,225
Total assets	455,733	450,195	365,835	325,433	107,736
Total debt	213,580	207,730	83,980	139,012	1,603
Stockholders' equity	183,339	214,345	238,798	156,989	92,163

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:

- 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;
- the timing and nature of orders placed by major customers, including their product acceptance criteria;
- changes in customers’ inventory management practices;
- customer cancellations of previously placed orders and shipment delays;
- pricing competition from our competitors;
- component shortages or allocations or other factors that change our levels of inventory or substantially increase our spending on inventory;
- the introduction of new products by us or our competitors;
- costs incurred and judgments resulting from patent or other litigation;
- costs incurred by responding to specific feature requests by customers;
- timing and challenges of integrating recent and potential future acquisitions and strategic alliances;
- our ability to attract and retain key personnel; and
- our exposure to currency exchange rate fluctuations between the several functional currencies in foreign locations in which we have operations.

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 for vacuum process systems. Our primary products are complex power conversion and control systems. Our products also control the flow of gases 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 semiconductors; compact disks, DVDs and other digital storage media; flat-panel computer and television screens; coatings for architectural glass and optics; and a power supply for advanced technology computer workstations. 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 62% of our sales in 2002, 59% in 2001 and 70% in 2000. In 2000, the semiconductor capital equipment industry was at its historical peak for sales. Conversely, the years 2001 and 2002 saw the steepest cutback in capital equipment purchases in industry history. These cyclical changes accounted for the 55% reduction in our sales to the semiconductor capital equipment industry between 2000 and 2001 and the further reduction of 6% in 2002 to this industry excluding the effect of our acquisitions in 2002 of Aera Japan Limited, or Aera, and Dressler HF Technik GmbH, or Dressler. 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. Additionally, two of the other major industry groups which use our products, data storage and flat panel display, are also highly cyclical and have experienced significant reductions in demand during the 2000 through 2002 period.

We have incurred significant losses over the past two years primarily as a result of lower revenues. Our results in 2002 include revenues from two companies acquired during the year, Aera and Dressler. Had the acquisitions not occurred, 2002 and 2001 revenues would have been relatively flat. To date, we have been unable to achieve profitability at current revenue levels and do not have confidence of an industry recovery in the short-term. We have established a goal of reducing our operating breakeven point to an annual revenue level of approximately \$220 million to \$240 million by the end of 2003, but cannot provide any assurance that such goals or revenue level are achievable in 2003.

Our losses during 2001 and 2002 were impacted by high product costs and other expenses, primarily research and development, sales and marketing, and general and administrative expenses. To address product costs we are in the process of shifting a significant portion of our manufacturing to China, rebalancing our supply chain to tier one Asian suppliers, and relocating certain domestic operations to our headquarters in Fort Collins, Colorado. We will also attempt to reduce research and development expenses without significantly impacting our future competitive position in the rapidly changing industry in which we operate.

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Our operating results during 2002 and 2001 were also affected by high inventory reserves and warranty expenses. As the industry downturn became longer and deeper than expected, a significant portion of our inventory became slow moving or obsolete based on reduced sales forecasts and the discontinuance of slower moving, older products. Warranty costs have been unusually high because of the shipment of some of our newer, more complex products developed in 1999 and 2000, which required substantial rework, repair and in some cases, replacement in accordance with the terms of our warranties. We believe the current generation of these products have much higher reliability.

We believe the semiconductor capital equipment industry is in the midst of significant consolidation. To help insure our continued growth and maintain our competitive advantage, by being able to supply an increased proportion of the key components and subsystems used in plasma-based manufacturing, we have done the following:

- In March 2002, we acquired Dressler HF Technik GmbH, which supplies radio frequency, or RF power solutions.
- In January 2002, we acquired Aera Japan Limited. Aera primarily 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.
- In January 2001, we acquired Engineering Measurements Company, or EMCO, which manufactures electronic and electromechanical precision instruments for measuring and controlling the flow of liquids, steam and gases for the semiconductor and other industries.
- In August 2000, we acquired Sekidenko, Inc., which supplies optical fiber thermometers to measure temperature in the semiconductor process chamber.
- In April 2000, we acquired Noah Holdings, Inc., which manufactures solid-state temperature control systems to control process temperatures during semiconductor manufacturing.

These product offerings complement our position as a global leader for complex power conversion and control systems and process instruments, allowing us to provide best-of-breed components and develop systems to increase the precision and productivity of our customers' products. It is also possible that we will acquire other companies or form strategic alliances.

Results of Operations

SALES

Sales were \$238.9 million in 2002, \$193.6 million in 2001 and \$359.8 million in 2000, representing an increase of 23% from 2001 to 2002, and a decrease of 46% from 2000 to 2001. Excluding the acquisitions of Aera and Dressler, our sales would have been relatively flat from 2001 to 2002. The decrease in the level of our sales in 2002 and 2001 from 2000 was primarily due to changes in demand for our products from semiconductor capital equipment manufacturers, including many of our largest customers, and data storage and flat panel display customers. The historical volatility in the semiconductor industry impacted overall investment activities, which led to semiconductor manufacturers purchasing less capital equipment while the other industries were more impacted by general economic conditions.

While sales of semiconductor capital equipment have grown at a compounded annual growth rate in excess of 15% since 1960, 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 sudden and pronounced slump in industry history, with year-to-year revenues falling approximately 40% throughout the industry from 2000 to 2001 and declining nominally from 2001 to 2002. Our sales over the last three years illustrate this cyclicity.

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, 2002. Sales for the year ended December 31, 2002 include combined sales from Aera and Dressler, subsequent to their acquisitions of approximately \$47.0 million:

	Years Ended December 31,		
	2002	2001	2000
	(In thousands)		
Semiconductor capital equipment	\$148,410	\$114,273	\$252,889
Data storage	12,409	10,043	24,751
Flat panel display	17,850	18,145	29,273
Advanced product applications	38,467	35,698	37,726
Customer service technical support	21,762	15,441	15,143
	<u>\$238,898</u>	<u>\$193,600</u>	<u>\$359,782</u>

	Years Ended December 31,		
	2002	2001	2000
Semiconductor capital equipment	62%	59%	70%
Data storage	5	5	7
Flat panel display	8	10	8
Advanced product applications	16	18	11
Customer service technical support	9	8	4
	<u>100%</u>	<u>100%</u>	<u>100%</u>

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The following table summarizes annual percentage changes in net sales by customer type for us from 2001 to 2002, including the effects of our acquisitions of Aera and Dressler, and from 2000 to 2001:

	2002 change from 2001	2001 change from 2000
Semiconductor capital equipment	30%(1)	(55)%
Data storage	24	(59)
Flat panel display	(2)	(38)
Advanced product applications	8	(5)
Customer service technical support	41	2
Total sales	23%(2)	(46)%

(1) (6)% excluding Aera and Dressler

(2) Unchanged excluding Aera and Dressler

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, 2002:

	Years Ended December 31,		
	2002	2001	2000
	(In thousands)		
United States and Canada	\$143,698	\$124,746	\$260,596
Europe	32,791	28,957	52,893
Asia Pacific	61,327	39,038	45,874
Rest of world	1,082	859	419
	<u>\$238,898</u>	<u>\$193,600</u>	<u>\$359,782</u>

	Years Ended December 31,		
	2002	2001	2000
United States and Canada	60%	64%	72%
Europe	14	15	15
Asia Pacific	26	21	13
Rest of world	—	—	—
	<u>100%</u>	<u>100%</u>	<u>100%</u>

GROSS MARGIN

Our gross margin was 28.8% in 2002, 29.7% in 2001 and 49.0% in 2000. Our gross margin remained relatively consistent between 2002 and 2001. The major items affecting the reduction in our 2002 and 2001 margins from our 2000 margin were:

- During 2000, the semiconductor industry and Advanced Energy experienced unprecedented new order and revenue growth. However, in 2001 and 2002 we experienced 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. These technology changes require new products that we have developed or are developing. Typical of products early in their life cycle and at low production levels, these products have lower margins than our established products. Margins on these products should improve over the next 12 to 36 months.

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- Although we have reduced our fixed overhead through reductions in force of some of our manufacturing staff in 2001 and 2002, to coincide with our sales decline, we retained certain knowledgeable employees with specific skill sets, to be ready for unexpected industry ramp-ups.
- Our cost of sales has also been adversely affected by periodic writedowns 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.
- In 2001 and 2002, we incurred warranty expense in excess of 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. We believe the current generation of these products have much higher reliability.

Given the rapid change in technology, 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, 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 obsolete and excess inventory. Charges for obsolete and excess inventory were \$5.8 million in 2002, \$6.4 million in 2001 and \$654,000 in 2000, which affected gross margins by 2.4%, 3.3% and 0.2% in these years, respectively. The amount of inventory written down in 2002 is primarily attributable to a strategic management decision we made in the fourth quarter to discontinue certain product offerings, coupled with the 19% decline in sales from the third quarter of 2002 to the fourth quarter of 2002. The inventory writedown in 2001 is primarily attributable to the severe decrease in product sales, which caused a larger than normal amount of inventory to become excess based on our sales forecasts.

We provide warranty coverage for our products ranging from 12 to 36 months, with the majority of our products ranging from 18 to 24 months, and estimate the anticipated costs of repairing our products under such warranties based on the historical costs 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. Should product failure rates differ from our estimates, actual costs could vary significantly from our expectations. We recognized charges for warranty expense of \$13.2 million in 2002, \$7.6 million in 2001 and \$4.6 million in 2000.

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

	Balance at Beginning of Period	Additions Charged to Expense	Deductions	Balance at End of Period
		(In thousands)		
Reserve for warranty obligations	\$4,471	\$13,150	\$(8,219)	\$9,402

Historically, price competition has not had a material effect on margins. However, as a result of the prolonged downturn in the semiconductor industry, OEMs and semiconductor capital equipment manufacturers are striving to reduce their costs. Any cost reduction programs initiated by OEMs and semiconductor capital equipment manufacturers could have a significant impact on our future gross margins.

RESEARCH AND DEVELOPMENT

We believe continued investment in the research and development of new products and subsystems is critical to our ability to serve new and existing markets, develop new products and improve existing product designs. However, we cannot provide assurance that the products we develop will meet customer requirements when those products are introduced to the market. To be advantageously positioned for a turnaround in demand we continue to invest heavily in new product development even during industry downturns, which allows us to compete for ongoing design wins on our customers' new production tools. Since our inception, all of our research and development costs have been expensed as incurred.

Our research and development expenses were \$49.0 million in 2002, \$45.2 million in 2001 and \$37.0 million in 2000. As a percentage of sales, research and development expenses decreased from 23.3% in 2001 to 20.5% in 2002, because of the higher sales base achieved through our acquisitions of Aera and Dressler. Research and development expenses, as a percentage of sales, increased from 10.2% in 2000 to 23.3% in 2001 because of the lower sales base. 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 RF and direct current, or DC products. Our 22.0% increase in research and development expenses from 2000 to 2001 was primarily caused by increases in payroll, materials and supplies and depreciation of equipment used for new product development as well as the acquisition of EMCO in 2001.

SALES AND MARKETING EXPENSES

As we continue to expand our product offerings and sales channels through acquisitions, our sales and marketing efforts have become increasingly complex. We continue to refine our sales and marketing functions as we acquire and integrate new companies. We have continued the effort to market directly to end users of our products, in addition to our traditional marketing to manufacturers of semiconductor capital equipment and other industries. 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 \$34.9 million in 2002, \$23.8 million in 2001 and \$24.1 million in 2000. The 46.9% increase in sales and marketing expenses from 2001 to 2002 was primarily caused by the acquisitions of Aera and Dressler, which contributed approximately \$9.6 million to our sales and marketing expenses. As a percentage of sales, sales and marketing expenses increased from 12.3% in 2001 to 14.6% in 2002. Sales and marketing expenses increased from 6.7% in 2000 to 12.3% of sales in 2001 due to the lower sales base in 2001.

GENERAL AND ADMINISTRATIVE EXPENSES

Our general and administrative expenses support our worldwide corporate, legal, patent, tax, financial, administrative, information systems and human resources functions in addition to our general management. General and administrative expenses were \$30.5 million in 2002, \$21.5 million in 2001 and \$24.6 million in 2000. The 42% increase in general and administrative expenses from 2001 to 2002 was primarily caused by our acquisitions of Aera and Dressler, which contributed approximately \$8.8 million to our general and administrative expenses. The 12% decrease from 2000 to 2001 was primarily due to lower spending for payroll, primarily employee bonuses, which were eliminated in 2001 due to the decline in operating profitability. Due to the cost reduction measures we initiated in the third and fourth quarters of 2002, we expect our general and administrative expenses to decline in 2003. See restructuring charges below for a discussion of these cost reduction measures.

GOODWILL AND OTHER INTANGIBLE ASSET IMPAIRMENTS

Beginning in April 2000, we made periodic advances to and investments totaling approximately \$8 million in Symphony Systems, Inc., a privately held, early-stage developer of equipment productivity management software. Some of our advances were secured by Symphony's intellectual property. In 2000, we obtained an exclusive license, for which we paid \$1.5 million, to use Symphony's products in the semiconductor industry. Beginning in the third quarter of 2001, and continuing through the end of the year, 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, and other factors, the value of our investment in and advances to Symphony had substantially declined. We therefore 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, all of which was recorded in 2001 as an operating expense.

Symphony effectively ceased operations in February 2002, and we hired Symphony's key employees, and acquired Symphony's remaining assets in a foreclosure and liquidation sale of such assets on April 2, 2002. We recorded the assets acquired at their estimated fair values, based on information available at the time. 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 semiconductor industry declined substantially from its levels in the third quarter of 2002, which caused a decrease in our sales level of approximately 19%. As a result, we determined there would be a significant delay by the semiconductor capital equipment industry in adopting advanced connectivity technology, and due to these industry conditions as well as our future strategic priorities, these intangible assets were likely impaired. 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 for 2002, which was the remaining book value of Symphony's intangible assets.

During the second quarter of 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 and 2000 represented less than five percent of our total revenue in each of these years. 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.

RESTRUCTURING, MERGER COSTS AND LITIGATION COSTS

In April 2000, we acquired Noah in a pooling of interests under the previous rules of Accounting Principles Board, or APB, Opinion No. 16. The merger involved the exchange of 687,000 shares of Advanced Energy common stock for the privately held common stock of Noah. As part of the business combination, we recorded a charge of \$2.3 million in the second quarter of 2000 for merger costs, which could not be capitalized and which in certain cases were nondeductible for income tax purposes.

In July 2000, we announced the consolidation of our Tower facility in Fridley, Minnesota, into our existing facility in Voorhees, New Jersey. We recorded a restructuring charge of \$1.0 million in the third quarter of 2000 related to the consolidation, which was completed during the fourth quarter of 2000.

In August 2000, we acquired Sekidenko in a merger that was accounted for as a pooling of interests. This merger involved the exchange of 2.1 million shares of Advanced Energy common stock for the privately held common stock of Sekidenko. As part of the business combination, we recorded a charge of \$2.3 million in the third quarter

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of 2000 for merger costs, which could not be capitalized and which in certain cases were nondeductible for income tax purposes.

In July 2001, the Financial Accounting Standards Board issued SFAS No. 141, which required that the purchase method of accounting be used for all business combinations initiated after June 30, 2001.

In the first quarter of 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.

During the second quarter of 2001, in response to the downturn in the semiconductor capital equipment industry, we implemented two reductions in force totaling approximately 135 regular employees and 90 temporary employees and recorded a charge of \$614,000 for restructuring and severance costs, including fringe benefits.

During the fourth quarter of 2001, in response to the sustained downturn in the semiconductor capital equipment industry and global economy, we announced and implemented additional cost-reduction measures, and recorded a charge of \$2.5 million. Such measures included a reduction in force of approximately 105 employees and the closure of two facilities.

During the second quarter of 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 5% of total sales since the product's introduction, and approximately 1.4% of our consolidated sales for the year ended December 31, 2002. We have entered into a settlement agreement with MKS allowing us to sell the infringing product to our customer subsequent to the date of the jury award. Under the settlement agreement, royalties payable to MKS from the sales of the related product were approximately \$530,000 in 2002, and are recorded as a component of cost of sales.

In the third quarter of 2002, we began a program to gradually reduce our quarterly operating breakeven level from revenue of approximately \$80 million without impacting our long-term viability. Our objective is to have a variable operating model by the end of 2003 that will allow us to achieve approximate breakeven operating results at a quarterly revenue level of \$55 million to \$60 million. We recorded a restructuring charge of approximately \$3.2 million to close two facilities and implement headcount reductions of approximately 100 employees, or approximately 7% of our workforce.

In the fourth quarter of 2002, we recorded an additional restructuring charge of \$5.8 million. This charge included a reduction in force of 123 employees, or approximately 8% of our workforce and the closure of all or a portion of five facilities in the United States.

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As a result of our decisions in the fourth quarter to consolidate certain operations, we 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.

We may incur additional restructuring charges in 2003 of \$3 to \$5 million as we continue to take actions to reduce our operating costs.

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 \$3.3 million in 2002, \$6.6 million in 2001 and \$10.7 million in 2000. 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 in 2001 was lower than in 2000 due to our use of cash and marketable securities to repurchase a portion of our 5.25% convertible subordinated notes in the fourth quarter of 2000 and due to our purchase of EMCO in January 2001. Interest income also declined throughout 2002 and 2001 due to the Federal Reserve lowering interest rates throughout the period. The prime rate declined from 9.5% in January 2001 to 4.25% in December 2002 and our yield declined from a high of 8.7% to approximately 2% on a pre-tax basis.

Interest expense consists principally of accruals 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 \$12.5 million in 2002, \$7.4 million in 2001 and \$7.7 million in 2000. 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 the debt and capital leases assumed in the acquisition of Aera in January 2002. Interest expense was relatively unchanged from 2000 to 2001.

Our foreign subsidiaries' sales are primarily denominated in currencies other than the U.S. dollar. We recorded a net foreign currency gain of \$5.3 million in 2002, and losses of \$235,000 in 2001 and \$196,000 in 2000.

Our foreign currency gain in 2002 was primarily related to an intercompany loan of Japanese yen, which was settled subsequent to December 31, 2002, 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 approximately 130:1. During the first half of the 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 are settled.

Miscellaneous expense items were \$2.1 million in 2002 and \$1.0 million in 2001. The increase in miscellaneous expense in 2002 from 2001 was primarily related to the impairment of certain marketable equity securities. During the fourth quarter of 2002, the fair value of these securities 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 of approximately \$1.5 million. As of February 11, 2003 the value of this investment has declined an additional \$675,000. If the fair value of this investment does not return to its December 31, 2002 carrying value by the end of the first quarter of 2003, we will record an additional impairment in the first quarter of 2003. Our remaining carrying balance at December 31, 2002 was approximately \$2.0 million. Miscellaneous income of \$4.7 million in 2000 was primarily due to a \$4.8 million gain on a sale of an investment.

(BENEFIT) PROVISION FOR INCOME TAXES

The income tax benefit of \$22.3 million for 2002, which included a provision of \$1.6 million for an extraordinary item, represented an effective tax rate of 35%. The income tax benefit of \$17.4 million for 2001 represented an effective rate of 36%. The income tax provision of \$36.8 million in 2000, which included \$4.6 million of provision for an extraordinary item, represented an effective rate of 35%. Changes in our relative earnings and the earnings of our foreign subsidiaries affect our consolidated effective tax rate. We adjust our income taxes periodically based upon the anticipated tax status of all foreign and domestic entities, and have adopted income tax planning strategies to reduce our worldwide income tax expense.

Realization of our net deferred tax asset is dependent upon our generating sufficient taxable income in the appropriate tax jurisdictions in future years to obtain benefit from the reversal of net deductible temporary differences and from tax credit carryforwards. When recording acquisitions, we have recorded valuation allowances due to the uncertainty related to the realization of certain deferred tax assets existing at December 31, 2002. The amount of deferred tax assets considered realizable is subject to adjustment in future periods if estimates of future taxable income are changed. We believe that it is more likely than not that we will realize the benefits of our deferred tax asset, net of valuation allowance, as of December 31, 2002. Reversals of valuation allowances recorded in purchase accounting will be reflected as a reduction of goodwill in the period of reversal.

EXTRAORDINARY GAIN

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 pretax extraordinary gain of \$4.2 million, or \$2.6 million after tax. In the fourth quarter of 2000, we repurchased an aggregate of approximately \$53.4 million principal amount of our 5.25% convertible subordinated notes in the open market, for a cost of approximately \$40.8 million. These purchases resulted in a pretax extraordinary gain of \$12.2 million, or \$7.6 million after tax.

Summary Results of Operations

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

	Years Ended December 31,		
	2002	2001	2000
Sales	100.0%	100.0%	100.0%
Cost of sales	71.2	70.3	51.0
Gross margin	28.8	29.7	49.0
Operating expenses:			
Research and development	20.5	23.3	10.2
Sales and marketing	14.6	12.3	6.7
General and administrative	12.8	11.1	6.8
Litigation damages and expenses (recovery)	2.2	(0.8)	—
Restructuring charges	3.8	1.6	0.3
Impairment of goodwill and other intangible assets	0.8	2.8	—
Impairment of investments and advances	—	3.6	—
Merger costs	—	—	1.3
Total operating expenses	54.7	53.9	25.3
(Loss) income from operations	(25.9)	(24.2)	23.7
Other (expense) income	(2.5)	(1.1)	2.1
Net (loss) income before income taxes, minority interest and extraordinary item	(28.4)	(25.3)	25.8
(Benefit) provision for income taxes	(10.0)	(9.0)	9.0
Minority interest in net loss	—	(0.1)	—
Net (loss) income before extraordinary item	(18.4)	(16.2)	16.8
Extraordinary item (net of applicable taxes)	1.1	—	2.1
Net (loss) income	(17.3)%	(16.2)%	18.9%

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, 2002. We believe 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, 2001	June 30, 2001	Sept. 30, 2001	Dec. 31, 2001	Mar. 31, 2002	June 30, 2002	Sept. 30, 2002	Dec. 31, 2002
	(In thousands, except per share data)							
Sales	\$74,714	\$ 46,171	\$ 38,722	\$ 33,993	\$ 42,887	\$67,893	\$70,674	\$ 57,444
Gross profit	31,223	7,781	11,036	7,392	13,374	24,312	26,600	4,474
Income (loss) from operations	7,531	(20,927)	(11,663)	(21,828)	(11,423)	(9,330)	(5,788)	(35,444)
Other income (expense)	187	(70)	(711)	(1,484)	(1,997)	1,424	(2,797)	(2,560)
Extraordinary item (net of income taxes)	—	—	—	—	—	—	—	2,639
Net income (loss)	\$ 5,094	\$(14,549)	\$ (7,482)	\$(14,442)	\$ (8,723)	\$(5,139)	\$(5,580)	\$(21,957)
Basic and diluted earnings (loss) per share	\$ 0.16	\$ (0.46)	\$ (0.24)	\$ (0.45)	\$ (0.27)	\$ (0.16)	\$ (0.17)	\$ (0.68)

	Quarters Ended							
	Mar. 31, 2001	June 30, 2001	Sept. 30, 2001	Dec. 31, 2001	Mar. 31, 2002	June 30, 2002	Sept. 30, 2002	Dec. 31, 2002
Percentage of Sales:								
Sales	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Gross margin	41.8	16.9	28.5	21.7	31.2	35.8	37.6	7.8
Income (loss) from operations	10.1	(45.3)	(30.1)	(64.2)	(26.6)	(13.7)	(8.2)	(61.7)
Other income (expense)	0.2	(0.2)	(1.9)	(4.4)	(4.7)	2.1	(3.9)	(4.4)
Extraordinary item (net of income taxes)	—	—	—	—	—	—	—	4.6
Net income (loss)	6.8%	(31.5)%	(19.3)%	(42.5)%	(20.3)%	(7.6)%	(7.9)%	(38.2)%

Due to the cyclical nature of the semiconductor capital equipment industry, 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 2001 and 2002 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. Sales to the semiconductor capital equipment industry decreased each quarter throughout 2001 then increased 21% in the first quarter of 2002 and 58% in the second quarter of 2002. Sales to the semiconductor capital equipment industry then declined 8% in the third quarter of 2002 and a further 27% in the fourth quarter of 2002, due to the market conditions discussed above. These percentage changes in 2002 exclude the effects of our acquisitions of Aera and Dressler. Data storage sales fluctuated significantly throughout both years. Flat panel sales declined throughout 2001, then increased substantially in the third and fourth quarters of 2002. Our revenue from all sectors is heavily influenced by general economic conditions and consumer spending patterns in each of the industries we serve.

We added new facilities in Fort Collins, Colorado in the first quarter of 2001 to increase our manufacturing capacity to continue to meet the growth that was expected

throughout 2001, which substantially increased our fixed costs. Then, as we entered the sudden and steep decline in volume from the semiconductor capital equipment industry in that quarter, the combination of declining sales and higher fixed costs resulted in lower absorption of fixed overhead and greatly reduced our gross margins throughout 2001. In addition, the industry slowdown caused more inventory to be deemed excess or obsolete, and warranty costs associated with certain products in excess of historical experience also adversely affected margins, particularly in the second quarter of 2001 and fourth quarter of 2002.

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 in our sales base of 19% hampered our fixed cost absorption and caused us to adjust our excess and obsolete inventory reserves to reflect our revised sales outlook.

Research and development, selling and marketing, and general and administrative expenses declined each quarter throughout 2001, due to certain cost cutting measures we implemented in 2000 and 2001. Research and development, selling and marketing, and general and administrative expenses increased in the second quarter of 2002, due to our acquisitions of Aera and Dressler. Sales and marketing expenses increased in the third and fourth quarters of 2002, due to general merit increases and trade show promotions. General and administrative expenses increased in the fourth quarter of 2002, primarily due to an increase in our allowance for doubtful accounts of approximately \$1.6 million due to the extended economic downturn. As a percentage of sales, operating expenses have generally declined during periods of rapid sales growth, when sales increased at a rate faster than our need or ability to add personnel and facilities to support the growth. These operating expenses as a percentage of sales have generally increased during periods of flat or decreased sales, when our infrastructure is retained to support strong customer relationships and anticipated future growth.

Other income (expense) consists primarily of interest income and expense, foreign currency gains and losses, and miscellaneous gains, losses, income and expense items. Changes in interest rates and changes in our level of investments in marketable securities drive the quarterly fluctuations in our interest income. Because the interest rates we pay on the majority of our long-term debt are fixed, our levels of such debt determine our quarterly interest expense, which decrease when we repurchase such debt and which increase when we make new offerings. Our variable rate debt was assumed in our acquisition of Aera. At December 31, 2002, this debt had variable interest rates ranging from 1.28% to 3.1%. Changes in exchange rates and our ability to manage foreign currency exposure determine the quarterly fluctuations in our foreign currency gains and losses. In the second quarter of 2002, we recognized a foreign currency gain of approximately \$4.6 million related to an intercompany loan of Japanese yen we made to our AE-Japan subsidiary, which has a functional currency of yen. This loan was settled subsequent to December 31, 2002. Miscellaneous expense items vary according to the frequency of non-operating events. The largest single item in this category was in the fourth quarter of 2002 when we recorded a \$1.5 million impairment of a marketable

equity security that continued a substantial decline in value during the fourth quarter. Subsequent to December 31, 2002 this investment has continued to decline in value and we will record an additional impairment in the first quarter of 2003 if the value of this investment does not return to its December 31, 2002 carrying value by March 31, 2003.

Our effective rate for income tax provision and benefit fluctuated on a quarterly basis throughout 2001 and 2002, varying from 31% to 38%. The fluctuations were due to the timing of certain nondeductible expenses including goodwill impairment, and due to initiatives we implemented in 2000 to reduce our overall rate as well as changes in our relative earnings and the earnings of our foreign subsidiaries.

Liquidity and Capital Resources

Our financing strategy has been to raise capital from debt and equity markets to provide liquidity to enable our investments in acquisitions and alliances, which support our strategic vision of being a single source provider of high value subsystems. We maintain substantial levels of cash and marketable securities to have funding readily available for such investment opportunities when they arise. Since 1995, to better enable such strategic investments, we have attained this liquidity with proceeds from underwritten public offerings of our common stock and, since 1999, offerings of convertible subordinated debt.

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 a \$4.2 million pretax gain on the retirement of a portion of our convertible notes; a \$4.9 million gain on an intercompany foreign currency loan; 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 \$8.0 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. Our impairments consisted 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 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 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; 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 \$6.9 million. Net working capital changes provided cash of \$6.7 million and primarily consisted of a

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\$45.0 million decrease in accounts receivable; a \$5.5 million increase in inventory; a \$5.5 million decrease in accounts payable; and a \$22.0 million increase in net income taxes receivable.

Operating activities provided cash of \$34.7 million in 2000, primarily as a result of net income of \$68.0 million, offset by non-cash items of \$6.0 million and net working capital changes of \$27.3 million. Non-cash items primarily consisted of a \$3.7 million benefit for deferred income taxes; depreciation of property and equipment of \$7.6 million; amortization of intangible assets and demonstration equipment of \$2.9 million; a gain on the sale of an investment of \$4.8 million; and a \$12.2 million pretax gain on the retirement of a portion of our convertible notes. Net working capital changes used cash of \$27.3 million and primarily consisted of a \$28.2 million increase in accounts receivable; a \$17.5 million increase in inventory; and a \$14.6 million decrease in net income taxes receivable.

We expect near-term future operating activities to continue to use cash. Any future decline in the industries in which we operate could substantially affect our ability to collect payments from our customers, could cause us to initiate future reductions in force requiring substantial severance payments, and other cash payments to exit certain operating activities, among other uses of cash. Conversely, as receivable and inventory balances tend to fluctuate with net sales any future upturn in the industries we serve, primarily the semiconductor industry, may result in an increase in our net receivables and inventory balances. We are typically required to use our cash reserves to finance our inventory purchases and extend credit to our customers to finance their purchases from us. We are unable to provide any assurance regarding our future cash flow from operations.

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 activities provided cash of \$15.5 million in 2000, and consisted primarily of the purchase of property and equipment of \$14.1 million and the purchase of investments of \$3.5 million, offset by proceeds from the sale of investments and marketable securities of \$33.1 million.

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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 levels of cash that are greater than needed for our current operations in the near term.

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 notes payable 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 employee stock purchase plan or ESPP of \$2.1 million.

The main uses of cash from financing activities in 2002 were open market repurchases of our convertible notes and payments for capital lease obligations and notes payable. We expect our financing activities to continue to fluctuate in the future. If market 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 2003 will be approximately \$15.2 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 2003 payment obligations.

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. Financing activities used cash of \$37.5 million in 2000, and consisted primarily of open market repurchases of our convertible notes of \$40.8 million, offset by proceeds from the exercise of employee stock options and sale of common stock through our ESPP of \$4.9 million.

We plan to spend approximately \$10 million to \$12 million in 2003 for the acquisition of equipment, leasehold improvements and furnishings, with depreciation expense for 2003 projected to be \$13 million to \$14 million. 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 may significantly impact our capital expenditures and depreciation expense recognized in a particular period.

As of December 31, 2002, we had working capital of \$247.9 million, a decrease of \$101.7 million from December 31, 2001. The principal causes of this decrease during 2002 were the use of cash to finance our operating activities, the purchase of certain

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investments and acquisitions, the repurchase of our convertible subordinated notes, and payments under our capital lease obligations and bank debt as discussed above. Our principal sources of liquidity consisted of \$70.2 million of cash and cash equivalents, \$102.2 million of marketable securities, and a credit facility consisting of a \$25.0 million revolving line of credit, none of which was outstanding at December 31, 2002. Advances under the revolving line of credit bear interest at the prime rate (4.25% at March 12, 2003) minus 1%. Any advances under this revolving line of credit will be due and payable in May 2003. In July and September 2002, we reduced our borrowing base by \$6.4 million in connection with foreign currency forward contracts we entered into, providing us with net borrowing availability of approximately \$18.6 million at December 31, 2002. Subsequent to December 31, 2002, these foreign currency forward contracts matured. 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, 2002.

We have committed to advance \$2.3 million to several privately held companies over the next two years.

We finance the majority of our facilities under operating leases, which are not reflected as an asset or liability in our accompanying balance sheets. At December 31, 2002, we had the following future minimum commitments under noncancelable operating leases:

	(In thousands)
2003	\$ 5,468
2004	4,464
2005	3,869
2006	3,507
2007	2,990
Thereafter	12,055
	<hr/>
	\$32,353
	<hr/>

In addition to operating leases, we also have a contingent purchase price adjustment relating to our acquisition of Dressler, which may require us to pay an additional \$3.0 million to the former shareholder of Dressler, if Dressler achieves certain key business objectives by March 30, 2003.

To finance the facilities for our headquarters and main U.S. manufacturing location, we lease our executive offices and manufacturing facilities in Fort Collins, Colorado from two limited liability partnerships consisting of one of our directors, who is also an officer, a former director and other individuals unrelated to us. The leases relating to these spaces expire in 2009, 2011 and 2016 and contain monthly payments of approximately \$67,000, \$55,000 and \$64,000, respectively.

Approximately \$2.7 million, \$2.2 million and \$1.6 million was paid and charged to rent expense attributable to these leases for the years ended December 31, 2002, 2001 and 2000, respectively.

We believe that our cash and cash equivalents, marketable securities, cash flow from operations and available borrowings, will be sufficient to meet our working capital needs for at least the next twelve months. After that time, we may require additional equity or debt financing to address our working capital, capital equipment or expansion needs. In addition, any significant acquisitions we make may require additional equity or debt financing to fund the purchase price, if paid in cash. There can be no assurance that additional funding will be available when required or that it will be available on terms acceptable to us. In 2006, when our convertible subordinated notes become due, it is possible we may need substantial funds to repay such debt, which was \$187.7 million at December 31, 2002. Our 5.00% convertible subordinated notes of \$121.5 million are due September 1, 2006, and our 5.25% convertible subordinated notes of \$66.2 million are due November 15, 2006. Payment would be required if our common stock price remains at low levels throughout this period, the prices at which we can effect conversion are not met in the market in which our stock is traded, and the holders of our notes choose not to otherwise convert. In such a situation there can be no assurance that we will be able to refinance the debt. We may continue to repurchase additional notes in the open market from time to time, if market conditions and our financial position are deemed favorable for such purposes.

Critical Accounting Policies

The preceding 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 \$86.6 million of intangible assets and goodwill as of December 31, 2002, including approximately \$22.4 million related to amortizable intangibles and \$64.2 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, foreign currency fluctuations and impairment charges, if any. In accordance with SFAS 142, “Goodwill and Other Intangible Assets,” we identified three reporting units. Generally, we allocated goodwill to the reporting unit that created goodwill upon its acquisition. However, we believe that our recently acquired companies provide future growth opportunities to our core business and as a result we allocated approximately 25% of the goodwill created upon the acquisitions of Aera and EMCO to our core business. We performed an annual impairment analysis of our non-amortizable intangible assets and goodwill during the fourth quarter of 2002, which indicated that no impairment was required. This assessment requires 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. We will continue to perform periodic and annual impairment analyses of the 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 have a material adverse impact on our financial position and 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 capital 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 may differ from actual cash flows. Long-lived assets evaluated for impairment are grouped with other assets to the lowest level for which identifiable cash flows are largely independent of the cash flows of other groups of assets and liabilities. If the sum of the projected undiscounted cash flows excluding interest is less than the carrying value of the assets, the assets will be written down to the estimated fair value in the period in which the determination is made. 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, 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 obsolete and excess inventory. Following the above policy, we recorded charges of \$5.8 million in 2002, the majority of which occurred during the fourth quarter.

RESERVE FOR WARRANTY — We provide warranty coverage for our products, ranging from 12 to 36 months, with the majority of our products ranging from 18 to 24 months, and estimate the anticipated costs of repairing our products under such warranties based on the historical costs 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.

FAIR VALUE OF DERIVATIVE INSTRUMENTS — We have entered into various foreign currency forward contracts to mitigate our 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. The valuation of derivative instruments under SFAS No. 133 requires us to make estimates and judgments that affect the fair value of the instruments. Fair value of our derivatives is determined relative to changes in the forward yield curves and discount rates. Such amounts are subject to significant estimates which may change in the future.

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 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 collectibility is reasonably assured. We do not generate revenue from the installation of our products.

In certain instances we require our customers to pay for a portion or all of their purchases prior to our building or shipping the products. We record cash payments received prior to shipment as customer deposits in the accompanying balance sheets, then recognize 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 have an arrangement with one of our major customers, a semiconductor capital equipment manufacturer, in which completed products are shipped to the customer and held by them in their warehouse. The customer draws products from this inventory as

needed, at which time title passes to the customer and we recognize revenue. The customer is subject to our normal warranty policy for repair of defective products.

In certain instances we 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 systems are reported on our balance sheet at an estimated value based on the lower of cost or market, and are included in the amounts for demonstration and customer service equipment, net of accumulated depreciation.

While we maintain a stringent credit approval process, significant judgments are made by management in connection with assessing our customers' ability to pay at the time of shipment. Despite this assessment, from time to time, our customers are unable to meet their payment obligations. We continue to monitor our customers' credit worthiness, and use our judgment in establishing the estimated amounts of customer receivables which will ultimately not be collected. A significant change in the liquidity or financial position of our customers could have a material adverse impact on the collectibility of our accounts receivable and our future operating results.

STOCK-BASED COMPENSATION — As allowed by SFAS No. 123, 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.

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, 2002, 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 2002, the rates we earned on our marketable securities approximated 2.0% on a before tax equivalent basis. Because the Federal Reserve repeatedly lowered interest rates throughout 2001 and 2002,

the interest rates we earn on our investments likewise decreased substantially. This, in conjunction with using our available cash and cash reserves 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 \$300,000 less interest income in 2002, \$700,000 in 2001 and \$1.1 million in 2000.

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 in 2000 and 2002. Because these rates are fixed, we believe there is no risk of increased interest expense.

The interest rates on our Aera Japan subsidiary's \$34 million credit lines are variable and currently range from 1.28% 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 2002, the U.S. dollar weakened approximately 10% against the Japanese yen and 15% against the euro. It is highly uncertain how currency exchange rates will fluctuate in the future. We have entered into various forward foreign currency exchange contracts to mitigate against currency fluctuations in the Japanese yen. 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, 2002, we held a foreign currency forward exchange contract in the U.S. to mitigate the currency fluctuations from our 5.7 billion yen intercompany receivable due from our subsidiary, AE-Japan. Under this contract we will sell Japanese yen with dollar equivalent notional amounts of approximately \$48.4 million, which at December 31, 2002 had market settlement amounts of approximately \$48.3 million for an unrealized gain position of approximately \$0.1 million. In Japan, we held foreign currency forward exchange contracts to sell U.S. dollars with notional amounts of \$15.0 million and market settlement amounts of approximately \$15.3 million for an unrealized loss position of approximately \$0.3 million and contracts to purchase U.S. dollars with notional amounts of \$6.5 million and market settlement amounts of approximately \$6.7 million for an unrealized loss position of approximately \$0.2 million.

Other Risk

We have invested in start-up companies and strategic alliances and may in the future make additional investments in such companies that develop products which we believe may provide future benefits. We have written down the cost of one such investment in 2001 and 2002, related to a strategic alliance we started in 2000. Such current investments and any future investments will be subject to all of the risks inherent in investing in companies that are not established, or in which, due to our level of investment, we do not exercise significant management control.

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 sheet of Advanced Energy Industries, Inc. (a Delaware corporation) and subsidiaries as of December 31, 2002 and the related consolidated statements of operations, stockholders' equity and cash flows for the year then ended. In connection with our audit of the 2002 consolidated financial statements, we also have audited the 2002 financial statement schedule as listed in the accompanying index. These consolidated financial statements and financial statement schedule are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements and financial statement schedule based on our audit. The financial statements of Advanced Energy Industries, Inc. and subsidiaries as of December 31, 2001 and for each of the two years in the period 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 audit 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 audit provides a reasonable basis for our opinion.

In our opinion, the 2002 consolidated financial statements referred to above present fairly, in all material respects, the consolidated financial position of Advanced Energy Industries, Inc. and subsidiaries as of December 31, 2002, and the results of their operations and their cash flows for the year then ended, in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the related 2002 financial statement schedule, when considered in relation to the basic 2002 consolidated financial statements taken as a whole presents 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 above, the consolidated balance sheet of Advanced Energy Industries, Inc. and subsidiaries as of December 31, 2001, and the related consolidated statements of operations, stockholders' equity and cash flows for the years ended December 31, 2001 and 2000, were audited by other auditors who have ceased operations. As described in Note 1, the consolidated financial statements as of December 31, 2001 and for each of the fiscal years ended December 31, 2001 and 2000 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 and 2000 in Note 1 are appropriate. However, we were not engaged to audit, review, or apply any procedures to the 2001 and 2000 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 and 2000 consolidated financial statements taken as a whole.

KPMG LLP

Denver, Colorado,
February 11, 2003

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 sheet as of December 31, 2000, and the consolidated statements of operations, stockholders' equity and cash flows for the year ended December 31, 1999 which are no longer included in the accompanying financial statements.

ADVANCED ENERGY INDUSTRIES, INC. AND SUBSIDIARIES

CONSOLIDATED BALANCE SHEETS
(In thousands)

	December 31,	
	2002	2001
ASSETS		
CURRENT ASSETS:		
Cash and cash equivalents	\$ 70,188	\$ 81,955
Marketable securities — available-for-sale	102,159	190,023
Accounts receivable —		
Trade (less allowances for doubtful accounts of approximately \$3,056 and \$1,049 at December 31, 2002 and 2001, respectively)	40,797	26,871
Other	3,088	3,941
Income tax receivable	14,720	15,862
Inventories	57,306	44,413
Other current assets	6,828	4,178
Deferred income tax assets, net	17,510	11,200
	<u>312,596</u>	<u>378,443</u>
PROPERTY AND EQUIPMENT , at cost, net of accumulated depreciation of \$43,109 and \$31,946 at December 31, 2002 and 2001, respectively	41,178	31,095
	<u>41,178</u>	<u>31,095</u>
OTHER ASSETS:		
Deposits and other	5,181	6,482
Goodwill and intangibles, net of accumulated amortization of \$11,212 and \$5,789 at December 31, 2002 and 2001, respectively	86,601	23,072
Demonstration and customer service equipment, net of accumulated amortization of \$7,698 and \$4,507 at December 31, 2002 and 2001, respectively	6,086	5,367
Deferred debt issuance costs, net	4,091	5,736
	<u>101,959</u>	<u>40,657</u>
Total assets	<u>\$455,733</u>	<u>\$450,195</u>

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,	
	2002	2001
LIABILITIES AND STOCKHOLDERS' EQUITY		
CURRENT LIABILITIES:		
Trade accounts payable	\$ 16,055	\$ 10,231
Accrued payroll and employee benefits	9,348	6,978
Accrued warranty expense	9,402	4,471
Accrued restructuring charges	5,989	1,427
Other accrued expenses	4,573	1,387
Acquisition related escrow	1,675	—
Customer deposits	77	515
Capital lease obligations, current portion	691	6
Notes payable, current portion	14,506	1,124
Accrued interest payable on convertible subordinated notes	2,338	2,696
Total current liabilities	64,654	28,835
LONG-TERM LIABILITIES:		
Capital leases, net of current portion	669	—
Senior borrowings	9,996	—
Deferred income tax liabilities, net	8,663	415
Convertible subordinated notes payable	187,718	206,600
Other long-term liabilities	694	—
	207,740	207,015
Total liabilities	272,394	235,850
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; 32,140 and 31,848 shares issued and outstanding at December 31, 2002 and 2001, respectively	32	32
Additional paid-in capital	138,429	131,698
Retained earnings	44,193	85,592
Deferred compensation	(542)	(1,094)
Unrealized holding (losses) gains on available-for-sale securities	(33)	1,257
Cumulative translation adjustments	1,260	(3,140)
Total stockholders' equity	183,339	214,345
Total liabilities and stockholders' equity	\$455,733	\$450,195

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,		
	2002	2001	2000
SALES	\$238,898	\$193,600	\$359,782
COST OF SALES	170,138	136,168	183,329
GROSS PROFIT	68,760	57,432	176,453
OPERATING EXPENSES:			
Research and development	48,995	45,151	36,996
Sales and marketing	34,940	23,784	24,101
General and administrative	30,533	21,522	24,573
Litigation damages and expenses (recovery)	5,313	(1,500)	—
Restructuring charges	9,060	3,070	1,000
Impairment of goodwill and other intangible assets	1,904	5,446	—
Impairment of investments and advances	—	6,846	—
Merger costs	—	—	4,583
Total operating expenses	130,745	104,319	91,253
(LOSS) INCOME FROM OPERATIONS	(61,985)	(46,887)	85,200
OTHER INCOME (EXPENSE):			
Interest income	3,314	6,581	10,727
Interest expense	(12,460)	(7,399)	(7,698)
Foreign currency gain (loss)	5,280	(235)	(196)
Other (expense) income, net	(2,064)	(1,025)	4,652
	(5,930)	(2,078)	7,485
Net (loss) income before income taxes, minority interest and extraordinary item	(67,915)	(48,965)	92,685
(BENEFIT) PROVISION FOR INCOME TAXES	(23,877)	(17,441)	32,241
MINORITY INTEREST IN NET (LOSS) INCOME	—	(145)	20
NET (LOSS) INCOME BEFORE EXTRAORDINARY ITEM	(44,038)	(31,379)	60,424
EXTRAORDINARY ITEM (LESS APPLICABLE INCOME TAXES OF \$1,584 and \$4,566)	2,639	—	7,610
NET (LOSS) INCOME	\$ (41,399)	\$ (31,379)	\$ 68,034
NET (LOSS) EARNINGS PER SHARE BEFORE EXTRAORDINARY ITEM:			
BASIC	\$ (1.38)	\$ (0.99)	\$ 1.93
DILUTED	\$ (1.38)	\$ (0.99)	\$ 1.86
EARNINGS PER SHARE FROM EXTRAORDINARY ITEM:			
BASIC	\$ 0.09	\$ —	\$ 0.24
DILUTED	\$ 0.09	\$ —	\$ 0.24
NET (LOSS) EARNINGS PER SHARE:			
BASIC	\$ (1.29)	\$ (0.99)	\$ 2.17
DILUTED	\$ (1.29)	\$ (0.99)	\$ 2.10
BASIC WEIGHTED-AVERAGE COMMON SHARES OUTSTANDING	32,026	31,712	31,336
DILUTED WEIGHTED-AVERAGE COMMON SHARES OUTSTANDING	32,026	31,712	32,425

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
(In thousands)

FOR THE YEARS ENDED DECEMBER 31, 2002, 2001 AND 2000

	<u>Common Stock</u>		<u>Additional</u>	<u>Retained</u>	<u>Deferred</u>	<u>Accumulated</u>	<u>Total</u>
	<u>Shares</u>	<u>Amount</u>	<u>Paid-in</u>	<u>Earnings</u>	<u>Compensation</u>	<u>Other</u>	<u>Stockholders'</u>
			<u>Capital</u>			<u>Comprehensive</u>	<u>Equity</u>
						<u>(Loss) Income</u>	
BALANCES, December 31, 1999	30,981	\$31	\$108,997	\$ 48,937	\$ (86)	\$ (890)	\$156,989
Exercise of stock options for cash	488	1	4,393	—	—	—	4,394
Issuance of common stock for services provided and merger costs	55	—	2,430	—	—	—	2,430
Sale of common stock through employee stock purchase plan	13	—	520	—	—	—	520
Tax benefit related to shares acquired by employees under stock compensation plans	—	—	6,595	—	—	—	6,595
Deferred compensation on stock options issued	—	—	1,995	—	(1,995)	—	—
Amortization of deferred compensation	—	—	—	—	461	—	461
Comprehensive income:							
Equity adjustment from foreign currency translation	—	—	—	—	—	(1,990)	—
Unrealized holding gains	—	—	—	—	—	1,365	—
Net income	—	—	—	68,034	—	—	—
Total comprehensive income	—	—	—	—	—	—	67,409
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 income:							
Equity adjustment from foreign currency translation	—	—	—	—	—	(260)	—
Unrealized holding losses	—	—	—	—	—	(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 income:							
Equity adjustment from foreign currency translation	—	—	—	—	—	4,400	—
Unrealized holding losses	—	—	—	—	—	(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

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,		
	2002	2001	2000
CASH FLOWS FROM OPERATING ACTIVITIES:			
Net (loss) income	\$(41,399)	\$ (31,379)	\$ 68,034
Adjustments to reconcile net (loss) income to net cash (used in) provided by operating activities -			
Depreciation of property and equipment	13,411	9,973	7,564
Amortization of intangibles and demonstration and customer service equipment	8,059	5,930	2,942
Amortization of deferred debt issuance costs	1,301	775	616
Amortization of deferred compensation	518	610	461
Minority interest	—	(145)	17
Stock issued for services rendered and merger costs	—	—	2,430
Benefit for deferred income taxes	(6,888)	(3,579)	(3,730)
Provision for excess and obsolete inventory	5,803	6,412	654
Impairment of goodwill and other intangible assets	1,904	5,446	—
Impairment of investment	—	6,846	—
Impairment of property and equipment	1,618	—	—
Impairment of marketable security	1,544	—	—
Provision for doubtful accounts	1,870	282	145
Unrealized loss on foreign currency forward contracts	388	—	—
Loss (gain) on disposal of property and equipment	359	13	(54)
Gain on sale of investment	—	—	(4,841)
Gain on retirement of convertible subordinated notes	(4,223)	—	(12,176)
Unrealized gain on intercompany foreign currency loan	(4,879)	—	—
Changes in operating assets and liabilities, net of assets and liabilities acquired -			
Accounts receivable-trade	(5,067)	44,972	(28,225)
Other receivables	1,386	(128)	(1,994)
Inventories	3,021	(5,484)	(17,510)
Other current assets	(2,232)	(1,752)	(705)
Deposits and other	(901)	(180)	(502)
Demonstration and customer service equipment	(2,859)	(2,754)	(1,282)
Trade accounts payable	2,366	(5,528)	2,073
Accrued payroll and employee benefits	(292)	(5,099)	4,117
Accrued warranty expense	4,896	496	2,528
Accrued restructuring charges	4,562	952	475
Customer deposits and other accrued expenses	(179)	3,134	(970)
Income taxes payable/receivable, net	608	(21,949)	14,631
Net cash (used in) provided by operating activities	(15,305)	7,864	34,698
CASH FLOWS FROM INVESTING ACTIVITIES:			
Purchase of marketable securities	(2,499)	(64,925)	(19,471)
Sale of marketable securities	90,439	33,312	48,100
Proceeds from sale of investment	—	—	4,464
Proceeds from sale of equipment	350	—	150
Purchase of property and equipment	(10,714)	(12,435)	(14,062)
Purchase of investments and advances	(2,781)	(7,186)	(3,453)
Acquisition of Aera Japan Limited, net of cash acquired	(35,689)	—	—
Acquisition of Dressler HF Technik GmbH, net of cash acquired	(14,395)	—	—
Acquisition of interest in LITMAS, net of cash acquired	(400)	—	(250)
Acquisition of Engineering Measurements Company, net of cash acquired	—	(29,932)	—
Net cash provided by (used in) by investing activities	24,311	(81,166)	15,478
CASH FLOWS FROM FINANCING ACTIVITIES:			
Proceeds from notes payable	—	837	1,491
Repayment of notes payable and capital lease obligations	(10,190)	(1,973)	(3,123)
Proceeds from convertible debt, net	—	121,250	—
Repurchase of convertible debt, net	(14,522)	—	(40,795)
Sale of common stock through employee stock purchase plan	689	628	520
Proceeds from exercise of stock options and warrants	1,389	3,342	4,394

Net cash (used in) provided by financing activities	(22,634)	124,084	(37,513)
EFFECT OF CURRENCY TRANSLATION ON CASH	1,861	(543)	(1,990)
(DECREASE) INCREASE IN CASH AND CASH EQUIVALENTS	(11,767)	50,239	10,673
CASH AND CASH EQUIVALENTS, beginning of year	81,955	31,716	21,043
CASH AND CASH EQUIVALENTS, end of year	\$ 70,188	\$ 81,955	\$ 31,716
SUPPLEMENTAL DISCLOSURE OF NON-CASH INVESTING AND FINANCING ACTIVITIES:			
Tax benefit related to shares acquired by employees under stock option plans	\$ 468	\$ 1,588	\$ 6,595
Deferred compensation on stock options issued	\$ —	\$ 84	\$ 1,995
SUPPLEMENTAL DISCLOSURE OF CASH FLOW INFORMATION:			
Cash paid for interest	\$ 11,517	\$ 4,457	\$ 7,385
Cash (received) paid for income taxes, net	\$(16,086)	\$ 9,572	\$ 25,791

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”) and Sekidenko, Inc. (“Sekidenko”).

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.

On March 28, 2002, the Company acquired 100% of Dressler HF Technik GmbH (“Dressler”), a privately held Germany-based provider of power supplies and matching networks.

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 Engineering Measurements Company (“EMCO”), as well as 59.5% of LITMAS. As discussed in Note 2, Noah was merged into the Company on April 6, 2000, Sekidenko was merged into the Company on August 18, 2000, EMCO was merged into the Company on January 2, 2001, Aera was merged into a subsidiary of the Company on January 18, 2002, and Dressler was merged into a subsidiary of the Company on March 28, 2002. The Company completed its acquisition of the 40.5% of LITMAS that it did not previously own on April 2, 2002.

During 2002, AEV, Tower, Noah, EMCO and LITMAS were combined with and into the Company, and Aera was combined with and into AE-Japan. Through AE-Japan, the Company owns 100% of each of the following subsidiaries: Aera Corporation, Aera U.K. Ltd., Aera GmbH and Aera Korea Ltd.

The acquisitions of Noah and Sekidenko were accounted for as poolings of interest under Accounting Principles Board Opinion No. 16. Accordingly, all prior period consolidated financial statements have been restated to include Noah and Sekidenko as though they had always been part of the Company. 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 significant fluctuations of quarterly operating results, the volatility of the semiconductor and semiconductor capital equipment industries, customer concentration within the markets the Company serves, manufacturing and facilities risks, recent and potential future acquisitions, management of growth, supply constraints and dependencies, dependence on design wins, barriers to obtaining new customers, the high level of customized designs, rapid technological changes, competition, international operating risks, intellectual property rights, governmental regulations, dependence on key personnel and the volatility of the market price of the Company’s common stock. A significant change in 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.

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 Statement of Financial Accounting Standards (“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 these securities continued a substantial decline such that management determined the decline was other than temporary. As a result the Company recorded an impairment of approximately \$1.5 million, which is included in other expense in the accompanying consolidated statements of operations. As of February 11, 2003, the value of this investment has declined an additional \$675,000. If the fair value of this investment does not return to its December 31, 2002 carrying value by the end of the first quarter of 2003, the Company will record an additional impairment in the first quarter of 2003.

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 depreciates this equipment based on its estimated useful life. Depreciation is computed based on a three-year life.

GOODWILL AND INTANGIBLES — The Company adopted Statement of Financial Accounting Standards (“SFAS”) No. 142, “Goodwill and Other Intangible Assets” on January 1, 2002. SFAS No. 142 established new standards for accounting for goodwill and other intangibles acquired in business combinations. Goodwill continues to be recognized as an asset, but is no longer amortized as previously

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required by Accounting Principles Board (“APB”) Opinion No. 17, “Intangible Assets.” Certain other intangible assets with indefinite lives, if present, may also not be amortized. Instead, goodwill and other intangible assets are subject to periodic (at least annual) tests for impairment. The impairment testing is performed in two steps: (i) the Company assesses goodwill for a potential impairment loss by comparing the fair value of a reporting unit with its carrying value, and (ii) if an impairment is indicated by a reporting unit whose 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.

In accordance with SFAS No. 142, the Company ceased amortizing goodwill on January 1, 2002, and reassessed its goodwill and other intangible assets. The Company determined that the classifications it made and the useful lives it assigned were appropriate for the goodwill and amortizable intangibles it held as of December 31, 2001.

In the fourth quarter of 2002, the Company completed its evaluation of the goodwill and intangible assets recorded as a result of the acquisitions of Aera, which it acquired on January 18, 2002, Dressler, which it acquired on March 28, 2002, and the acquisition of the minority interest of LITMAS, which it acquired on April 2, 2002. In the fourth quarter of 2002, the Company also performed its annual goodwill impairment test, and concluded that because the estimated fair value of the Company’s reporting units exceeded their carrying amounts, no impairment of goodwill was indicated. Intangible assets are separately recognized if the benefit of the intangible asset is obtained through contractual or other legal rights, or if the asset can be sold, rented, transferred, licensed, or exchanged, regardless of the Company’s intent to do so. Amortization expense and net (loss) income for the Company for the year of initial application and prior two years follow:

	Years Ended December 31,		
	2002	2001	2000
	(In thousands)		
Goodwill amortization, net of taxes	\$ —	\$ (3,900)	\$ (1,355)
Impairment of goodwill	—	(5,446)	—
Net (loss) income before extraordinary item	(44,038)	(31,379)	60,424
Extraordinary item, net of tax	2,639	—	7,610
Net (loss) income	\$(41,399)	\$(31,379)	\$68,034

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

	Years Ended December 31,		
	2002	2001	2000
	(In thousands)		
Net (loss) income before extraordinary item	\$(44,038)	\$(31,379)	\$60,424
Add back: Impact of goodwill amortization, net of taxes	—	3,900	1,355
Adjusted net (loss) income before extraordinary items	(44,038)	(27,479)	61,779
Extraordinary item, net of tax	2,639	—	7,610
Adjusted net (loss) income	\$(41,399)	\$(27,479)	\$69,389
Net (loss) income per share before extraordinary items:			
Basic	\$ (1.38)	\$ (0.99)	\$ 1.93
Diluted	\$ (1.38)	\$ (0.99)	\$ 1.86
Add back: Impact of goodwill amortization, net of taxes:			
Basic	\$ —	\$ 0.12	\$ 0.04
Diluted	\$ —	\$ 0.12	\$ 0.04
Adjusted net (loss) income per share before extraordinary items:			
Basic	\$ (1.38)	\$ (0.87)	\$ 1.97
Diluted	\$ (1.38)	\$ (0.87)	\$ 1.90
Earnings per share from extraordinary items:			
Basic	\$ 0.09	\$ —	\$ 0.24
Diluted	\$ 0.09	\$ —	\$ 0.24
Adjusted net (loss) income per share:			
Basic	\$ (1.29)	\$ (0.87)	\$ 2.21
Diluted	\$ (1.29)	\$ (0.87)	\$ 2.14



GOODWILL AND INTANGIBLES consisted of the following as of December 31, 2001:

	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	\$ 2,404	\$ (299)	\$ —	\$ 2,105	7
Contract-based	3,860	(2,164)	—	1,696	6
Total amortizable intangibles	6,264	(2,463)	—	3,801	6
Goodwill	22,597	(3,326)	—	19,271	
Total goodwill and intangibles	\$28,861	\$(5,789)	\$ —	\$23,072	

GOODWILL AND INTANGIBLES 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
Total amortizable intangibles	27,088	(7,886)	3,171	22,373	10
Goodwill	61,955	(3,326)	5,599	64,228	
Total goodwill and intangibles	\$89,043	\$(11,212)	\$8,770	\$86,601	

Aggregate amortization expense related to goodwill and other intangibles for the years ended December 31, 2002, 2001 and 2000, was \$5.5 million, \$4.9 million and \$2.2 million, respectively. Estimated amortization expense related to acquired intangibles for each of the five years 2003 through 2007 is as follows:

	(In thousands)
2003	\$4,179
2004	4,179
2005	4,179
2006	2,327
2007	1,103

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 U.S. dollar. The Company establishes an allowance for doubtful accounts based upon factors surrounding the credit risk of specific customers, historical trends and other information.

WARRANTY POLICY — The Company offers warranty coverage for its products for periods ranging from 12 to 36 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.

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 U.S. dollars at yearend exchange rates, and income statement activity and cash flows are translated at average exchange rates during the year. Resulting translation adjustments are recorded as a separate component of 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.

During the year ended December 31, 2002, the Company recorded a net foreign currency gain of approximately \$5.3 million, the majority of which was related to an intercompany loan of Japanese yen, which was settled subsequent to December 31, 2002, that Advanced Energy U.S. made to its subsidiary 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 approximately 130:1). During the 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, the Company entered into foreign currency forward contracts with its primary bank to substantially mitigate the effects of potential future currency fluctuations between the dollar and the yen until the associated intercompany obligations were settled (see Derivative Instruments below).

The Company recognized losses on foreign currency transactions of approximately \$235,000 and \$196,000 for the years ended December 31, 2001 and 2000, respectively.

REVENUE RECOGNITION — The Company recognizes revenue upon shipment of its products and spare parts, at which time title passes to the customer, as its shipping terms are FOB shipping point, the price is fixed and collectibility is reasonably assured. The Company does not generate revenue from the installation of its products.

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 in the accompanying balance sheets, 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 the Company's normal policy for repair of defective products.

The Company has an arrangement with one of its major customers, a semiconductor capital equipment manufacturer, in which completed products are shipped to the customer and held by them in their warehouse. The customer draws products from this inventory as needed, at which time title passes to the customer and the Company recognizes revenue. The customer is subject to the Company's normal warranty policy for repair of defective products.

In certain instances the Company delivers 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 depreciation.

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. A valuation allowance is recorded to reduce the carrying amounts of deferred tax assets unless it is more likely than not that such assets will be realized.

RESTRUCTURING COSTS — Restructuring charges include the costs associated with actions taken by the Company in response to the continuing downturn in the semiconductor capital equipment industry and in response to changes in the Company’s strategy. These charges consist of costs that are incremental to the Company’s ongoing operations, and are incurred to exit an activity or cancel an existing contractual obligation, including closure of facilities and employee termination related charges. Other related costs, consisting primarily of employee relocation, are expensed as incurred.

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.

Included is the closure of the Company’s AEV manufacturing facilities, due to the transfer of the manufacturing of these products to Fort Collins, Colorado, and the closure of a manufacturing facility in Fort Collins, expected to be completed by the third quarter of 2003; the closure of EMCO’s manufacturing facilities (see Long-Lived Assets below) due to the transfer of the manufacturing of these products to Fort Collins, Colorado and Shenzhen, China, expected to be completed by the third quarter of 2003; and the closure of LITMAS expected to be completed by the first quarter of 2003. 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 consist primarily of payments required under operating lease contracts and costs for writing down related leasehold improvements.

At December 31, 2002, outstanding liabilities related to the 2002 restructuring charges were approximately \$6.0 million, and were reported on the consolidated balance sheet.

In response to the downturn in the semiconductor capital equipment industry and the global economy, 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. These costs were recorded in the accompanying consolidated statements of operations as restructuring charges as a component of operating expenses.

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.

At December 31, 2001, outstanding liabilities related to the 2001 restructuring charges were approximately \$1.3 million, and were reported on the consolidated balance sheet.

The Company also recorded a \$1.0 million restructuring charge in 2000 related to the termination of employees associated with Tower in Fridley, Minnesota, and charges related to closing that facility, resulting from the relocation of Tower's operations to the Company's facility in Voorhees, New Jersey. This restructuring was completed in the fourth quarter of 2000.

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

	Employee Severance and Termination Costs	Facility Closure Costs	Total Restructuring Charges
(In thousands)			
2000 restructuring charges	\$ 681	\$ 319	\$ 1,000
Payments in 2000	(380)	(145)	(525)
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
Total restructuring charges 2001	2,124	946	3,070
Payments in 2001	(1,460)	(658)	(2,118)
Accrual balance December 31, 2001	965	462	1,427
Third quarter 2002 restructuring charge	1,033	2,187	3,220
Fourth quarter 2002 restructuring charge	2,021	3,819	5,840
Total restructuring charges 2002	3,054	6,006	9,060
Payments in 2002	(2,412)	(2,086)	(4,498)
Accrual balance December 31, 2002	\$ 1,607	\$ 4,382	\$ 5,989

In June 2002, the Financial Accounting Standards Board ("FASB") issued 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 are currently accounted for pursuant to the guidance set forth in EITF Issue No. 94-3, "Liability Recognition for Certain Employee Termination Benefits and Other Costs to Exit an Activity." SFAS No. 146 will be effective for exit or disposal activities that are initiated after December 31, 2002, with early application encouraged. The Company is currently evaluating the effects of this pronouncement, but believes that this new pronouncement will likely delay the recognition of restructuring-related charges from when such charges would have been recorded under previous accounting standards.

STOCK-BASED COMPENSATION — At December 31, 2002, the Company had five stock-based compensation plans, which are more fully described in Note 16. The Company accounts for employee stock-based compensation using the intrinsic value method prescribed by APB Opinion No. 25, "Accounting for Stock Issued to Employees" and related interpretations. With the exception of certain options granted in 1999 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 net (loss) income.

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Had compensation cost for the Company's plans been determined consistent with SFAS No. 123, "Accounting for Stock-Based Compensation" as amended by SFAS No. 148, "Accounting for Stock-Based Compensation – Transition and Disclosure, an Amendment of FASB Statement No. 123," the Company's net (loss) income would have been (increased) reduced to the following adjusted amounts:

	2002	2001	2000
	(In thousands, except per share data)		
Net (loss) income:			
As reported	\$(41,399)	\$(31,379)	\$68,034
Adjustment for stock-based compensation determined under fair value based method for all awards, net of related tax effects	(9,470)	(6,646)	(4,783)
As adjusted	\$(50,869)	\$(38,025)	\$63,251
Basic (loss) earnings per share:			
As reported	\$ (1.29)	\$ (0.99)	\$ 2.17
As adjusted	(1.59)	(1.20)	2.02
Diluted (loss) earnings per share:			
As reported	\$ (1.29)	\$ (0.99)	\$ 2.10
As adjusted	(1.59)	(1.20)	1.95

Cumulative compensation cost recognized in adjusted net income or loss with respect to options that are forfeited prior to vesting is adjusted as a reduction of adjusted compensation expense in the period of forfeiture.

For SFAS No. 123 purposes, the fair value of each option grant is estimated on the date of grant using the Black-Scholes option pricing model with the following weighted-average assumptions:

	2002	2001	2000
Risk-free interest rates	3.89%	4.51%	6.06%
Expected dividend yield rates	0.0%	0.0%	0.0%
Expected lives	7 years	7 years	7 years
Expected volatility	88.05%	87.94%	103.69%

For the years ended December 31, 2002, 2001 and 2000, \$518,000, \$526,000 and \$461,000, respectively, of stock-based compensation expense was included in the determination of net (loss) income as reported related to Sekidenko option grants made prior to the Company's acquisition of Sekidenko (see Note 16).

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 notes payable, options and warrants) had been converted to such common shares, and if such assumed conversion is dilutive. For the year ended December 31, 2000, certain stock options outstanding and conversion of the convertible subordinated notes payable were not included in this calculation because to do so would be anti-dilutive. The anti-dilutive stock options would have increased the weighted-average number of diluted shares by 239,000, and the anti-dilutive convertible subordinated notes, if converted, would have increased the number of diluted shares by 2,546,000 in 2000. Due to the Company's net loss for the years ended December 31, 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 and warrants for common stock at December 31, 2002 and 2001 were approximately 3,587,000 and 2,200,000, respectively. Potential shares of common stock issuable upon conversion of the Company's convertible subordinated notes payable was 5,411,000 and 5,838,000, respectively.

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The following is a reconciliation of the numerators and denominators used in the calculation of basic and diluted EPS for the years ended December 31, 2002, 2001 and 2000:

	2002			2001			2000		
	Net Loss Before Extraordinary Item	Shares	Per Share Amount	Net Loss Before Extraordinary Item	Shares	Per Share Amount	Net Income Before Extraordinary Item	Shares	Per Share Amount
(In thousands, except per share data)									
Basic EPS:									
Net (loss) income before extraordinary item attributable to common stock and share amounts	\$(44,038)	32,026	\$(1.38)	\$(31,379)	31,712	\$(0.99)	\$60,424	31,336	\$1.93
Dilutive securities:									
Stock options	—	—	—	—	—	—	—	1,089	—
Convertible subordinated debt	—	—	—	—	—	—	—	—	—
Diluted EPS:									
Net (loss) income before extraordinary item attributable to common stock and assumed share amounts	\$(44,038)	32,026	\$(1.38)	\$(31,379)	31,712	\$(0.99)	\$60,424	32,425	\$1.86

COMPREHENSIVE (LOSS) INCOME — Comprehensive (loss) income for the Company consists of net (loss) income, foreign currency translation adjustments and net unrealized holding (losses) gains 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.

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 ("FST") product line.

GAINS AND LOSSES FROM EXTINGUISHMENT OF DEBT — 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 extinguishments 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 provisions of SFAS No. 145 are effective for fiscal years beginning after May 15, 2002, with early application encouraged. The Company will adopt the provisions of SFAS No. 145 in the Company's fiscal year ended December 31, 2003. The adoption of this Statement will require the Company to reclassify its pretax extraordinary gain of \$4,223,000 (see Note 8) recorded for the year ended December 31, 2002 to income from continuing operations in future financial statements.

DERIVATIVE INSTRUMENTS — In June 1998, the FASB issued SFAS No. 133, "Accounting for Derivative Instruments and Hedging Activities." The Company adopted SFAS No. 133, as amended on January 1, 2001. SFAS No. 133 establishes accounting and reporting standards for derivative instruments and for hedging activity by requiring all derivatives to be recorded on the balance sheet as either an asset or liability and measured at their fair value. Changes in the derivative's fair value will be recognized currently in earnings unless specific hedging accounting criteria are met. SFAS No. 133 also establishes uniform hedge accounting criteria for all derivatives. The Company did not seek specific hedge accounting treatment for its foreign currency forward contracts that existed on the date of adoption (see below). The adoption of SFAS No. 133 did not have a material impact on the Company's financial condition or results of operations.

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 intercompany payables and receivables. Foreign currency forward contracts are entered into with major commercial U.S. and Japanese 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 four to eight months, with contracts outstanding at December 31, 2002 maturing through May 2003.

In July 2002, one of the Company's U.S. entities entered into a foreign currency forward contract maturing January 6, 2003, to sell approximately 5.7 billion Japanese yen to mitigate the currency exposure on its yen denominated intercompany receivable from AE-Japan. At December 31, 2002, the Company held this foreign currency forward contract with (dollar equivalent) notional amounts of \$48.4 million and market settlement amounts of approximately \$48.3 million for an unrealized gain position of approximately \$0.1 million that has been included in foreign currency gain (loss) and other current assets in the accompanying consolidated financial statements.

In September 2002, the Company's Aera Japan subsidiary entered into two foreign currency forward contracts maturing January 6, 2003, to sell U.S. dollars to mitigate the currency exposure from its dollar denominated intercompany receivable from its U.S. subsidiary Aera Corporation. At December 31, 2002, Aera held foreign currency forward contracts with notional amounts of \$15.0 million and market settlement amounts of approximately \$15.3 million for an unrealized loss position of approximately \$0.3 million that

has been included in foreign currency gain (loss) and other current liabilities in the accompanying consolidated financial statements.

The Company's subsidiary AE-Japan enters into foreign currency forward contracts to buy U.S. dollars to mitigate currency exposure from its payable position arising from trade purchases and intercompany transactions with its parent. At December 31, 2002, AE-Japan held foreign currency forward contracts with notional amounts of \$6.5 million and market settlement amounts of \$6.7 million for an unrealized loss position of approximately \$0.2 million that has been included in foreign currency (loss) gain in the accompanying consolidated statements 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 revenues 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 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. The Company is required to perform this assessment by September 30, 2003 and consolidate any variable interest entities for which it will absorb a majority of the entities' expected losses or receive a majority of the expected residual gains. Management has not yet performed this assessment and is currently evaluating the impact on its financial statements of adopting this Standard.

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 the obligations assumed under certain guarantee agreements. Additional disclosures about guarantee agreements are also required in the interim and annual financial statements, including a roll forward of the company's product warranty liabilities. The disclosure provisions of FIN No. 45 are 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 Company is in the process of assessing the impact of the recognition provisions of FIN No. 45 on its consolidated financial statements.

In December 2002, the FASB issued SFAS No. 148, "Accounting for Stock-Based Compensation, Transition and Disclosure" ("SFAS No. 148"). SFAS No. 148 provides alternative methods of transition for a voluntary change to the fair value based method of accounting for stock-based employee compensation. SFAS No. 148 also requires that disclosures of the pro forma effect of using the fair value

method of accounting for stock-based employee compensation be displayed more prominently and in a tabular format. Additionally, SFAS No. 148 requires disclosure of the pro forma effect in interim financial statements. The transition and disclosure requirements of SFAS No. 148 are effective for the Company's fiscal year ended December 31, 2002. The adoption of SFAS No. 148 did not have a material effect on the consolidated 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 designs and manufactures 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 are included within the accompanying consolidated financial statements from the date the controlling interest of 56.5% was acquired. On October 1, 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%. On April 2, 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 all the minority interest in LITMAS resulted in approximately \$5 million of additional goodwill.

DRESSLER — On March 28, 2002, the Company completed its acquisition of Dressler HF Technik GmbH, a privately owned Stolberg, Germany-based provider of power supplies and matching networks, for a purchase price of approximately \$15 million in cash and a \$1.7 million escrow. The escrow funds were retained by the Company until January 6, 2003, at which time the related escrow liability was settled. The Company may pay an additional \$3 million if Dressler achieves certain key business objectives by March 30, 2003. Upon the close of this acquisition, the Company recorded its preliminary estimate of the fair value of the assets acquired and liabilities assumed. In the second quarter of 2002, the Company recognized approximately \$1.4 million of goodwill associated with Dressler, offset by a long-term deferred income tax liability. In the third quarter of 2002, based upon additional information regarding the assets at the time of purchase, the Company allocated an additional \$280,000 of its initial purchase price to accounts receivable and inventory, offset by a reduction of goodwill. In the fourth quarter of 2002, the Company finalized its purchase price allocation, which resulted in an increase in the long-term deferred tax liability and goodwill recorded in the second quarter of approximately \$1,557,000.

The Company believes that Dressler will expand the Company's product offerings to customers in the semiconductor, data storage, and flat panel equipment markets due to its power product portfolio that includes a wide range of power levels and RF frequencies. In addition, with inroads already made into the laser and medical markets, Dressler will be used to explore new market opportunities for the Company. Dressler will also strengthen 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	(2,149)
Deferred tax liability	(2,945)
Income taxes payable	(725)
	<u>\$15,075</u>

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 2002, 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 \$769,000 of amortization expense related to these amortizable intangibles acquired from Dressler through December 31, 2002.

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 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, a privately held Japanese corporation. The Company effected the acquisition through its wholly owned subsidiary, AE-Japan, which purchased all of the outstanding stock of Aera. The aggregate purchase price AE-Japan paid was 5.73 billion Japanese yen (approximately \$44 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 million of Aera's debt. In the second quarter of 2002, the Company recognized approximately \$8.5 million of additional goodwill associated with Aera, offset by a long-term deferred income tax liability. In the fourth quarter of 2002, the Company finalized its purchase price allocation, which resulted in a reduction of the deferred tax liability and goodwill recorded in the second quarter of 2002 by approximately \$3.8 million. Aera, which is headquartered in Hachioji, Japan, has manufacturing facilities there and manufacturing, sales and service offices in Austin, Texas (see Note 1); Kirchheim, Germany; and Bundang, South Korea; and sales and service offices in Dresden, Germany and Edinburgh, Scotland. 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. In addition, Aera's products expand the Company's offering of critical subsystem solutions that enable the plasma-based manufacturing process used in the manufacture of semiconductors.

The acquisition was accounted for using the purchase method of accounting in accordance with SFAS No. 141, "Business Combinations," 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)
	<u>\$ 43,965</u>

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 2002, 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 recognized approximately \$3.0 million of amortization expense related to the amortizable intangibles acquired from Aera from January 18, 2002, the date of acquisition, through December 31, 2002.

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.

EMCO — On January 2, 2001, Engineering Measurements Company (“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 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 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)
	<u>\$31,517</u>

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 was 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, and 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.

SEKIDENKO, INC. — On August 18, 2000, Sekidenko, Inc. (“Sekidenko”), a privately held, Vancouver, Washington-based supplier of optical fiber thermometers to the semiconductor capital equipment industry, was merged with a wholly owned subsidiary of the Company in a business combination accounted for as a pooling of interests. The Company issued 2.1 million shares of its common stock to the former shareholders of Sekidenko. In connection with the merger, the Company recorded in the third quarter of 2000 a charge to operating expenses of \$2.3 million for direct merger-related costs.

NOAH HOLDINGS, INC. — On April 6, 2000, Noah Holdings, Inc. (“Noah”), a privately held, California-based manufacturer of solid state temperature control systems used to control process temperatures during semiconductor manufacturing, was merged with a wholly owned subsidiary of the Company in a business combination accounted for as a pooling of interests. The Company issued approximately 687,000 shares of its common stock in connection with the acquisition. In addition, outstanding Noah stock options were converted into options to purchase approximately 40,000 shares of the Company’s common stock. In connection with the merger, the Company recorded in the second quarter of 2000 a charge to operating expenses of \$2.3 million for direct merger-related costs.

The Sekidenko and Noah mergers have been accounted for as poolings of interest under Accounting Principles Board Opinion No. 16. Accordingly, all prior period consolidated financial statements presented have been restated to include the combined balance sheet, statements of operations and cash flows of Noah and Sekidenko as though each had always been part of the Company. There were no transactions between the Company, Noah and Sekidenko prior to the combinations. Certain reclassifications were made to conform the Noah and Sekidenko financial statements to the Company’s presentation.

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The results of operations for the separate companies and combined amounts presented in the consolidated financial statements follow:

	Year Ended December 31, 2000
	(In thousands)
Sales:	
Pre-Noah and Sekidenko mergers (prior to April 6, 2000)	
Advanced Energy	\$ 67,171
Noah	3,080
Sekidenko	4,777
Advanced Energy and Noah combined before Sekidenko merger	123,190
Sekidenko before Sekidenko merger (April 6 to August 18, 2000)	7,034
Post-Sekidenko merger (August 18 to December 31, 2000)	154,530
Consolidated	\$359,782
Net income:	
Pre-Noah and Sekidenko mergers (prior to April 6, 2000)	
Advanced Energy	\$ 9,996
Noah	43
Sekidenko	1,199
Advanced Energy and Noah combined before Sekidenko merger	20,809
Sekidenko before Sekidenko merger (April 6 to August 18, 2000)	1,367
Noah merger costs	(2,333)
Post-Sekidenko merger (August 18 to December 31, 2000)	39,203
Sekidenko merger costs	(2,250)
Consolidated	\$ 68,034

(3) MARKETABLE SECURITIES

MARKETABLE SECURITIES consisted of the following:

	December 31,	
	2002	2001
	(In thousands)	
Commercial paper	\$ 65,250	\$172,506
Municipal bonds and notes	34,100	12,622
Institutional money markets	2,809	4,895
	\$102,159	\$190,023

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,	
	2002	2001
	(In thousands)	
Domestic	\$16,475	\$13,463
Foreign	27,378	14,457
Allowance for doubtful accounts	(3,056)	(1,049)
Total accounts receivable	\$40,797	\$26,871



(5) INVENTORIES

INVENTORIES consisted of the following:

	December 31,	
	2002	2001
	(In thousands)	
Parts and raw materials	\$40,147	\$31,273
Work in process	4,435	2,521
Finished goods	12,724	10,619
Total inventories	\$57,306	\$44,413

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 shipment of product.

(6) PROPERTY AND EQUIPMENT

PROPERTY AND EQUIPMENT consisted of the following:

	December 31,	
	2002	2001
	(In thousands)	
Land	\$ 5,946	\$ 1,127
Building	7,123	1,737
Machinery and equipment	35,432	29,410
Computers and communication equipment	18,872	15,619
Furniture and fixtures	5,666	4,694
Vehicles	159	222
Leasehold improvements	11,089	10,232
	84,287	63,041
Less – accumulated depreciation	(43,109)	(31,946)
Total property and equipment	\$ 41,178	\$ 31,095

(7) NOTES PAYABLE

NOTES PAYABLE consisted of the following:

	December 31,	
	2002	2001
	(In thousands)	
Revolving line of credit of \$25,000,000, expiring May 2003, interest at bank's prime rate minus 1%, (3.25% at December 31, 2002). Borrowing base consists of the sum of 80% of eligible accounts receivable plus the lesser of 20% of eligible inventory or \$5,000,000. Loan covenants provide certain financial restrictions related to working capital, leverage, net worth, payment and declaration of dividends and profitability	\$ —	\$ 760
Note payable, royalties, with interest at 7%, with monthly payments ranging from \$5,000 to \$15,000, including interest, due July 2002. The note is unsecured	—	244
Note payable, other	—	120
Bank loans (assumed in the acquisition of Aera), maturing serially through May 2007, interest at 1.28% to 3.1% at December 31, 2002	24,502	—
	24,502	1,124
Less – current portion	(14,506)	(1,124)
	\$ 9,996	\$ —

Scheduled maturities of the Company's bank loans and convertible subordinated notes payable (see Note 8) are as follows at December 31, 2002:

	Bank Loans	Convertible Subordinated Notes	Total
		(In thousands)	
2003	\$14,506	\$ —	\$ 14,506
2004	4,916	—	4,916
2005	2,892	—	2,892
2006	1,896	187,718	189,614
2007	292	—	292
Total	\$24,502	\$187,718	\$212,220

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, 2002. As of December 31, 2002, the Company had letters of credit outstanding related to the foreign currency forward contracts discussed in Note 1, of approximately \$6.4 million, for total available credit at that time of approximately \$18.6 million. These foreign currency contracts matured subsequent to December 31, 2002, and the letters of credit were cancelled.

(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, 2002, approximately \$2.1 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% times the principal amount, and may redeem at successively lesser amounts thereafter until November 15, 2006, at which time the Company may redeem

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at a redemption price equal to the principal amount. At December 31, 2002, approximately \$200,000 of interest expense related to these notes was accrued as a current liability.

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 an after-tax extraordinary gain of \$2.6 million. At December 31, 2002, approximately \$66.2 million and \$121.5 million principal amounts of the 5.25% and 5.00% notes remained outstanding.

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. These purchases resulted in an after-tax extraordinary gain of \$7.6 million. At December 31, 2001, approximately \$81.6 million principal amount of the 5.25% 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 benefit of \$22.3 million for 2002 represents an effective rate of 35%, which included a \$1.6 million provision for an extraordinary item. The income tax benefit of \$17.4 million for 2001 represented an effective rate of 36%. The income tax provision of \$36.8 million in 2000, which included a \$4.6 million provision for an extraordinary item, represented an effective rate of 35%.

The (benefit) provision for income taxes for the years ended December 31, 2002, 2001 and 2000 were as follows:

	December 31,		
	2002	2001	2000
	(In thousands)		
Federal	\$(18,575)	\$(17,468)	\$28,869
State and local	(2,178)	(469)	3,592
Foreign taxes	(1,540)	496	4,346
	<u>\$(22,293)</u>	<u>\$(17,441)</u>	<u>\$36,807</u>
Current	\$(15,405)	\$(13,462)	\$40,537
Deferred	(6,888)	(3,979)	(3,730)
	<u>\$(22,293)</u>	<u>\$(17,441)</u>	<u>\$36,807</u>

The following reconciles the Company's effective tax rate to the federal statutory rate for the years ended December 31, 2002, 2001 and 2000:

	December 31,		
	2002	2001	2000
	(In thousands)		
Income tax (benefit) expense per federal statutory rate	\$(22,293)	\$(17,138)	\$36,703
State income taxes, net of federal deduction	(1,414)	(1,259)	2,232
Foreign sales corporation	(262)	(688)	(2,516)
Nondeductible merger costs	—	—	1,604
Nondeductible intangible and goodwill amortization	183	2,818	618
Other permanent items, net	760	(1,716)	(2,262)
Effect of foreign taxes	(272)	2	578
Change in valuation allowance	1,255	790	—
Tax credits	(250)	(250)	(150)
	<u>\$(22,293)</u>	<u>\$(17,441)</u>	<u>\$36,807</u>

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

	December 31,	
	2002	2001
	(In thousands)	
Employee bonuses and commissions	\$ 401	\$ 386
Net operating loss carryforward	6,670	790
Warranty reserve	3,291	1,565
Bad debt reserve	1,131	378
Vacation accrual	1,077	948
Restructuring accrual	2,096	499
Obsolete and excess inventory	8,168	2,140
Investments	—	2,476
Depreciation and amortization	(6,777)	(415)
Other	5,320	2,808
Valuation allowance	(12,530)	(790)
	<u>\$ 8,847</u>	<u>\$10,785</u>

The following reconciles the change in the net deferred income tax asset from December 31, 2001 to December 31, 2002, to the deferred income tax benefit:

	2002
	(In thousands)
Net change in deferred income tax asset from the preceding table	\$ 1,938
Net deferred tax liabilities associated with acquisitions	(8,070)
Deferred taxes associated with other comprehensive income	(756)
Deferred income tax benefit for the period	<u>\$(6,888)</u>

Realization of the Company's net deferred tax asset is dependent upon the Company generating sufficient taxable income in the appropriate tax jurisdictions in future years to obtain benefit from the reversal of net deductible temporary differences and from tax credit carryforwards. When recording acquisitions, the Company has recorded valuation allowances due to the uncertainty related to the realization of certain deferred tax assets existing at December 31, 2002. The amount of deferred tax assets considered realizable is subject to adjustment in future periods if estimates of future taxable income are changed. The Company believes that it is more likely than not that the Company will realize the benefits of the deferred tax asset, net of valuation allowance, as of December 31, 2002. Reversals of valuation allowances recorded in purchase accounting will be reflected as a reduction of goodwill in the period of reversal.

The domestic versus foreign component of the Company's net (loss) income before income taxes for the years ended December 31, 2002, 2001 and 2000, was as follows:

	December 31,		
	2002	2001	2000
	(In thousands)		
Domestic	\$(60,070)	\$(50,377)	\$ 94,094
Foreign	(3,622)	1,412	10,767
	<u>\$(63,692)</u>	<u>\$(48,965)</u>	<u>\$104,861</u>

At December 31, 2002 the Company had income taxes receivable of approximately \$14.7 million, which is expected to be converted to cash during 2003.

(10) OTHER INCOME AND EXPENSE ITEMS

OTHER OPERATING EXPENSES — SYMPHONY — Beginning in April 2000, the Company made periodic advances to and investments in Symphony Systems, Inc., a privately held, early-stage developer of equipment productivity management software. In addition to the

approximately \$8 million from the Company as investments, advances and license payments, Symphony received investments of \$7 million from other parties. In 2000, the Company obtained an exclusive license, for which the Company paid \$1.5

million, to use Symphony's products in the semiconductor industry. In connection with certain of the Company's advances in 2001, it obtained a security interest in all of Symphony's intellectual and proprietary property.

Beginning in the third quarter of 2001, and continuing through the end of the year, 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) and other factors, the value of the Company's investment in and advances to Symphony had substantially declined. Given the precarious financial condition of Symphony, the Company valued its investments in and advances to Symphony at December 31, 2001, at approximately \$1 million, which reflects its assessment of the value of the Symphony technology license, which has continuing value to the Company. The amount of the impairment related to Symphony was \$6.8 million, all of which was recorded in 2001 as an operating expense.

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 on April 2, 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 assets acquired were recorded at estimated fair values as determined by the Company's management, based on information currently available. The purchase price and 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 semiconductor industry declined substantially from its levels in the second and third quarters of 2002. As a result the Company determined there would be a significant delay by the industry in adopting advanced connectivity technology, and the Company determined that due to industry conditions as well as the Company's future strategic priorities, these intangible assets were likely impaired. 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 the Company's investment was impaired by approximately \$1.9 million, which has been reflected as an operating expense in the accompanying statement of operations for 2002.

GAIN ON SALE OF INVESTMENT — In the third quarter of 2000, the Company exercised warrants of a supplier in a cashless transaction and received 458,000 shares of the supplier's common stock, which is publicly traded. The Company had received the warrants in a series of transactions with the supplier since 1995. Concurrent with the exercise, the Company sold 320,000 shares of the supplier's common stock and recognized a gain of approximately \$4.8 million. The remaining 138,000 shares are valued at approximately \$0.4 million and are included in deposits and other assets.

(11) 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 for the fiscal year. Effective January 1, 1998, the Company increased its matching contribution for participants in the 401(k) Plans up to a 50% matching on contributions by employees up to 6% of the employee's compensation. In 2002, as part of its cost cutting measures, the Company reduced its contributions to 10% matching on contributions by employees up to 6% of the employee's compensation. The Company's total contributions to the plans were approximately \$272,000, \$1,433,000 and \$1,291,000 for the years ended December 31, 2002, 2001 and 2000, respectively. Effective January 1, 2003, the Company increased its

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matching contribution to 25% matching of the employees contributions up to 6% of the employee's compensation. Vesting in the profit sharing contribution account is based on years of service, with most participants fully vested after four years of credited service.

The Company's Money Purchase Pension Plan, which covered certain employees, received a letter of termination by the Internal Revenue Service, effective October 1, 2002.

(12) COMMITMENTS AND CONTINGENCIES

GUARANTEES

The Company offers warranty coverage for its products for periods ranging from 12 to 36 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. Estimated warranty costs are recorded at the time of sale of the related product, and are considered a cost of sales. The following summarizes the activity in the Company's warranty reserves during 2002:

	Balance at Beginning of Period	Additions Charged to Expense	Deductions	Balance at End of Period
		(In thousands)		
Reserve for warranty obligations	\$4,471	\$13,150	\$(8,219)	\$9,402

On March 28, 2002, the Company completed its acquisition of Dressler, for a purchase price of approximately \$15 million in cash and an escrow reserve of approximately \$1.7 million. The Company may also be required to pay an additional \$3 million if Dressler achieves certain key business objectives by March 30, 2003. At December 31, 2002, the Company has not accrued a liability for the contingent purchase price. If the Company becomes obligated to make this cash payment, the Company would record an additional \$3 million of goodwill.

In October 2002, the Company entered into an agreement with a supplier to advance this supplier \$1.25 million in four installments through November 2003 in exchange for a promissory note due October 31, 2004. The advance bears interest at the prime rate and is secured by all of the supplier's developed intellectual property. At December 31, 2002, the Company had advanced \$450,000 to the supplier which has been recorded as a deposit and other asset. The Company will continue to evaluate the realizability of this asset in the future and may be required to record a charge against income from operations if the supplier's financial position deteriorates.

DISPUTES AND LEGAL ACTIONS

The Company is involved in disputes and legal actions arising in the normal course of its business. 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 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 Instruments, Inc. ("MKS") in a patent-infringement suit in which the Company was the defendant. The

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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 approximately \$530,000 for the year ended December 31, 2002, and are recorded as a component of cost of sales.

CAPITAL LEASES

The Company finances a portion of its property and equipment under capital lease obligations at interest rates of approximately 5%. The future minimum lease payments under capitalized lease obligations as of December 31, 2002 are as follows:

	(In thousands)
2003	\$ 729
2004	392
2005	215
2006	111
2007	11
	<hr/>
Total minimum lease payments	1,458
Less — amount representing interest	(98)
Less — current portion	(691)
	<hr/>
	\$ 669
	<hr/>

OPERATING LEASES

The Company has various operating leases for automobiles, equipment, and office and production facilities (see Note 14). Lease expense under operating leases was approximately \$6,493,000, \$5,770,000 and \$5,155,000 for the years ended December 31, 2002, 2001 and 2000, respectively.

The future minimum rental payments required under noncancelable operating leases as of December 31, 2002 are as follows:

	(In thousands)
2003	\$ 5,468
2004	4,464
2005	3,869
2006	3,507
2007	2,990
Thereafter	12,055
	<hr/>
	\$32,353
	<hr/>

(13) INDUSTRY SEGMENT, FOREIGN OPERATIONS AND MAJOR CUSTOMER

SFAS No. 131, "Disclosure about Segments of an Enterprise and Related Information," requires a public business enterprise to report financial and descriptive information about its reportable operating segments. 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. Operating segments are components of an enterprise about which separate financial information is available that is evaluated regularly by the chief operating decision maker in deciding how to allocate resources and assess performance. Management operates and manages the Company's business for the manufacture, marketing and servicing of its products and related systems as one operating segment. All material operating units qualify for aggregation under SFAS No. 131 because all the Company's products and systems have similar economic characteristics, and 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 the Company operates in one segment, all financial segment information required by SFAS No. 131 is found in the accompanying consolidated financial statements.

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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,		
	2002	2001	2000
	(In thousands)		
Sales:			
Originating in U.S. and sold to domestic customers	\$ 141,637	\$ 124,746	\$260,596
Originating in U.S. and sold to foreign customers	24,607	19,687	35,504
Originating in Europe and sold to domestic customers	2,108	—	—
Originating in Europe to foreign customers	18,672	18,239	24,375
Originating in Asia Pacific to foreign customers	51,874	30,928	39,307
Transfers between geographic areas	40,567	40,774	48,963
Intercompany eliminations	(40,567)	(40,774)	(48,963)
	<u>\$ 238,898</u>	<u>\$ 193,600</u>	<u>\$359,782</u>
(Loss) income from operations:			
U.S.	\$ (57,305)	\$ (47,532)	\$ 73,508
Europe	(725)	1,517	3,805
Asia Pacific	1,865	1,157	7,878
Intercompany eliminations	(5,820)	(2,029)	9
	<u>\$ (61,985)</u>	<u>\$ (46,887)</u>	<u>\$ 85,200</u>
Identifiable assets:			
U.S.	\$ 498,906	\$ 529,465	
Europe	41,485	21,357	
Asia Pacific	137,295	23,633	
Intercompany eliminations	(221,953)	(124,260)	
	<u>\$ 455,733</u>	<u>\$ 450,195</u>	

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

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, 2002, 2001 and 2000:

	December 31,		
	2002	2001	2000
Applied Materials, Inc.	27%	24%	39%

The Company had trade accounts receivable from this customer of approximately \$6.7 million as of December 31, 2002, which was approximately 16.0% 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, 2002 and 2001.

(14) RELATED PARTY TRANSACTIONS

The Company leases its executive offices and manufacturing facilities in Fort Collins, Colorado from two limited liability partnerships consisting of a director of the Company who is also an officer, a former director 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 \$67,000, \$55,000 and \$64,000, respectively.

Approximately \$2,660,000, \$2,229,000 and \$1,637,000 was paid and charged to rent expense attributable to these leases for the years ended December 31, 2002, 2001 and 2000, 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

rent expense attributable to this agreement for the year ended December 31, 2002.

In 2000, the Company also paid an additional \$637,000 to one of the partnerships for leasehold improvements made in the normal course of the Company's operations, which are capitalized and reported

as leasehold improvements on the balance sheet as part of property and equipment.

The Company leases, for business purposes, a condominium owned by a partnership of certain stockholders. The Company paid the partnership \$67,000, \$47,000 and \$36,000 in 2002, 2001 and 2000, respectively.

The Company charts aircraft from time to time from companies owned by a certain shareholder. Aggregate payments for the use of such aircraft were \$103,000, \$0 and \$57,000 in 2002, 2001 and 2000, respectively.

(15) CONCENTRATIONS OF CREDIT RISK

FORWARD CONTRACTS — The Company, including its subsidiaries, enters into foreign currency forward contracts with counterparties to mitigate its exposure to 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 intercompany payables and receivables. Foreign currency forward contracts are entered into with major commercial U.S. and Japanese 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 four to eight months, with contracts outstanding at December 31, 2002 maturing through May 2003. At December 31, 2002, the Company held foreign currency forward exchange contracts to sell Japanese yen with notional amounts of \$48.4 million and market settlement amounts of \$48.3 million for an unrealized gain position of \$0.1 million; foreign currency forward exchange contracts to sell U.S. dollars with notional amounts of \$15.0 million and market settlement amounts of \$15.3 million for an unrealized loss position of approximately \$0.3 million; and foreign currency forward exchange contracts to buy U.S. dollars with notional amounts of \$6.5 million and market settlement amounts of \$6.7 million for an unrealized loss position of approximately \$0.2 million. The net unrealized foreign currency loss of \$0.4 million has been included in foreign currency gain (loss) in the accompanying consolidated statement of operations.

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.

(16) STOCK PLANS

1995 EMPLOYEE STOCK OPTION PLAN — During 1993, the Company adopted an Employee Stock Option Plan (the "Employee Option Plan") that has been amended and restated various times through December 2002. The Employee Option Plan allows issuance of incentive stock options, non-qualified options, and stock purchase rights. The exercise price of incentive stock options shall not be less than 100% of the stock's market value on the date of grant. The exercise price of non-qualified stock options shall not be less than 85% of the stock's market value on the date of grant. Options the Company (exclusive of acquired subsidiaries) issued under this plan in 2002, 2001 and 2000 were at 100% of market value with typical vesting over three to four years. Under the Employee Option Plan, the Company has the discretion to accelerate the vesting period. The options are exercisable for ten years from the date of grant.

The Company has reserved 8,125,000 shares of common stock for the issuance of stock under the Employee Option Plan, which terminates in June 2003. At December 31, 2002, approximately 2,200,000 shares of common stock were available for grant under this plan.

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 market value. Under this agreement, 29,700 and 34,250 of such options were exercised in 1999 and 2000, respectively. These options result in the Company recognizing \$109,000 as compensation expense over the four-year vesting period related to the 1999 purchases, and \$1,995,000 as compensation expense over the four-year vesting period related to the 2000 purchases. Compensation expense of \$518,000, \$526,000 and \$461,000 was recognized in 2002, 2001 and 2000, respectively. These amounts are presented as a reduction of stockholders' equity, and the remaining amount of deferred compensation of \$542,000 is being amortized over the four-year vesting period of the related stock options. 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.

EMPLOYEE STOCK PURCHASE PLAN — In September 1995, stockholders approved an Employee Stock Purchase Plan (the "Stock Purchase Plan") covering an aggregate of 200,000 shares of common stock. Employees are eligible to participate in the Stock Purchase Plan 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 Stock Purchase Plan. Common stock purchased under the Stock Purchase Plan will be equal to 85% of the lower of the fair market value on the commencement date of each offering period or the relevant purchase date. During 2002, 2001 and 2000, employees purchased an aggregate of 54,196, 37,376 and 13,025 shares under the Stock Purchase Plan, respectively. At December 31, 2002, approximately 28,000 shares were available for issuance under this plan.

NON-EMPLOYEE DIRECTORS STOCK OPTION PLAN — In September 1995, the Company adopted the 1995 Non-Employee Directors Stock Option Plan (the "Directors Plan") covering 50,000 shares of common stock. In May 2001, the plan was amended to increase the number of shares of common stock issuable under such plan to 200,000 shares of common stock. The Directors Plan provides for automatic grants of non-qualified stock options to directors of the Company who are not employees of the Company ("Outside Directors"). Pursuant to the Directors Plan, upon becoming a director of the Company, each Outside Director will be granted an option to purchase 7,500 shares of common stock. Such options will be immediately exercisable as to 2,500 shares of common stock, and will vest as to 2,500 shares of common stock on each of the second and third anniversaries of the grant date. On each anniversary of the date on which a person became an Outside Director, an option for an additional 2,500 shares is granted. Such additional options vest on the third anniversary of the date of grant. Options will expire ten years after the grant date, and the exercise price of the options will be equal to the fair market value of the common stock on the grant date. The Directors Plan terminates in September 2005. At December 31, 2002, approximately 78,000 shares of common stock were available for grant under this plan.

2001 EMPLOYEE STOCK OPTION PLAN — In 2001, the Company adopted the 2001 Stock Option Plan (the "2001 Option Plan"), which does not require approval by the Company's stockholders. 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, 2002, approximately 54,000 shares of common stock were available for grant under this plan.

2002 EMPLOYEE STOCK OPTION PLAN – In 2002, the Company adopted the 2002 Stock Option Plan (the “2002 Option Plan”), which does not require approval by the Company’s stockholders. 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, 2002, approximately 43,000 shares of common stock were available for grant under this plan.

	2002		2001		2000	
			(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	2,108	\$25.07	1,719	\$23.39	1,850	\$13.90
Granted	1,920	21.73	845	25.64	461	45.45
Exercised	(118)	11.70	(273)	12.13	(488)	9.12
Terminated	(435)	29.02	(183)	31.22	(104)	19.26
Options outstanding at end of period	3,475	23.18	2,108	25.07	1,719	23.39
Options exercisable at end of period	1,239	23.25	938	20.45	689	14.09
Weighted-average fair value of options granted during the period	\$ 17.15		\$ 25.61		\$ 32.75	
Price range of outstanding options	\$0.67 - \$64.94		\$0.67 - \$64.94		\$0.67 - \$60.75	
Price range of options terminated	\$0.83 - \$60.75		\$7.50 - \$60.75		\$0.83 - \$43.69	
Non-employee directors stock options —						
Options outstanding at beginning of period	90	\$26.92	75	\$27.25	55	\$19.04
Granted	22	15.58	15	24.44	20	49.81
Exercised	—	—	—	—	—	—
Terminated	—	—	—	—	—	—
Options outstanding at end of period	112	22.64	90	26.92	75	27.25
Options exercisable at end of period	62	22.24	45	16.97	32	18.65
Weighted-average fair value of options granted during the period	\$ 12.25		\$ 24.85		\$ 30.83	
Price range of outstanding options	\$6.13 - \$64.94		\$6.13 - \$64.94		\$6.13 - \$64.94	
Price range of options terminated	\$ —		\$ —		\$ —	

Statement of Financial Accounting Standards No. 123, “Accounting for Stock-Based Compensation” (“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 \$33,170,000, \$17,675,000 and \$15,719,000 for the years ended December 31, 2002, 2001 and 2000, respectively. These amounts are amortized ratably over the vesting period of the options.

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The following table summarizes information about the stock options outstanding at December 31, 2002:

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 \$6.75	188,000	5.0 years	\$ 5.69	183,000	\$ 5.68
\$7.50 to \$7.70	453,000	9.3 years	\$ 7.69	57,000	\$ 7.62
\$8.25 to \$16.51	418,000	5.7 years	\$12.21	333,000	\$11.66
\$17.32 to \$17.57	23,000	7.1 years	\$17.38	18,000	\$17.32
\$17.85 to \$17.85	565,000	9.6 years	\$17.85	3,000	\$17.85
\$18.00 to \$24.90	542,000	8.9 years	\$22.56	59,000	\$18.58
\$26.13 to \$28.55	385,000	7.4 years	\$27.65	247,000	\$27.71
\$29.53 to \$36.94	282,000	8.1 years	\$33.06	160,000	\$33.97
\$38.55 to \$38.55	381,000	9.3 years	\$38.55	—	—
\$40.00 to \$64.94	350,000	7.1 years	\$46.60	241,000	\$46.08
	3,587,000	8.1 years	\$23.23	1,301,000	\$23.20

(17) 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 1). 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, 2002 and 2001, the carrying value of long-term debt was \$212.2 million and \$207.7 million, respectively. The carrying value of the notes payable and senior borrowing approximates its fair value due to the variable interest rates associated with the borrowings. At December 31, 2002, the estimated fair value of the Company's 5.25% convertible subordinated notes that are due November 15, 2006, was approximately \$53.0 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 \$103.3 million, compared to a book value of \$121.5 million.

(18) GOODWILL IMPAIRMENT

During the second quarter of 2001, the Company terminated the operations of Tower and FST, due to significant softening in the projected demand for these products. Revenue contributed by Tower and FST operations for 2001 and 2000 represented less than 5% of total revenue for each period. Because the expected future cash flows for these products were insignificant after the second quarter of 2001, the Company recognized an impairment charge of \$3.6 million related to the termination of Tower and a charge of \$1.8 million related to the termination of FST. These amounts represented the carrying values of these assets on June 30, 2001, before the writedown. These charges are disclosed as impairment of goodwill and other intangible assets in the accompanying consolidated statements of operations.

(19) SUBSEQUENT EVENT

Subsequent to December 31, 2002 the Company agreed in principle to advance \$1.5 million to a privately held corporation which has developed the technology used in etching processes at normal atmospheric pressures. These advances will be made over the next two years, pending the attainment of certain business development milestones, by the private company.

(20) QUARTERLY FINANCIAL DATA – Unaudited

The following table presents unaudited quarterly financial data for each of the eight quarters in the period ended December 31, 2002. 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, 2001	June 30, 2001	Sept. 30, 2001	Dec. 31, 2001	Mar. 31, 2002	June 30, 2002	Sept. 30, 2002	Dec. 31, 2002
	(In thousands, except per share data)							
Sales	\$74,714	\$ 46,171	\$ 38,722	\$ 33,993	\$ 42,887	\$67,893	\$70,674	\$ 57,444
Gross profit	31,223	7,781	11,036	7,392	13,374	24,312	26,600	4,474
Income (loss) from operations	7,531	(20,927)	(11,663)	(21,828)	(11,423)	(9,330)	(5,788)	(35,444)
Net income (loss) before extraordinary item	5,094	(14,549)	(7,482)	(14,442)	(8,723)	(5,139)	(5,580)	(24,596)
Extraordinary item (net of income taxes)	—	—	—	—	—	—	—	2,639
Net income (loss)	\$ 5,094	\$(14,549)	\$ (7,482)	\$(14,442)	\$ (8,723)	\$(5,139)	\$(5,580)	\$(21,957)
Diluted earnings (loss) per share before extraordinary item	\$ 0.16	\$ (0.46)	\$ (0.24)	\$ (0.45)	\$ (0.27)	\$ (0.16)	\$ (0.17)	\$ (0.77)
Diluted earnings per share from extraordinary item	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ 0.09
Diluted earnings (loss) per share	\$ 0.16	\$ (0.46)	\$ (0.24)	\$ (0.45)	\$ (0.27)	\$ (0.16)	\$ (0.17)	\$ (0.68)

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).

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	Deductions	Balance at End of Period
(In thousands)					
Year ended December 31, 2000:					
Inventory obsolescence reserve	\$2,304	\$ —	\$ 654	\$ 705	\$ 2,253
Allowance for doubtful accounts	639	—	145	—	784
	<u>\$2,943</u>	<u>\$ —</u>	<u>\$ 799</u>	<u>\$ 705</u>	<u>\$ 3,037</u>
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>

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

On July 16, we filed a Current Report on Form 8-K reporting that on July 15, 2002 our Board of Directors dismissed Arthur Andersen LLP and engaged KPMG LLP as our independent public accountants for our fiscal year ended December 31, 2002.

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 2003 Annual Meeting of Stockholders (the "2003 Proxy Statement"), as set forth below. The 2003 Proxy Statement will be filed with the Securities and Exchange Commission within 120 days after the end of 2002.

ITEM 10. DIRECTORS AND EXECUTIVE OFFICERS OF THE REGISTRANT

The information set forth in the 2003 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.

ITEM 11. EXECUTIVE COMPENSATION

The information set forth in the 2003 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 2003 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 2003 Proxy Statement under the caption "Certain Transactions with Management" is incorporated herein by reference.

ITEM 14. 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-14) as of a date within 90 days before the filing date of this Form 10-K. 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

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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 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 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	64
Report of Arthur Andersen LLP	65
Consolidated Financial Statements:	
Balance Sheets at December 31, 2002 and 2001	66
Statements of Operations for each of the three years in the period ended December 31, 2002	68
Statements of Stockholders' Equity for each of the three years in the period ended December 31, 2002	69
Statements of Cash Flows for each of the three years in the period ended December 31, 2002	70
Notes to Consolidated Financial Statements	71
2. Financial Statement Schedules for each of the three years in the period ended December 31, 2002	
Schedule II-Valuation and Qualifying Accounts	100
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(4)	
3.2 By-laws(5)	
4.1 Form of Specimen Certificate for Common Stock(5)	
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 5 1/4% Convertible Subordinated Note due 2006)(6)	

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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)(7)
4.4	Registration Rights Agreement, dated as of August 22, 2001, by and between Advanced Energy Industries, Inc., and Goldman, Sachs and Co.(7)
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 10, 2002, by and between Silicon Valley Bank, as a bank, and Advanced Energy Industries, Inc., as borrower(14)
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(5)
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(5)
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(5)
10.5	Form of Indemnification Agreement(5)
10.6	Employment Agreement, dated June 1, 1998, between RF Power Products, Inc., and Joseph Stach(8)
10.7	1995 Stock Option Plan, as amended and restated through February 7, 2001(9)*
10.8	1995 Non-Employee Directors' Stock Option Plan, as amended and restated through February 7, 2001(9)*
10.9	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(10)
10.10	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.(11)
10.11	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.(11)
10.12	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.(12)
10.13	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(13)
10.14	License agreement, dated January 3, 2003, by and among Advanced Energy Industries, Inc., and APJeT, Inc.
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)
99.1	Certification pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
99.2	Certification pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002

(b) No reports on Form 8-K were required to be filed by the Registrant during the fourth quarter of the year ended December 31,

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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 Quarterly Report on Form 10-Q for the quarter ended June 30, 2001 (File No. 000-26966), filed August 13, 2001.
 - (5) Incorporated by reference to the Registrant's Registration Statement on Form S-1 (File No. 33-97188), filed September 20, 1995, as amended.
 - (6) 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.
 - (7) Incorporated by reference to the Registrant's Current Report on Form 8-K (File No. 000-26966), filed September 10, 2001.
 - (8) Incorporated by reference to the Registrant's Annual Report on Form 10-K for the year ended December 31, 1998 (File No. 000-26966), filed March 24, 1999.
 - (9) 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.
 - (10) 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.
 - (11) Incorporated by reference to the Registrant's Registration Statement on Form S-3 (File No. 333-37378), filed May 19, 2000.
 - (12) 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.
 - (13) 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.
 - (14) Incorporated by reference to the Registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2002 (File No. 000-26966), filed August 14, 2002.
- * 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
/s/ Douglas S. Schatz	Chief Executive Officer, President and Chairman of the Board	March 27, 2003
Douglas S. Schatz	(Principal Executive Officer)	
/s/ Michael El-Hillow	Executive Vice President and Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	March 27, 2003
Michael El-Hillow		
/s/ Richard P. Beck	Director	March 27, 2003
Richard P. Beck		
/s/ Trung Doan	Director	March 27, 2003
Trung Doan		
/s/ Arthur A. Noeth	Director	March 27, 2003
Arthur A. Noeth		
/s/ Elwood Spedden	Director	March 27, 2003
Elwood Spedden		
/s/ Gerald Starek	Director	March 27, 2003
Gerald Starek		
/s/ Arthur W. Zafiropoulo	Director	March 27, 2003
Arthur W. Zafiropoulo		

CERTIFICATIONS

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 annual 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 annual report;
3. Based on my knowledge, the financial statements, and other financial information included in this annual 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 annual 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-14 and 15d-14) for the registrant and we have:
 - a. designed such disclosure controls and procedures 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 annual report is being prepared;
 - b. evaluated the effectiveness of the registrant's disclosure controls and procedures as of a date within 90 days prior to the filing date of this annual report (the "Evaluation Date"); and
 - c. presented in this annual report our conclusions about the effectiveness of the disclosure controls and procedures based on our evaluation as of the Evaluation Date;
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation, to the registrant's auditors and the audit committee of registrant's board of directors (or persons performing the equivalent function):
 - a. all significant deficiencies in the design or operation of internal controls which could adversely affect the registrant's ability to record, process, summarize and report financial data and have identified for the registrant's auditors any material weaknesses in internal controls; and
 - b. any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal controls; and
6. The registrant's other certifying officer and I have indicated in this annual report whether or not there were significant changes in internal controls or in other factors that could significantly affect internal controls subsequent to the date of our most recent evaluation, including any corrective actions with regard to significant deficiencies and material weaknesses.

/s/ Douglas S. Schatz

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

March 27, 2003

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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 annual 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 annual report;
3. Based on my knowledge, the financial statements, and other financial information included in this annual 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 annual 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-14 and 15d-14) for the registrant and we have:
 - a. designed such disclosure controls and procedures 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 annual report is being prepared;
 - b. evaluated the effectiveness of the registrant's disclosure controls and procedures as of a date within 90 days prior to the filing date of this annual report (the "Evaluation Date"); and
 - c. presented in this annual report our conclusions about the effectiveness of the disclosure controls and procedures based on our evaluation as of the Evaluation Date;
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation, to the registrant's auditors and the audit committee of registrant's board of directors (or persons performing the equivalent function):
 - a. all significant deficiencies in the design or operation of internal controls which could adversely affect the registrant's ability to record, process, summarize and report financial data and have identified for the registrant's auditors any material weaknesses in internal controls; and
 - b. any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal controls; and
6. The registrant's other certifying officer and I have indicated in this annual report whether or not there were significant changes in internal controls or in other factors that could significantly affect internal controls subsequent to the date of our most recent evaluation, including any corrective actions with regard to significant deficiencies and material weaknesses.

/s/ Michael El-Hillow

Michael El-Hillow
Executive Vice President, Chief Financial Officer (Principal Financial Officer) March 27, 2003

INDEX TO EXHIBITS

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3.1	Restated Certificate of Incorporation, as amended(4)
3.2	By-laws(5)
4.1	Form of Specimen Certificate for Common Stock(5)
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 5 ¹ / ₄ % Convertible Subordinated Note due 2006)(6)
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)(7)
4.4	Registration Rights Agreement dated as of August 22, 2001, by and between Advanced Energy Industries, Inc. and Goldman, Sachs and Co.(7)
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 10, 2002, by and between Silicon Valley Bank, as a bank, and Advanced Energy Industries, Inc., as borrower(14)
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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)
99.1	Certification pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
99.2	Certification pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
(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 Quarterly Report on Form 10-Q for the quarter ended June 30, 2001 (File No. 000-26966), filed August 13, 2001.
(5)	Incorporated by reference to the Registrant's Registration Statement on Form S-1 (File No. 33-97188), filed September 20, 1995, as amended.
(6)	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.
(7)	Incorporated by reference to the Registrant's Current Report on Form 8-K (File No. 000-26966), filed September 10, 2001.
(8)	Incorporated by reference to the Registrant's Annual Report on Form 10-K for the year ended December 31, 1998 (File No. 000-26966), filed March 24, 1999.
(9)	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.
(10)	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.
(11)	Incorporated by reference to the Registrant's Registration Statement on Form S-3 (File No. 333-37378), filed May 19, 2000.
(12)	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.

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- (13) 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.
- (14) Incorporated by reference to the Registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2002 (File No. 000-26966), filed August 14, 2002.
- * Compensation Plan
- + Confidential treatment has been granted for portions of this agreement.

LICENSE AGREEMENT EXECUTION COPY

THIS AGREEMENT, made effective as of the 3rd day of January, 2003, is by and between APJeT, INC. a corporation of the State of Delaware, having an office and place of business at 491 Bryce Ave, Suite 200, Los Alamos, NM 87544 ("APJeT"), and ADVANCED ENERGY INDUSTRIES, INC. a corporation of the State of Delaware, having an office and place of business at 1625 Sharp Point Dr., Fort Collins, CO 80525 ("AE"); APJeT and AE being sometimes referred to collectively as "the Parties" and individually as a "Party" to the Agreement:

WITNESSETH:

WHEREAS, APJeT owns an Exclusive License from the University of California, License Agreement No. 00-41-00911, with the right to sublicense United States Patents and Patent Applications defined in Appendix A, which relates to Atmospheric Pressure Plasma Jet Technology; and

WHEREAS, AE wishes to obtain, and APJeT is willing to grant, an exclusive license under said Licensed Patents, and under Licensed Patent Applications (as hereinafter further defined) in the Licensed Territory and Licensed Field of Use (as also hereinafter defined);

NOW, THEREFORE, in consideration of the mutual covenants contained herein, the parties hereto agree as follows:

SECTION 1- DEFINITIONS

As used in this Agreement, the following terms shall be deemed to have the following meanings:

1.1. "Licensed Patent Applications" shall mean (a) United States Patent Applications defined in Appendix A (b) any and all continuations, divisions, and continuations-in-part of such Application, whether related to such Application directly or through one or more intervening applications; (c) any foreign application for patent or utility model claiming priority in whole or in part from any of the applications identified in subparagraphs (a) and (b) above; and (d) any and all continuations, divisions, and continuations-in-part of any of the applications identified in subparagraph (c) above, whether related to such applications directly or through one or more intervening applications.

1.2. "Licensed Patents" shall mean the United States Patents defined in Appendix A and all corresponding Foreign Applications and Foreign Patents (a) any and all patents and utility models issuing on or registered from any of the Licensed Patent Applications; and (b) any and all reexaminations, reissues, additions, or extensions of any of the patents or utility models identified in subparagraph (a) above.

1.3 "Patent Rights" shall mean the rights arising from the U.S. or Foreign patents or applications, including any continuing applications, divisionals, and reissues thereof; and the patents issuing on applications, identified in Appendix A of the University of California License Agreement No. 00-41-00911, incorporated herein by reference

1.4. "Licensed Product", singular or plural, shall mean any Atmospheric Pressure Plasma Jet Technology wherein the manufacture, use, offer for sale, sale or importation of Atmospheric Pressure Plasma Jet Technology by AE would, but for the rights and license granted herein, constitute an infringement of a valid and enforceable claim of a subsisting Licensed Patent and shall not include AE standard power delivery equipment (i.e., stand alone AE power supplies and match networks) but includes power generation and delivery equipment which is designed specifically as an integral and indivisible part of the Atmospheric Pressure Plasma Jet Technology.

1.5 "Licensed Method" shall mean any method, procedure or process whose use, but for the license granted to AE, would constitute an infringement of a subsisting claim of a patent or patent application identified in Appendix A.

1.6 "Sales" shall mean disposing of a Licensed Product by sale, lease, or other transaction for consideration or practicing a Licensed Method. Sales occur when the licensee, affiliate or sublicensee of the AE receives consideration for the disposition of the Licensed Product or practice of Licensed Method, when Licensed Product is paid for or delivered to a third person, whichever occurs first. Notwithstanding the above, a sale shall be considered to be made within ninety (90) days of delivery to a third person.

1.7. "Net Sales" shall mean the gross amounts for sales at sales price by AE and its sub licensees, less the following deductions where applicable: (a) Sales returns; (b) normal and customary allowances; (c) trade discounts; (d) royalty discounts for sales to the U.S. Government calculated by the amount of royalties that APJET would normally have had to pay for non-U.S. Government sales; and (e) transportation charges, duties and tariffs and foreign government or registration reporting, permitting or approval fees and costs, only if separately stated on an invoice or other statement of account or occurrence; but before the deduction of sales and excise taxes, cost of insurance, and agents' commissions.

1.8. An "Affiliate" of a Party shall mean a corporation or other entity controlled by, controlling, or under common control with APJeT or AE. For the purpose of this Agreement, "control" or "controlling" mean (a) the ownership, directly or indirectly, of more than fifty percent (50%) of the voting stock or analogous interest in such corporation or other entity; or (b) the existence of any other relationship between APJeT or AE and such other corporation or entity which results in effective managerial control by one over the other, regardless of whether such control is continuously exercised.

1.9. "Licensed Territory" shall mean the countries and jurisdictions, including the United States of America and its territories and possessions, in which APJeT now or in the future holds a valid and enforceable subsisting Licensed Patent.

1.10 "Licensed Field of Use shall mean all fields in which AE can demonstrate that it is one of the top three leading vendors in market share in each of such fields, as demonstrated by dollar volume of sales in the preceding year, including but not limited to Semiconductor Processing, Data Storage (including but not limited to magnetic and optical), Flat Panel and Electronic Displays, and Architectural Glass, and in any other field mutually agreed upon by AE and APJeT as contemplated in Section 4.1.

1.11. "Effective Date" shall mean the date first written above.

1.12. "UC License" shall mean the Exclusive License APJeT has from the University of California, License Agreement No. 00-41-00911, with the right to sublicense United States Patents and Patent Applications defined in Appendix A, which relates to Atmospheric Pressure Plasma Jet Technology.

1.13 "Deposition Precursor Technology" means compositions of matter which may be deposited onto substrates using Deposition Plasma Jet Technology.

1.14 "Deposition Process Technology" means processes for depositing compositions of matter, including Deposition Precursor Technology, onto substrates using Deposition Plasma Jet Technology.

1.15 "Deposition Plasma Jet Technology" means apparatus operated at substantially atmospheric pressure capable of depositing compositions of matter, including Deposition Precursor Technology, onto substrates.

SECTION 2 - GRANT OF LICENSE

2.1. Except as set forth in 2.6 below, and in accordance with and subject to the terms of the UC License, APJeT hereby grants to AE and its Affiliates, and AE hereby accepts, a sole and exclusive, worldwide, royalty-bearing right and license under the Licensed Patent Applications and the Licensed Patents (with the right to grant sublicenses, as limited below in section 2.5) to make, have made, use, sell, offer for sale, lease and otherwise dispose of Licensed Products in the Licensed Territory in the Licensed Field of Use. AE accepts the terms and conditions required for sublicensees as outlined in the UC License.

2.2 AE hereby grants to APJeT and its Affiliates, and APJeT hereby accepts a paid-up, royalty-free nonexclusive license in the Licensed Field of Use to make, use, and sell, for experimental purposes only, prototype quantities under the Licensed Patents and Licensed Patent Applications, any improvements or other developments whether or not patentable, or patented in the Licensed Product. AE will disclose all improvements or other developments under an executed Confidentiality/Non-Disclosure Agreement.

2.3 The U.S government has a nonexclusive, nontransferable, irrevocable, paid-up license to practice or have practiced throughout the world, for or on behalf of the U.S. Government, inventions covered by the Patent Rights.

2.4 Under 35 U.S.C. 203 the U.S. Department of Energy has the right to require the Licensee to grant a nonexclusive, partially exclusive or exclusive license under the Patent Rights in any Field of Use to a responsible applicant or applicants in accordance with 48 CFR 27.304-1(g).

2.5. APJeT hereby grants to AE and its Affiliates, and AE hereby accepts, the right to grant sublicenses to others, contingent upon written approval from APJeT, and also contingent upon acceptance by the prospective sublicensee of all the terms and conditions required of sublicensees in the UC License.

2.6 The license granted to AE under 2.1 does not include (i) any right or license under the Licensed Patent Applications and/or the Licensed Patents to use Deposition Process Technology, any right to grant sublicenses to use Deposition Process Technology, or any right to sue third-parties for infringement of the Licensed Patent Applications and/or the Licensed Patents to the extent that such infringement arises from use of Deposition Process Technology by a third-party, or (ii) any right or license under the Licensed Patent Applications and/or the Licensed Patents to make, have made, sell, use, or import Deposition Precursor Technology, any right to grant sublicenses to make, have made, sell, use, or import Deposition Precursor Technology, or any right to sue third-parties for infringement of the Licensed Patent Applications and/or the

Licensed Patents to the extent that such infringement arises from the making, selling, use, or importing of Deposition Precursor Technology by a third-party. AE hereby acknowledges that APJET has exclusively licensed to Air Products and Chemicals, Inc. ("Air Products") (and not AE): (i) all rights under the Licensed Patent Applications and/or the Licensed Patents to use Deposition Process Technology, including all rights to grant sublicenses to use Deposition Process Technology, and (ii) all rights under the Licensed Patent Applications and/or the Licensed Patents to make, have made, sell, use, or import Deposition Precursor Technology, including all rights to grant sublicenses to make, have made, sell, use, or import Deposition Precursor Technology.

ARTICLE 3 - IMPROVEMENTS

3.1. Under an executed Confidentiality/Non-Disclosure Agreement, APJeT agrees to keep AE regularly and fully informed about designs, applications, and other developments relating to the Licensed Field of Use and the Licensed Product which become available and which APJeT is not legally prevented from communicating to AE.

If APJeT, independently develops improvements in the Licensed Field of Use or to the Licensed Products under this Agreement, whether or not patentable, or patented, APJeT agrees to grant AE a license with no additional royalties beyond those provided in Section 5.2, for AE to make, have made, use, and sell any such improvements to the Licensed Product(s) in the Licensed Field of Use. Notwithstanding anything herein to the contrary, APJeT shall have no obligation to grant AE a license to any Foreground Technical Information or Foreground Patent Rights owned by Air Products pursuant to Section 5.2 of the Collaboration Agreement Between APJeT, Inc., and Air Products Chemicals, Inc., effective December 16, 2002 (the "Collaboration Agreement.") For purposes of this section 3.1, the terms "Foreground Technical Information" and "Foreground Patent Rights" shall have the meanings ascribed to such terms in the Collaboration Agreement.

ARTICLE 4 - MANUFACTURING AGREEMENT

4.1. AE shall be the preferred supplier in the Licensed Field of Use. AE may from time to time submit a proposal to APJet for a specific application outside of the Licensed Field of Use. Other parties may also submit proposals to APJet for specific applications outside of the Licensed Field of Use. In the event there an overlap between two proposals or if APJet receives a proposal only from a third party, AE will be given a single opportunity to supply an equal or better business proposal to APJeT, however the terms of the third party's proposal to APJet will not be released to AE. Such proposal by AE to APJet in response to a proposal by a third party must include sufficient detail to allow APJet to determine whether the proposal submitted by AE presents an equal or better business opportunity for APJeT. AE must respond within 30 calendar days of notice from APJet of such a third party proposal if AE's proposal is to be considered by APJeT. Similarly, APJet will have 30 calendar days to evaluate a proposal initiated by AE and may either accept or reject the AE proposal within that time. Evaluation of all such proposals outside of the Licensed Field of Use will be done by the Board of Directors at APJeT.

SECTION 5 - ROYALTIES

5.1. In partial consideration for the rights and license granted to AE under this Agreement, AE agrees to pay to APJeT a fee of One Million Five Hundred Thousand Dollars (\$1.5 Million), in three installments conditional upon reaching mutually agreed upon milestones as identified in Appendix B. Included in the fee above is One Hundred Five Thousand Dollars (\$105,000.00) of which APJeT shall pay to the University of California in royalty fees as required by the UC License. APJeT shall meet all the milestones by the dates in column 5 of Appendix B, entitled "APJeT Completion Obligation Date".

5.2 Within the first six months of this Agreement, AE shall loan to APJeT One Hundred Thousand Dollars (\$100,000.00) worth of equipment in power supplies, matchboxes, flow controllers, or z-scan units in any manner most appropriate to AE. AE shall retain the entire title, right, and interest to all equipment loaned to APJeT.

5.3. In further consideration of the rights and license granted to AE under this Agreement, AE agrees to pay to APJeT, as a periodic royalty, the amount of 10 percent (10%) of its Net Sales of Licensed Products sold, leased or otherwise disposed of by or for AE to a cumulative maximum of Five Million Dollars (\$5,000,000) of royalties paid; after Five Million Dollars (\$5,000,000) to Fifty Million Dollars (\$50,000,000) of cumulative royalties paid, the periodic royalty shall be the amount of 5 percent (5%) of its Net Sales of Licensed Products sold, leased or otherwise disposed of by or for AE; after Fifty Million Dollars (\$50,000,000) of cumulative royalties paid the periodic royalty shall be the amount of 2.5 percent (2.5%) of its Net Sales of Licensed Products sold, leased or otherwise disposed of by or for AE. Such royalty shall be paid by AE to APJeT within thirty (30) days after the end of each calendar quarter during the term of this Agreement. Only one periodic royalty shall be payable for sale, lease or other disposition of a Licensed Product even if the Licensed Product is covered by more than one Licensed Patent or more than one claim of any Licensed Patent. AE shall not pay any royalties on AE standard power delivery equipment (i.e., stand alone AE power supplies and match networks) in which no Licensed Product is incorporated or with which no Licensed Product is included in the same chassis.

SECTION 6 - RECORDS, REPORTS AND PAYMENT OF ROYALTIES

6.1. AE shall maintain records in sufficient detail and, upon reasonable notice, allow any independent certified public accounting firm of nationally recognized standing, appointed by APJeT, and reasonably acceptable to AE, to examine its consolidated books and records, and the books and records of its Affiliates pertaining to the Licensed Products. Such examinations shall occur only during business hours, and not more than once a year, and shall be for the purpose of verifying the calculation of periodic royalties due under this Agreement and to otherwise establish compliance with the terms of this Agreement. A final such examination shall occur once during the year immediately succeeding termination of this Agreement. The fees and expenses of the accounting firm performing the examination shall be borne by APJeT, unless the examination shows that royalties for any quarterly period were underpaid by 5% or more, in which event the fees and expenses will be borne by AE. Unless written objection is made by APJeT and delivered to AE within sixty (60) days after completion of such examination, the calculation of royalties paid by AE that were the subject of such examination shall be final and binding on the Parties, except insofar as adjusted or corrected as a result of AE's regular annual audit. Any information provided to APJeT or its accountants pursuant hereto shall be treated as Confidential and Proprietary Information of AE to be used only for the purpose of the examination in accordance with this paragraph 6.1.

6.2. AE agrees to submit written reports to APJeT within ninety (90) days after the last day of each full or partial calendar quarter during the term of this Agreement, stating in each such report

the Net Sales of AE or the absence of such sales, for the previous calendar quarter for the sale, lease or other disposition of Licensed Products, and the periodic royalty due thereon. The obligation to make royalty reports under this Agreement shall begin with the calendar quarter in which AE first makes a sale or other transfer of a Licensed Product subject to payment of royalty to APJeT, and shall continue thereafter. AE shall accompany each report with payment of the amount of royalties, if any, shown to be due by such report in accordance with Sections 3 or 4 hereof. In addition, AE shall make a written report to APJeT within ninety (90) days after the date of termination of this Agreement, stating in such report the Net Sales of AE of any Licensed Products not previously reported to APJeT and the periodic royalty due thereon, and shall accompany such report with payment of the amount of royalties shown to be due therein.

6.3. Payment shall be made to APJeT at its offices at 491 Bryce Ave, Suite 200, Los Alamos, NM 87544, or such banking institution as APJeT may direct from time to time, in legal tender of the United States of America. In the event periodic royalties must be converted from foreign currency into United States Dollars, such conversion shall be calculated using the average exchange rate published in The New York Times for the thirty (30) day period immediately preceding payment.

SECTION 7 - TERM AND TERMINATION

7.1. The rights and licenses granted under this Agreement shall commence on the Effective Date. The first payment from AE to APJeT will be made on Jan. 3, 2003.

7.2. Unless this Agreement shall be terminated by either Party pursuant to the provisions hereof, this Agreement shall remain in force and effect during the pendency and until the expiration of the last-to-expire of the Licensed Patents.

7.3. APJeT shall have the right to terminate this Agreement on ninety (90) days written notice to AE at any time on default by AE in the observance or performance of any covenant, condition or terms herein required to be observed and performed by AE. Termination under this paragraph 7.3 shall be effective at the end of such notice period, provided that AE shall not have corrected such default or embarked upon a course of action to correct such default and given written confirmation of same to APJeT within such notice period.

AE shall have the right to terminate this Agreement on ninety (90) days written notice to APJeT at any time on default by APJeT in the observance or performance of any covenant, condition or terms herein required to be observed and performed by APJeT. Termination under this paragraph 7.3 shall be effective at the end of such notice period, provided that APJeT shall not have corrected such default or embarked upon a course of action to correct such default and given written confirmation of same to AE within such notice period

7.4. APJeT shall provide notice to AE of its intention to file a voluntary petition in bankruptcy or, where known to APJeT, of another party's intention to file an involuntary petition in bankruptcy for APJeT, said notice to be received by AE at least thirty (30) days prior to filing such petition. AE may terminate this License Agreement upon receipt of such notice at its sole discretion. APJeT's failure to provide such notice to AE will be deemed a material, pre-petition incurable breach of this License Agreement. The License Agreement will terminate automatically on the date of a voluntary or involuntary petition in bankruptcy whether or not notice has been given.

7.5. Termination by AE or APJeT does not relieve AE of any obligation or liability accrued by AE or its sublicensees prior to the effective date of termination or affect any rights of APJeT arising under this License Agreement prior to termination.

SECTION 8 - ASSIGNABILITY

8.1. This Agreement and the rights, licenses and obligations hereunder may not be assigned by either Party without the express written consent of the other Party, except as part of the sale of the assigning Party's business to which the Licensed Patent Applications and Licensed Patents relate. This Agreement shall be binding upon and inure to the benefit of the Parties hereto, their permitted assigns, trustees or receivers in bankruptcy or successors by merger, purchase of assets or otherwise.

SECTION 9 - NOTICE

9.1. Any notice or communication required or permitted to be given by either Party hereunder shall be in written form and shall be considered to be sufficiently given if mailed by registered or certified mail or transmitted by overnight courier, addressed to the parties hereto as follows:

To APJeT:

491 Bryce Avenue, Suite 200

Los Alamos, New Mexico 87544

Attention: President

Telephone: (505) 672-3454

Facsimile: (505) 672-3453

To AE:

Advanced Energy Industries, Inc.

1625 Sharp Point Dr.

Fort Collins, CO 80525

Attention: Richard Scholl

Telephone: (970) 407-6426

Facsimile: (970) 407-5426

9.2. Such notices shall be effective upon receipt by the addressee.

SECTION 10 - CONTROLLING LAW

10.1. The parties hereto agree that this Agreement shall be considered to have been made in, and construed and interpreted in accordance with the substantive laws of the State of Colorado of the United States of America.

SECTION 11 - WARRANTIES, PARTIES' RESPONSIBILITY, AND LIABILITY

11.1. APJeT represents and warrants that it has the right to grant the rights and licenses granted under this Agreement.

11.2. Except as expressly provided herein, nothing contained in this Agreement shall be construed as a grant of any right, by license or otherwise, by either party to the other, under either Party's patent, patent application (with the exception of the Licensed Patent Applications and Licensed Patents), trademark, copyright, know-how, or other intellectual property rights.

11.3. Subject to APJeT meeting the milestones identified with the "Second Closing" in Appendix B within the time period therein specified, AE intends to diligently pursue commercialization of Licensed Products within the Licensed Field of Use and use its best efforts to market Licensed Products. AE has the unqualified right to reduce, suspend, or cease activities in the marketing of some or all of the Licensed Products. However,

(i) if AE decides to cease activities for any specific field of use or product area, it will promptly notify APJeT and will release APJeT to grant an exclusive license to others in this area;

(ii) if AE decides to suspend or reduce activities within the Licensed Field Use for any specific application, it will promptly notify APJeT of its intentions, and agrees to consider releasing APJeT to grant nonexclusive licenses to others; or

(iii) if in this latter case, APJeT requests that AE release its rights so as to permit APJeT to grant an exclusive license to others in these areas wherein AE has merely suspended or reduced its activities, AE agrees to consider such a proposal and not to unreasonably withhold such permission.

(iv) for specific programs that are agreed upon between AE and APJeT outside of the Licensed Field of Use and in accordance with section 4.1, the terms of the specific proposal AE made to APJeT will govern the cancellation rights between the two parties.

Nothing herein shall prevent AE from setting its own prices for Licensed Products or determining AE's marketing policies and practices in its sole discretion.

11.4. If AE or APJeT receives notice of a claim or action by a third party alleging infringement of such third party's rights in connection with the manufacture, use or sale of a Licensed Product by AE or its Affiliates, AE shall have the right to conduct the legal defense, and to enter into any disposition with respect thereto, as AE in its sole discretion deems desirable. All costs of AE's defense, including AE's attorneys' fees and court costs, and any damages awarded or amounts paid in settlement in any such claim or action shall be the sole responsibility of AE. APJeT shall reasonably cooperate with AE in its defense of such infringement claim or action, provided AE shall reimburse APJeT for reasonable out of pocket expenses, other than attorney's fees and expenses, incurred by APJeT in providing such cooperation.

11.5. AE shall have the sole right, but not the obligation, to take measures to prevent the infringement by third-party infringers of any of the Licensed Patents, whether by action, suit, proceeding or otherwise, and shall pay the entire cost of pursuing such measure(s). AE shall have the sole right to any proceeds from such measure(s); provided, however, that after a deduction by AE of reasonable expenses incurred by AE in such action, suit, or proceeding, and, if APJeT joins in such action, suit or proceeding, payment to APJeT of reasonable expenses incurred by APJeT in

such action, suit or proceeding, AE shall pay to APJeT a royalty of the greater of (i) ten percent (10%) of any amounts recovered, or (ii) the amount payable by APJeT to the University of California with respect to such action, suit or proceeding under the UC License. In no case, however, shall the total royalty paid by AE to APJeT be more than the recovery, less reasonable expenses incurred in such action, suit or proceeding. APJeT shall, if requested, join as a party to any such suit or settlement and shall agree to sign all necessary rightful instruments, and do whatever else may be necessary to further the conduct of such proceedings.

11.6. In the event AE chooses not to take measures to prevent infringement by any third-party infringer as permitted under paragraph 11.5 above, it shall so notify APJeT within 30 days after becoming aware of the infringement. Thereafter, APJeT shall have the sole right, but not the obligation, to take such measures against such third-party infringer. APJeT shall have the sole right to any proceeds from such measures.

11.7. Except as set forth above, neither AE nor APJeT shall have any other responsibilities or obligations in connection with actions to enforce the License Patents.

SECTION 12 - MISCELLANEOUS

12.1. This Agreement shall be executed in two counterparts in the English language and each such counterpart shall be deemed an original thereof.

12.2. Upon the termination of this Agreement, AE shall have the right to dispose of all Licensed Products then on hand, including work in process, and to complete all orders for Licensed Products on hand as of the date it received notice of termination, but periodic royalties which would otherwise be payable pursuant to this Agreement had such termination not become effective shall be paid with respect to all such Licensed Products when sold as though this Agreement had not been terminated.

12.3. Neither termination nor expiration of this Agreement shall terminate AE's or AE's sublicensee's obligation to pay all periodic royalties which shall then have accrued up to the date of such expiration or termination. AE's obligation to report royalties due and submit its books and records for inspection as provided in paragraph 4.1 hereof shall continue until AE's royalty obligations shall have been fully determined and discharged by proper payment.

12.4. APJeT shall promptly give notice to AE of and upon commencement of any voluntary or involuntary bankruptcy proceeding involving APJeT as a debtor.

SECTION 13 - WAIVER

Failure by either Party to enforce any rights under this Agreement shall not be construed as a waiver of such rights nor shall a waiver by either Party in one or more instances be construed as constituting a continuing waiver or as a waiver in other instances.

SECTION 14 - ENTIRE AGREEMENT

This Agreement constitutes the entire agreement between the Parties concerning the subject matter hereof and supersedes all written and oral prior agreements and understandings with respect thereto. No variation or modification of the terms of this Agreement nor any waiver of any of the terms or provisions hereof shall be valid unless in writing and signed by an authorized representative of each Party.

SECTION 15 - SEVERABILITY

This Agreement is subject to the restrictions, limitations, terms and conditions of all applicable governmental regulations, approvals and clearances. If any term or provision of this Agreement is held invalid, illegal or unenforceable in any respect for any reason, that invalidity, illegality or unenforceability shall not affect any other term or provision hereof, and this Agreement shall be interpreted and construed as if such term or provision, to the extent the same shall have been held to be invalid, illegal or unenforceable, had never been contained herein.

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed in duplicate by duly authorized officers effective on the date and year first written above.

ADVANCED ENERGY INDUSTRIES, INC.	APJeT, INC.
By: _____	By: _____
Title: _____	Title: _____

PAYMENT SCHEDULE MILESTONES

[Rev 5 - 11/11/02]

	Payment Amounts (\$)		To be paid on or after (date)	APJeT completion obligation date**	Milestone(s)
	APCI	AEI			
First Closing	500,000 + 100,000 license fee	---	upon signing	n/a	<ul style="list-style-type: none"> - Concurrent with signing of: - Stock Purchase Agreement with APCI (Includes Investor Rights Agreement and Stockholders Agreement) - Collaboration Agreement with APCI - License agreement with AEI
	--	500,000	1/3/2003		
Second Closing	450,000	500,000	1st Closing + 6 mo.	1st Closing + 12 mo.	<ul style="list-style-type: none"> - An installed, staffed, and functioning laboratory. - Delivery and placement into operation of at least one APJeT plasma jet into an application (or delivery and operational testing of several plasma jets into applications) which project to create within four years from date of first closing at least one of the following: <ul style="list-style-type: none"> - annual sales of at least \$30 million, including AEI or other OEM equipment sales on which APJeT would collect royalties and/or create new licenses, or - at least \$3 million per year revenue (or licensing profit) directly to APJeT. <p>APJeT must provide evidence of compelling economic driver(s) for application acceptance in a discussion of these revenue and market projections.</p> <ul style="list-style-type: none"> - Business Plan completed for application outside of s/c industry. - Technical assistance to APCI & AEI underway for product development.

Footnote:

** This is the date after which -- if the milestones are not met -- Air Products' and Advanced Energy's obligation to further closings is terminated. If milestones are not met by the 'APJeT Completion Obligation Date', then the funding parties have sole discretion whether to proceed or not with further closings.

	Payment Amount (\$)		To be paid on or after (date)	APJeT completion obligation date**	Milestone(s)
Third Closing	APCI 450,000	AEI 500,000	1st Closing + 12 months	1st Closing + 24 months	<ul style="list-style-type: none"> - Verification of combined cumulative gross receipts from licenses, royalties, equipment sales of \$400,000 excluding (i.e., must be beyond and in addition to): <ul style="list-style-type: none"> i) the initial commitment of \$1.5 million from AEI, and ii) the initial \$100,000 license payment from Air Products. - Successful commissioning and operation of the APJeT unit provided to Air Products under the Collaboration Agreement signed in conjunction with Stock Purchase Agreement. - Good faith negotiations or discussions underway for production-scale field examination ((beta) trial) in at least two different applications.

Footnote:

** This is the date after which -- if the milestones are not met -- Air Products' and Advanced Energy's obligation to further closings is terminated. If milestones are not met by the 'APJeT Completion Obligation Date', then the funding parties have sole discretion whether to proceed or not with further closings.

EXHIBIT 21.1

SUBSIDIARIES OF THE REGISTRANT

Name -----	Jurisdiction of Incorporation or Organization -----
Advanced Energy Japan K.K. (1)	Japan
Advanced Energy Industries GmbH	Germany
Advanced Energy Industries U.K. Limited	United Kingdom
Advanced Energy Industries Korea, Inc.	South Korea
Advanced Energy Taiwan, Ltd.	Taiwan
Sekidenko, Inc.	Washington
AEI US Subsidiary, Inc.	Delaware
AEI International Holdings CV	Netherlands
Shenzhen Representative Office of Advanced Energy Industries, Inc.	China
Advanced Energy Industries (Shenzhen) Co., Ltd. (manufacturing)	China
Advanced Energy Industries (Shenzhen) Co., Ltd. (service)	China
Advanced Energy Industries, Inc., Shanghai	China
Advanced Energy N.K.	Japan
Dressler Hochfrequenztechnik, GmbH	Germany
Dressler USA, Inc.	California

(1) Subsidiaries of Advanced Energy Japan K.K.:

Aera Corporation	Texas
Aera U.K. Ltd.	United Kingdom
Aera GmbH	Germany
Aera Korea Ltd.	South Korea

EXHIBIT 23.1

Independent Auditors' Consent

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

We consent to the incorporation by reference in the registration statements (Nos. 333-01616, 333-04073, 333-46705, 333-57233, 333-65413, 333-79425, 333-79429, 333-62760, 333-69148, 333-69150 and 333-87718) on Form S-8 and (333-37378, 333-47114, 333-72748 and 333-87720) on Form S-3 of Advanced Energy Industries, Inc. and subsidiaries of our report dated February 11, 2003, with respect to the consolidated balance sheet of Advanced Energy Industries, Inc. as of December 31, 2002, and the related consolidated statements of operations, stockholders' equity and cash flows for the year ended December 31, 2002, and the related consolidated financial statement schedule, which report appears in the December 31, 2002, annual report on Form 10-K of Advanced Energy Industries, Inc.

Our report dated February 11, 2003 contains an explanatory paragraph relating to the fact that the consolidated financial statements of Advanced Energy Industries, Inc. and subsidiaries as of December 31, 2001 and for each of the years in the two-year period then ended 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 and 2000 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 and 2000 consolidated financial statements taken as a whole.

Denver, Colorado
March 26, 2003

Exhibit 99.1

Certification Pursuant to
18 U.S.C. Section 1350,
as Adopted Pursuant to

Section 906 of the Sarbanes-Oxley Act of 2002

In connection with the accompanying Form 10-K of Advanced Energy Industries, Inc. (the "Company") for the year ended December 31, 2002 (the "Report"), I, Douglas S. Schatz, Chief Executive Officer and President of the Company, certify, pursuant to 18 U.S.C. ss. 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.

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.

Date: March 27, 2003

/s/ Douglas S. Schatz

Douglas S. Schatz

Chief Executive Officer and President

Exhibit 99.2

Certification Pursuant to
18 U.S.C. Section 1350,
as Adopted Pursuant to Section 906
of the Sarbanes-Oxley Act of 2002

In connection with the accompanying Form 10-K of Advanced Energy Industries, Inc. (the "Company") for the year ended December 31, 2002 (the "Report"), I, Michael El-Hillow, Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. ss. 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.

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.

Date: March 27, 2003

/s/ Michael El-Hillow

Michael El-Hillow
Chief Financial Officer