

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 10-K

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

For the fiscal year ended September 30, 1999

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

For the transition period from _____ to _____

Commission File Number: 0-22175

EMCORE CORPORATION
(Exact name of registrant as specified in its charter)

| | |
|---|---|
| NEW JERSEY | 22-2746503 |
| (State or other jurisdiction of incorporation or organization) | (I.R.S. Employer Identification No.) |

394 ELIZABETH AVENUE, SOMERSET, NJ 08873
(Address of principal executive offices) (zip code)

| | |
|---|-------------------------------|
| Registrant's telephone number, including area code: | (732) 271-9090 |
| Securities registered pursuant to Section 12(b) of the Act: | NONE |
| Securities registered pursuant to Section 12(g) of the Act: | COMMON STOCK, NO PAR VALUE |

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

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein and will not be contained, to the best of the 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.

The aggregate market value of common stock held by non-affiliates of the registrant as of December 1, 1999 was approximately \$205,186,625 (based on the closing sale price of \$23 15/16 per share).

The number of shares outstanding of the registrant's no par value common stock as of December 1, 1999 was 13,565,769.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive Proxy Statement for the 2000 Annual Meeting of Shareholders (to be filed with the Securities and Exchange Commission on or before January 28, 2000) are incorporated by reference in Part III of this Form 10-K.

CAUTIONARY STATEMENT IDENTIFYING IMPORTANT FACTORS
THAT COULD CAUSE EMCORE'S ACTUAL RESULTS TO DIFFER
FROM THOSE PROJECTED IN FORWARD-LOOKING STATEMENTS:

In connection with the safe harbor provisions of the Private Securities Litigation Reform Act of 1995, you are advised that this report contains both statements of historical facts and forward looking statements.

This report includes forward-looking statements that reflect current expectations or beliefs of EMCORE Corporation concerning future results and events. The words "expects," "intends," "believes," "anticipates," "likely," "will", and similar expressions identify forward-looking statements. These forward-looking statements are subject to certain risks and uncertainties that could cause actual results and events to differ materially from those anticipated in the forward-looking statements. Factors that might cause such a difference include, but are not limited to, delays in developing and commercializing new products; cancellations, rescheduling or delays in product shipments; delays in obtaining export licenses for product shipments; the uncertainty of additional funding; continued acceptance of our MOCVD technologies; operations and performance of our joint ventures; our ability to achieve and implement the planned enhancements of products and services on a timely and cost effective basis and customer acceptance of those product introductions; product obsolescence due to advances in technology and shifts in market demand; competition and resulting price pressures; labor actions against EMCORE's customers or vendors; difficulties in obtaining licenses on commercially reasonable terms necessary to manufacture and sell certain of our products; economic and stock market conditions, particularly in the U.S., Europe and Asia, and their impact on sales of our products and services; and such other risk factors as may have been or may be included from time to time in EMCORE's reports filed with the Securities and Exchange Commission.

ITEM 1. BUSINESS

COMPANY OVERVIEW

EMCORE Corporation designs, develops and manufactures compound semiconductor materials and is a leading developer and manufacturer of the tools and manufacturing processes used to fabricate compound semiconductor wafers and devices. EMCORE's products and technology enable its customers, both in the United States and internationally, to manufacture commercial volumes of high-performance electronic devices using compound semiconductors. EMCORE has recently established a number of strategic relationships through joint ventures, long-term supply agreements and an acquisition in order to facilitate the development and manufacture of new products in targeted growth markets. EMCORE's products are used for a wide variety of applications in the communications (satellite, data, telecommunications and wireless), consumer and automotive electronics, computers and peripherals and lighting markets. Our customers include Agilent Technologies Ltd., AMP, Inc., Hewlett Packard Co., General Motors Corp., Hughes-Spectrolab, Lucent Technologies, Inc., Motorola, Inc., Siemens AG's Osram GmbH subsidiary and 12 of the largest electronics manufacturers in Japan.

INDUSTRY OVERVIEW

Recent advances in information technologies have created a growing need for efficient, high-performance electronic systems that operate at very high frequencies, have increased storage capacity and computational and display capabilities, and can be produced cost-effectively in commercial volumes. In the past, electronic systems manufacturers have relied on advances in silicon semiconductor technology to meet many of these demands. However, the newest generation of high-performance electronic and optoelectronic applications require certain functions that are generally not achievable using silicon-based components.

Compound semiconductors have emerged as an enabling technology to meet the complex requirements of today's advanced information systems. Many compound semiconductor materials have unique physical properties that allow electrons to move at least four times faster than through silicon-based devices. Advantages of compound semiconductor devices over silicon devices include:

- o operation at higher speeds;
- o lower power consumption;
- o less noise and distortion; and
- o optoelectronic properties that enable these devices to emit and detect light.

Compound semiconductor devices can be used to perform individual functions as discrete devices, such as solar cells, HB LEDs, VCSELs, MR sensors and RF materials. Compound semiconductor devices can also be combined into integrated circuits, such as transmitters, receivers and alphanumeric displays. Although compound semiconductors are more expensive to manufacture than silicon-based devices, electronics manufacturers are increasingly integrating compound semiconductor devices into their products in order to achieve higher performance in applications targeted for a wide variety of markets. These include satellite communications, data communications, telecommunications, wireless communications, consumer and automotive electronics, computers and peripherals, and lighting.

The following factors have resulted in an increased demand for compound semiconductor products and systems that enable electronic systems manufacturers to reach the market faster with large volumes of high-performance products and applications:

- o rapid build-out of satellite communications systems;
- o widespread deployment of fiber optic networks and the increasing use of optical systems within these networks;
- o launch of new wireless services and wireless high speed data systems;
- o increasing use of infrared emitters and optical detectors in computer systems;
- o emergence of advanced consumer electronics applications, such as DVDs and flat panel displays;
- o increasing use of high-performance electronic devices in automobiles; and
- o the anticipated conversion to HB LEDs from incandescent, halogen and compact fluorescent lighting.

The following chart summarizes the principal markets, examples of applications for compound semiconductor devices, products incorporating these devices and certain benefits and characteristics of these devices.

| MARKET ----- | REPRESENTATIVE APPLICATIONS ----- | PRODUCTS ----- | BENEFITS/CHARACTERISTICS ----- |
|---------------------------|---|---|---|
| Satellite communications | Power modules for satellites Satellite to ground communication | Solar cells RF materials | Radiation tolerance Conversion of more light to power than silicon Reduced launch costs Increased bandwidth |
| Data communications | High-speed fiber optic networks and optical links (including Gigabit Ethernet, asynchronous transfer mode, or ATM, and FibreChannel Networks) | VCSEL components and arrays HB LEDs Lasers RF materials | Increased network capacity Increased data transmission speeds Increased bandwidth |
| Telecommunications | High capacity fiber optic trunk lines | VCSEL components and arrays Lasers RF materials | Increased data transmission speeds Increased bandwidth |
| Wireless communication | Cellular telephones Pagers PCS handsets Direct broadcast systems | HB LEDs RF materials | Improved display visibility Improved signal to noise performance Lower power consumption Increased network capacity Reduced network congestion Extended battery life |
| Consumer electronics | DVDs Radios Telephones Calculators CD-Roms | HB LEDs VCSEL components and arrays Integrated circuits Lasers | Improved display visibility High-speed data transmission Low power requirements |
| Automotive electronics | Engine sensors Dashboard displays Indicator lights Antilock brake systems | MR sensors HB LEDs | Reduced weight Lower power consumption Lower emissions |
| Computers and peripherals | Local area networks Chip-to-chip and board-to-board optical links | VCSEL components and arrays Transceivers | Increased data transmission speeds Increased bandwidth |
| Lighting | Flat panel displays Solid state lighting Outdoor signage and display Digital readout signals | HB LEDs Miniature lamps | Lower power consumption Longer life |

COMPOUND SEMICONDUCTOR PROCESS TECHNOLOGY

Compound semiconductors are composed of two or more elements and usually consist of a metal such as gallium, aluminum or indium and a non-metal such as arsenic, phosphorous or nitrogen. The resulting compounds include gallium arsenide, indium phosphide, gallium nitride, indium antimonide and indium aluminum phosphide. The performance characteristics of compound semiconductors are dependent on the composition of these compounds. Many of the unique properties of compound semiconductor devices are achieved by the layering of different compound semiconductor materials in the same device. This layered structure creates an optimal configuration to permit the emission or detection of light and the detection of magnetic fields.

Accordingly, the composition and properties of each layer and the control of the layering process, or epitaxy, are fundamental to the performance of advanced electronic and optoelectronic compound semiconductor devices. The variation of thickness and composition of layers determines the intensity and color of the light emitted or detected and the efficiency of power conversion. The ability to vary the intensity, color and efficiency of light generation and detection enables compound semiconductor devices to be used in a broad range of advanced information systems.

Compound semiconductor device manufacturers predominantly use four methods to deposit compound materials: molecular beam epitaxy, vapor phase epitaxy, liquid phase epitaxy and metal organic chemical vapor deposition ("MOCVD"). The use of molecular beam epitaxy technology can yield wafers having high thickness uniformity. Compound semiconductor materials fabricated using liquid phase epitaxy or vapor phase epitaxy technologies often have high electronic and optical properties. However, due to the nature of the underlying processes, these methods are not easily scaled up to high volume production, which is necessary for the commercial viability of compound semiconductor devices. All of the methods used to manufacture compound semiconductor devices pose technical, training and safety challenges that are not present in the manufacture of silicon devices. These production systems typically require expensive reactant materials, the use of certain toxic chemicals, and tight control over numerous manufacturing parameters. The key differences between MOCVD and the three other methods is that compound semiconductor wafers fabricated using MOCVD generally possess a better combination of uniformity and optical and electronic properties and are easier to produce in high volumes than wafers manufactured by the three more traditional methods. Currently, MOCVD technology is being used to manufacture a broad range of compound semiconductor devices.

Historically, manufacturers who use compound semiconductor devices in their products have met research, pilot production and capacity needs with in-house systems and technologies. However, as the need for the production of commercial volumes of high-performance compound semiconductor devices and the variety of these devices grows, manufacturers are often unable to meet these requirements using in-house solutions. In response to these growing demands for higher volumes of a broad range of higher performance devices, manufacturers are increasingly turning to outside vendors to meet their needs for compound semiconductor wafers and devices.

THE EMCORE SOLUTION

EMCORE provides its customers with a broad range of compound semiconductor products and services intended to meet their diverse technology requirements. EMCORE has developed extensive materials science expertise, process technology and MOCVD production systems to address our customers' needs and believes that its proprietary TurboDisc(TM) deposition technology makes possible one of the most cost-effective production processes for the commercial volume manufacture of high-performance compound semiconductor wafers and devices. This platform technology provides the basis for the production of various types of compound semiconductor wafers and devices and enables EMCORE to address the critical need of manufacturers to cost-effectively get to market faster with high volumes of new and improved high-performance products. EMCORE's compound semiconductor products and services include:

- o materials and process development;
- o design and development of devices;
- o MOCVD production systems; and
- o manufacture of wafers and devices in high volumes.

Customers can take advantage of EMCORE's vertically integrated approach by purchasing custom-designed wafers and devices from EMCORE or they can manufacture their own devices in-house using a TurboDisc(TM) production system configured to their specific needs.

EMCORE's objective is to capitalize on its position in MOCVD process technology and production systems to become the leading supplier of compound semiconductor wafers, devices and production systems. The key elements of EMCORE's strategy include:

APPLY CORE TECHNOLOGY ACROSS MULTIPLE APPLICATIONS. EMCORE continually leverages its proprietary core technology to develop compound semiconductor products for multiple applications in a variety of markets. These activities include developing new products for targeted applications as well as expanding existing products into new applications. For example, EMCORE's MR sensors, currently used by General Motors Corporation as crank shaft sensors, also have other potential product applications, including as sensors in brushless motors and antilock brakes. Other existing products, which EMCORE intends to introduce in new applications, include VCSELs for communications products and HB LEDs for broader lighting applications.

TARGET HIGH GROWTH MARKET OPPORTUNITIES. EMCORE's strategy is to target high growth market opportunities where performance characteristics and high volume production efficiencies can give compound semiconductors a competitive advantage over other devices. Historically, while technologically superior, compound semiconductors have not been widely deployed because they are more expensive to manufacture than silicon-based semiconductors and other existing solutions. EMCORE believes that as compound semiconductor production costs are reduced, new customers will be compelled to use these solutions because of their higher performance characteristics. For example, EMCORE has reduced the average cost of compound semiconductor solar cells to the point that customers are replacing silicon-based solar cells because of the compound semiconductor solar cells' higher overall efficiency and lower weight.

PARTNER WITH KEY INDUSTRY PARTICIPANTS. EMCORE seeks to identify and develop long-term relationships with leading companies in targeted industries. EMCORE develops these relationships in a number of ways that include long-term high-volume supply agreements, joint ventures, an acquisition, and distribution and other arrangements. For example, EMCORE entered into a joint venture with General Electric Lighting for the development and marketing of white light and colored HB LED products for automotive, traffic, flat panel display and other lighting applications. EMCORE has also entered into a long-term supply agreement with AMP Incorporated for VCSELs to be used in its transceivers for Gigabit Ethernet and other applications. EMCORE intends to actively seek similar strategic relationships with other key customers and industry participants in order to further expand its technological and production base.

CONTINUE INVESTMENT TO MAINTAIN TECHNOLOGY LEADERSHIP. Through substantial investment in research and development, EMCORE seeks to expand its leadership position in compound semiconductor production systems, wafers and devices. EMCORE works with its customers to identify specific performance criteria and uses this information to enhance the performance of its production systems and to further expand its process and materials science expertise, including the development of new low cost, high-volume wafers and devices for its customers. In addition, EMCORE's development efforts are focused on continually lowering the production costs of its solutions.

PRODUCTS

PRODUCTION SYSTEMS

EMCORE is a leading supplier of MOCVD compound semiconductor production systems, with more than 250 systems shipped as of September 30, 1999. EMCORE believes that its TurboDisc(TM) systems offer significant ownership advantages over competing systems and that the high throughput capabilities of its TurboDisc(TM) systems make possible superior reproducibility of thickness, composition, electronic properties and layer accuracy required for electronic and optoelectronic devices. Each system can be customized for the customer's throughput, wafer size and process chemistry requirements. EMCORE's production systems also achieve a high degree of reliability with an average time available for production, based on customer data, of approximately 95%.

EMCORE believes its TurboDisc(TM) systems enable the lowest cost of ownership for the manufacture of compound semiconductor materials. The major components of the cost of ownership include yield, throughput, direct costs and capital costs. Yield primarily relates to material uniformity, which is a function of the precision of the physical and chemical processes by which atomic layers are deposited. Throughput, the volume of wafers produced per unit of time, includes both the time required for a process cycle and the handling time between process steps. Direct costs include consumables used in manufacturing and processing and the clean room space required for the equipment. Capital costs include the cost of acquisition and installation of the process equipment.

EMCORE's proprietary TurboDisc(TM) technology utilizes a unique high speed rotating disk in a stainless steel growth chamber with integrated vacuum-compatible loading chambers. To produce a wafer, a bare substrate, such as gallium arsenide, sapphire or germanium, is placed on a wafer carrier in the TurboDisc(TM) growth chamber and subjected to high temperatures. Based on a predetermined formula, metal organic gases are released into the growth chamber. These gases decompose on the hot, rapidly spinning wafer. Semiconductor materials are then deposited on the substrate in a highly uniform manner. The resulting wafer thus carries one or more ultra-thin layers of compound semiconductor material such as gallium arsenide, gallium nitride, or indium aluminum phosphide. The TurboDisc(TM) technology not only produces uniformity of deposition across the wafer, but also offers flexibility for diverse applications with improved material results and increased production rates. The unique precision control of reactant gas flow in the TurboDisc(TM) technology platform allows users to scale easily from research to commercial volumes with substantially reduced time and effort. Upon removal from the growth chamber, the wafer is transferred to a device processing facility for various steps such as photolithography, etching, masking, metallization and dicing. Upon completion of these steps, the devices are then sent for packaging by the customer or other third parties and inclusion in the customer's product.

EMCORE offers the following family of TurboDisc(TM) systems:

| MODEL ----- | LIST PRICE ----- | APPLICATION ----- |
|----------------|---------------------------|------------------------------|
| Discovery | \$ 600,000 - \$1,300,000 | Development/Pilot Production |
| Enterprise | \$1,300,000 - \$2,500,000 | Volume Production |

EMCORE's next generation of TurboDisc(TM) products is being designed to provide a number of innovations including:

- o new reactor design to improve efficiency;
- o cassette-to-cassette wafer handling to increase automation;
- o digital control system to reduce noise;
- o real-time process control and data acquisition on WindowsNT platform;
- o modular component design to ease outsourcing and upgrading; and
- o improved temperature control.

WAFERS AND DEVICES

Since its inception, EMCORE has worked closely with its customers to design and develop materials processes for use in production systems for its customers' end-use applications. EMCORE has leveraged its process and materials science knowledge base to manufacture a broad range of compound semiconductor wafers and devices such as solar cells, HB LEDs, VCSELs, MR sensors and RF materials.

Within most of these product lines, EMCORE has established strategic relationships through joint ventures, long-term supply agreements and an acquisition. A summary of these relationships is found below:

| PRODUCTS AND STRATEGIC RELATIONSHIPS | | | |
|--------------------------------------|------------------------------------|--|--|
| PRODUCT LINE | COMPANY | NATURE OF RELATIONSHIP | APPLICATION |
| Solar cells | Space Systems / Loral | Long-term supply agreement | Solar panels in communications satellite powered systems |
| | Lockheed Martin Missiles and Space | Strategic Partner | |
| | Union Miniere Inc. | Long-term germanium sourcing agreement | |
| HB LEDs | General Electric Lighting | GELcore joint venture for the development, marketing and distribution of white light and colored HB LED products | Traffic lights Miniature lamps Automotive lighting Flat panel displays |
| | Uniroyal Technology Corporation | Uniroyal Optoelectronics joint venture for the manufacture of HB LED wafers and package-ready devices | Other lighting applications |
| VCSELs | AMP Incorporated | Strategic alliance and long-term supply agreement | Optical links (including Gigabit Ethernet, ATM, and FibreChannel networks) |
| | MicroOptical Devices, Inc. | Acquisition | |
| MR sensors | Optek Technology, Inc. | Emtech joint venture for packaging and marketing of MR sensors | Antilock brake systems Brushless motors Engine timing sensors Cam and crank shaft sensors |
| | General Motors Corporation | Long-term supply agreement | |
| Germanium research and development | Union Miniere Inc. | UMCore joint venture | Exploring alternative uses for germanium substrates |
| RF materials | Sumitomo Electric Industries, Ltd. | Cooperative development agreement | Digital wireless and cellular applications |
| | | Long-term supply agreement | |

SOLAR CELLS.

Compound semiconductor solar cells are used to power satellites because they are more resistant to radiation levels in space, convert substantially more light to power and therefore weigh less per unit of power than silicon-based solar cells. These characteristics increase satellite life, increase payload capacity and reduce launch costs. EMCORE is currently involved in five solar cell projects:

- o In November 1999, EMCORE entered into a Technical Assistance Agreement with Loral and Mitsubishi Electric Corporation.
- o In November 1998, EMCORE signed a four-year purchase agreement with Space Systems/Loral, a wholly owned subsidiary of Loral Space & Communications. Under this agreement, EMCORE will supply compound semiconductor high efficiency gallium arsenide solar cells for Loral's satellites. EMCORE received purchase orders from Space Systems/Loral that total \$7.2 million and will service this agreement through our newly completed facility in Albuquerque, New Mexico. EMCORE plans to start shipping solar cells as early as December 1999 and a majority of the solar cell shipments are scheduled for the second fiscal quarter, which ends March 31, 2000.
- o In November 1998, EMCORE received a \$2.2 million contract under the U.S. Air Force's Broad Agency Announcement Program for the development of high-efficiency advanced solar cells.
- o In September 1998, EMCORE entered into an agreement with Lockheed Martin Missiles and Space, a strategic business unit of Lockheed Martin Corporation, to provide technical management and support of a Cooperative Research and Development Agreement between Lockheed Martin and Sandia National Laboratory for the advancement and commercialization of a new compound semiconductor high efficiency solar cell. Pursuant to this strategic agreement, (1) Lockheed Martin will grant EMCORE a sub-license for all related intellectual property developed on behalf of or in conjunction with Lockheed Martin, and (2) EMCORE and Lockheed Martin will jointly qualify and validate the high efficiency solar cells for operational satellite use.
- o In August 1998, EMCORE and Union Miniere Inc., a mining and materials company, entered into a long-term supply agreement for germanium, which EMCORE uses to fabricate solar cells. In addition to their solar cell relationship, in November 1998, EMCORE formed UMCORE, a joint venture with Union Miniere to explore and develop alternate uses for germanium using EMCORE's material science and production platform expertise and Union Miniere's access to and experience with germanium. UMCORE commenced research and development operations in January 1999.

HB LEDES.

High-brightness light-emitting diodes (HB LEDs) are solid state compound semiconductor devices that emit light. The global demand for HB LEDs is experiencing rapid growth because LEDs have a long useful life of approximately 10 years, consume approximately 10% of the power consumed by incandescent or halogen lighting and improve display visibility. In February 1998, EMCORE and Uniroyal Technology Corporation formed Uniroyal Optoelectronics, a joint venture to manufacture, sell and distribute HB LED wafers and package-ready devices.

In May 1999, EMCORE and General Electric Lighting formed GELcore, a joint venture to develop and market HB LED lighting products. General Electric Lighting and EMCORE have agreed that this joint venture will be the exclusive vehicle for each party's participation in solid state lighting. GELcore seeks to combine EMCORE's materials science expertise, process technology and compound semiconductor production systems with General Electric Lighting's brand name recognition and extensive marketing and distribution capabilities. GELcore's long-term goal is to develop products to replace traditional lighting.

VCSELS.

Vertical cavity surface-emitting lasers ("VCSELS") are semiconductor lasers that emit light in a cylindrical beam. Leading electronic systems manufacturers are integrating VCSELS into a broad array of end-market applications including Internet access, digital cross-connect telecommunications switches, DVD, and fiber optic switching and routing, such as Gigabit Ethernet. VCSELS offer significant advantages over traditional laser diodes, including:

- o greater control over beam size and wavelength;
- o reduced manufacturing complexity and packaging costs;
- o lower power consumption; and
- o higher frequency performance.

In December 1997, EMCORE acquired MicroOptical Devices, Inc. ("MODE"), a development stage company, primarily dedicated to the research and development of enabling VCSEL technologies. In February 1998, EMCORE announced Gigalase, its first commercial high speed VCSEL laser. In September 1998, EMCORE signed a four-year purchase agreement with AMP Inc. to provide VCSELS for a family of optical transceivers for the Gigabit Ethernet, FibreChannel and ATM markets. In December 1998, EMCORE announced its second VCSEL product, Gigarray, a VCSEL array.

MR SENSORS.

Magneto resistive ("MR") sensors are compound semiconductor devices that possess sensing capabilities. MR sensors improve vehicle performance through more accurate control of engine and crank shaft timing, which allows for improved spark plug efficiency and reduced emissions. In January 1997, EMCORE initiated shipments of compound semiconductor MR sensors using technology licensed to EMCORE from General Motors. This license allows EMCORE to manufacture and sell products using this technology to anyone. As of September 30, 1999 EMCORE has delivered over eight million devices to General Motors Powertrain for crank and cam speed and position sensing applications for 5 different engine builds under 20 different vehicle platforms.

In October 1998, EMCORE formed Emtech, a joint venture with Optek Technology, Inc., a packager and distributor of optoelectronic devices, to market an expanded line of MR sensors to the automotive and related industries. This joint venture seeks to combine EMCORE's strength in producing devices with Optek's strength in packaging and distributing devices to offer off-the-shelf products and expand market penetration. As of September 30, 1999, the joint venture has not commenced operations.

RF MATERIALS.

Radio frequency ("RF") materials are compound semiconductor materials that transmit and receive communications. Compound semiconductor RF materials have a broader bandwidth and superior performance at high frequencies than silicon-based materials. EMCORE currently produces RF materials for use as power amplifiers in cellular phone handsets. In addition, EMCORE is exploring opportunities to market these materials for additional uses in fiber optics and satellite communications. EMCORE believes that its ability to produce high volumes of RF materials at a low cost will facilitate their adoption in new applications and new products.

In May 1999, EMCORE signed a long-term agreement with Sumitomo Electric Industries, Ltd. (Hyogo, Japan) to jointly develop and produce Indium Gallium Phosphide (InGaP) epitaxial wafers for use as Heterojunction Bipolar Transistor (HBT) devices used in digital wireless and cellular applications. Sumitomo Electric is one of the world's leading electronics manufacturers. These advanced compound semiconductor HBT wafers will be produced at EMCORE's Epitaxial Materials (E2M) wafer foundry in Somerset, New Jersey, and shipments of commercial product are expected to begin in February 2000.

CUSTOMERS

EMCORE's customers include many of the largest semiconductor, telecommunications, consumer goods and computer manufacturing companies in the world. A number of EMCORE's customers are listed below. In addition, EMCORE has sold its products to 12 of the largest electronics manufacturers in Japan.

| | | |
|---------------------|---------------------|------------------------|
| AMP Incorporated | LG Semiconductor | Rockwell International |
| The Boeing Company | L.M. Ericsson AB | Samsung |
| General Motors | Lucent Technologies | Sharp U.S.A. |
| Hewlett Packard | Motorola | Siemens AG - Osram |
| Honeywell | Northrop Grumman | Texas Instruments |
| Hughes-Spectrolab | Philips AG | Thomson CSF |
| Hyundai Electronics | Polaroid | Westinghouse Electric |
| IBM | | |

EMCORE has a comprehensive total quality management program with special emphasis on total customer satisfaction. EMCORE seeks to encourage active customer involvement with the design and operation of its production systems. To accomplish this, EMCORE conducts user group meetings among its customers in Asia, Europe and North America. At annual meetings, EMCORE's customers provide valuable feedback on key operations, process oriented services, problems and recommendations to improve EMCORE products. This direct customer feedback has enabled EMCORE to constantly update and improve the design of its systems and processes. Changes that affect the reliability and capabilities of EMCORE's systems are embodied in new designs to enable current and future customers to utilize systems which EMCORE believes are high quality and cost-efficient. As of September 30, 1999, EMCORE employed 18 field service engineers who install EMCORE systems and provide on-site support.

MARKETING AND SALES

EMCORE markets and sells its wafers, devices and systems through its direct sales force in Europe, North America and Taiwan and through representatives and distributors elsewhere in Asia. To market and service its products in China, Japan and Singapore, EMCORE relies on a single marketing, distribution and service provider, Hakuto Co., Ltd. EMCORE's agreements with Hakuto have a term of 10 years, expiring March 2008. Hakuto has exclusive distribution rights for certain EMCORE products in Japan. Hakuto has marketed and serviced EMCORE's products since 1988, is a minority shareholder in EMCORE, and the President of Hakuto is a member of EMCORE's Board of Directors. EMCORE recently opened sales offices in Taiwan and California in order to be closer to its customers. As of September 30, 1999, EMCORE employed 27 persons in sales and marketing.

EMCORE's sales and marketing, senior management and technical staff work closely with existing and potential customers to provide compound semiconductor solutions for its customers' needs. The sales process begins by understanding the customer's requirements and then attempting to match these requirements with the optimal solution. EMCORE seeks to match the customer's requirements to an existing design or a modification of a standard design, such as a change in platform or process design. When necessary, EMCORE will work with the customer to develop the appropriate design process and to configure and manufacture the production system to meet the customer's needs. Also, EMCORE will produce samples to demonstrate conformance to the customer's specifications. For production systems, the amount of time from the initial contact with the customer to the customer's placement of an order is typically two to nine months or longer. EMCORE's sales cycle for wafers and devices usually runs three to nine months, during which time EMCORE develops the formula of materials necessary to meet the customer's specifications and qualifies the materials, which may also require the delivery of samples. EMCORE believes that the high level of marketing, management and engineering support involved in this process is beneficial in developing competitive differentiation and long-term relationships with its customers.

SERVICE AND SUPPORT

EMCORE maintains a worldwide service and support network responsible for on-site maintenance and process monitoring on either a contractual or time-and-materials basis. Customers may purchase annual service contracts under which EMCORE is required to maintain an inventory of replacement parts and to service the equipment upon the request of the customer. EMCORE also sells replacement parts from inventory for customer needs. EMCORE pursues a program of system upgrades for customers to increase the performance of older systems. EMCORE generally does not offer extended payment terms to its customers and generally adheres to a warranty policy of one year. Consistent with industry practice, EMCORE maintains an inventory of components for servicing systems in the field and it believes that its inventory is sufficient to satisfy foreseeable short-term customer requirements. In fiscal year 1998, EMCORE opened a warehouse depot in Taiwan to provide improved service to its Asian customers.

RESEARCH AND DEVELOPMENT

To maintain and improve its competitive position, EMCORE's research and development efforts are focused on designing new proprietary processes and products, improving the performance of existing systems, wafers and devices and reducing costs in the product manufacturing process. EMCORE has dedicated 21 TurboDisc(TM) systems for both research and production that are capable of processing virtually all compound semiconductor materials. The research and development staff utilizes x-ray, optical and electrical characterization equipment, which provide instant data allowing for shortened development cycles and rapid customer response. EMCORE's recurring research and development expenses were approximately \$20.7 million in fiscal year 1999, \$16.5 million in fiscal year 1998 and \$9.0 million in fiscal year 1997. EMCORE also incurred a one-time, non-cash acquired in-process research and development expense in fiscal year 1998 in the amount of \$19.5 million in connection with the acquisition of MODE. EMCORE expects that it will continue to expend substantial resources on research and development. As of September 30, 1999, EMCORE employed 77 persons in research and development, 33 of whom held Ph.D.s in materials science or related fields.

EMCORE also competes for research and development funds. In view of the high cost of development, EMCORE solicits research contracts that provide opportunities to enhance its core technology base or promote the commercialization of targeted products. EMCORE presently has ten contracts under the Small Business Innovative Research programs or similar government sponsored programs. From inception until September 30, 1999, government and other external research contracts have provided approximately \$15.3 million to support EMCORE's research and development efforts. EMCORE is also positioned to market technology and process development expertise directly to customers who require it for their own product development efforts.

INTELLECTUAL PROPERTY AND LICENSING

EMCORE's success and competitive position both for production systems and wafers and devices depend significantly on its ability to maintain trade secrets and other intellectual property protections. Our strategy is to rely more on trade secrets than patents. A "trade secret" is information that has value to the extent it is not generally known, not readily ascertainable by others through legitimate means, and protected in a way that maintains its secrecy. Reliance on trade secrets is only an effective business practice insofar as trade secrets remain undisclosed and a proprietary product or process is not reverse engineered or independently developed. In order to protect its trade secrets, EMCORE takes certain measures to ensure their secrecy, such as executing non-disclosure agreements with its employees, joint venture partners, customers and suppliers.

To date, EMCORE has been issued 11 U.S. patents and others are either pending or under review. These U.S. patents will expire between 2005 and 2013. None of these U.S. patents claim any material aspect of the current or planned commercial versions of EMCORE's systems, wafers or devices. EMCORE relies on trade secrets rather than patents to protect its intellectual property because it believes publishing patents would make it easier for others to reverse engineer EMCORE's proprietary processes. EMCORE is a licensee of certain VCSEL technology and associated patent rights owned by Sandia Corporation. The Sandia license grants EMCORE:

- o exclusive rights (subject to certain rights granted to Department of Energy and AT&T Corporation) to develop, manufacture and sell products containing Sandia VCSEL technologies for barcode scanning and plastic optical fiber communications applications under five U.S. patents that expire between 2007 and 2015;
- o nonexclusive rights with respect to all other applications of these patents; and
- o nonexclusive rights to employ a proprietary oxidation fabrication method in the manufacture of VCSEL products under a sixth U.S. patent that expires in 2014. Our exclusivity with respect to the barcode scanning and plastic optical fiber communications applications expires in 2003 or such earlier time as we fail to meet certain development and marketing criteria. EMCORE's success and competitive position as a producer of VCSEL products depends on the continuation of its rights under the Sandia license, the scope and duration of those rights and the ability of Sandia to protect its proprietary interests in the underlying technology and patents.

In 1992, we received a royalty bearing, non-exclusive license under a patent held by Rockwell International Corporation which relates to an aspect of the manufacturing process used by our TurboDisc(TM) systems. In October 1996, we initiated discussions with Rockwell to receive additional licenses to permit us to use this technology to manufacture and sell compound semiconductor wafers and devices. In November 1996, we suspended these negotiations because of litigation surrounding the validity of the Rockwell patent. We also ceased making royalty payments to Rockwell under the license during the pendency of the litigation. In January 1999, the case was settled and a judgment was entered in favor of Rockwell. As a result, we may be required to pay royalties to Rockwell for certain of our past sales of wafers and devices to our customers who did not hold licenses directly from Rockwell. Management has reviewed and reassessed the royalty agreements and concluded that it has the appropriate amounts reserved for at both September 30, 1998 and 1999.

Additionally, until the patent expires in January 2000, we may require additional licenses from Rockwell under the Rockwell patent in order to continue to manufacture and sell wafers and devices. We are currently negotiating with Rockwell to obtain the necessary licenses. The failure to obtain or maintain licenses to manufacture these wafers and devices on commercially reasonable terms may materially and adversely affect our business, financial condition and results of operations.

ENVIRONMENTAL REGULATIONS

EMCORE is subject to federal, state and local laws and regulations concerning the use, storage, handling, generation, treatment, emission, release, discharge and disposal of certain materials used in its research and development and production operations, as well as laws and regulations concerning environmental remediation and employee health and safety. The production of wafers and devices involves the use of certain hazardous raw materials, including, but not limited to, ammonia, phosphine and arsene. If EMCORE's control systems are unsuccessful in preventing release of these or other hazardous materials, EMCORE could experience a substantial interruption of

operations. EMCORE has retained an environmental consultant to advise it in complying with applicable environmental and health and safety laws and regulations, and believes that it is currently, and in the past has been, in substantial compliance with all such laws and regulations.

BACKLOG

As of September 30, 1999, EMCORE had an order backlog of \$43.1 million, scheduled to be shipped through September 30, 2000. This represented an increase of 67% since September 30, 1998. This increase primarily relates to increased production systems bookings in Asia and initial orders for solar cells from Loral. EMCORE includes in backlog only customer purchase orders that have been accepted by EMCORE and for which shipment dates have been assigned within the 12 months to follow and research contracts that are in process or awarded. Wafer and device agreements extending longer than one year in duration are included in backlog only for the ensuing 12 months. EMCORE receives partial advance payments or irrevocable letters of credit on most production system orders. EMCORE recognizes revenue from the sale of its systems and materials upon shipment. For research contracts with the U.S. government and commercial enterprises with durations greater than six months, EMCORE recognizes revenue to the extent of costs incurred plus a portion of estimated gross profit, as stipulated in such contracts, based on contract performance.

MANUFACTURING

EMCORE's manufacturing operations are located at EMCORE's headquarters in Somerset, New Jersey and in Albuquerque, New Mexico and include systems engineering and production, wafer fabrication, and design and production of devices. Many of EMCORE's manufacturing operations are computer monitored or controlled to enhance reliability and yield. EMCORE manufactures its own systems and outsources some components and sub-assemblies, but performs all final system integration, assembly and testing. As of September 30, 1999, EMCORE had 267 employees involved in manufacturing. EMCORE fabricates wafers and devices at its facilities in Somerset, New Jersey and Albuquerque, New Mexico and has a combined clean room area totaling approximately 12,000 square feet. EMCORE's joint venture with Uniroyal Technology Corporation has begun to manufacture HB LED wafers and package-ready devices at its Tampa, Florida manufacturing facility. In May 1998, EMCORE received ISO 9001 and QS 9002 quality certification for its Somerset, New Jersey facility. In November 1999, EMCORE received ISO 9001 quality certification for its newly completed solar cell facility in Albuquerque, New Mexico. EMCORE is pursuing ISO 9001 quality certification for its VCSEL facility in Albuquerque, New Mexico.

Outside contractors and suppliers are used to supply raw materials and standard components and to assemble portions of end systems from EMCORE specifications. EMCORE depends on sole, or a limited number of, suppliers of components and raw materials. EMCORE generally purchases these single or limited source products through standard purchase orders. EMCORE also seeks to maintain ongoing communications with its suppliers to guard against interruptions in supply and has, to date, generally been able to obtain sufficient supplies in a timely manner and maintains inventories it believes are sufficient to meet its near term needs. EMCORE implemented a vendor program through which it inspects quality and reviews suppliers and prices in order to standardize purchasing efficiencies and design requirements to maintain as low a cost of sales as possible. However, operating results could be materially and adversely affected by a stoppage or delay of supply, receipt of defective parts or contaminated materials, and increase in the pricing of such parts or EMCORE's inability to obtain reduced pricing from its suppliers in response to competitive pressures.

COMPETITION

The markets in which EMCORE competes are highly competitive. EMCORE competes with several companies for sales of MOCVD systems including Aixtron GmbH and Nippon-Sanso K.K. The primary competitors for EMCORE's wafer foundry include Epitaxial Products Inc., Kopin Corporation and Quantum Epitaxial Designs, Inc. EMCORE's principal competitors for sales of VCSEL-related products include Honeywell, Inc. and Mitel Corporation. The principal competitors for MR sensors are Honeywell, Inc., Matshushita Electric Industrial Co. Ltd., Siemens AG and Asahi. The principal competitors for HB LEDs and EMCORE's joint ventures with Uniroyal Technology Corporation and General Electric Lighting include the Phillips Electronics and Hewlett Packard Company joint venture, Siemens AG's Osram GmbH subsidiary, Nichia Chemical Industries and Toshiba Corporation. EMCORE also faces competition from manufacturers that implement in-house systems

for their own use. In addition, EMCORE competes with many research institutions and universities for research contract funding. EMCORE also sells its products to current competitors and companies with the capability of becoming competitors. As the markets for EMCORE's products grow, new competitors are likely to emerge, and present competitors may increase their market share.

EMCORE believes that the primary competitive factors in the markets in which EMCORE's products compete are yield, throughput, performance, breadth of product line, customer satisfaction, customer commitment to competing technologies and, in the case of production systems, capital and direct costs and size of installed base. Competitors may develop enhancements to or future generations of competitive products that offer superior price and performance factors. EMCORE believes that in order to remain competitive, it must invest significant financial resources in developing new product features and enhancements and in maintaining customer satisfaction worldwide.

EMPLOYEES

At September 30, 1999, EMCORE had 368 full-time employees. None of EMCORE's employees are covered by a collective bargaining agreement. EMCORE considers its relationship with its employees to be good.

ITEM 2. PROPERTIES

The following chart contains certain information regarding each of EMCORE's principal facilities. Each of these facilities contains office space, marketing and sales, and research and development space. EMCORE also leases office space in Hsinchu, Taiwan and Santa Clara, California. In addition to EMCORE's facilities, Uniroyal Optoelectronics, a joint venture between EMCORE and Uniroyal Technology Corporation, leases a 75,000 square foot office and manufacturing facility in Tampa, Florida.

| LOCATION ----- | FUNCTION ----- | SQUARE FEET ----- | TERMS ----- |
|----------------------------|--|----------------------|---|
| Somerset, New Jersey | - Headquarters - Manufacturing of systems, wafers and MR sensors | 75,900 | Lease Expires in 2005(1) |
| Albuquerque, New Mexico | Manufacturing of solar cells | 50,000(2) | Owned |
| Albuquerque, New Mexico | Manufacturing of VCSELS | 27,500 | Leases Expire in 2001(1) and 2002(1) |

- (1) These leases all have options to renew by EMCORE, subject to cost of living adjustments.
- (2) EMCORE plans a three-phase construction project to expand the facility from an initial 50,000 square feet in October 1998 to 70,000 square feet by 2002.

ITEM 3. LEGAL PROCEEDINGS

EMCORE is not aware of any pending or threatened litigation against it that could have a material adverse effect on its business, financial condition and results of operations.

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

Not applicable.

PART II.

ITEM 5. MARKET FOR THE REGISTRANT'S COMMON EQUITY AND RELATED SHAREHOLDER MATTERS

EMCORE's common stock is quoted on the NASDAQ National Market under the symbol "EMKR". The following table sets forth the quarterly high and low sale prices for EMCORE's common stock during the two most recent fiscal years and subsequent interim period.

| | HIGH ---- | LOW --- |
|---|--------------|------------|
| FISCAL YEAR ENDED SEPTEMBER 30, 1998: | | |
| First Quarter..... | \$23 3/8 | \$15 1/2 |
| Second Quarter..... | \$19 5/8 | \$11 |
| Third Quarter | \$16 3/4 | \$ 9 |
| Fourth Quarter | \$13 1/2 | \$ 6 |
| FISCAL YEAR ENDED SEPTEMBER 30, 1999: | | |
| First Quarter..... | \$18 3/8 | \$ 7 1/4 |
| Second Quarter..... | \$28 3/4 | \$13 7/8 |
| Third Quarter | \$23 | \$12 7/8 |
| Fourth Quarter | \$25 | \$11 1/4 |
| FISCAL YEAR ENDED SEPTEMBER 30, 2000: | | |
| First Quarter (through December 1, 1999)..... | \$24 1/4 | \$12 1/16 |

The reported closing sale price of EMCORE's common stock on December 1, 1999 was \$23 15/16 per share. As of December 1, 1999, EMCORE had approximately 1,838 shareholders of record.

EMCORE has never declared or paid dividends on its common stock since its formation. EMCORE currently does not intend to pay dividends on its common stock in the foreseeable future so that it may reinvest its earnings in its business. The payment of dividends, if any, in the future will be at the discretion of the Board of Directors.

The shares of EMCORE's mandatorily redeemable convertible preferred stock are entitled to receive cumulative quarterly dividends at the annual rate of 2% of their liquidation preference (\$0.28 per annum per share).

RECENT SALES OF UNREGISTERED SECURITIES

On November 30, 1998, EMCORE sold an aggregate of 1,550,000 shares of Series I mandatorily redeemable convertible Preferred Stock (the "Series I Preferred Stock") to related parties (Hakuto Company, Uniroyal Technology Corporation and Union Miniere, Inc.) for an aggregate consideration of \$21.7 million before deducting costs and expenses of the offering which amounted to approximately \$500,000. The shares of Series I Preferred Stock are convertible, at any time, at the option of the holders thereof, unless previously redeemed, into shares of common stock at an initial conversion price of \$14.00 per share of common stock, subject to adjustment in certain cases. The Series I Preferred Stock is redeemable, in whole or in part, at the option of EMCORE at any time the common stock has traded at or above \$28.00 per share for 30 consecutive trading days, at a price of \$14.00 per share, plus accrued and unpaid dividends, if any, to the redemption date. In addition, the Series I Preferred Stock is subject to mandatory redemption by November 17, 2003. EMCORE believes the sale of the shares of Series I Preferred Stock is exempt from registration pursuant to Section 4(2) of the Securities Act of 1933, as amended (the "Securities Act").

On May 27, 1999, EMCORE issued 282,010 warrants to General Electric to purchase common stock at \$22.875 per share. These warrants are exercisable at any time and will expire in 2006. These warrants were granted in connection with EMCORE's initial capital contribution of \$7.8 million into GELcore. In order to fund its initial capital contribution for GELcore, EMCORE borrowed \$7.8 million from General Electric in the form of a convertible subordinated debenture (the "Debenture"), with an interest rate of 4.75% and a May 2006 maturity date. The Debenture is convertible into EMCORE common stock at a conversion price of \$22.875 or 340,984 shares. The Debenture is convertible at any time at the option of General Electric and may be called by EMCORE after three years, if the price of EMCORE's common stock has traded at or above \$34 for at least thirty days. EMCORE believes the issuance of the warrants was exempt from registration pursuant to Section 4(2) of the Securities Act.

ITEM 6. SELECTED FINANCIAL DATA

The following selected consolidated financial data for the five most recent fiscal years ended September 30, 1999 of EMCORE is qualified by reference to and should be read in conjunction with the Financial Statements and the Notes thereto, and Management's Discussion and Analysis of Financial Condition and Results of Operations included elsewhere in this document. The Statement of Operations Data set forth below with respect to fiscal years 1997, 1998 and 1999 and the Balance Sheet Data as of September 30, 1998 and 1999 are derived from EMCORE's audited financial statements included elsewhere in this document. The Statement of Income Data for fiscal years 1995 and 1996 and the Balance Sheet Data as of September 30, 1995, 1996 and 1997 are derived from audited financial statements not included herein.

On December 5, 1997, EMCORE acquired MODE in a stock transaction accounted for under the purchase method of accounting for a purchase price of \$32.8 million. In connection with this transaction, EMCORE recorded a non-recurring, non-cash charge of \$19.5 million for acquired in-process research and development, which affects the comparability of EMCORE's operating results and financial condition.

(IN THOUSANDS, EXCEPT PER SHARE AMOUNTS)

For the fiscal years ended September 30,

| | 1995 | 1996 | 1997 | 1998 | 1999 |
|---|----------|-----------|-----------|------------|------------|
| STATEMENTS OF OPERATIONS DATA: | | | | | |
| Revenue..... | \$18,137 | \$27,779 | \$47,752 | \$43,760 | \$58,341 |
| Cost of sales..... | 9,927 | 18,607 | 30,094 | 24,676 | 33,158 |
| Gross profit..... | 8,210 | 9,172 | 17,658 | 19,084 | 25,183 |
| Operating expenses: | | | | | |
| Selling, general and administrative..... | 4,452 | 6,524 | 9,346 | 14,082 | 14,433 |
| Goodwill amortization..... | -- | -- | -- | 3,638 | 4,393 |
| Research and development: | | | | | |
| Recurring..... | 1,852 | 5,401 | 9,001 | 16,495 | 20,713 |
| One-time acquired in-process..... | -- | -- | -- | 19,516 | -- |
| Total operating expenses..... | 6,304 | 11,925 | 18,347 | 53,731 | 39,539 |
| Operating income (loss)..... | 1,906 | (2,753) | (689) | (34,647) | (14,356) |
| Stated interest expense, net..... | 265 | 297 | 520 | 973 | 866 |
| Imputed warrant interest expense..... | -- | 126 | 3,988 | 601 | 1,136 |
| Equity in net loss of unconsolidated affiliates..... | -- | -- | -- | 198 | 4,997 |
| Total other expenses..... | 265 | 423 | 4,508 | 1,772 | 6,999 |
| Income (loss) before income taxes and extraordinary item..... | 1,641 | (3,176) | (5,197) | (36,419) | (21,355) |
| Provision for income taxes..... | 125 | -- | 137 | -- | -- |
| Income (loss) before extraordinary item..... | 1,516 | (3,176) | (5,334) | (36,419) | (21,355) |
| Extraordinary item..... | -- | -- | 285 | -- | 1,334 |
| Net income (loss)..... | \$ 1,516 | \$(3,176) | \$(5,619) | \$(36,419) | \$(22,689) |
| PER SHARE DATA: | | | | | |
| Weighted average shares used in calculating per share data..... | 1,701 | 2,994 | 4,669 | 8,775 | 10,590 |
| Income (loss) per basic and diluted shares before extraordinary item..... | \$ 0.89 | \$(1.06) | \$(1.14) | \$(4.15) | \$(2.05) |
| Net income (loss) per basic and diluted shares..... | \$ 0.89 | \$(1.06) | \$(1.20) | \$(4.15) | \$(2.18) |

(IN THOUSANDS)

As of September 30,

| | 1995 | 1996 | 1997 | 1998 | 1999 |
|---|----------|----------|----------|-----------|-----------|
| BALANCE SHEET DATA: | | | | | |
| Working capital (deficiency)..... | \$ 2,208 | \$ 1,151 | \$12,156 | \$(2,017) | \$ 20,690 |
| Total assets..... | 10,143 | 20,434 | 39,463 | 73,220 | 99,611 |
| Long-term liabilities..... | 3,000 | 8,947 | 7,577 | 26,514 | 9,038 |
| Redeemable convertible preferred stock..... | -- | -- | -- | -- | 14,193 |
| Shareholders' equity..... | 1,509 | 522 | 21,831 | 19,580 | 61,623 |

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

OVERVIEW

EMCORE designs, develops and manufactures compound semiconductor materials and is a leading developer and manufacturer of the tools and manufacturing processes used to fabricate compound semiconductor wafers and devices. EMCORE's vertically-integrated product offering allows it to provide a complete compound semiconductor solution to its customers. EMCORE assists its customers with device design, process development and optimal configuration of TurboDisc(TM) production systems.

EMCORE recognizes revenue upon shipment. Systems-related revenues include sales of EMCORE's TurboDisc(TM) production systems as well as spare parts and services. The book-to-ship time period on systems is approximately four to six months, and the average selling price is in excess of \$1.0 million. For systems, EMCORE incurs certain installation and warranty costs subsequent to shipment which are estimated and accrued at the time the sale is recognized. EMCORE reserves for estimated returns and allowances at the time of shipment. Materials revenues include wafers, devices and process development technology. The materials sales cycle is generally shorter than for systems and average selling prices vary significantly based on the products and services provided. Generally, EMCORE achieves a higher gross profit on its materials related products.

EMCORE has recently established a number of strategic relationships through joint ventures, long-term supply agreements and an acquisition as summarized below:

- o In May 1999, EMCORE and General Electric Lighting formed GELcore, a joint venture to develop and market HB LED lighting products. General Electric Lighting and EMCORE have agreed that this joint venture will be the exclusive vehicle for each party's participation in solid state lighting. GELcore seeks to combine EMCORE's materials science expertise, process technology and compound semiconductor production systems with General Electric Lighting's brand name recognition and extensive marketing and distribution capabilities. GELcore's long-term goal is to develop products to replace traditional lighting. EMCORE has invested \$7.8 million in GELcore and has seconded various employees to the joint venture to assist in the development of products.
- o In May 1999, EMCORE signed a long-term agreement with Sumitomo Electric Industries, Ltd. (Hyogo, Japan) to jointly develop and produce Indium Gallium Phosphide (InGaP) epitaxial wafers for use as Heterojunction Bipolar Transistor (HBT) devices used in digital wireless and cellular applications. Sumitomo Electric is one of the world's leading electronics manufacturers. These advanced compound semiconductor HBT wafers will be produced at EMCORE's Epitaxial Materials (E2M) wafer foundry in Somerset, New Jersey, and shipments of commercial product are expected to begin in February 2000.
- o In November 1998, EMCORE signed a long-term supply agreement with Space Systems/Loral, a wholly owned subsidiary of Loral Space & Communications. Under this agreement, EMCORE will supply compound semiconductor high-efficiency gallium arsenide solar cells for Loral's satellites. EMCORE received purchase orders from Space Systems/Loral that total \$7.2 million and expects to service this agreement through our newly completed facility in Albuquerque, New Mexico. EMCORE plans to start shipping solar cells as early as December 1999 and a majority of the solar cell shipments are scheduled for the second fiscal quarter ended March 31, 2000. This facility presently employs approximately 53 people, including sales and marketing, administrative and manufacturing personnel.
- o In November 1998, EMCORE formed UMCORE, a joint venture with Union Miniere Inc., a mining and materials company, to explore and develop alternate uses for germanium using EMCORE's materials science and production platform expertise and Union Miniere's access to and experience with germanium. EMCORE has seconded various personnel to the joint venture to assist in the development of products.

- o In October 1998, EMCORE formed Emtech, a joint venture with Optek Technology, Inc., a packager and distributor of optoelectronic devices, to market an expanded line of magneto resistive sensors to the automotive and related industries. This joint venture combines EMCORE's expertise in the manufacture of magneto resistive die and Optek's expertise in packaging these die. This combination will allow us to offer customers off-the-shelf products. No additional personnel are anticipated to meet the obligations to the joint venture.
- o In September 1998, EMCORE entered into an agreement with Lockheed Martin to provide technical management and support for the commercialization of a new high-efficiency solar cell. It is anticipated that we will provide high efficiency solar cells to Lockheed Martin upon completion of the research and development agreement. EMCORE's new facility in Albuquerque, New Mexico, will provide the support necessary to meet our obligations under this agreement.
- o In September 1998, EMCORE also signed a four-year purchase agreement with AMP Incorporated to provide high speed VCSELs, for use in transceivers for high-speed networks that link computers. The contract requires AMP to purchase a minimum of 80% of their VCSEL needs from EMCORE. EMCORE's MODE facility in Albuquerque, New Mexico, will produce the devices under this contract.
- o In December 1997, the Company and a wholly owned subsidiary of Uniroyal Technology Corporation formed Uniroyal Optoelectronics LLC, a joint venture, to manufacture, sell and distribute High Brightness (HB) LED wafers and package-ready devices. This joint venture commenced operations in July 1998. EMCORE has invested \$6.0 million in Uniroyal Optoelectronics and has seconded various employees to the joint venture to assist in the development of products. Uniroyal Optoelectronics is hiring its own administrative and management personnel. The impact on EMCORE's operations will be limited to a few seconded employees who will continue to be managed by EMCORE personnel.
- o In December 1997, EMCORE acquired MODE in a stock transaction accounted for under the purchase method of accounting for a purchase price of \$32.8 million. This acquisition allowed EMCORE to expand its technology base into the data communications and telecommunications markets. MODE, a development stage company, constituted a significant and strategic investment for EMCORE to acquire and gain access to MODE's in-process research and development of micro-optical technology. As part of this acquisition, EMCORE incurred a one-time in-process research and development write-off of \$19.5 million. EMCORE also recorded goodwill of approximately \$13.2 million, which is being charged against operations over a three-year period, and will therefore impact financial results through December 2000. These operations are located in Albuquerque, New Mexico and currently employ approximately 39 people including sales and marketing, administrative and manufacturing personnel.

Because EMCORE does not have a controlling economic and voting interest in the Uniroyal Technology, Union Miniere, Optek and General Electric Lighting joint ventures, EMCORE accounts for these joint ventures under the equity method of accounting and, as such, our share of profits and losses are included below the operating income line in our statements of operations.

EMCORE has generated a significant portion of its sales to customers outside the United States. In fiscal 1997, 1998 and 1999, international sales constituted 42.0%, 39.1% and 52.5%, respectively, of revenues. In fiscal year 1999, the majority of EMCORE's international sales were made to customers in Asia, particularly in Taiwan. EMCORE's sales revenues from Europe have fluctuated because most of our sales of TurboDisc(TM) systems are to a limited number of customers, who do not purchase production systems regularly. EMCORE anticipates that international sales will continue to account for a significant portion of revenues. Historically, we have received all payments for products and services in U.S. dollars. We do not anticipate that Europe's Euro-currency conversion will have a material effect on our financial condition or results of operations.

The following chart contains a breakdown of EMCORE's worldwide revenues and percentages by geographic region.

| Region | FOR THE FISCAL YEARS ENDED SEPTEMBER 30, | | | | | |
|---------------|--|------|----------|------|----------|------|
| | 1997 | | 1998 | | 1999 | |
| | Revenues | % | Revenues | % | Revenues | % |
| North America | \$27,690 | 58% | \$26,648 | 61% | \$27,698 | 48% |
| Asia | 14,584 | 31% | 15,527 | 35% | 28,211 | 48% |
| Europe | 5,478 | 11% | 1,585 | 4% | 2,432 | 4% |
| Total | \$47,752 | 100% | \$43,760 | 100% | \$58,341 | 100% |

As of September 30, 1999, EMCORE had an order backlog of \$43.1 million scheduled to be shipped through September 30, 2000. This represented an increase of 67% since September 30, 1998, which primarily relates to increased systems bookings in Asia and initial orders for solar cells from Loral. EMCORE includes in backlog only customer purchase orders that have been accepted by EMCORE and for which shipment dates have been assigned within the 12 months to follow and research contracts that are in process or awarded. Wafer and device agreements extending longer than one year in duration are included in backlog only for the ensuing 12 months. EMCORE receives partial advance payments or irrevocable letters of credit on most production system orders.

RESULTS OF OPERATIONS:

The following table sets forth the statement of operations data of EMCORE expressed as a percentage of total revenues for the fiscal years ended September 30, 1997, 1998 and 1999.

| | FISCAL YEARS ENDED SEPTEMBER 30, | | |
|--|----------------------------------|---------|---------|
| | 1997 | 1998 | 1999 |
| Revenue..... | 100.0% | 100.0% | 100.0% |
| Cost of sales..... | 63.0% | 56.4% | 56.8% |
| Gross profit..... | 37.0% | 43.6% | 43.2% |
| Operating expenses: | | | |
| Selling, general and administrative..... | 19.6% | 32.2% | 24.7% |
| Goodwill amortization..... | -- | 8.3% | 7.5% |
| Research and development: | | | |
| Recurring..... | 18.8% | 37.7% | 35.5% |
| One-time acquired in-process..... | -- | 44.6% | -- |
| Total operating expenses..... | 38.4% | 122.8% | 67.7% |
| Operating loss..... | (1.4%) | (79.2%) | (24.5%) |
| Stated interest expense, net..... | 1.1% | 2.2% | 1.5% |
| Imputed warrant interest expense..... | 8.4% | 1.4% | 1.9% |
| Equity in net loss of unconsolidated affiliates..... | -- | 0.4% | 8.6% |
| Total other expenses..... | 9.5% | 4.0% | 12.0% |
| Loss before income taxes and extraordinary item..... | (10.9%) | (83.2%) | (36.6%) |
| Provision for income taxes..... | 0.3% | -- | -- |
| Loss before extraordinary item..... | (11.2%) | (83.2%) | (36.6%) |
| Extraordinary item..... | 0.6% | -- | 2.3% |
| Net loss..... | (11.8%) | (83.2%) | (38.9%) |

COMPARISON OF FISCAL YEARS ENDED SEPTEMBER 30, 1998 AND 1999

REVENUES. EMCORE's revenues increased 33.3% from \$43.8 million for the fiscal year ended September 30, 1998 to \$58.3 million for the fiscal year ended September 30, 1999. The revenue increase was attributable to increased revenues in the systems-related product lines. Revenues from systems-related sales and materials-related sales were \$26.3 million and \$17.4 million, respectively, for the fiscal year ended September 30, 1998 and \$44.5 million and \$13.9 million, respectively, for the fiscal year ended September 30, 1999. As a percentage of revenues, systems- and materials-related revenues accounted for 60.2% and 39.8%, respectively, for the fiscal year ended September 30, 1998 and 76.2% and 23.8%, respectively, for the fiscal year ended September 30, 1999. EMCORE expects the product mix between systems and materials to approach 50% as new products such as solar cells, VCSELS and HBT's are introduced and production of commercial volumes of these materials commences. International sales accounted for 39.1% of revenues for the fiscal year ended September 30, 1998 and 52.5% of revenues for the fiscal year ended September 30, 1999.

COST OF REVENUES/GROSS PROFIT. Cost of sales includes direct material and labor costs, allocated manufacturing and service overhead, and installation and warranty costs. EMCORE's gross profit increased 32.0% from \$19.1 million for the fiscal year ended September 30, 1998, to \$25.2 million for the fiscal year ended September 30, 1999. As a percentage of revenue, gross profit decreased slightly from 43.6% of revenue for the fiscal year ended September 30, 1998 to 43.2% of revenue for the fiscal year ended September 30, 1999. During the first half of fiscal year 1999, EMCORE sold three compound semiconductor production systems for approximately \$5.3 million to a joint venture in which it has a 49% minority interest. EMCORE deferred \$1.3 million of gross profit on such sales. Such deferred gross profit will be recognized ratably over the assigned life of the production systems purchased by the joint venture.

SELLING, GENERAL AND ADMINISTRATIVE. Selling, general and administrative expenses increased by 2.5% from \$14.1 million for the fiscal year ended September 30, 1998 to \$14.4 million for the fiscal year ended September 30, 1999. As a percentage of revenue, selling, general and administrative expenses decreased from 32.2% for the fiscal year ended September 30, 1998 to 24.7% for the fiscal year ended September 30, 1999.

GOODWILL AMORTIZATION. Goodwill of \$13.2 million was recorded in connection with our acquisition of MODE on December 5, 1997. EMCORE recognized approximately \$4.4 million of goodwill amortization for the fiscal year ended September 30, 1999, reflecting a full year of amortization. As of September 30, 1999, EMCORE had approximately \$5.1 million of net goodwill remaining, which will be fully amortized by December 2000.

RESEARCH AND DEVELOPMENT. Recurring research and development expenses increased 25.6% from \$16.5 million in the fiscal year ended September 30, 1998 to \$20.7 million in the fiscal year ended September 30, 1999. As a percentage of revenue, recurring research and development expenses decreased from 37.7% for the fiscal year ended September 30, 1998 to 35.5% for the fiscal year ended September 30, 1999. The increase in research and development spending was primarily attributable to EMCORE's acquisition of MODE, the startup of our new Albuquerque, New Mexico facility and increased staffing and equipment costs necessary to enhance current products and develop new product offerings. Products introduced or under development include HB LEDs, high efficiency solar cells, new generation TurboDisc(TM) production systems, VCSELS, RF materials and other optoelectronic devices. In fiscal year 1998, EMCORE recognized a \$19.5 million one-time charge for acquired in-process research and development relating to the purchase of MODE. To maintain growth and to continue to pursue market leadership in materials science technology, EMCORE expects to continue to invest a significant amount of its resources in research and development.

OPERATING LOSS. EMCORE reported a 58.6% decrease in operating loss from \$34.6 million for the fiscal year ended September 30, 1998, as compared to an operating loss of \$14.4 million for the fiscal year ended September 30, 1999. The change in operating loss was principally due to the \$19.5 million one-time charge for acquired in-process research and development in 1998. In fiscal year 1999, EMCORE deferred \$1.3 million of gross profit on three compound semiconductor production systems sold to a joint venture in which it has a 49% minority interest. In addition, EMCORE's fiscal year 1999 operating loss was impacted by increased research and development spending, the loss generated from the operations of MODE and the startup expenses associated with the opening of EMCORE's new Albuquerque, New Mexico facility.

OTHER EXPENSE. During fiscal 1996, EMCORE issued 2,575,883 detachable warrants along with subordinated notes to certain of its existing shareholders. EMCORE subsequently assigned a value to these detachable warrants issued using the Black-Scholes option-pricing model. EMCORE recorded the subordinated notes at a carrying value that is subject to periodic accretions, using the interest method. In June 1998, EMCORE issued 284,684 warrants to its Chairman and its Chief Executive Officer for providing a guarantee in connection with an 18-month credit facility with First Union National Bank. EMCORE also assigned a value to these warrants using the Black-Scholes option-pricing model. The consequent expense of the subordinated note accretion and warrant value amortization is charged to "Imputed warrant interest, non-cash" and equals approximately \$601,000 and \$950,000 for the fiscal years ended September 30, 1998 and 1999, respectively. The subordinated notes and the 18-month credit facility were repaid using a portion of the proceeds from the public offering, which was completed in June 1999.

In order to fund its initial capital contribution for GELcore, EMCORE borrowed \$7.8 million from General Electric in the form of a convertible subordinated debenture (the "Debenture"), with an interest rate of 4.75% and a May 2006 maturity date. In connection with the funding of EMCORE's initial capital contribution, General Electric received 282,010 warrants to purchase common stock at \$22.875 per share. These warrants are exercisable at any time and will expire in 2006. EMCORE subsequently assigned a value to these warrants using the Black-Scholes option-pricing model. The warrant value of \$2.6 million is included in other assets and is being amortized over seven years. The consequent expense of the warrant amortization is charged to "Imputed warrant interest, non-cash" and equaled approximately \$186,000 for the fiscal year ended September 30, 1999.

For the fiscal year ended September 30, 1999, stated interest expense, net decreased by \$107,000 to \$866,000. On June 15, 1999, EMCORE completed the issuance of an additional 3.0 million common stock shares through a public offering, which resulted in proceeds of \$52.0 million, net of issuance costs. A significant portion of the proceeds was used to repay all outstanding bank loans and subordinated notes.

Because EMCORE does not have a controlling economic and voting interest in the Uniroyal Technology, Union Miniere and General Electric Lighting joint ventures, EMCORE accounts for these joint ventures under the equity method of accounting. For the fiscal year ended September 30, 1998, EMCORE incurred a net loss of \$198,000 related to the Uniroyal joint venture. For the fiscal year ended September 30, 1999, EMCORE incurred a net loss of \$2.2 million related to the Uniroyal joint venture, a \$2.5 million net loss related to the GELcore joint venture and a \$297,000 net loss related to the UMCORE joint venture.

INCOME TAXES. As a result of its losses, EMCORE did not incur any income tax expense in both fiscal years 1998 and 1999. As of September 30, 1999, EMCORE has net operating loss carryforwards for tax purposes of approximately \$24.0 million, which expire in the years 2003 through 2019. EMCORE believes that the consummation of certain equity transactions and a significant change in the ownership during fiscal years 1995, 1998 and 1999 has constituted a change in control under Section 382 of the Internal Revenue Code. Due to the change in control, EMCORE's ability to use its federal net operating loss carryovers and federal research credit carryovers to offset future income and income taxes, respectively, are subject to annual limitations under Internal Revenue Code Sections 382 and 383.

EXTRAORDINARY ITEM. On June 15, 1999, EMCORE repaid its outstanding bank loans using a portion of the proceeds from the public offering. EMCORE also used a portion of the net proceeds to repurchase its outstanding 6.0% subordinated notes due 2001. The early extinguishment of debt resulted in an extraordinary charge of \$1.3 million or \$0.13 per share in fiscal year 1999 that consisted of \$867,000 related to the discount on prepayment of the subordinated notes and \$467,000 related to the write-off of related deferred financing costs.

NET LOSS. EMCORE reported a 37.7% decrease in net loss from \$36.4 million for the fiscal year ended September 30, 1998, as compared to a net loss of \$22.7 million for the fiscal year ended September 30, 1999. The decrease in the year-to-date loss was attributable to the \$19.5 million write-off of acquired in-process research and development in connection with the acquisition of MODE on December 5, 1997 offset in part by an increase in recurring research and development expenses and the net loss from unconsolidated affiliates.

COMPARISON OF FISCAL YEARS ENDED SEPTEMBER 30, 1997 AND 1998

REVENUES. EMCORE's revenues decreased 8.4% from \$47.8 million for the fiscal year ended September 30, 1997 to \$43.8 million for the fiscal year ended September 30, 1998. The revenue decrease represented a shift in product mix during the year. Systems-related revenues decreased approximately 22.8% while materials-related revenues increased approximately 27.6%. The decrease in systems-related revenues was primarily attributable to the financial issues in the Asian economies as well as a general slowdown in the semiconductor equipment market overall. While materials-related revenues did experience a 27.6% increase, the General Motors three-month strike adversely affected revenue, as shipments to General Motors were halted during the strike. Systems-related revenues were \$34.1 million for the fiscal year ended September 30, 1997 and \$26.3 million for the fiscal year ended September 30, 1998. Materials-related revenues were \$13.7 million for the fiscal year ended September 30, 1997 and \$17.4 million for the fiscal year ended September 30, 1998. As a percentage of revenues, systems-related revenues accounted for 71.4% for the fiscal year ended September 30, 1997 and 60.2% for the fiscal year ended September 30, 1998. As a percentage of revenues, materials-related revenues accounted for 28.6% for the fiscal year ended September 30, 1997 and 39.8% for the fiscal year ended September 30, 1998. International sales accounted for approximately 42.0% and 39.1% of revenues for the fiscal years ended September 30, 1997 and 1998, respectively.

COST OF REVENUES/GROSS PROFIT. Cost of sales includes direct material and labor costs, allocated manufacturing and service overhead, and installation and warranty costs. Gross profit increased from 37.0% of revenue to 43.6% of revenue for the fiscal years ended September 30, 1997 and 1998, respectively. The gross profit percentage increase was attributable to a shift in product mix towards higher gross margin materials-related revenues.

SELLING, GENERAL AND ADMINISTRATIVE. Selling, general and administrative expenses increased by 50.7% from \$9.3 million for the year ended September 30, 1997, to \$14.1 million for the year ended September 30, 1998. The increase was largely due to sales personnel headcount increases to support both domestic and foreign markets and general headcount additions to sustain the internal administrative support necessary for EMCORE's expanded product lines and new locations. During fiscal 1998, EMCORE wrote-off a \$1.0 million receivable due from an Asian customer which was deemed to be uncollectible. As a percentage of revenue, selling, general and administrative expenses increased from 19.6% of revenue during fiscal 1997 to 32.2% of revenue for fiscal 1998.

GOODWILL AMORTIZATION. In connection with the purchase of MODE, EMCORE recorded goodwill of \$13.2 million that is being amortized over 36 months. Goodwill amortization expense amounted to \$3.6 million for the year ended September 30, 1998. Net goodwill at September 30, 1998 was \$9.5 million.

RESEARCH AND DEVELOPMENT. Recurring research and development expenses increased by 83.3% from \$9.0 million for the year ended September 30, 1997, to \$16.5 million for the year ended September 30, 1998. The increase was primarily attributable to EMCORE's acquisition of MODE and increased staffing and equipment costs necessary to enhance current products and develop new product offerings. Products introduced or under development include HB LEDs, high efficiency solar cells, new generation TurboDisc(TM) production systems, VCSELs and other optoelectronic devices. For the year ended September 30, 1998, EMCORE incurred \$1.1 million of research and development costs associated with MODE's in-process (at the date of acquisition) research and development projects. As a percentage of revenue, research and development expenses increased from 18.8% of revenue during fiscal 1997 to 37.7% of revenue for fiscal 1998. To maintain growth and market leadership in epitaxial technology, EMCORE expects to continue to invest a significant amount of its resources in research and development. In connection with the MODE acquisition, EMCORE incurred a one-time charge for the write-off of acquired in-process research and development amounting to \$19.5 million. The acquisition of MODE, a development stage company, constituted a significant and strategic investment for EMCORE. The principal investment consideration was to acquire and gain access to MODE's micro-optical technology, which was under development at the time. EMCORE plans to use MODE's micro-optical laser technology in new products for data communications and telecommunications applications.

OPERATING LOSS. During fiscal 1998, operating loss increased from a loss of \$0.7 million for the fiscal year ended September 30, 1997 to a loss of \$34.6 million for the year ended September 30, 1998. The change in operating loss was primarily due to the \$19.5 million one-time charge for in-process research and development written off in connection with the purchase of MODE. Additionally, recurring research and development expense increased by \$7.5 million from the prior year, as a result of increased research and development activities at MODE and in our core business. In addition, the General Motors three-month strike adversely affected operating performance as shipments to General Motors were halted during the strike. General Motors is among EMCORE's largest customers. EMCORE was unable to furlough or reduce their workforce during the strike and thereby incurred charges without the benefit of related revenues.

OTHER EXPENSE. Other expenses decreased, particularly due to the reduced imputed warrant interest expense associated with EMCORE's subordinated debt and debt issuance guarantee cost. During fiscal 1996, EMCORE issued detachable warrants along with subordinated notes to certain of its existing shareholders. In fiscal 1997, EMCORE also issued detachable warrants in return for a \$10.0 million demand note facility guarantee by the Chairman of the Board of EMCORE, who provided collateral for the facility. EMCORE subsequently assigned a value to these detachable warrants issued using the Black-Scholes option-pricing model. EMCORE recorded the subordinated notes at a carrying value that is subject to periodic accretions, using the interest method, and reflected the facility's detachable warrant value as debt issuance cost which was written off in its entirety in fiscal 1997. The consequent expense of these subordinated note accretion amounts and the now terminated facility's debt issuance cost is charged to "imputed warrant interest, non-cash," and amounted to approximately \$4.0 million and \$370,000 for the fiscal years ended September 30, 1997 and 1998, respectively. In June 1998, EMCORE issued 284,684 warrants to its Chairman and its Chief Executive Officer for providing a guarantee in connection with the 1998 Agreement, an \$8.0 million 18-month credit facility with First Union National Bank. EMCORE assigned a value to these warrants using the Black-Scholes option-pricing model.

INCOME TAXES. EMCORE's effective income tax rate was 2.5% in fiscal 1997 and 0.0% in fiscal 1998. The lower effective rate in fiscal 1998, relative to fiscal 1997, was attributable to a federal income tax benefit offset by net operating loss and expenses not utilized or deductible for tax purposes.

EXTRAORDINARY ITEM. In the fiscal year ended September 30, 1997, EMCORE repaid \$2.0 million of its outstanding subordinated notes due May 1, 2001. In connection with this discharge of EMCORE's subordinated notes, an extraordinary loss of \$285,000 was recognized in fiscal 1997 relating to such early extinguishment of debt.

NET LOSS. Net loss increased from \$5.6 million for the fiscal year ended September 30, 1997 to \$36.4 million for the fiscal year ended September 30, 1998. This increase was primarily attributable to the acquisition of MODE and subsequent write-off of in-process research and development of \$19.5 million as well as an increase in recurring research and development expenses of \$7.5 million. In addition, the General Motors three-month prolonged strike adversely affected operating performance.

| | | | | | | | | |
|---|---------|-------|--------|--------|--------|--------|--------|--------|
| of unconsolidated affiliates | -- | -- | -- | 2.3 | 2.7 | 8.6 | 7.4 | 13.9 |
| | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| Total other expenses | 1.4 | 1.0 | 3.3 | 13.3 | 8.1 | 13.5 | 11.3 | 13.7 |
| (Loss) income before income taxes | (161.0) | (5.4) | (91.0) | (87.9) | (67.9) | (24.7) | (22.1) | (45.6) |
| Provision for income taxes | -- | 0.2 | -- | -- | -- | -- | -- | -- |
| | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| (Loss) income before extraordinary item | (161.0) | (5.6) | (91.0) | (87.9) | (67.9) | (24.7) | (22.1) | (45.6) |
| Extraordinary loss | -- | -- | -- | -- | -- | -- | 7.6 | -- |
| Net (loss) income | (161.0) | (5.6) | (91.0) | (87.9) | (67.9) | (24.7) | (29.7) | (45.6) |
| | ===== | ===== | ===== | ===== | ===== | ===== | ===== | ===== |

From inception through December 31, 1996, EMCORE derived the majority of its revenues from the sale of TurboDisc(TM) production systems. Beginning in January 1997, EMCORE expanded its product line to offer wafers and devices. Throughout fiscal year 1997 and the first half of fiscal year 1998, EMCORE benefited from the expanded product offerings. Early in fiscal year 1998, the capital equipment market experienced a downturn and bookings of TurboDisc(TM) systems decreased substantially. The result was lower revenues for the last two quarters of fiscal year 1998 and the first quarter of fiscal year 1999. Since then, the bookings of TurboDisc(TM) systems has substantially increased as well as bookings for our materials-related products. EMCORE's backlog at September 30, 1999 was \$43.1 million, which represents the highest amount for any year-end in the Company's history.

Cost of sales was also affected by revenue shifts. Gross profit improved consistently from the introduction of the new product lines through the second quarter of fiscal year 1998. Thereafter, in late fiscal year 1998 and into the early part of fiscal year 1999, gross profit was affected primarily by reduced revenues and the resulting under-absorbed overhead. Since then, with increased revenues, gross profit has increased at a relatively consistent percentage rate.

Operating expenses have generally increased both in absolute dollars and as a percentage of revenues, due to increased staffing in research and development, sales and marketing, and general and administrative functions. The increase in research expenditures was related to the development of systems for the processing of gallium nitride materials used in the production of blue HB LEDs, enhancement of production systems, and the introduction of wafers and devices, in particular, MR sensors, VCSELs and solar cells. Selling, general and administrative expenses increased as a result of increased marketing and sales related activities, including the hiring of additional personnel, commissions, customer samples, expansion of facilities, and the opening of field offices in Taiwan and California.

EMCORE has experienced and expects to continue to experience significant fluctuations in quarterly results. Factors which have had an influence on and may continue to influence EMCORE's operating results in a particular quarter include, but are not limited to, the timing of receipt of orders, cancellation, rescheduling or delay in product shipment or supply deliveries, product mix, competitive pricing pressures, EMCORE's ability to design, manufacture and ship products on a cost effective and timely basis, including the ability of EMCORE to achieve and maintain acceptable production yields for wafers and devices, regional economic conditions and the announcement and introduction of new products by EMCORE and by its competitors. The timing of sales of EMCORE's TurboDisc(TM) production systems may cause substantial fluctuations in quarterly operating results due to the substantially higher per unit price of these products relative to EMCORE's other products. If the compound semiconductor industry experiences downturns or slowdowns, EMCORE's business, financial condition and results of operations may be materially and adversely affected.

LIQUIDITY AND CAPITAL RESOURCES

Cash and cash equivalents increased by \$2.7 million from \$4.5 million at September 30, 1998 to \$7.2 million at September 30, 1999. For the fiscal year ended September 30, 1999, net cash used for operations amounted to \$15.2 million, primarily due to EMCORE's net loss, an increase in accounts receivable and a decrease in accounts payable.

For the fiscal year ended September 30, 1999, net cash used for investment activities amounted to \$31.3 million, primarily due to the purchase and manufacture of new equipment for the facilitation of EMCORE's wafer and device product lines, and clean room modifications and enhancements of approximately \$17.1 million, as well as investments in unconsolidated affiliates of approximately \$14.2 million.

Net cash provided by financing activities for the fiscal year ended September 30, 1999 amounted to approximately \$49.2 million, primarily due to the \$52.0 million of net proceeds from the public offering in June 1999, \$21.2 million of net proceeds from the private placement of preferred stock in November 1998 and long-term convertible subordinated debenture of \$7.8 million. This was offset by debt repayments of \$33.5 million on bank loans, short-term related party debt and subordinated debt.

In March 1997, the Company entered into a \$10.0 million loan agreement with First Union National Bank (the "Loan Agreement") that had an interest rate of Prime plus 50 basis points (8.75% at September 30, 1998). As of September 30, 1998, the Company had \$9,950,000 outstanding under this facility. As of September 30, 1999, there were no amounts outstanding under this facility. The Loan Agreement contains financial covenants which, among other things, require maintenance of certain financial ratios, liquidity and net worth. As a result of the net loss for certain quarters in the years ended September 30, 1998 and 1999, the Company was not in compliance with the Loan Agreement's debt covenants. The Company received a waiver from the bank regarding this non-compliance. Subsequent to year-end 1999, the Company's Loan Agreement was extended through January 31, 2001. The Loan Agreement's financial covenants were modified under the third amendment, and management believes that the Company will be able to comply with such requirements throughout fiscal year 2000.

EMCORE's planned capital expenditures are expected to total approximately \$16.8 million during fiscal year 2000, including approximately \$7.8 million in expenditures related to investments in our joint ventures. Capital spending in fiscal year 2000 also is expected to include upgrading manufacturing facilities, continued investment in analytical and diagnostic research and development equipment, upgrading and purchasing computer equipment and the manufacture of TurboDisc(TM) systems for in-house use.

EMCORE believes that its current liquidity, together with available credit, should be sufficient to meet its cash needs for working capital through fiscal year 2000. However, if the available credit facilities, cash generated from operations and cash on hand are not sufficient to satisfy EMCORE's liquidity requirements, EMCORE will seek to obtain additional equity or debt financing. Additional funding may not be available when needed or on terms acceptable to EMCORE. If EMCORE is required to raise additional financing and if adequate funds are not available or not available on acceptable terms, the ability to continue to fund expansion, develop and enhance products and services, or otherwise respond to competitive pressures will be severely limited. Such a limitation could have a material adverse effect on EMCORE's business, financial condition or operations.

In January 1999, Rockwell settled litigation that challenged the validity of certain patents which EMCORE licensed from Rockwell prior to the commencement of the litigation. As a result of this settlement, EMCORE will be required to pay Rockwell a royalty including interest under our license agreement relating to TurboDisc(TM) tools. EMCORE believes it has adequately accrued for these royalties. In addition, prior to the commencement of the litigation, EMCORE had initiated discussions with Rockwell to receive additional licenses to permit EMCORE to use the technology to manufacture and sell wafers and devices. EMCORE may be required to pay royalties to Rockwell for certain past sales of wafers and devices to customers who do not hold licenses directly from Rockwell. Management has reviewed and reassessed the royalty agreements and concluded that it has the appropriate amounts reserved for at both September 30, 1998 and 1999. We are currently negotiating with Rockwell to obtain the necessary licenses to continue to manufacture and sell wafers and devices. The Rockwell patent expires in January 2000. The failure to obtain licenses to manufacture these wafers and devices on commercially reasonable terms may materially and adversely affect our business, financial condition and results of operations through January 2000.

YEAR 2000 COMPLIANCE

Many currently installed computer systems and software products are coded to accept or recognize only two digit entries in the date code field. These systems and software products will need to accept four digit entries to distinguish 21st century dates from 20th century dates. As a result, computer systems and/or software used by many companies and governmental agencies may need to be upgraded to comply with such Year 2000 requirements or risk system failure or miscalculations causing disruptions of normal business activities.

STATE OF READINESS. EMCORE has made an assessment of the Year 2000 readiness of its operating financial and administrative systems, including the hardware and software that support such systems. EMCORE's assessment plan consisted of:

- (1) contacting third-party vendors and licensors of material hardware, software and services that are both directly and indirectly related to EMCORE's business;
- (2) contacting vendors of third-party systems;
- (3) assessing repair or replacement requirements;
- (4) implementing repair or replacement; and
- (5) creating contingency plans in the event of Year 2000 failures.

Our compound semiconductor wafers and devices are date insensitive and, therefore, do not have any Year 2000 issues associated with them. Our TurboDisc(TM) production systems have several components that could give rise to Year 2000 compliance concerns. We have assessed the Year 2000 issues associated with these components and have found that they have either been certified by the vendor to be compliant or are date insensitive.

Our principal concern has been the status of our operating, financial and administrative systems. These systems include accounting and production control software at our New Jersey and the two New Mexico facilities. All software has been certified as Year 2000 compliant by the vendors.

There are other information technology systems and non-information technology systems that could give rise to Year 2000 concerns. These include scientific and engineering applications, desktop applications (such as Microsoft Word and Excel) and facilities controls such as HVAC and security. A review of these systems leads us to believe that the systems are Year 2000 compliant, are not critical to business operations, are used on a limited basis or are date insensitive.

COSTS. To date, EMCORE has not incurred any material expenditures in connection with identifying, evaluating or addressing Year 2000 compliance issues. Most of EMCORE expenses have related to, and are expected to continue to relate to, the operating costs associated with time spent by employees in the evaluation process and Year 2000 compliance matters generally. The exact costs related to Year 2000 compliance are difficult to determine EMCORE's costs for bringing our in-house information technology systems into compliance should not exceed \$200,000. EMCORE does not anticipate that remediation expenses will be material. If the remediation expenses are higher than anticipated EMCORE's business, financial condition and results of operations could be materially and adversely affected.

RISKS. EMCORE is not currently aware of any Year 2000 compliance problems relating to its systems that would have a material adverse effect on EMCORE's business, results of operations and financial condition. There can be no assurance that EMCORE will not discover Year 2000 compliance problems in its systems that will require substantial revision. In addition, there can be no assurance that third-party software, hardware or services incorporated into EMCORE's material systems will not need to be revised or replaced, all of which could be time-consuming and expensive. The failure of EMCORE to fix or replace its internally developed proprietary software or third-party software, hardware or services on a timely basis could result in lost revenues, increased operating costs, the loss of customers and other business interruptions, any of which could have a material adverse effect on EMCORE's business, result of operations and financial condition. In addition, the failure of governmental agencies, utility companies, third-party service providers and others outside of EMCORE's control to be Year 2000 compliant could result in systemic failure beyond EMCORE's control such as a telecommunications or electrical failure, which could have a material adverse effect on EMCORE's business, results of operations and financial condition.

In March 1998, the American Institute of Certified Public Accountants ("AICPA") issued Statement of Position ("SOP") 98-1, "Accounting for the Cost of Computer Software Developed or Obtained for Internal Use" ("SOP 98-1"). SOP 98-1 provides guidance over accounting for computer software developed or obtained for internal use including the requirement to capitalize specified costs and amortization of such costs. EMCORE will be required to adopt this standard in its fiscal year ending September 30, 2000. EMCORE does not expect the adoption of this standard to have a material effect on results of operations, financial position or cash flows.

In April 1998, the AICPA issued SOP 98-5, "Reporting on the Costs of Start-Up Activities". SOP 98-5 provides guidance on the financial reporting of start-up costs and organization costs. It requires costs of start-up activities and organization costs to be expensed as incurred. EMCORE will be required to adopt this standard in its fiscal year ending September 30, 2000. The adoption of this standard is not expected to have a material impact on EMCORE's results of operations, financial position or cash flows.

In June 1998, the FASB issued SFAS No. 133, "Accounting for Derivative Instruments and Hedging Activities." This statement establishes accounting and reporting standards for derivative instruments and requires recognition of all derivatives as assets or liabilities in the statement of financial position and measurement of these instruments at fair value. The statement, as amended, is effective for fiscal years beginning after June 15, 2000. EMCORE will be required to adopt this standard, as amended, in its fiscal year ending September 30, 2001. Management believes that adopting this statement will not have a material impact on the financial position, results of operations, or cash flows of EMCORE.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

During fiscal years 1998 and 1999, EMCORE was not a party to any derivative contracts, hedging or other material market risk transactions.

EMCORE CORPORATION
CONSOLIDATED BALANCE SHEETS
AS OF SEPTEMBER 30, 1998 AND 1999
(IN THOUSANDS, EXCEPT SHARE DATA)

| | 1998 | 1999 |
|---|-----------|-----------|
| | ----- | ----- |
| ASSETS | | |
| Current assets: | | |
| Cash and cash equivalents..... | \$ 4,456 | \$ 7,165 |
| Restricted cash..... | 62 | -- |
| Accounts receivable, net of allowance for doubtful accounts of \$611 and \$563 at September 30, 1998 and 1999, respectively..... | 7,438 | 11,423 |
| Accounts receivable - related parties..... | 500 | 2,480 |
| Inventories, net..... | 12,445 | 13,990 |
| Costs in excess of billings on uncompleted contracts..... | 78 | 123 |
| Prepaid expenses and other current assets..... | 130 | 266 |
| | ----- | ----- |
| Total current assets..... | 25,109 | 35,447 |
| Property, plant and equipment, net..... | 36,210 | 46,282 |
| Goodwill, net..... | 9,519 | 5,126 |
| Investments in unconsolidated affiliates..... | 292 | 9,496 |
| Other assets, net..... | 2,090 | 3,260 |
| | ----- | ----- |
| Total assets..... | \$ 73,220 | \$ 99,611 |
| | ===== | ===== |
| LIABILITIES AND SHAREHOLDERS' EQUITY | | |
| Current liabilities: | | |
| Note payable - related party..... | \$ 7,000 | \$ -- |
| Accounts payable..... | 12,023 | 5,359 |
| Accrued expenses..... | 4,197 | 4,173 |
| Advanced billings..... | 3,180 | 4,350 |
| Capitalized lease obligation - current..... | 673 | 713 |
| Other current liabilities..... | 53 | 162 |
| | ----- | ----- |
| Total current liabilities..... | 27,126 | 14,757 |
| Bank loans..... | 17,950 | -- |
| Convertible subordinated debenture..... | -- | 7,800 |
| Subordinated notes, net..... | 7,809 | -- |
| Capitalized lease obligation, net of current portion..... | 755 | 141 |
| Other liabilities..... | -- | 1,097 |
| | ----- | ----- |
| Total liabilities..... | 53,640 | 23,795 |
| Commitments and contingencies | | |
| Mandatorily redeemable convertible preferred stock, 1,030,000 shares issued and outstanding at September 30, 1999 (redeemable at maturity for \$14,420)..... | -- | 14,193 |
| Shareholders' equity: | | |
| Preferred stock, \$0.0001 par, 5,882,353 shares authorized..... | -- | -- |
| Common stock, no par value, 50,000,000 shares authorized, 9,375,952 shares issued and outstanding in 1998; 13,353,807 shares issued and outstanding in 1999..... | 87,443 | 152,426 |
| Accumulated deficit..... | (60,196) | (83,256) |
| Notes receivable from warrant issuance and stock sales..... | (7,667) | (7,547) |
| | ----- | ----- |
| Total shareholders' equity..... | 19,580 | 61,623 |
| | ----- | ----- |
| Total shareholders' equity and mandatorily redeemable preferred stock..... | 19,580 | 75,816 |
| | ----- | ----- |
| Total liabilities, shareholders' equity and mandatorily redeemable preferred stock. | \$ 73,220 | \$ 99,611 |
| | ===== | ===== |

THE ACCOMPANYING NOTES ARE AN INTEGRAL PART OF
THESE CONSOLIDATED FINANCIAL STATEMENTS.

EMCORE CORPORATION
CONSOLIDATED STATEMENTS OF OPERATIONS
FOR THE YEARS ENDED SEPTEMBER 30, 1997, 1998 AND 1999
(IN THOUSANDS, EXCEPT PER SHARE DATA)

| | 1997 | 1998 | 1999 |
|--|------------|-------------|-------------|
| | ----- | ----- | ----- |
| Revenues: | | | |
| Systems-related | \$ 34,091 | \$ 26,324 | \$ 44,477 |
| Materials-related | 13,661 | 17,436 | 13,864 |
| | ----- | ----- | ----- |
| Total revenues | 47,752 | 43,760 | 58,341 |
| Cost of revenues: | | | |
| Systems-related | 24,250 | 15,942 | 26,522 |
| Materials-related | 5,844 | 8,734 | 6,636 |
| | ----- | ----- | ----- |
| Total cost of revenues | 30,094 | 24,676 | 33,158 |
| | ----- | ----- | ----- |
| Gross profit | 17,658 | 19,084 | 25,183 |
| Operating expenses: | | | |
| Selling, general and administrative | 9,346 | 14,082 | 14,433 |
| Goodwill amortization | -- | 3,638 | 4,393 |
| Research and development - recurring | 9,001 | 16,495 | 20,713 |
| Research and development - one time acquired in-process, non-cash | -- | 19,516 | -- |
| | ----- | ----- | ----- |
| Total operating expenses | 18,347 | 53,731 | 39,539 |
| | ----- | ----- | ----- |
| Operating loss | (689) | (34,647) | (14,356) |
| Other (income) expense: | | | |
| Stated interest income | (237) | (448) | (751) |
| Stated interest expense | 757 | 1,421 | 1,617 |
| Imputed warrant interest expense, non-cash | 3,988 | 601 | 1,136 |
| Equity in net loss of unconsolidated affiliates | -- | 198 | 4,997 |
| | ----- | ----- | ----- |
| Loss before income taxes and extraordinary item .. | (5,197) | (36,419) | (21,355) |
| Provision for income taxes | 137 | -- | -- |
| | ----- | ----- | ----- |
| Loss before extraordinary item | (5,334) | (36,419) | (21,355) |
| Extraordinary item - loss on early extinguishment of debt | 285 | -- | 1,334 |
| | ----- | ----- | ----- |
| Net loss | \$ (5,619) | \$ (36,419) | \$ (22,689) |
| | ===== | ===== | ===== |
| Per share data: | | | |
| Weighted average basic and diluted shares outstanding used in per share data calculations | 4,669 | 8,775 | 10,590 |
| | ----- | ----- | ----- |
| Loss per basic and diluted share before extraordinary item | \$ (1.14) | \$ (4.15) | \$ (2.05) |
| | ===== | ===== | ===== |
| Net loss per basic and diluted share | \$ (1.20) | \$ (4.15) | \$ (2.18) |
| | ===== | ===== | ===== |

THE ACCOMPANYING NOTES ARE AN INTEGRAL PART OF THESE
CONSOLIDATED FINANCIAL STATEMENTS.

EMCORE CORPORATION
CONSOLIDATED STATEMENTS OF SHAREHOLDERS' EQUITY
AS OF SEPTEMBER 30, 1997, 1998 AND 1999
(IN THOUSANDS, EXCEPT SHARE DATA)

| | Common Stock | | Accumulated Deficit | Shareholders' Notes Receivable | Total Shareholders' Equity |
|---|--------------|-----------|------------------------|--------------------------------------|----------------------------------|
| | Shares | Amount | | | |
| BALANCE AT SEPTEMBER 30, 1996..... | 2,994,461 | \$ 18,978 | \$(18,158) | \$ (298) | \$ 522 |
| Issuance of common stock purchase warrants..... | | 3,601 | | | 3,601 |
| Issuance of common stock in initial public offering, net of issuance cost of \$3,110..... | 2,875,000 | 22,765 | | | 22,765 |
| Stock purchase warrant exercise..... | 94,124 | 384 | | | 384 |
| Stock option exercise..... | 34,965 | 54 | | | 54 |
| Redemptions of shareholders' notes receivable.. | | | | 32 | 32 |
| Forgiveness of notes receivable from shareholder..... | | | | 57 | 57 |
| Compensatory stock issuance..... | 1,841 | 35 | | | 35 |
| Net loss..... | ----- | ----- | (5,619) | ----- | (5,619) |
| BALANCE AT SEPTEMBER 30, 1997..... | 6,000,391 | \$ 45,817 | \$(23,777) | \$ (209) | \$ 21,831 |
| Issuance of common stock purchase warrants..... | | 1,310 | | | 1,310 |
| Issuance of common stock on exercise of warrants in exchange for note receivable.... | 1,827,966 | 7,458 | | (7,458) | -- |
| Issuance of common stock and common stock purchase options and warrants in connection with the acquisition of MODE..... | 1,461,866 | 32,329 | | | 32,329 |
| Stock option exercise..... | 35,809 | 83 | | | 83 |
| Stock purchase warrant exercise..... | 5,660 | 23 | | | 23 |
| Issuance of common stock on exercise of warrants in exchange for subordinated notes. | 17,605 | 72 | | | 72 |
| Compensatory stock issuance..... | 26,655 | 351 | | | 351 |
| Net loss..... | ----- | ----- | (36,419) | ----- | (36,419) |
| BALANCE AT SEPTEMBER 30, 1998..... | 9,375,952 | \$ 87,443 | \$(60,196) | \$(7,667) | \$ 19,580 |
| Preferred stock dividends..... | | | (319) | | (319) |
| Periodic accretion of redeemable preferred stock to mandatory redemption value..... | | | (52) | | (52) |
| Issuance of common stock purchase warrants..... | | 2,596 | | | 2,596 |
| Issuance of common stock from public offering, net of issuance cost of \$5,000..... | 3,000,000 | 52,000 | | | 52,000 |
| Stock option exercise..... | 110,072 | 376 | | | 376 |
| Stock purchase warrant exercise..... | 321,467 | 2,450 | | | 2,450 |
| Conversion of mandatorily redeemable convertible preferred stock into common stock..... | 520,000 | 7,125 | | | 7,125 |
| Redemptions of shareholders' notes receivable.. | | | | 120 | 120 |
| Compensatory stock issuance..... | 26,316 | 436 | | | 436 |
| Net loss..... | ----- | ----- | (22,689) | ----- | (22,689) |
| BALANCE AT SEPTEMBER 30, 1999..... | 13,353,807 | \$152,426 | \$(83,256) | \$(7,547) | \$ 61,623 |

THE ACCOMPANYING NOTES ARE AN INTEGRAL PART OF THESE
CONSOLIDATED FINANCIAL STATEMENTS.

EMCORE CORPORATION
CONSOLIDATED STATEMENTS OF CASH FLOWS
FOR THE YEARS ENDED SEPTEMBER 30, 1997, 1998 AND 1999
(IN THOUSANDS)

| | 1997 | 1998 | 1999 |
|---|------------|-------------|-------------|
| | ----- | ----- | ----- |
| CASH FLOWS FROM OPERATING ACTIVITIES: | | | |
| Net loss | \$ (5,619) | \$ (36,419) | \$ (22,689) |
| Adjustments to reconcile net loss to net cash provided by (used for) operating activities: | | | |
| Acquired in-process research and development, non-cash | -- | 19,516 | -- |
| Depreciation and amortization | 3,188 | 8,767 | 11,575 |
| Provision for doubtful accounts | 515 | 1,118 | 390 |
| Provision for inventory valuation | 120 | 120 | 40 |
| Deferred gain on sale to unconsolidated affiliate | -- | -- | 1,259 |
| Detachable warrant accretion and debt issuance cost amortization | 3,988 | 601 | 1,136 |
| Extraordinary loss on early extinguishment of debt | 286 | -- | 1,335 |
| Equity in net loss of unconsolidated affiliates | -- | 198 | 4,997 |
| Compensatory stock issuance | 35 | 351 | 436 |
| Write-off of note receivable due from shareholder | 57 | -- | -- |
| Change in assets and liabilities: | | | |
| Accounts receivable - trade | (5,930) | 2 | (4,375) |
| Accounts receivable - related party | (2,500) | 2,000 | (1,980) |
| Inventories | 399 | (5,243) | (1,585) |
| Costs in excess of billings on uncompleted contracts | 19 | (77) | (46) |
| Prepaid expenses and other current assets | (60) | 13 | (94) |
| Other assets | 28 | (624) | (69) |
| Accounts payable | (2,029) | 7,950 | (6,664) |
| Accrued expenses | 1,881 | (970) | (24) |
| Advanced billings | (1,308) | 1,182 | 1,170 |
| Unearned service revenue | 112 | (72) | (53) |
| | ----- | ----- | ----- |
| Total adjustments | (1,259) | 34,832 | 7,448 |
| | ----- | ----- | ----- |
| Net cash and cash equivalents used for operating activities | (6,878) | (1,587) | (15,241) |
| CASH FLOWS FROM INVESTING ACTIVITIES: | | | |
| Purchase of property, plant, and equipment | (11,631) | (22,132) | (17,110) |
| Acquisition, cash acquired | -- | 193 | -- |
| Investments in unconsolidated affiliates | -- | (490) | (14,203) |
| (Funding) payments of restricted cash | (313) | 250 | 62 |
| | ----- | ----- | ----- |
| Net cash and cash equivalents used for investing activities | (11,944) | (22,179) | (31,251) |
| CASH FLOWS FROM FINANCING ACTIVITIES: | | | |
| Proceeds from initial public offering, net of issuance cost of \$3,110 | 22,765 | -- | -- |
| Proceeds from preferred stock offering, net of issuance cost of \$500 | -- | -- | 21,200 |
| Proceeds from public stock offering, net of issuance cost of \$5,000 | -- | -- | 52,000 |
| Proceeds under convertible subordinated debenture | -- | -- | 7,800 |
| Proceeds (payments) under bank loans | -- | 17,950 | (17,950) |
| Proceeds (payments) under notes payable - related party | -- | 7,000 | (7,000) |
| Payments on demand note facility and subordinated debt | (2,000) | -- | (8,563) |
| Proceeds from exercise of stock purchase warrants | 85 | 23 | 2,164 |
| Proceeds from exercise of stock options | 54 | 83 | 376 |
| Payments on capital lease obligations | (6) | (487) | (573) |
| Dividends paid on preferred stock | -- | -- | (253) |
| Reduction in notes receivable from shareholders | 210 | -- | -- |
| | ----- | ----- | ----- |
| Net cash and cash equivalents provided by financing activities | 21,108 | 24,569 | 49,201 |
| | ----- | ----- | ----- |
| Net increase in cash and cash equivalents | 2,286 | 803 | 2,709 |
| Cash and cash equivalents, beginning of year | 1,367 | 3,653 | 4,456 |
| | ----- | ----- | ----- |
| Cash and cash equivalents, end of year | \$ 3,653 | \$ 4,456 | \$ 7,165 |
| | ===== | ===== | ===== |

EMCORE CORPORATION
 CONSOLIDATED STATEMENTS OF CASH FLOWS - CONTINUED
 FOR THE YEARS ENDED SEPTEMBER 30, 1997, 1998 AND 1999
 (IN THOUSANDS)

| | 1997 | 1998 | 1999 |
|--|--------|----------|----------|
| | ----- | ----- | ----- |
| SUPPLEMENTAL DISCLOSURES OF CASH FLOW INFORMATION: | | | |
| Cash paid for interest | \$ 600 | \$ 1,347 | \$ 1,739 |
| NON-CASH INVESTING AND FINANCING ACTIVITIES: | | | |
| Common stock issued on the exercise of warrants in exchange for subordinated notes | -- | 72 | -- |
| Issuance of common stock on the exercise of warrants in exchange for notes receivable | -- | 7,458 | -- |
| Issuance of common stock, common stock purchase options and warrants in connection with the acquisition of MicroOptical Devices, Inc | -- | 32,329 | -- |
| Conversion of mandatorily redeemable convertible preferred stock to common stock | -- | -- | 7,280 |

Reference is made to Note 8 - Debt Facilities - for disclosure relating to certain non-cash warrant issuance.

Reference is made to Note 11 - Stockholders' Equity - for disclosure relating to certain non-cash equity transactions.

THE ACCOMPANYING NOTES ARE AN INTEGRAL PART OF THESE
 CONSOLIDATED FINANCIAL STATEMENTS.

NOTES TO FINANCIAL STATEMENTS

As of September 30, 1998 and 1999 and for the years ended September 30, 1997, 1998 and 1999

NOTE 1. DESCRIPTION OF BUSINESS

EMCORE Corporation (the "Company"), a New Jersey Corporation, designs, develops and manufactures compound semiconductor materials and is a leading developer and manufacturer of the tools and manufacturing processes used to fabricate compound semiconductor wafers and devices. EMCORE's products and technology enable its customers, both in the United States and internationally, to manufacture commercial volumes of high-performance electronic devices using compound semiconductors. EMCORE has recently established a number of strategic relationships through joint ventures, long-term supply agreements and an acquisition in order to facilitate the development and manufacture of new products in targeted growth markets. EMCORE's products are used for a wide variety of applications in the communications (satellite, data, telecommunications and wireless), consumer and automotive electronics, computers and peripherals, and lighting markets. The Company offers its customers a complete, vertically integrated solution for the design, development and production of compound semiconductor wafers and devices.

NOTE 2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

PRINCIPLES OF CONSOLIDATION. The consolidated financial statements include the accounts of the Company and its wholly owned subsidiary. The equity method of accounting is used for unconsolidated affiliates where the Company exercises significant influence, generally when ownership is at least 20% and not more than 50%. All intercompany accounts and transactions are eliminated upon consolidation. Prior period balances have been reclassified to conform to the current period financial statement presentation.

CASH AND CASH EQUIVALENTS. The Company considers all highly liquid short-term investments purchased with an original maturity of three months or less to be cash equivalents. The Company had approximately \$3.0 million and \$5.7 million in cash equivalents at September 30, 1998 and 1999, respectively.

INVENTORIES. Inventories are stated at the lower of FIFO (first-in, first-out) cost or market. Reserves are established for slow moving or obsolete inventory based upon historical and anticipated usage.

PROPERTY AND EQUIPMENT. Property and equipment are stated at cost. Significant renewals and betterments are capitalized. Maintenance and repairs, which do not extend the useful lives of the respective assets, are expensed. Depreciation is recorded using the straight-line method over the estimated useful lives of the applicable assets, which range from three to five years. Leasehold improvements are amortized using the straight-line method over the term of the related leases or the estimated useful lives of the improvements, whichever is less. Depreciation expense includes the amortization of capital lease assets. When assets are retired or otherwise disposed of, the assets and related accumulated depreciation accounts are adjusted accordingly, and any resulting gain or loss is recorded in current operations.

LONG-LIVED ASSETS. The carrying amount of long-lived assets are reviewed on a regular basis for the existence of facts or circumstances, both internally and externally, that suggest impairment. To date no such impairment has been indicated. The Company determines if the carrying amount of a long-lived asset is impaired based on anticipated undiscounted cash flows before interest. In the event of an impairment, a loss is recognized based on the amount by which the carrying amount exceeds fair value of the asset. Fair value is determined primarily using the anticipated cash flows before interest, discounted at a rate commensurate with the risk involved.

DEFERRED COSTS. Included in other assets are various deferred costs and warrant valuation costs. The deferred costs are primarily related to obtaining product patents that are being amortized over five years. Total amortization expense amounted to approximately \$40,000 \$79,000 and \$143,000 for the years ended September 30, 1997, 1998 and 1999, respectively. During the year ended September 30, 1998, EMCORE issued 284,684 common stock purchase warrants in exchange for the guaranteeing of a credit facility by both the Chairman and Chief Executive Officer of EMCORE. These warrants were assigned a value of \$1.3 million using the Black-Scholes Option Pricing Model ("Black-Scholes"). Amortization expense, recorded as imputed warrant interest expense, related to these warrants amounted to \$219,000 and \$657,000 for the years ended September 30, 1998 and 1999, respectively. On June 15, 1999 with the completion of EMCORE's public offering, this credit facility was cancelled, and the remaining \$434,000 of this warrant valuation was recognized as an extraordinary charge related to the early extinguishment of debt. Also, during the year ended September 30, 1999, EMCORE issued 282,010 common stock purchase warrants to General Electric for financing EMCORE's initial capital contribution in the GELCore joint venture through the issuance of a \$7.8 million subordinated debenture. The warrants were assigned a value of \$2.6 million also using the Black-Scholes option pricing model. Amortization expense related to these warrants, also recorded as imputed warrant interest expense, amounted to \$186,000 for the year ended September 30, 1999.

GOODWILL. Goodwill is amortized using the straight-line method over three years. The Company, as applicable, evaluates whether there has been a permanent impairment in the value of goodwill. Any impairment would be recognized when the sum of expected undiscounted cash flows derived from the acquired business is less than its carrying value.

INCOME TAXES. The Company recognizes deferred taxes by the asset and liability method of accounting for income taxes. Under the asset and liability method, deferred income taxes are recognized for differences between the financial statement and tax bases of assets and liabilities at enacted statutory tax rates in effect for the years in which the differences are expected to reverse. The effect on deferred taxes of a change in tax rates is recognized in income in the period that includes the enactment date. In addition, valuation allowances are established when necessary to reduce deferred tax assets to the amounts expected to be realized. The primary sources of temporary differences are depreciation and amortization of intangible assets.

REVENUE AND COST RECOGNITION - SYSTEMS- AND MATERIALS-RELATED REVENUES. Revenue from systems sales is recognized upon shipment, when title passes to the customer. Subsequent to product shipment, the Company incurs certain installation costs at the customer's facility and warranty costs that are estimated and accrued at the time the sale is recognized. Materials and service revenues are recognized when goods are shipped or services are rendered to the customer. Service revenue under contracts with specified service terms is recognized as earned over the service period in accordance with the terms of the applicable contract. Costs in connection with the procurement of the contracts are charged to expense as incurred.

REVENUE AND COST RECOGNITION - CONTRACT REVENUE. The Company's research contracts require the development or evaluation of new materials applications and have a duration of six to thirty-six months. For research contracts with the U.S. Government and commercial enterprises with a duration greater than six months, the Company recognizes revenue to the extent of costs incurred plus the estimated gross profit as stipulated in such contracts, based upon contract performance. Contracts with a duration of six months or less are accounted for on the completed contract method. A contract is considered complete when all costs, except insignificant items, have been incurred, and the research reporting requirements to the customer have been met. Contract costs include all direct material and labor costs and those indirect costs related to contract performance, such as indirect labor, supplies, tools, repairs and depreciation costs, as well as coverage of certain general and administrative costs. Provisions for estimated losses on uncompleted contracts are made in the period in which such losses are determined. Revenues from contracts amounted to approximately \$614,000, \$438,000 and \$1.4 million for the years ended September 30, 1997, 1998 and 1999, respectively.

RESEARCH AND DEVELOPMENT. Research and development costs related to the development of both present and future products and Company-sponsored materials application research are charged to expense as incurred. In connection with the acquisition of MicroOptical Devices, Inc. ("MODE"), the Company recorded a charge of \$19,516,000 for acquired in-process research and development.

FAIR VALUE OF FINANCIAL INSTRUMENTS. The Company estimates the fair value of its financial instruments based upon discounted cash flow analyses using the Company's incremental borrowing rate on similar instruments as the discount rate. As of September 30, 1999, the carrying values of the Company's cash and cash equivalents, accounts receivables and accounts payable as reflected on the Company's accompanying balance sheet approximates fair value.

USE OF ESTIMATES. The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements. Estimates also affect the reported amounts of revenues and expenses during the reporting period. Actual results may differ from those estimates. The Company's most significant estimates relate to acquired in-process research and development, accounts receivable and inventory valuation reserves, warranty and installation accruals, estimates of cost and related gross profits on certain research contracts and the valuation of long-lived assets.

NET LOSS PER SHARE. The Company accounts for earnings per share under the provision of Statement of Financial Accounting Standards No. 128 "Earnings per Share". Basic earnings per common share was calculated by dividing net loss by the weighted average number of common stock shares outstanding during the period. The effect of outstanding common stock purchase options and warrants, the number of shares available to be issued upon the conversion of the Company's Series I Preferred Stock and the number of shares to be issued upon conversion of the convertible subordinated debenture have been excluded from the earnings per share calculation since the effect of such securities is anti-dilutive. The following table reconciles the number of shares utilized in the earnings per share calculations.

| (IN THOUSANDS, EXCEPT PER SHARE DATA) | FOR THE FISCAL YEARS ENDED SEPTEMBER 30, | | |
|--|--|-------------|-------------|
| | 1997 | 1998 | 1999 |
| Loss before extraordinary item | \$ (5,334) | \$ (36,419) | \$ (21,355) |
| Extraordinary item, loss on early retirement of debt | 285 | -- | 1,334 |
| Net loss | \$ (5,619) | \$ (36,419) | \$ (22,689) |
| Preferred stock dividends | -- | -- | 319 |
| Periodic accretion of preferred stock to redemption value | -- | -- | 52 |
| Net loss attributable to common shareholders | \$ (5,619) | \$ (36,419) | \$ (23,060) |
| Loss per basic and diluted share before extraordinary item | \$ (1.14) | \$ (4.15) | \$ (2.05) |
| Net loss per basic and diluted share | \$ (1.20) | \$ (4.15) | \$ (2.18) |
| Weighted average of outstanding common shares - basic | 4,669 | 8,775 | 10,590 |
| Effect of dilutive securities: | | | |
| Stock option and warrants | -- | -- | -- |
| Preferred stocks | -- | -- | -- |
| Convertible subordinated debenture | -- | -- | -- |
| Weighted average of outstanding common shares - diluted | 4,669 | 8,775 | 10,590 |

CONCENTRATION OF CREDIT RISK. The Company performs material application research under contract with the U.S. Government or as a subcontractor of U.S. Government funded projects. The demand for services and products is directly related to the level of funding of government programs. There can be no assurance that Federal programs will continue to be funded even if government agencies have available financial resources or that the Company will continue to be awarded contracts under such programs.

The Company performs ongoing credit evaluations of its customers' financial condition and generally requires no collateral from its customers. The Company maintains reserves for potential credit losses based upon the credit risk of specified customers, historical trends and other information. To reduce credit risk and to fund manufacturing costs, the Company requires periodic prepayments or irrevocable letters of credit on most production system orders. During fiscal year 1998, the Company wrote off outstanding receivables of approximately \$1.0 million that was due from an Asian customer. Prior to this event, the Company's credit losses generally had not exceeded its expectations. Although such losses have been within management's expectations to date, there can be no assurance that such reserves will continue to be adequate.

The Company has maintained cash balances with certain financial institutions in excess of the \$100,000 insured limit of the Federal Deposit Insurance Corporation.

SEGMENTS DATA. Effective October 1, 1998, the Company adopted the Financial Accounting Standards Board's Statement of Financial Accounting Standards No. 131, "Disclosures about Segments of an Enterprise and Related Information" ("SFAS No. 131"). SFAS No. 131 establishes standards for reporting information about operating segments in annual financial statements and selected information about operating segments in interim financial reports. It also establishes standards for related disclosures about products and services, geographic areas and major customers. The adoption of SFAS No. 131 did not affect results of operations or financial position, but did affect the disclosure of segment information (See Note 14).

RECENT FINANCIAL ACCOUNTING PRONOUNCEMENTS In March 1998, the American Institute of Certified Public Accountants ("AICPA") issued Statement of Position ("SOP") 98-1, "Accounting for the Cost of Computer Software Developed or Obtained for Internal Use" ("SOP 98-1"). SOP 98-1 provides guidance over accounting for computer software developed or obtained for internal use, including the requirement to capitalize specified costs and amortization of such costs. The Company is required to adopt this standard in its fiscal year ended September 30, 2000. The Company does not expect the adoption of this standard to have a material effect on its results of operations, financial position or cash flows.

In April 1998, AICPA issued SOP 98-5, "Reporting on the Costs of Start-Up Activities". SOP 98-5 provides guidance on the financial reporting of start-up costs and organization costs. It requires costs of start up activities and organization costs to be expensed as incurred. The Company is required to adopt this standard in its fiscal year ended September 30, 2000. The adoption of this standard is not expected to have a material impact on its results of operations, financial position or cash flows.

In June of 1998, the FASB issued SFAS No. 133, "Accounting for Derivative Instruments and Hedging Activities." This statement establishes accounting and reporting standards for derivative instruments and requires recognition of all derivatives as assets or liabilities in the statement of financial position and measurement of these instruments at fair value. The statement, as amended, is effective for fiscal years beginning after June 15, 2000. The Company is required to adopt this standard, as amended, in its fiscal year ended September 30, 2001. Management believes that adopting this statement will not have a material impact on the financial position, results of operations, or cash flows of the Company.

NOTE 3. ACQUISITION

On December 5, 1997, the Company acquired all of the outstanding capital stock of MicroOptical Devices, Inc. ("MODE") in exchange for 1,461,866 shares of EMCORE common stock, 200,966 common stock purchase options (exercise prices ranging from \$0.43 to \$0.59), and 47,118 common stock purchase warrants (exercise prices ranging from \$4.32 to \$5.92). The purchase price was approximately \$32,829,000 including direct acquisition costs of approximately \$500,000. The acquisition of MODE was recorded using the purchase method of accounting. Accordingly, the results of operations of the acquired business and the fair values of the acquired tangible and intangible assets and assumed liabilities have been included in the Company's financial statements as of December 5, 1997. The allocation of the fair value of the net assets acquired is as follows:

(in thousands)

| | |
|--|----------|
| ----- | |
| Net tangible assets | \$ 156 |
| Goodwill | 13,157 |
| Acquired in process research and development | 19,516 |
| | ----- |
| Total purchase price | \$32,829 |
| | ===== |

The common stock issued in connection with the MODE acquisition was valued based upon the average closing price of the Company's common stock for the five days before and after the announcement date of the acquisition. The assumed MODE options and warrants were valued using Black-Scholes and such values amounted to approximately \$3,761,000 and \$793,000, respectively.

The MODE options have a term of 10 years from the date of grant, with such options expiring at various dates through July 2007. The options vest, with continued service, over a four-year period; 25% in year one and 75% equally over the remaining 36 months. The warrants have a term of 10 years from the date of grant, were exercisable upon grant, and expire at various dates through May 2007.

MODE was a development stage company (incorporated in August 1995) and had 18 employees at the date of acquisition. MODE's activities were substantially dedicated towards the research and development of optical laser devices at the date of acquisition.

Management is responsible for estimating the fair value of the acquired in-process research and development. As of the date of acquisition, MODE had six primary micro-optical laser research and development projects in-process, which had not reached technological feasibility. MODE's in-process research and development related to new technologies, the fair value assumptions relating to pricing, product margins and expense levels were based upon management's experience with its own operations and the compound semiconductor industry as a whole.

The Company allocated \$475,000 of the purchase price to the acquired workforce of MODE which is included in the approximately \$13.2 million of goodwill discussed above. The amount allocated to goodwill is being amortized over a period of three years.

NOTE 4. JOINT VENTURES

In May 1999, EMCORE and General Electric Lighting formed GELcore, a joint venture to develop and market HB LED lighting products. General Electric Lighting and EMCORE have agreed that this joint venture will be the exclusive vehicle for each party's participation in solid state lighting. GELcore seeks to combine EMCORE's materials science expertise, process technology and compound semiconductor production systems with General Electric Lighting's brand name recognition and extensive marketing and distribution capabilities. GELcore's long-term goal is to develop products to replace traditional lighting. Under terms of the joint venture agreement, EMCORE has a 49% non-controlling interest in the GELcore venture and accounts for its investment under the equity method of accounting. EMCORE has seconded various employees to the joint venture to assist in the development of products.

In May, 1999, in connection with the GELcore venture, General Electric funded the Company's initial capital contribution of \$7.8 million into GELcore. The funding was in the form of a subordinated debenture (the "Debenture") with an interest rate of 4.75%. The Debenture will mature in 2006 and is convertible into common stock of the Company at a conversion price of \$22.875 or 340,984 shares. The Debenture is convertible at any time at the option of General Electric and may be called by the Company after three years, if the price of the Company's common stock has traded at or above \$34 for at least thirty days. In addition, General Electric also received 282,010 warrants to purchase common stock at \$22.875 per share. These warrants are exercisable at any time and will expire in 2006. These warrants were valued using the Black Scholes model, resulting in a valuation of \$2.6 million, which has been included in other assets. Such asset is being amortized over seven years. On a fully diluted basis, General Electric would own approximately 4.5% of the common stock of the Company.

For the fiscal year ended September 30, 1999, the Company recognized a loss of \$2.5 million related to this venture which has been recorded as a component of other income and expense. As of September 30, 1999, the Company's net investment in this venture amounted to \$5.3 million. The Company is obligated to fund the joint venture with an additional \$7.8 million in fiscal year 2000.

In November 1998, EMCORE formed UMCORE, a joint venture with Union Miniere Inc., a mining and materials company, to explore and develop alternate uses for germanium using EMCORE's materials science and production platform expertise and Union Miniere's access to and experience with germanium. EMCORE has a 50% non-controlling interest in the venture and accounts for its interest in the venture under the equity method of accounting. In fiscal year 1999, the Company invested \$896,000 in the venture. The Company is obligated to fund the venture's capital requirements in proportion to its equity interest. EMCORE has seconded various personnel to the joint venture to assist in the development of products. For the fiscal year ended September 30, 1999, the EMCORE recognized a loss of \$297,000 related to this venture which has been recorded as a component of other income and expense. As of September 30, 1999, the Company's net investment in this venture amounted to \$599,000.

In October 1998, EMCORE formed Emtech, a joint venture with Optek Technology, Inc., a packager and distributor of optoelectronic devices, to market an expanded line of magneto resistive sensors to the automotive and related industries. This joint venture combines EMCORE's expertise in the manufacture of magneto resistive die and Optek's expertise in packaging these die. This combination will provide customers with off-the-shelf products. No additional personnel are anticipated to meet the obligations to the joint venture. EMCORE has a 50% non-controlling interest in the venture and accounts for its interest in the venture under the equity method of accounting. EMCORE is obligated to fund the venture's capital requirements in proportion to its equity interest. As of September 30, 1999, EMCORE has not funded the joint venture nor has the joint venture commenced operations.

In December 1997, the Company and a wholly owned subsidiary of Uniroyal Technology Corporation formed Uniroyal Optoelectronics LLC ("UOE"), a joint venture, to manufacture, sell and distribute High Brightness (HB) LED wafers and package-ready devices. EMCORE has a 49% non-controlling interest in the joint venture and accounts for its investment under the equity method of accounting. In fiscal years 1998 and 1999, the Company invested \$490,000 and \$5.5 million, respectively, in the venture that is classified as a component of other long-term assets. During the fiscal year ended September 30, 1999, EMCORE sold three compound semiconductor production systems to the venture totaling \$5.3 million in revenues. EMCORE deferred gross profit of approximately \$1.3 million on such sales to the extent of its minority interest. Such deferred gross profit will be recognized ratably over the assigned life of the production systems purchased by the joint venture. For the fiscal years ended September 30, 1998 and 1999, the Company recognized a loss of \$198,000 and 2.2 million,

respectively related to this venture which has been recorded as a component of other income and expense. As of September 30, 1999, the Company's net investment in this venture amounted to \$3.6 million. The following summarized financial information of EMCORE's joint ventures, (GELcore, UMCORE and UOE), in aggregate, is provided as of and for the year ended September 30, 1999.

| (in thousands) ----- | UNAUDITED ----- |
|-------------------------|--------------------|
| Net sales | \$490 |
| Gross loss | (600) |
| Net loss | (10,218) |
| Current assets | 16,480 |
| Non-current assets | 21,567 |
| Current liabilities | 8,136 |
| Non-current liabilities | 17,790 |

NOTE 5. INVENTORIES

The components of inventories consisted of the following:

| (in thousands) | As of September 30, ----- | |
|-----------------|------------------------------|-------------------|
| | 1998 ----- | 1999 ----- |
| Raw materials | \$11,346 | \$ 9,146 |
| Work-in-process | 1,092 | 3,620 |
| Finished goods | 7 | 1,224 |
| | ----- | ----- |
| Total | \$12,445 ===== | \$13,990 ===== |

NOTE 6. PROPERTY AND EQUIPMENT

Major classes of property and equipment are summarized below:

| (in thousands) | As of September 30, ----- | |
|---|------------------------------|--------------------|
| | 1998 ----- | 1999 ----- |
| Land | \$ 1,029 | \$ 1,029 |
| Building | 7,493 | 9,179 |
| Equipment | 28,367 | 41,225 |
| Furniture and fixtures | 3,256 | 4,880 |
| Leasehold improvements | 9,948 | 10,764 |
| Equipment, furniture and fixtures and leasehold improvement under capital lease | 2,043 | 2,164 |
| | ----- | ----- |
| | 52,136 | 69,241 |
| Less: accumulated depreciation and amortization | (15,926) | (22,959) |
| | ----- | ----- |
| Total | \$ 36,210 ===== | \$ 46,282 ===== |

At September 30, 1999, minimum future lease payments due under the capital leases are as follows:

(IN THOUSANDS)

| | |
|--|-------|
| Period ending: | |
| September 30, 2000 | \$776 |
| September 30, 2001 | 82 |
| September 30, 2002 | 41 |
| September 30, 2003 | 15 |
| September 30, 2004 | 5 |
| | ----- |
| Total minimum lease payments | 919 |
| Less: amount representing interest (imputed interest rate of 14.4%) | (65) |
| | ----- |
| Net minimum lease payments | 854 |
| Less: current portion | 713 |
| | ----- |
| Long-term portion | \$141 |
| | ===== |

The provisions for depreciation and amortization expense on owned property and equipment amounted to approximately \$3.1 million, \$4.7 million and \$6.6 million for the years ended September 30, 1997, 1998 and 1999, respectively. Accumulated amortization on assets accounted for as capital lease amounted to approximately \$366,000 and \$834,000 as of September 30, 1998 and 1999, respectively.

Included in equipment above are twenty systems and twenty-one systems with a combined net book value of approximately \$9.8 million and \$13.7 million at September 30, 1998 and 1999, respectively. Such systems are utilized for the production of compound semiconductor wafers and package-ready devices for sale to third parties, systems demonstration purposes, system sales support, in-house materials applications, internal research and contract research funded by third parties.

NOTE 7. ACCRUED EXPENSES

Accrued expenses consisted of the following:

| | | |
|--|---------------------|---------|
| (in thousands) | As of September 30, | |
| | ----- | ----- |
| | 1998 | 1999 |
| | ----- | ----- |
| Accrued payroll, vacation and other employee expenses | \$2,114 | \$1,631 |
| Installation and warranty costs | 704 | 929 |
| Interest | 346 | 129 |
| Other | 1,033 | 1,484 |
| | ----- | ----- |
| Total | \$4,197 | \$4,173 |
| | ===== | ===== |

NOTE 8. DEBT FACILITIES

CONVERTIBLE SUBORDINATED DEBENTURE

In May 1999, in connection with the GELcore venture, General Electric funded the Company's initial capital contribution of \$7.8 million into GELcore. The funding was in the form of a subordinated debenture (the "Debenture") with an interest rate of 4.75%. The Debenture will mature in 2006 and is convertible into common stock of the Company at a conversion price of \$22.875 or 340,984 shares. The Debenture is convertible at any time at the option of General Electric and may be called by the Company after three years, if the price of the Company's common stock has traded at or above \$34 for at least thirty days. In addition, General Electric also received 282,010 warrants to purchase common stock at \$22.875 per share. These warrants are exercisable at any time and will expire in 2006. These warrants were valued using the Black Scholes model, resulting in a valuation of \$2.6 million, which has been included in other assets. Such asset is being amortized over seven years and is charged to "Imputed warrant interest, non-cash". On a fully diluted basis, General Electric would own approximately 4.5% of the common stock of the Company.

BANK LOANS

LOAN AGREEMENT:

In March 1997, the Company entered into a \$10.0 million loan agreement with First Union National Bank (the "Loan Agreement") that had an interest rate of Prime plus 50 basis points (8.75% at September 30, 1998). As of September 30, 1998 the Company had \$9,950,000 outstanding under this facility. As of September 30, 1999, there were no amounts outstanding under this facility (see below). The Loan Agreement contains financial covenants which, among other things, require maintenance of certain financial ratios, liquidity and net worth. As a result of the net loss for certain quarters in the years ended September 30, 1998 and 1999, the Company was not in compliance with the Loan Agreement's debt covenants. The Company received a waiver from the bank regarding this non-compliance. Subsequent to year-end 1999, the Company's Loan Agreement was extended through January 31, 2001. The Loan Agreement's financial covenants were modified under the third amendment, and management believes that the Company will be able to comply with such requirements throughout fiscal year 2000.

1998 AGREEMENT:

In June 1998, the Company entered into an \$8.0 million loan agreement with First Union National Bank (the "1998 Agreement") that had an interest rate equal to one-month LIBOR plus three-quarters of one percent per annum (6.4% at September 30, 1998). As of September 30, 1998, \$8.0 million was outstanding under the 1998 Agreement. As of September 30, 1999, there were no amounts outstanding under this facility (see below). The 1998 Agreement expired upon completion of the public offering (see Note 11). The 1998 Agreement was guaranteed by both the Company's Chairman and Chief Executive Officer. In exchange for guaranteeing the facility, both the Chairman and the Chief Executive Officer were granted an aggregate of 284,684 common stock purchase warrants exercisable at \$11.375 per share until May 1, 2001. These warrants are callable at the Company's option at \$0.85 per warrant at such time as the Company's Common Stock has traded at or above 150% of the exercise price for a period of thirty days. The Company assigned a value of \$1,310,000 to the warrants issued to the guarantors. This valuation was based upon the Company's application of Black-Scholes. This value was accounted for as debt issuance cost and was completely amortized by September 30, 1999. See extraordinary item described below.

In June 1999, the Company completed the issuance of an additional 3.0 million common stock shares through a public offering, which resulted in proceeds of \$52.0 million, net of issuance costs. A portion of the proceeds was used to repay all outstanding bank loans.

SUBORDINATED NOTES:

In May 1996, the Company issued subordinated notes (the "Subordinated Notes") in the amount of \$9,500,000 to its existing shareholders, \$1,000,000 of which were exchanged for notes receivable from officers and certain employees with identical payment and interest provisions. The Subordinated Notes are scheduled to mature on May 1, 2001, and have a stated interest rate of 6.0% which is payable semi-annually on May 1 and November 1. In addition, the noteholders were issued 2,328,432 common stock purchase warrants with an exercise price of \$4.08 per share which expire on May 1, 2001. The warrants are exercisable after November 1, 1996, and are callable at the Company's option, after May 1, 1997, at \$0.85 per warrant. The Company has the legal right of offset with respect to the notes receivable from officers and certain key employees, and it is their full intention to offset the corresponding notes receivable and payable upon maturity. As such, the Company reflected \$848,000 of the officers' and employees' notes receivable as a contra liability, reducing the Company's Subordinated Notes balance. The remaining \$152,000 note receivable has been reflected as a contra equity note receivable balance, representing the portion of the employee note receivable associated with common stock purchase warrants issued to such employees. The Company received cash proceeds of \$8,500,000 in connection with this Subordinated Notes issuance.

In September 1996, the Company issued a subordinated note in the amount of \$2,500,000 to the Company's then majority shareholder with terms identical to the Subordinated Notes issued on May 1, 1996. In addition, under the terms of this issuance, 245,098 common stock purchase warrants were issued to purchase common stock at \$10.20 per share and which expire September 1, 2001. These warrants are exercisable after March 1, 1997, and are callable at the Company's option after September 1, 1997, at \$0.85 per warrant. The Company assigned a value of \$1,440,000 to the May 1, 1996 detachable warrants and \$900,000 to the September 1, 1996 detachable warrants. These valuations were based upon the Company's application of Black-Scholes and the Company's assessment of the underlying valuation factors, as well as an assessment of the terms of the Subordinated Notes. The carrying value of the Subordinated Notes will be subject to periodic accretions, using the interest method, in order for the carrying amount to equal the Company's obligation upon maturity. As a result, the May 1, 1996 and September 1, 1996 Subordinated Notes have an effective interest rate of approximately 9.3% and 15.0%, respectively. For the years ended September 30, 1997, 1998 and 1999, imputed warrant interest related to the Subordinated Notes amounted to \$388,000, \$370,000 and \$293,000, respectively.

In June 1999, a portion of the proceeds from the public offering was used to repay all outstanding subordinated notes. The difference between the carrying value of the subordinated notes and the face value was recorded as an extraordinary loss, as noted below.

DEMAND NOTE FACILITIES:

On September 17, 1998, the Company borrowed \$7.0 million from its Chairman at an interest rate of Prime plus 200 basis points (10.25% as of September 30, 1998), per annum. In addition, on October 23, 1998 the Company borrowed an additional \$1.5 million from its Chairman on identical terms. The entire sum of \$8.5 million borrowed plus interest was repaid from the proceeds of the Private Placement (see Note 11). The demand note facility expired upon completion of the public offering (see Note 11)

EXTRAORDINARY ITEMS:

On June 15, 1999, the Company repaid its outstanding bank loans using a portion of the proceeds from the public offering. The Company also used a portion of the net proceeds to repurchase its outstanding 6.0% subordinated notes due 2001. The early extinguishment of debt resulted in an extraordinary charge of \$1.3 million or \$0.13 per share in fiscal year 1999 that consisted of the following:

(in thousands)

EXTRAORDINARY ITEMS:

| | |
|---|---------|
| Discount on prepayment of 6% subordinated notes due 2001..... | \$ 867 |
| Write-off of deferred financing costs..... | 467 |
| | ----- |
| Net extraordinary loss | \$1,334 |
| | ===== |

On October 25, 1996, the Company entered into a \$10.0 million demand note facility (the "Facility"). The Facility bore interest at the rate of LIBOR plus 75 basis points, had a term of one year and was due and payable on demand. The Facility was guaranteed by the Chairman of the Company's Board of Directors who provided collateral for the Facility. In December 1996, in return for guaranteeing the facility, the Company granted the Chairman 980,392 common stock purchase warrants at \$10.20 per share which expire September 1, 2001. These warrants are exercisable after July 1, 1997, and are callable at the Company's option after December 1, 1997 at \$0.85 per warrant. The Facility was terminated in conjunction with the Company's initial public offering.

The Company assigned a value of \$3,600,000 to the warrants issued to the guarantor. This valuation was based upon the Company's application of Black-Scholes. This value was accounted for as debt issuance cost and was amortized over the expected period that the facility was to be in place (four months). The Company utilized a portion of the proceeds from its initial public offering to pay down or discharge certain of its debts. The Company repaid the entire \$8.0 million outstanding under its October 1996 Facility and \$2.0 million was used to repay a portion of the Company's outstanding subordinated notes, due May 1, 2001. In connection with the discharge of the Company's subordinated notes, an extraordinary loss of \$286,000 was recognized in fiscal year 1997.

NOTE 9. COMMITMENTS AND CONTINGENCIES

On November 16, 1992, the Company entered into a three-year lease agreement with a bank for 34,000 square feet of space in the building the Company presently occupies. On March 31, 1995, the agreement was renewed for 5 years for 49,000 square feet. In November 1996, the Company signed an agreement to occupy the remaining 26,000 square feet that it previously had not occupied. In May 1999, the agreement was renewed for another 5 years.

The Company leases certain equipment under non-cancelable operating leases.

Facility and equipment rent expense under such leases amounted to approximately \$548,000, \$637,000 and \$761,000 for the years ended September 30, 1997, 1998 and 1999, respectively.

Future minimum rental payments under the Company's non-cancelable operating leases with an initial or remaining term of one year or more as of September 30, 1999 are as follows:

| (in thousands) PERIOD ENDING: ----- | Operating ----- |
|---|--------------------|
| September 30, 2000 | \$448 |
| September 30, 2001 | 129 |
| September 30, 2002 | 55 |
| September 30, 2003 | 7 |
| September 30, 2004 | -- |
| | ---- |
| Total minimum lease payments | \$639 |
| | ---- |

In January 1999, Rockwell settled litigation that challenged the validity of certain patents which EMCORE licensed from Rockwell prior to the commencement of the litigation. As a result of this settlement, EMCORE will be required to pay Rockwell a royalty including interest under our license agreement relating to TurboDisc(TM) tools. EMCORE believes it has adequately accrued for these royalties. In addition, prior to the commencement of the litigation, EMCORE had initiated discussions with Rockwell to receive additional licenses to permit EMCORE to use the technology to manufacture and sell wafers and devices. EMCORE may be required to pay royalties to Rockwell for certain past sales of wafers and devices to customers who do not hold licenses directly from Rockwell. Management has reviewed and reassessed the royalty agreements and concluded that it has the appropriate amounts reserved for at both September 30, 1998 and 1999. We are currently negotiating with Rockwell to obtain the necessary licenses to continue to manufacture and sell wafers and devices. The Rockwell patent expires in January 2000. The failure to obtain licenses to manufacture these wafers and devices on commercially reasonable terms may materially and adversely affect our business, financial condition and results of operations through January 2000.

The Company is from time to time involved in litigation incidental to the conduct of its business. Management and its counsel believe that such pending litigation will not have a material adverse effect on the Company's results of operations, cash flows or financial condition.

NOTE 10. INCOME TAXES

Income tax expense consists of the following:

| (IN THOUSANDS) | For the years ended September 30, | | |
|----------------|-----------------------------------|-------|-------|
| | 1997 | 1998 | 1999 |
| Current: | | | |
| Federal | \$ 113 | \$ -- | \$ -- |
| State | 24 | -- | -- |
| | ----- | ----- | ----- |
| | 137 | -- | -- |
| Deferred: | | | |
| Federal | -- | -- | -- |
| State | -- | -- | -- |
| | ----- | ----- | ----- |
| Total | \$ 137 | \$ -- | \$ -- |
| | ----- | ----- | ----- |

The principal differences between the U.S. statutory and effective income tax rates were as follows:

| | For the years ended September 30, | | |
|--|-----------------------------------|---------|---------|
| | 1997 | 1998 | 1999 |
| US statutory income tax (benefit) expense rate | (34.0)% | (34.0)% | (34.0)% |
| State rate, net of federal benefit | (5.9)% | (5.9)% | (5.9)% |
| Acquired in-process research and development | -- | 18.2% | -- |
| Change in valuation allowance | 37.7% | 19.8% | 35.0% |
| Non-deductible amortization | -- | 3.4% | 4.8% |
| Other | 4.7% | (1.5)% | 0.1% |
| | ----- | ----- | ----- |
| Effective tax rate | 2.5% | -- | -- |
| | ===== | ===== | ===== |

The components of the Company's net deferred taxes were as follows:

| (in thousands) | For the years ended September 30, | |
|---|--------------------------------------|-----------|
| | 1998 | 1999 |
| Deferred tax assets: | | |
| Federal net operating loss carryforwards | \$ 7,943 | \$ 11,800 |
| Research credit carryforwards (state and federal) | 1,479 | 1,554 |
| Inventory reserves | 248 | 133 |
| Accounts receivable reserves | 240 | 191 |
| Fixed assets | -- | 2,325 |
| Interest | 1,657 | 386 |
| Accrued installation reserve | 164 | 146 |
| Accrued warranty reserve | 76 | 157 |
| State net operating loss carryforwards | 1,494 | 1,336 |
| Other | 238 | 569 |
| Valuation reserve - federal | (9,438) | (15,430) |
| Valuation reserve - state | (3,751) | (2,936) |
| | ----- | ----- |
| Total deferred tax assets | 350 | 231 |
| Deferred tax liabilities: | | |
| Fixed assets and intangibles | (350) | (231) |
| | ----- | ----- |
| Total deferred tax liabilities | (350) | (231) |
| | ----- | ----- |
| Net deferred taxes | \$ -- | \$ -- |
| | ----- | ----- |

The Company has established a valuation reserve as it has not determined that it is more likely than not that the net deferred tax asset is realizable, based upon the Company's past earnings history.

As of September 30, 1999, the Company has net operating loss carryforwards for tax purposes of approximately \$24.0 million that expire in the years 2003 through 2019. The Company believes that the consummation of certain equity transactions and a significant change in the ownership during fiscal years 1995, 1998 and 1999 have constituted a change in control under Section 382 of the Internal Revenue Code ("IRC"). Due to the change in control, the Company's ability to use its federal net operating loss carryovers and federal research credit carryovers to offset future income and income taxes, respectively, are subject to annual limitations under IRC Sections 382 and 383.

The Company believes that the acquisition of MODE and the consummation of certain other equity transactions has constituted a change in control in fiscal 1998 under Section 382 of the IRC. As such, Federal net operating loss carryovers and research credit carryovers incurred subsequent to the Company's fiscal 1995 change in control (as described above) will also be subject to annual limitations under IRC Sections 382 and 383.

NOTE 11. STOCKHOLDERS' EQUITY

REVERSE STOCK SPLIT. On February 3, 1997, the Board of Directors approved a 3.4:1 reverse stock split of its common stock and approved a decrease in the number of shares of common stock authorized. All references in the accompanying financial statements to the number of common stock and per-share amounts have been restated to reflect the reverse split.

COMMON STOCK OFFERING. On March 6, 1997, the Company completed an initial public offering of 2,500,000 shares of common stock at a price of \$9.00 per share (the "Offering"), and upon the exercise of the Underwriter's overallotment option, 375,000 additional shares of common stock were also sold at \$9.00 per share. The proceeds, net of commissions and certain expenses, to the Company from the offering were approximately \$22.8 million. Prior to the Offering, there was no public market for the Company's common stock.

PUBLIC OFFERING. On June 15, 1999, the Company completed the issuance of an additional 3.0 million common stock shares through a public offering, which resulted in proceeds of \$52.0 million, net of issuance costs of \$5.0 million. A portion of the proceeds was used to repay all outstanding bank indebtedness and subordinated notes.

PREFERRED STOCK. The Company's certificate of incorporation authorizes the Board of Directors to issue up to 5,882,353 shares of preferred stock of the Company upon such terms and conditions having such rights, privileges and preferences as the Board of Directors may determine.

PRIVATE PLACEMENT OFFERING. On November 30, 1998, the Company sold an aggregate of 1,550,000 shares of Series I Redeemable Convertible Preferred Stock ("the Series I Preferred Stock") for aggregate consideration of \$21.7 million before deducting costs and expenses, which amounted to approximately \$500,000. The Series I Preferred Stock was recorded net of issuance costs. The excess of the preference amount over the carrying value is being accreted by periodic charges to accumulated deficit. The shares of Series I Preferred Stock are convertible, at any time, at the option of the holders thereof, unless previously redeemed, into shares of common stock at an initial conversion price of \$14.00 per share of common stock, subject to adjustment in certain cases. The market price of the Company's common stock was \$12.875 on the date the Series I Preferred Stock was issued. The Series I Preferred Stock is redeemable, in whole or in part, at the option of the Company at any time the Company's stock has traded at or above \$28.00 per share for 30 consecutive trading days, at a price of \$14.00 per share, plus accrued and unpaid dividends, if any, to the redemption date. The Series I Preferred Stock carries a dividend of 2% per annum. Dividends are being charged to accumulated deficit. In addition, the Series I Preferred Stock is subject to mandatory redemption by the Company at \$14.00 per share plus accumulated and unpaid dividends, if any, on November 17, 2003. On June 15, 1999, 520,000 shares of Series I Redeemable Convertible Preferred Stock were converted to common stock.

NOTE 12. STOCK OPTIONS AND WARRANTS

STOCK OPTION PLAN. In November 1994, the Company's Incentive Stock Option Plan, initiated in 1987, was eliminated. On June 5, 1995, the Company adopted the 1995 Incentive and Non-Statutory Stock Option Plan (the "Option Plan"). Under the terms of the Option Plan, options to acquire 323,529 shares of common stock may be granted to eligible employees, as defined, at no less than 100 percent of the fair market value on the date of grant. In March 1996, the ability to grant options to acquire an additional 323,530 shares of common stock was approved. In February 1997, the ability to grant options to acquire an additional 725,000 shares of common stock was approved. As of September 30, 1999, 82,578 stock options were available for issuance under the Company's Option Plan.

Certain options under the Option Plan are intended to qualify as incentive stock options pursuant to Section 422A of the Internal Revenue Code.

During fiscal 1999, options with respect to 330,795 shares were granted pursuant to the Company's option plan at exercise prices ranging from \$8.00 to \$26.50 per share.

Stock options granted generally vest over three to five years and are exercisable over a ten-year period. As of September 30, 1997, 1998 and 1999, options with respect to 199,368, 481,863 and 554,439 shares were exercisable, respectively.

The following table summarized the activity under the plan:

| | SHARES | WEIGHTED AVERAGE EXERCISE PRICE |
|--------------------------------------|-----------|------------------------------------|
| | ----- | ----- |
| Outstanding as of September 30, 1996 | 339,412 | \$ 3.54 |
| Granted | 182,700 | 11.06 |
| Exercised | (42,165) | 3.17 |
| Cancelled | (4,475) | 3.08 |
| | ----- | ----- |
| Outstanding as of September 30, 1997 | 475,472 | \$ 6.47 |
| Assumed in MODE acquisition | 200,978 | 0.50 |
| Granted | 615,306 | 13.34 |
| Exercised | (35,809) | 2.33 |
| Cancelled | (43,221) | 10.22 |
| | ----- | ----- |
| Outstanding as of September 30, 1998 | 1,212,726 | \$ 8.95 |
| Granted | 330,795 | 13.74 |
| Exercised | (110,072) | 3.41 |
| Cancelled | (127,436) | 9.33 |
| | ----- | ----- |
| Outstanding as of September 30, 1999 | 1,306,013 | \$10.59 |
| | ----- | ----- |

At September 30, 1999, stock options outstanding were as follows:

| Exercise Prices | Options Outstanding | Weighted Average Remaining Contractual Life (Years) | Exercisable Options | Weighted Average Exercise Price |
|--|------------------------|--|------------------------|------------------------------------|
| ----- | ----- | ----- | ----- | ----- |
| less than or equal to \$5 | 298,875 | 6.70 | 269,806 | \$ 2.18 |
| less than \$5 to less than or equal to \$10 | 39,300 | 8.96 | 3,860 | 9.38 |
| less than \$10 to less than or equal to \$15 | 830,118 | 8.53 | 257,129 | 12.39 |
| less than \$15 to less than or equal to \$20 | 76,220 | 8.42 | 11,644 | 18.02 |
| greater than \$20 | 61,500 | 8.79 | 12,000 | 21.92 |

In connection with the Company's acquisition of MODE, it assumed 200,978 common stock purchase options with exercise prices ranging from \$0.43 to \$0.60. The MODE options have a term of 10 years from the date of grant, with such options expiring at various dates through July 31, 2007. The options vest, with continued service, over a four-year period; 25% in year one and 75% equally over the remaining 36 months.

The following table summarizes the activity of options assumed in the MODE acquisition:

| | SHARES | WEIGHTED AVERAGE EXERCISE PRICE |
|--|----------|---------------------------------------|
| | ----- | ----- |
| Outstanding as of September 30, 1997 | -- | -- |
| Options assumed at the date of acquisition | 200,978 | \$0.50 |
| Exercised | (15,890) | 0.51 |
| Cancelled | (7,764) | 0.56 |
| | ----- | ----- |
| Outstanding as of September 30, 1998 | 177,324 | 0.50 |
| Granted | -- | -- |
| Exercised | (52,799) | 0.54 |
| Cancelled | (28,029) | 0.56 |
| | ----- | ----- |
| Outstanding as of September 30, 1999 | 96,496 | 0.46 |
| | ===== | ===== |

In October 1995, the Financial Accounting Standards Board issued SFAS No. 123, "ACCOUNTING FOR STOCK BASED COMPENSATION" ("SFAS 123"). SFAS 123 establishes financial and reporting standards for stock based compensation plans. The Company has adopted the disclosure only provisions of this standard and has elected to continue to apply the provision of Accounting Principles Board Opinion No. 25, "Accounting for Stock Issued to Employees". Had the Company elected to recognize compensation expense for stock options based on the fair value at the grant dates of awards, net loss and net loss per share would have been as follows:

| (in thousands) | FOR THE FISCAL YEARS ENDED SEPTEMBER 30, | | |
|---|--|-----------|-----------|
| | 1997 | 1998 | 1999 |
| | ----- | ----- | ----- |
| Loss before extraordinary item | | | |
| As reported | \$5,334 | \$36,419 | \$21,354 |
| Pro forma | 5,441 | 37,038 | 22,648 |
| Loss per basic and diluted share before extraordinary item | | | |
| As reported | \$ (1.14) | \$ (4.15) | \$ (2.05) |
| Pro forma | \$ (1.17) | \$ (4.22) | \$ (2.17) |
| Net loss | | | |
| As reported | \$5,619 | \$36,419 | \$22,689 |
| Pro forma | \$5,727 | \$37,038 | \$23,983 |
| Net loss per basic and diluted share | | | |
| As reported | \$ (1.20) | \$ (4.15) | \$ (2.18) |
| Pro forma | \$ (1.23) | \$ (4.22) | \$ (2.30) |

The weighted average fair value of the Company's stock options was calculated using Black-Scholes with the following weighted-average assumptions used for grants: no dividend yield; expected volatility of 0% prior to the Company's initial public offering, 60% for fiscal years 1997 and 1998 and 76% for fiscal year 1999; a risk-free interest rate of 6.0%, 5.6% and 5.8% for fiscal years 1997, 1998 and 1999, respectively; and expected lives of 5 years. The weighted average fair value of options granted during the years ended September 30, 1997, 1998 and 1999 was \$3.82, \$7.50 and \$9.05 per share, respectively. Stock options granted by the Company prior to its initial public offering were valued using the minimum value method under FASB No. 123.

WARRANTS.

WARRANT EXERCISE. On December 3, 1997, the holders of 1.8 million common stock purchase warrants (with an exercise price of \$4.08) exercised such warrants with the Company taking full recourse notes amounting to approximately \$7.5 million in exchange for the issued common stock. The notes receivable mature and are payable in full on May 1, 2001 and have an interest rate of 6%, compounding semi-annually. In addition, the holders are required to provide collateral at a 2:1 coverage ratio. The Company presently holds this collateral.

Set forth below is a summary of the Company's outstanding warrants at September 30, 1999:

| Underlying Security ----- | Exercise Price ----- | Warrants ----- | Expiration Date ----- |
|------------------------------|----------------------------|--------------------|-----------------------------|
| Common Stock (1) | \$4.08 | 249,990 | May 1, 2001 |
| Common Stock (2) | \$4.33 | 36,990 | August 21, 2006 |
| Common Stock (2) | \$5.92 | 10,128 | May 16, 2007 |
| Common Stock (3) | \$10.20 | 1,039,460 | September 1, 2001 |
| Common Stock (4) | \$11.38 | 284,684 | May 1, 2001 |
| Common Stock (5) | \$22.88 | 282,010 | May 26, 2006 |
| | | ----- 1,903,262 | |

- (1) issued in connection with EMCORE's May 1996 subordinated note issuance.
- (2) issued in connection with EMCORE's December 1997 acquisition of MicroOptical Devices, Inc.
- (3) issued in connection with EMCORE's September 1996 subordinated debt issuance and October 1996 debt guarantee.
- (4) issued in connection with EMCORE's June 1998 bank loan agreement.
- (5) issued in connection with EMCORE's May 1999 formation of the joint venture with GEL.

NOTE 13. RELATED PARTIES

In fiscal year 1997, the Company entered into a \$5.0 million non-exclusive and non-refundable technology licensing and royalty agreement with Uniroyal Technology Corporation ("UTC") for the process technology to develop and manufacture high brightness light emitting diodes ("HB LEDs"). During fiscal years 1997 and 1998, revenue associated with the UTC licensing agreement amounted to \$2.5 million annually. At the time the transaction was originally entered into, UTC's Chairman and CEO was a member of EMCORE's Board of Directors and EMCORE's Chairman was on the Board of Directors of UTC.

In December 1997, the Company and a wholly owned subsidiary of Uniroyal Technology Corporation formed Uniroyal Optoelectronics LLC, a joint venture, to manufacture, sell and distribute High Brightness (HB) LED wafers and package-ready devices (see Note 4). During the fiscal year ended September 30, 1999, EMCORE sold three compound semiconductor production systems to the venture totaling \$5.3 million in revenues. EMCORE deferred gross profit of approximately \$1.3 million on such sales to the extent of its minority interest. Such deferred gross profit will be recognized ratably over the assigned life of the production systems purchased by the joint venture. As of September 30, 1999, the Company had an outstanding related party receivable of \$1.8 million.

In May 1999, EMCORE and General Electric Lighting formed GELcore, a joint venture to develop and market HB LED lighting products. As of September 30, 1999, the Company had an outstanding related party receivable of \$673,000.

The President of Hakuto Co. Ltd. ("Hakuto"), the Company's Asian distributor, is a member of the Company's Board of Directors and Hakuto is a minority shareholder of the Company. During the years ended September 30, 1998 and 1999, sales made through Hakuto approximated \$9.2 million and \$10.2 million respectively.

On June 22, 1998, the Company entered into a bank loan agreement, which was guaranteed by the Chairman and the Chief Executive Officer of the Company (see Note 8).

On September 17, 1998, the Company borrowed \$7.0 million from its Chairman, Thomas J. Russell at an interest rate of 9.75% per annum. In addition, on October 23, 1998 the Company borrowed an additional \$1.5 million from its Chairman on identical terms. The entire \$8.5 million, borrowed from Mr. Russell was repaid from the proceeds of a private placement (See Note 8).

NOTE 14. SEGMENT DATA AND RELATED INFORMATION

EMCORE has two reportable operating segments: the systems-related business unit and the materials-related business unit. The systems-related business unit designs, develops and manufactures tools and manufacturing processes used to fabricate compound semiconductor wafer and devices. Revenues for the systems-related business unit consists of sales of EMCORE's Turbodisc(TM) production systems as well as spare parts and services. Our systems-related business unit assists our customers with device design, process development and optimal configuration of TurboDisc(TM) production systems. The materials-related business unit designs, develops and manufactures compound semiconductor materials. Revenues for the materials-related business unit include sales of semiconductor wafers, devices and process development technology. EMCORE's vertically-integrated product offering allows it to provide a complete compound semiconductor solution to its customers.

The segments reported below are the segments of the Company for which separate financial information is available and for which gross profit amounts are evaluated regularly by executive management in deciding how to allocate resources and in assessing performance. The accounting policies of the operating segments are the same as those described in the summary of accounting policies (see Note 2). The Company does not allocate assets or operating expenses to the individual operating segments. There are no intercompany sales transactions between the two operating segments.

The Company's reportable operating segments are business units that offer different products. The reportable segments are each managed separately because they manufacture and distribute distinct products and services.

Information about reported segment gross profit is as follows:

| (in thousands) | 1997 ----- | 1998 ----- | 1999 ----- |
|--------------------------|---------------|---------------|---------------|
| Revenues: | | | |
| Systems-related..... | \$34,091 | \$26,324 | \$44,477 |
| Materials-related..... | 13,661 | 17,436 | 13,864 |
| | ----- | ----- | ----- |
| Total revenues..... | 47,752 | 43,760 | 58,341 |
| Cost of sales: | | | |
| Systems-related..... | 24,250 | 15,942 | 26,522 |
| Materials-related..... | 5,844 | 8,734 | 6,636 |
| | ----- | ----- | ----- |
| Total cost of sales..... | 30,094 | 24,676 | 33,158 |
| Gross profit: | | | |
| Systems-related..... | 9,841 | 10,382 | 17,955 |
| Materials-related..... | 7,817 | 8,702 | 7,228 |
| | ----- | ----- | ----- |
| Total gross profit..... | \$17,658 | \$19,084 | \$25,183 |
| Gross margin: | | | |
| Systems-related..... | 28.9% | 39.4% | 40.4% |
| Materials-related..... | 57.2% | 49.9% | 52.1% |
| | ----- | ----- | ----- |
| Total gross margin..... | 37.0% | 43.6% | 43.2% |
| | ----- | ----- | ----- |

The Company sells its compound semiconductor products domestically and internationally. The Company's international sales are generally made under letter of credit arrangements. The following chart contains a breakdown of EMCORE's worldwide sales to customers and percentages by geographic region. Historically, EMCORE has received all payments for products and services in U.S. dollars.

| Region | For the fiscal years ended September 30, | | | | | |
|---------------|--|------|----------|------|----------|------|
| | 1997 | | 1998 | | 1999 | |
| | Revenues | % | Revenues | % | Revenues | % |
| North America | \$27,690 | 58% | \$26,648 | 61% | \$27,698 | 48% |
| Asia | 14,584 | 31% | 15,527 | 35% | 28,211 | 48% |
| Europe | 5,478 | 11% | 1,585 | 4% | 2,432 | 4% |
| Total | \$47,752 | 100% | \$43,760 | 100% | \$58,341 | 100% |

All long-lived assets are located in the North America region. Significant sales in the Asia region are predominately made in Japan and Taiwan. Sales to customers that accounted for at least 10% of total EMCORE revenues are outlined below. In fiscal year 1999, no individual customer had sales equal to or in excess of 10% of total fiscal year 1999 revenues.

| | For the fiscal years ended September 30, | |
|------------|--|----------|
| | 1997 | 1998 |
| Customer A | \$ 4,873 | \$ 7,583 |
| Customer B | 7,159 | 5,602 |
| Total | \$12,032 | \$13,185 |

NOTE 15. QUARTERLY FINANCIAL DATA (UNAUDITED)

| (in thousands except per share data) | Revenues | Operating | Net Income | Net Income |
|--------------------------------------|----------|--------------|--------------|------------|
| | | Income | Net Income | (Loss) |
| | | (Loss) | (Loss) | Per Share |
| Fiscal Year 1997: | | | | |
| December 31, 1996 | \$ 8,591 | \$(2,585) | \$ (3,798) | \$ (0.86) |
| March 31, 1997 | 12,929 | 147 | (3,150) | (0.82) |
| June 30, 1997 | 14,106 | 907 | 830 | 0.10 |
| September 30, 1997 | 12,126 | 841 | 498 | 0.06 |
| Fiscal Year 1998: | | | | |
| December 31, 1997 | \$12,357 | \$(19,717) * | \$(19,883) * | \$(2.81) * |
| March 31, 1998 | 13,808 | (615) | (778) | (0.08) |
| June 30, 1998 | 9,074 | (7,955) | (8,260) | (0.88) |
| September 30, 1998 | 8,521 | (6,359) | (7,498) | (0.80) |
| Fiscal Year 1999: | | | | |
| December 31, 1998 | \$10,125 | \$(6,058) | \$(6,880) | \$(0.74) |
| March 31, 1999 | 16,072 | (1,802) | (3,977) | (0.44) |
| June 30, 1999 | 17,667 | (1,893) | (5,238) | (0.53) |
| September 30, 1999 | 14,477 | (4,603) | (6,594) | (0.50) |

* includes \$19.5 million one-time acquired in-process, non-cash research and development.

NOTE 16. EMPLOYEE SAVINGS PLAN

The Company has a savings plan (the "Savings Plan") that qualifies as a deferred salary arrangement under Section 401(k) of the Internal Revenue Code. Under the Savings Plan, participating employees may defer a portion of their pretax earnings, up to the Internal Revenue Service annual contribution limit. Effective August 1, 1997, the Company began contributing to the Savings Plan. All employer contributions are made in the Company's common stock. For the years ended September 30, 1998 and 1999, the Company contributed approximately \$252,000 and \$376,000, respectively to the Savings Plan.

INDEPENDENT AUDITORS' REPORT

To the Board of Directors and
Shareholders of EMCORE Corporation

We have audited the accompanying consolidated balance sheets of EMCORE Corporation (the "Company") as of September 30, 1999 and 1998, and the related consolidated statements of operations, shareholders' equity and cash flows for the years then ended. Our audits also included the financial statement schedule listed in the Index at Item 14(a)(2) for the years ended September 30, 1999 and 1998. These financial statements and the financial statement schedule are the responsibility of the Company's management. Our responsibility is to express an opinion on the financial statements and financial statement schedule based on our audits.

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

In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of EMCORE Corporation as of September 30, 1999 and 1998, and the results of its operations and its cash flows for the years then ended in conformity with generally accepted accounting principles. Also, in our opinion, such financial statement schedule for the years ended September 30, 1999 and 1998, when considered in relation to the basic consolidated financials statements taken as a whole, presents fairly in all material respects the information set forth therein.

DELOITTE & TOUCHE LLP

Parsippany, New Jersey
November 10, 1999

To the Shareholders of
EMCORE Corporation:

Management has prepared and is responsible for the consolidated financial statements and related information in the Annual Report. The financial statements, which include amounts based on judgment, have been prepared in conformity with generally accepted accounting principles consistently applied.

Management has developed, and continues to strengthen, a system of internal accounting and other controls for the Company. Management believes these controls provide reasonable assurance that assets are safeguarded from loss or unauthorized use and that the Company's financial records are a reliable basis for preparing the financial statements. Underlying the concept of reasonable assurance is the premise that the cost of control should not exceed the benefit derived.

The Board of Directors, through its audit committee, is responsible for reviewing and monitoring the Company's financial reporting and accounting practices. The audit committee meets regularly with management and independent accountants - both separately and together. The independent accountants have free access to the audit committee to review the results of their audits, the adequacy of internal accounting controls and the quality of financial reporting.

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

PricewaterhouseCoopers LLP ("PwC") and one of its predecessors, Coopers & Lybrand L.L.P., have served as the Company's independent public accountants since 1986. On May 13, 1999 the staff of the Securities and Exchange Commission (the "SEC") advised EMCORE that, in its view, because several current and former Price Waterhouse LLP partners owned shares of EMCORE's common stock, PwC had violated the independence standards promulgated by the SEC. The SEC staff required that EMCORE change auditors and have a new accounting firm reaudit its fiscal 1998 financial statements as a result of such violations by PwC.

In connection with the foregoing, on May 13, 1999, EMCORE engaged Deloitte & Touche LLP as its independent public accountants to reaudit EMCORE's financial statements for fiscal year 1998 and dismissed PwC as EMCORE's independent public accountant for fiscal year 1998. Both of these decisions were approved by the audit committee of our Board of Directors.

PwC's report on EMCORE's financial statements for the fiscal years 1997 and 1998 did not contain an adverse opinion or a disclaimer of opinion and was not qualified or modified as to uncertainty, audit scope, or accounting principles. In addition, through May 13, 1998, there were no disagreements with PwC on any matter of accounting principles or practices, financial statement disclosure, or auditing scope or procedure, which disagreements, if not resolved to the satisfaction of PwC, would have caused PwC to make reference to the subject matter of the disagreement in connection with its report.

During the Company's two most recent fiscal years and through May 13, 1999, there have been no reportable events, as defined in Regulation S-K Item 304(a) (1) (v).

Prior to formally being appointed as auditors on May 13, 1999, Deloitte & Touche LLP performed certain audit-related work at the request of the Company as a precaution in the event the SEC staff required the Company to change accountants.

Despite providing its consent to the inclusion of its auditor's report for the Company's financial statements for the fiscal year ended September 30, 1997 on ten separate occasions in the past, following several requests by the Company, PwC refused to provide its consent to the inclusion of its auditor's report for the Company's financial statements for the fiscal year ended September 30, 1997 in this Form 10-K filing. As a result of PwC's refusal, the auditor's report for the Company's financial statements for the fiscal year ended September 30, 1997 is not included herein. PwC's auditor's report for the financial statements for the fiscal year ended September 30, 1997 was most recently included in the Company's 1998 Form 10-K/A filed on May 17, 1999 and the Company's Form S-3/A filed on October 6, 1999.

The Company believes that PwC has refused to provide its report and written consent solely in retaliation to a lawsuit that the Company recently filed against PwC in connection with PwC's violation of the independence standards promulgated by the SEC discussed above.

PwC's report on the Company's financial statements for the fiscal year ended September 30, 1997 did not contain an adverse opinion or a disclaimer of opinion and was not qualified or modified as to uncertainty, audit scope, or accounting principles. There is no assurance that PwC would reissue its auditor's report for the Company's financial statements for the fiscal year ended September 30, 1997 in its original form and without qualification. The Company is not aware of any subsequent events, transactions or other matters that may have affected the previous report. The Company is currently taking actions to engage Deloitte & Touche LLP to reaudit the Company's financial statements for the fiscal year ended September 30, 1997.

PART III

ITEM 10. DIRECTORS AND EXECUTIVE OFFICERS OF THE REGISTRANT

The information required by this item is incorporated herein by reference to EMCORE's 1999 Proxy Statement, which will be filed on or before January 28, 2000.

ITEM 11. EXECUTIVE COMPENSATION

The information required by this item is incorporated herein by reference to EMCORE's 1999 Proxy Statement, which will be filed on or before January 28, 2000.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

The information required by this item is incorporated herein by reference to EMCORE's 1999 Proxy Statement, which will be filed on or before January 28, 2000.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS

The information required by this term is incorporated herein by reference to EMCORE's 1999 Proxy Statement, which will be filed on or before January 28, 2000.

PART IV

ITEM 14. EXHIBITS, FINANCIAL STATEMENT SCHEDULES, AND REPORTS ON FORM 8-K.

| | PAGE REFERENCE ----- |
|---|----------------------------|
| 14(a) (1) FINANCIAL STATEMENTS: | |
| Included in Part II, Item 8 of this report: | |
| Consolidated Balance Sheets as of September 30, 1998 and 1999 | 31 |
| Consolidated Statements of Operations for the years ended September 30, 1997, 1998 and 1999 | 32 |
| Consolidated Statements of Shareholders' Equity for the years ended September 30, 1997, 1998 and 1999 | 33 |
| Consolidated Statements of Cash Flows for the years ended September 30, 1997, 1998 and 1999 | 34-35 |
| Notes to financial statements | 36-54 |
| Report of independent accountants | 55 |
| 14(a) (2) FINANCIAL STATEMENT SCHEDULE: | |
| Included in Part IV of this report: | |
| Schedule II - Valuation and qualifying accounts and reserves | 63 |

Other schedules have been omitted since they are either not required or not applicable.

| EXHIBIT NO. | DESCRIPTION |
|-------------|---|
| 3.1 | Restated Certificate of Incorporation, dated March 31, 1999.* |
| 3.2 | Amended By-Laws, as amended January 11, 1989 (incorporated by reference to Exhibit 3.2 to Amendment No. 1 to the 1997 S-1). |
| 4.1 | Specimen certificate for shares of common stock (incorporated by reference to Exhibit 4.1 to Amendment No. 3 to the 1997 S-1). |
| 4.2 | Form of \$11.375 Warrant (incorporated by reference to Exhibit 4.2 to EMCORE's filing on Form 10-K, dated December 29, 1998). |
| 10.1 | 1995 Incentive and Non-Statutory Stock Option Plan (incorporated by reference to Exhibit 10.1 to Amendment No. 1 to the 1997 S-1). |
| 10.2 | 1996 Amendment to Option Plan (incorporated by reference to Exhibit 10.2 to Amendment No. 1 to the 1997 S-1). |
| 10.3 | Specimen Incentive Stock Option Agreement (incorporated by reference to Exhibit 10.3 to Amendment No. 1 to the 1997 S-1). |
| 10.4 | Second Amended and Restated Distribution Agreement dated as of March 31, 1998 between EMCORE and Hakuto (incorporated by reference to Exhibit 10.4 to EMCORE's filing on Form 10-K/A, dated May 17, 1999). Confidential Statement has been requested by EMCORE for portions of this document. Such portions are indicated by "[*]". |
| 10.5 | Amendment to Lease for premises at 394 Elizabeth Avenue, Somerset, New Jersey 08873 (incorporated by reference to Exhibit 10.5 to Amendment No. 1 to the 1997 S-1). |
| 10.6 | Registration Rights Agreement relating to September 1996 warrant issuance (incorporated by reference to Exhibit 10.6 to Amendment No. 1 to the 1997 S-1). |
| 10.7 | Registration Rights Agreement relating to December 1996 warrant issuance (incorporated by reference to Exhibit 10.7 to Amendment No. 1 to the 1997 S-1). |
| 10.8 | Form of 6% Subordinated Note Due May 1, 2001 (incorporated by reference to Exhibit 10.8 to Amendment No. 1 to the 1997 S-1). |
| 10.9 | Form of 6% Subordinated Note Due September 1, 2001 (incorporated by reference to Exhibit 10.9 to Amendment No. 1 to the 1997 S-1). |
| 10.10 | Form of \$4.08 Warrant (incorporated by reference to Exhibit 10.10 to Amendment No. 1 to the 1997 S-1). |

EXHIBIT INDEX - (CONTINUED)

| EXHIBIT NO. | DESCRIPTION |
|-------------|---|
| 10.11 | Form of \$10.20 Warrant (incorporated by reference to Exhibit 10.12 to Amendment No. 1 to the 1997 S-1). |
| 10.12 | Consulting Agreement dated December 6, 1996 between EMCORE and Norman E. Schumaker (incorporated by reference to Exhibit 10.14 to Amendment No. 1 to the 1997 S-1). |
| 10.13 | Purchase Order issued to EMCORE by General Motors Corporation on November 17, 1996. (incorporated by reference to Exhibit 10.15 to Amendment No. 1 to the 1997 S-1). Confidential treatment has been requested by EMCORE with respect to portions of this document. Such portions are indicated by "[*]". |
| 10.14 | Acquisition Agreement, dated as of December 5, 1997, between EMCORE and MicroOptical Devices, Inc. (incorporated by reference to Exhibit 2 to EMCORE's filing on Form 8-K, dated December 22, 1997). |
| 10.15 | Purchase Agreement, dated November 30, 1998, by and between EMCORE, Hakuto UMI and UTC (incorporated by reference to Exhibit 10.15 to EMCORE's filing on Form 10-K, dated December 29, 1998). |
| 10.16 | Registration Rights Agreement, dated November 30, 1998 by and between EMCORE, Hakuto, UMI and UTC (incorporated by reference to Exhibit 10.16 to EMCORE's filing on Form 10-K, dated December 29, 1998). |
| 10.17 | Long Term Purchase Agreement dated November 24, 1998 by and between EMCORE and Space Systems/Loral, Inc. (incorporated by reference to Exhibit 10.17 to EMCORE's filing on Form 10-K/A, dated May 17, 1999). Confidential treatment has been requested by EMCORE for portions of this document. Such portions are indicated by "[*]". |
| 10.18 | Note Purchase Agreement dated as of May 26, 1999 by and between EMCORE and GE Capital Equity Investements, Inc. (incorporated by reference to Exhibit 10.18 to Amendment No. 2 to the 1998 S-3 filed on June 9, 1999). |
| 10.19 | Registration Rights Agreement dated as of May 26, 1999 by and between EMCORE and GE Capital Equity Investements, Inc. (incorporated by reference to Exhibit 10.19 to Amendment No. 2 to the 1998 S-3 filed on June 9, 1999). |
| 10.20 | \$22.875 Warrant issued to General Electric Company (incorporated by reference to Exhibit 10.20 to Amendment No. 2 to the 1998 S-3 filed on June 9, 1999). |
| 10.21 | Transaction Agreement dated January 20, 1999 between General Electric Company and EMCORE (incorporated by reference to Exhibit 10.1 to EMCORE's filing on Form 10-Q/A, dated May 17, 1999). Confidential treatment has been requested by EMCORE for portions of this document. Such portions are indicated by "[*]". |
| 10.22 | Third Amendment to Revolving Loan and Security Agreement, dated as of December 1, 1999 between EMCORE and First Union National Bank.* |

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21 Subsidiaries of the registrant.*

23.1 Consent of Deloitte & Touche LLP.*

27 Financial Data Schedule.*

- -----

* Filed herewith

SIGNATURES

Pursuant to the requirements of the Securities Act, the Registrant has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the Township of Somerset, State of New Jersey, on December 27, 1999.

EMCORE CORPORATION

By: /s/ REUBEN F. RICHARDS, JR.

 Name: Reuben F. Richards, Jr.
 TITLE: PRESIDENT AND CHIEF EXECUTIVE OFFICER

Pursuant to the requirements of the Securities Exchange Act of 1934, this report on Form 10-K has been signed below by the following persons on behalf of EMCORE Corporation in the capacities indicated, on December 23, 1999.

| SIGNATURE ----- | TITLE ----- |
|--------------------|----------------|
|--------------------|----------------|

| | |
|---|------------------------------------|
| /s/ THOMAS J. RUSSELL ----- Thomas J. Russell | Chairman of the Board and Director |
|---|------------------------------------|

| | |
|---|--|
| /s/ REUBEN F. RICHARDS, JR. ----- Reuben F. Richards, Jr. | President, Chief Executive Officer and Director (Principal Executive Officer) |
|---|--|

| | |
|---|---|
| /s/ THOMAS G. WERTHAN ----- Thomas G. Werthan | Vice President, Chief Financial Officer and Director (Principal Accounting and Financial Officer) |
|---|---|

| | |
|---|------------------------------|
| /s/ HOWARD W. BRODIE ----- Howard W. Brodie | Vice President and Secretary |
|---|------------------------------|

| | |
|---|----------|
| /s/ RICHARD A. STALL ----- Richard A. Stall | Director |
|---|----------|

| | |
|---|----------|
| /s/ ROBERT LOUIS-DREYFUS ----- Robert Louis-Dreyfus | Director |
|---|----------|

| | |
|---|----------|
| /s/ HUGH H. FENWICK ----- Hugh H. Fenwick | Director |
|---|----------|

| | |
|---|----------|
| /s/ SHIEGO TAKAYAMA ----- Shiego Takayama | Director |
|---|----------|

| | |
|---|----------|
| /s/ CHARLES T. SCOTT ----- Charles T. Scott | Director |
|---|----------|

| | |
|---------------------------------------|----------|
| /s/ JOHN HOGAN ----- John Hogan | Director |
|---------------------------------------|----------|

EMCORE CORPORATION
VALUATION AND QUALIFYING ACCOUNTS AND RESERVES
FOR THE YEARS ENDED SEPTEMBER 30, 1997, 1998 AND 1999

| | Balance at Beginning of Period | Additions Charged to Costs and Expenses | Write-offs (Deductions) | Balance at End of Period |
|---------------------------------------|--------------------------------------|--|----------------------------|--------------------------------|
| | ----- | ----- | ----- | ----- |
| ALLOWANCE FOR DOUBTFUL ACCOUNTS | | | | |
| ----- | | | | |
| For the year ended September 30, 1997 | \$310,000 | \$ 515,000 | \$ (128,000) | \$697,000 |
| For the year ended September 30, 1998 | 697,000 | 1,118,000 | (1,204,000) | 611,000 |
| For the year ended September 30, 1999 | 611,000 | 390,000 | (438,000) | 563,000 |
| RESERVES FOR INVENTORY OBSOLESCENCE | | | | |
| ----- | | | | |
| For the year ended September 30, 1997 | \$220,000 | \$ 120,000 | \$ -- | \$340,000 |
| For the year ended September 30, 1998 | 340,000 | 120,000 | -- | 460,000 |
| For the year ended September 30, 1999 | 460,000 | 40,000 | (110,000) | 390,000 |

RESTATED
CERTIFICATE OF INCORPORATION
OF EMCORE CORPORATION

Reuben F. Richards, Jr., being over the age of eighteen and acting as a duly authorized officer of Emcore Corporation and by virtue of the provisions of the New Jersey Business Corporation Act, Title 14A of the Revised Statutes of the State of New Jersey, hereby certifies that the Restated Certificate of Incorporation of Emcore Corporation is as follows:

FIRST: The name of the Corporation is:

EMCORE Corporation

SECOND: The purpose for which this Corporation is organized is to engage in any activity within the purposes for which corporations may be organized under the New Jersey Business Corporation Act.

THIRD: The registered office of the Corporation is:

394 Elizabeth Avenue
Somerset, NJ 08873

and the name of the corporation's registered agent at such address is:

Thomas G. Werthan

FOURTH: The total number of shares of Capital Stock of the Corporation shall be 55,882,352 shares of which:

A. Of the Capital Stock, 50,000,000 shares shall consist of Common Stock which shall be entitled to one vote per share of all matters which holders of the Common Stock shall be entitled to vote on.

B. Of the Capital Stock, 5,882,352 shares shall consist of Preferred Stock which may be divided into such classes and such series as shall be established from time to time by resolutions of the Board of Directors and filed as an amendment to this Certificate of Incorporation, without any requirement of vote or class vote of shareholders. The Board of Directors shall have the right and power to establish and designate in any such Class or Series Resolution such priorities, powers, preferences and relative, participating, optional or other special rights and qualifications, limitations and restrictions as it shall determine.

The priorities, powers, preferences and relative, participating optional or other special rights and qualifications, limitations and restrictions of the Class of Preferred Stock

designated "Series I Redeemable Convertible Preferred Stock" are as set forth in this Article Fourth and in Exhibit A to this Restated Certificate of Incorporation.

FIFTH: A. The Board of Directors presently consists of nine (9) persons and the names and addresses of the persons who serve on the Board of Directors are as follows:

| Name ---- | Address ----- |
|-------------------------|---|
| Reuben F. Richards, Jr. | 394 Elizabeth Avenue Somerset, NJ 08873 |
| Thomas G. Werthan | 394 Elizabeth Avenue Somerset, NJ 08873 |
| Richard A. Stall | 394 Elizabeth Avenue Somerset, NJ 08873 |
| Thomas J. Russell | Two North Tamiami Trail Sarasota, Florida 34236 |
| Robert Louis-Dreyfus | c/o Harborstone Capital 152 West 57th Street, 21st Floor New York, NY 10019 |
| Hugh H. Fenwick | 400 Mendham Road Bernardsville, NJ 07924 |
| John J. Hogan | c/o Harborstone Capital 152 West 57th Street, 21st Floor New York, N.Y. 10019 |
| Shigeo Takayama | 1-1-13 Shinjuku Shinjuku, Tokyo 160 Japan |
| Charles Scott | c/o Cordiant PLC 83-89 Whitfield Street London, W1A-4XA United Kingdom |

B. The number of directors constituting the entire Board of Directors shall be not less than six nor more than twelve as fixed from time to time by the vote of not less than 66 2/3% of the entire Board of Directors; provided, however, that the number of directors shall not be reduced so as to shorten the term of any director at the time in office, and provided further,

that the number of directors constituting the entire Board of Directors shall be nine unless and until otherwise fixed by the vote of not less than 66 2/3% of the entire Board of Directors. The phrase "66 2/3% of the entire Board of Directors" as used in this Restated Certificate of Incorporation shall be deemed to refer to 66 2/3% of the number of directors constituting the Board of Directors as provided in or pursuant to this Section B of this Article Fifth, without regard to any vacancies then existing.

C. At the 1999 Annual Meeting of Shareholders, the Board of Directors shall be divided into three classes, as nearly equal in number as the then total number of directors constituting the entire Board of Directors permits, the first class to expire at the 2002 Annual Meeting of Shareholders, the term of office of the second class to expire at the 2001 Annual Meeting of Shareholders and the term of office of the third class to expire at the 2000 Annual Meeting of Shareholders. Commencing with the 2000 Annual Meeting of Shareholders, the directors elected at an annual meeting of shareholders to succeed those whose terms then expire shall be identified as being directors of the same class as the directors whom they succeed, and each of them shall hold office until the third succeeding annual meeting of shareholders and until such director's successor is elected and has qualified. Any vacancies in the Board of Directors for any reason and any created directorships resulting from any increase in the number of directors may be filled by the vote of not less than 66 2/3% of the members of the Board of Directors then in office, although less than a quorum, and any directors so chosen shall hold office until the next election, of the class for which such directors shall have been chosen and until their successors shall be elected and qualified. No decrease in the number of directors shall shorten the term of any incumbent director. Notwithstanding the foregoing, and except as otherwise required by law, whenever the holders of any one or more series of Preferred Stock shall have the right, voting separately as a class, to elect one or more directors of the Corporation, the then authorized number of directors shall be increased by the number of directors so to be elected, and the terms of the director or directors elected by such holders shall expire at the next succeeding annual meeting of shareholders.

D. Notwithstanding any other provisions of this Restated Certificate of Incorporation or the By-Laws of the Corporation (and notwithstanding the fact that some lesser percentage may be specified by law, this Restated Certificate of Incorporation of the Corporation or the By-Laws of the Corporation), any director or the entire Board of Directors of the Corporation may be removed at any time, but only for cause and only by the affirmative vote of the holders of 80% or more of the outstanding shares of Capital Stock of the Corporation entitled to vote generally in the election of directors (considered for this purpose as one class) cast at a meeting of the shareholders called for that purpose. Notwithstanding the foregoing, and except as otherwise required by law, whenever the holders of any one or more series of Preferred Stock shall have the right, voting separately as a class, to elect one or more directors of the Corporation, the provisions of this Section D of this Article Fifth shall not apply with respect to the director or directors elected by such holders of Preferred Stock.

E. Notwithstanding any other provisions of this Restated Certificate of Incorporation or the By-Laws of the Corporation (and notwithstanding the fact that some lesser percentage may be specified by law, this Restated Certificate of Incorporation or the By-Laws of

the Corporation), the affirmative vote of the holders of 80% or more of the outstanding shares of Capital Stock of the Corporation entitled to vote generally in the election of directors (considered for this purpose as one class) shall be required to amend, alter, change or repeal this Article Fifth.

SIXTH: Neither a Director nor an Officer shall be liable to the Corporation or its shareholders for damages for breach of any duty owed to the Corporation or its shareholders, except that this provision shall not relieve a Director or an Officer from liability for any breach of duty based upon an act or omission (a) in breach of such person's duty of loyalty to the Corporation or its shareholders; (b) not in good faith or involving a knowing violation of law; or (c) resulting in the receipt of such person of an improper personal benefit.

SEVENTH: Intentionally Left Blank.

EIGHTH: The Board of Directors by a vote of a majority of the entire Board may lend money to, guarantee any obligation of or otherwise assist any officer or employee of the Corporation who is also a director provided that such loan shall be adequately secured and no such loan, guarantee or other assistance shall be made unless there shall be an appropriate business purpose.

NINTH: The Corporation shall indemnify every officer and director of the Corporation to the full extent permitted by law.

TENTH: A. In addition to any affirmative vote required by law or this Restated Certificate of Incorporation or the By-Laws of the Corporation, and except as otherwise expressly provided in Section B of this Article Tenth, a Business Combination shall require the affirmative vote of not less than eighty percent (80%) of the votes entitled to be cast by the holders of all then outstanding shares of Voting Stock (as hereinafter defined), voting together as a single class. Such affirmative vote shall be required notwithstanding the fact that no vote may be required, or that a lesser percentage or separate class vote may be specified, by law or in any agreement with any national securities exchange or otherwise.

B. The provisions of Section A of this Article Tenth shall not be applicable to any particular Business Combination, and such Business Combination shall require only such affirmative vote, if any, as is required by law or by any other provision of this Restated Certificate of Incorporation or the By-Laws of the Corporation, or any agreement with any national securities exchange, if all of the conditions specified in either of the following paragraphs (1) or (2) are met:

(1) The Business Combination shall have been approved by two-thirds of the Continuing Directors (as hereinafter defined), whether such approval is made prior to or subsequent to the acquisition of beneficial ownership of the Voting Stock that caused the Interested Stockholder (as hereinafter defined) to become an Interested Stockholder.

(2) All of the following conditions shall have been met:

(a) The aggregate amount of cash and the Fair Market Value (as hereinafter defined) as of the date of the consummation of the Business Combination of consideration other than cash to be received per share by holders of Common Stock in such Business Combination shall be at least equal to the highest amount determined under clauses (i) and (ii) below:

(i) (if applicable) the highest per share price (including any brokerage commissions, transfer taxes and soliciting dealers' fees) offered or paid by or on behalf of the Interested Stockholder for shares of Common Stock within the two-year period immediately prior to the first public announcement of the proposed Business Combination (the "Announcement Date") or in the transaction in which the Interested Stockholder became an Interested Stockholder (the "Determination Date"), whichever is higher;

(ii) the Fair Market Value per share of Common Stock on the Announcement Date or on the Determination Date, whichever is higher; and

All per share prices shall be adjusted to reflect any intervening stock splits, stock dividends, recapitalizations, combination of shares or similar events.

(b) The aggregate amount of cash and the Fair Market Value as of the date of the consummation of the Business Combination of consideration other than cash to be received per share by holders of shares of any class or series of outstanding Capital Stock (as hereinafter defined), other than Common Stock, shall be at least equal to the highest amount determined under clauses (i), (ii) and (iii) below:

(i) (if applicable) the highest per share price (including any brokerage commissions, transfer taxes and soliciting dealers' fees) offered or paid by or on behalf of the Interested Stockholder for any share of such class or series of Capital Stock in connection with the acquisition by the Interested Stockholder of beneficial ownership of shares of such class or series of Capital Stock within the two-year period immediately prior to the Announcement Date or in the transaction in which the Interested Stockholder became an Interested Stockholder, whichever is higher;

(ii) the Fair Market Value per share of such class or series of Capital Stock on the Announcement Date or on the Determination Date, whichever is higher; and

(iii) (if applicable) the highest preferential amount per share to which the holders of shares of such class or series of Capital Stock would be entitled in the event of any voluntary or involuntary liquidation, dissolution or winding up of the affairs of the Corporation regardless of whether the Business Combination to be consummated constitutes such an event.

All per share prices shall be adjusted to reflect any intervening stock splits, stock dividends, recapitalizations, combination of shares or similar events. The provisions of this sub-paragraph (2)(b) shall be required to be met with respect to every class or series of outstanding Capital Stock, other than Common Stock, whether or not the Interested Stockholder has previously acquired beneficial ownership of any shares of a particular class or series of Capital Stock.

(c) The consideration to be received by holders of a particular class or series of outstanding Capital Stock shall be in cash or in the same form as previously had been paid by or on behalf of the Interested Stockholder in connection with its direct or indirect acquisition of beneficial ownership of shares of such class or series of Capital Stock. If the consideration so paid for shares of any class or series of Capital Stock varied as to form, the form of consideration for such class or series of Capital Stock shall be either cash or the form used to acquire beneficial ownership of the largest number of shares of such class or series of Capital Stock previously acquired by the Interested Stockholder.

(d) After such Interested Stockholder has become an Interested Stockholder and prior to the consummation of such Business Combination:

(i) except as approved by a majority of the Continuing Directors, there shall have been no failure to declare and pay at the regular date therefor any dividends (whether or not cumulative) payable in accordance with the terms of any outstanding Capital Stock;

(ii) there shall have been no reduction in the annual rate of dividends paid on the Common Stock (except as necessary to reflect any stock split, stock dividend or subdivision of the Common Stock), except as approved by a majority of the Continuing Directors;

(iii) there shall have been an increase in the annual rate of dividends paid on the Common Stock as necessary to reflect any reclassification (including any reverse stock split), recapitalization, reorganization or any similar transaction that has the effect of reducing the number of shares of Common Stock, unless the failure so to increase such annual rate is approved by a majority of the Continuing Directors; and

(iv) such Interested Stockholder shall not have become the beneficial owner of any additional shares of Capital Stock except as part of the transaction that results in such Interested Stockholder becoming an Interested Stockholder and except in a transaction that, after giving effect thereto, would not result in any increase in the Interested Stockholder's percentage of beneficial ownership of any class or series of Capital Stock.

(e) After such Interested Stockholder has become an Interested Stockholder, such Interested Stockholder shall not have received the benefit, directly or indirectly (except proportionately as a shareholder of the Corporation), of any loans, advances, guarantees, pledges or other financial assistance or any tax credits or other tax advantages provided

by the Corporation, whether in anticipation of or in connection with such Business Combination or otherwise.

(f) A proxy or information statement describing the proposed Business Combination and complying with the requirements of the Securities Exchange Act of 1934 and the rules and regulations thereunder (the "Act") (or any subsequent provisions replacing such Act, rules or regulations) shall be mailed to all shareholders of the Corporation at least 30 days prior to the consummation of such Business Combination (whether or not such proxy or information statement is required to be mailed pursuant to such Act or subsequent provisions). The proxy or information statement shall contain on the first page thereof, in a prominent place, any statement as to the advisability (or inadvisability) of the Business Combination that the Continuing Directors, or any of them, may choose to make and, if deemed advisable by a majority of the Continuing Directors, the opinion of an investment banking firm selected by a majority of the Continuing Directors as to the fairness (or not) of the terms of the Business Combination from a financial point of view to the holders of the outstanding shares of Capital Stock other than any Interested Stockholder and any Affiliate or Associate (as hereinafter defined), of any Interested Stockholder, such investment banking firm to be paid a reasonable fee for its services by the Corporation.

(g) Such Interested Stockholder shall not have made any major change in the Corporation's business or equity capital structure without the approval of a majority of the Continuing Directors.

C. For the purposes of this Article Tenth

(1) The term "Business Combination" shall mean:

(a) any merger or consolidation of the Corporation or any Subsidiary (as hereinafter defined) with (i) any Interested Stockholder or (ii) any other corporation (whether or not itself an Interested Stockholder) which is, or after such merger or consolidation would be, an Affiliate or Associate of an Interested Stockholder; or

(b) any sale, lease, exchange, mortgage, pledge, transfer or other disposition (in one transaction or a series of transactions) with any Interested Stockholder or any Affiliate or Associate of any Interested Stockholder involving any assets or securities of the Corporation, any Subsidiary or any Interested Stockholder or any Affiliate or Associate of any Interested Stockholder having an aggregate Fair Market Value of 10% of the total assets of the Corporation and its Subsidiaries as reflected on the consolidated balance sheet of the Corporation and its Subsidiaries as of the end of the Corporation's most recent fiscal year; provided that the sale or other dispositions of securities of the Corporation to anyone other than an Interested Stockholder or any Affiliate or Associate of an Interested Stockholder shall not be deemed in itself to be a Business Combination; or

(c) the adoption of any plan or proposal for the liquidation or dissolution of the Corporation proposed by or on behalf of any Interested Stockholder or any Affiliate or Associate of any Interested Stockholder; or

(d) any reclassification of securities (including any reverse stock split), or recapitalization of the Corporation, or any merger or consolidation of the Corporation with any of its subsidiaries or any other transaction (whether or not with or otherwise involving an Interested Stockholder) that has the effect, directly or indirectly, of increasing the proportionate share of any class or series of Capital Stock, or any securities convertible into Capital Stock or into equity securities of any Subsidiary, that is beneficially owned by any Interested Stockholder or any Affiliate or Associate of any Interested Stockholder; or

(e) any agreement, contract or other arrangement providing for any one or more of the actions specified in the foregoing clauses (a) to (d).

(2) The term "Capital Stock" shall mean all capital stock of the Corporation authorized to be issued from time to time under Article Fourth of this Restated Certificate of Incorporation, and the term "Voting Stock" shall mean all Capital Stock which by its terms may be voted on all matters submitted to shareholders of the Corporation generally.

(3) The term "person" shall mean any individual, firm, corporation or other entity and shall include any group comprised of any person and any other person with whom such person or any Affiliate or Associate of such person has any agreement, arrangement or understanding directly or indirectly, for the purpose of acquiring, holding, voting or disposing of Capital Stock.

(4) The term "Interested Stockholder" shall mean any person (other than the Corporation, any Subsidiary, any pension, retirement, profit-sharing employee stock ownership or other employee benefit plan of the Corporation or any Subsidiary or any trustee of or fiduciary with respect to any such plan when acting in such capacity or any person who on January 1, 1999 was the beneficial owner, directly or indirectly, of more than 10% of the Common Stock of the Corporation) who (a) acquires and beneficially owns Voting Stock representing ten percent (10%) or more of the votes entitled to be cast by the holders of all then outstanding shares of Voting Stock; or (b) is an Affiliate or Associate of the Corporation and at any time within the two-year period immediately prior to the date in question acquired and beneficially owned Voting Stock representing ten percent (10%) or more of the votes entitled to be cast by the holders of all then outstanding shares of Voting Stock.

(5) A person shall be a "beneficial owner" of any Capital Stock (a) which such person or any of its Affiliates or Associates beneficially owns, directly or indirectly; (b) which such person or any of its Affiliates or Associates has, directly or indirectly, (i) the right to acquire (whether such right is exercisable immediately or subject only to the passage of time), pursuant to any agreement, arrangement or understanding or upon the exercise of conversion rights, exchange rights, warrants or options, or otherwise, or (ii) the right to vote pursuant to any agreement, arrangement or understanding; or (c) which are beneficially owned, directly or

indirectly, by any other person with which such person or any of its Affiliates or Associates has any agreement, arrangement or understanding for the purpose of acquiring, holding, voting or disposing of any shares of Capital Stock. For the purposes of determining whether a person is an Interested Stockholder pursuant to paragraph (4) of this section C, the number of shares of Capital Stock deemed to be outstanding shall include shares deemed beneficially owned by such person through application of paragraph (5) of this section C, but shall not include any other shares of Capital Stock that may be issuable pursuant to any agreement, arrangement or understanding, or upon exercise of conversion rights, warrants or options, or otherwise.

(6) The terms "Affiliate" and "Associate" shall have the respective meanings ascribed to such terms in Rule 12b-2 under the Act as in effect on January 1, 1999.

(7) The term "Subsidiary" shall mean any corporation of which a majority of any class of equity security is beneficially owned by the Corporation; provided, however, that for the purposes of the definition of Interested Stockholder set forth in paragraph (4) of this section C, the term "Subsidiary" shall mean only a corporation of which a majority of each class of equity security is beneficially owned by the Corporation.

(8) The term "Continuing Director" shall mean any member of the Board of Directors of the Corporation (the "Board") who is not an Affiliate or Associate or representative of an Interested Stockholder in question in connection with a particular Business Combination and either: (a) was a member of the Board prior to the time that such Interested Stockholder became an Interested Stockholder; or (b) is or was recommended or elected to fill a vacancy on the Board, however caused, by at least three-quarters of the Continuing Directors.

(9) The term "Fair Market Value" shall mean (a) in the case of cash, the amount of such cash; (b) in the case of stock, the highest closing sale price during the 30-day period ending on the date in question of a share of such stock on the Composite Tape for New York Stock Exchange-Listed Stocks, or, if such stock is not quoted on the Composite Tape, on the New York Stock Exchange, or, if such stock is not listed on such exchange, on the principal United States securities exchange registered under the Act on which such stock is listed, or, if such stock is not listed on any such exchange, the highest closing bid quotation with respect to a share of such stock during the 30-day period ending on the date in question on the National Association of Securities Dealers, Inc. Automated Quotations System or any similar system then in use, or if no such quotations are available, the Fair Market Value on the date in question of a share of such stock as determined by a majority of the Continuing Directors in good faith; and (c) in the case of property other than cash or stock, the Fair Market Value of such property on the date in question as determined in good faith by a majority of the Continuing Directors.

(10) In the event of any Business Combination in which the Corporation survives, the phrase "consideration other than cash to be received" as used in sub-paragraphs (2) (a) and (2) (b) of section B of this Article Tenth shall include the shares of Common Stock and/or the shares of any other class or series of Capital Stock retained by the holders of such shares.

D. The Board of Directors shall have the power and duty to determine for the purposes of this Article Tenth, on the basis of information known to them after reasonable inquiry, (a) whether a person is an Interested Stockholder, (b) the number of shares of Capital Stock or other securities beneficially owned by any person, (c) whether a person is an Affiliate or Associate of another, and (d) whether the assets that are the subject of any Business Combination have, or the consideration to be received for the issuance or transfer of securities by the Corporation or any Subsidiary in any Business Combination has, an aggregate Fair Market Value of more than 10% of the total assets of the Corporation and its Subsidiaries as reflected on the consolidated balance sheet of the Corporation and its Subsidiaries as of the end of the Corporation's most recent fiscal year. Any such determination made in good faith shall be binding and conclusive on all parties.

E. Nothing contained in this Article Tenth shall be construed to relieve any Interested Stockholder from any fiduciary obligation imposed by law.

F. The fact that any Business Combination complies with the provisions of section B of this Article Tenth shall not be construed to impose any fiduciary duty, obligation or responsibility on the Board, or any member thereof, to approve such Business Combination or recommend its adoption or approval to the shareholders of the Corporation, nor shall such compliance limit, prohibit or otherwise restrict in any manner the Board, or any member thereof, with respect to evaluations of or actions and responses taken with respect to such Business Combination.

G. Notwithstanding any other provisions of this Restated Certificate of Incorporation or the By-Laws of the Corporation (and notwithstanding the fact that a lesser percentage or separate class vote may be specified by law, this Restated Certificate of Incorporation or the By-Laws of the Corporation), the affirmative vote of the holders of not less than eighty percent (80%) of the votes entitled to be cast by the holders of all then outstanding shares of Voting Stock, voting together as a single class shall be required to amend or repeal, or adopt any provisions inconsistent with, this Article Tenth.

ELEVENTH: This Corporation shall have perpetual existence.

IN WITNESS, the undersigned has set his hand this 31st day of

March 1999.

/s/ Reuben F. Richards, Jr.

Reuben F. Richards, Jr.
President

EXHIBIT A

SERIES I REDEEMABLE CONVERTIBLE PREFERRED STOCK
\$.0001 PAR VALUE PER SHARE

OF

EMCORE CORPORATION

1. NUMBER OF SHARES AND DESIGNATION. 2,000,000 shares of the Preferred Stock, \$.0001 par value per share, of the Company are hereby constituted as a series of the Preferred Stock designated as Series I Preferred Stock (the "Series I Preferred Stock"). The Series I Preferred Stock will rank senior to the Common Stock with respect to the payment of dividends and upon liquidation, dissolution or winding up of the Company.

2. DEFINITIONS. For purposes of the Series I Preferred Stock, the following terms shall have the meanings indicated.

"Board of Directors" shall mean the board of directors of the Company or any committee authorized by such Board of Directors to perform any of its responsibilities with respect to the Series I Preferred Stock.

"Business Day" shall mean any day other than a Saturday, Sunday or a day on which banking institutions in the city of New York are authorized or obligated by law or executive order to close.

"Change in Control" shall have the meaning set forth in Section 8 hereof.

"Closing Price" of the Common Stock on any day shall mean on such day the reported last sales price, regular way, for the Common Stock or, in case no sale takes place on such day, the average of the reported closing bid and asked prices, regular way, for the Common Stock, in either case, as reported on the National Market system of the National Association of Securities Dealers, Inc. Automated Quotation System ("NASDAQ National Market") or, if the Common Stock is not quoted on the NASDAQ National Market, on such national securities exchange on which the Common Stock is listed or admitted to trading or, if the Common Stock is not listed or admitted to trading on any national securities exchange, the average of the closing bid and asked prices for the Common Stock on such day in the over-the-counter market as reported by NASDAQ or, if bid and asked prices for the Common Stock on each such date shall not have been reported by NASDAQ, the average of the bid and asked prices of the Common Stock for such day as furnished by any NASD member firm regularly making a

market in the Common Stock selected for such purpose by the Board of Directors or, if no such quotations are available, the fair market value of the Common Stock furnished by any NASD member firm selected from time to time by the Board of Directors for that purpose.

"Common Stock" shall mean the common stock of the Company, no par value per share.

"Conversion Price" shall mean the conversion price per share of Common Stock into which the Series I Preferred Stock is convertible, as such Conversion Price may be adjusted pursuant to Section 7 hereof. The initial Conversion Price will be \$14.00 (equivalent to the conversion rate of one share of Common Stock for each share of Series I Preferred Stock).

"Current Market Price" per share of Common Stock on any date shall mean the average of the daily Closing Prices for the 20 consecutive Trading Dates commencing 30 Trading Dates before the date of determination.

"dividend payment date" shall have the meaning set forth in Section 3(a) hereof.

"dividend payment record date" shall have the meaning set forth in Section 3(a) hereof.

"Dividend Period" shall mean quarterly dividend periods commencing on March 31, June 30, September 30 and December 31, and continuing through and including the day preceding the first day of the next succeeding Dividend Period (other than the initial Dividend Period, which shall commence on the Issue Date).

"Issue Date" shall mean the first date on which shares of Series I Preferred Stock are issued.

"Person" shall mean any individual, firm, partnership, corporation or other entity, and shall include any successor (by merger or otherwise) of such entity.

"Trading Date" or "Trading Day" with respect to Common Stock means (i) if the Common Stock is quoted on the NASDAQ National Market, or any similar system of automated dissemination of quotations of securities prices, a day on which trades may be made on such system, (ii) if the Common Stock is listed or admitted for trading on a national securities exchange, a day or on which such national securities exchange is open for business, (iii) if not quoted as described in clauses (i) or (ii), days on which quotations are reported by the National Quotation Bureau Incorporated, or (iv) otherwise, any Business Day.

"Transaction" shall have the meaning set forth in Section 7(a) hereof.

"Transfer Agent" means the Company or such other agent or agents of the Company as may be designated by the Board of Directors from time to time as the transfer agent for the Series I Preferred Stock.

3. DIVIDENDS.

(a) The holders of shares of the Series I Preferred Stock shall be entitled to receive, when, as and if declared by the Board of Directors out of funds legally available therefor, cumulative cash dividends at an annual rate of 2% of the liquidation preference per share (an amount initially equivalent to \$.28 per annum per share) of Series I Preferred Stock, payable at the option of the Company in cash or additional duly and validly issued, fully paid and non-assessable shares of Series I Preferred Stock, free from all taxes, liens and charges with respect to the issuance thereof, which will be valued at the liquidation preference (without giving effect to accrued and unpaid dividends) as of the relevant dividend payment record date. Notwithstanding the foregoing, the Company shall not be required to issue fractional shares of Series I Preferred Stock; the Company may elect, in its sole discretion, independently for each holder, whether such number of shares (on an aggregated basis) will be rounded up to the nearest whole share or whether such holder will be given cash in lieu of any fractional shares. Such dividends shall be cumulative from the Issue Date, whether or not in any Dividend Period or Periods there shall be funds of the Company legally available for the payment of such dividends and whether or not such dividends are declared and shall be payable quarterly, when, as and if declared by the Board of Directors on March 31, June 30, September 30 and December 31 in each year (each a "dividend payment date"), commencing on December 31, 1998. If December 31, 1998 or any other dividend payment date shall be on a day other than a Business Day, then the dividend shall be payable on the next following Business Day. Dividends are payable in arrears to the holders of record of shares of the Series I Preferred Stock, as they appear on the stock records of the Company at the close of business on those dates (each such date, a "dividend payment record date"), not less than 10 days nor more than 60 days preceding the dividend payment dates thereof, as shall be fixed by the Board of Directors. Dividends on the Series I Preferred Stock shall accrue (whether or not declared) on a daily basis from the Issue Date and accrued dividends for each Dividend Period shall accumulate to the extent not paid on the dividend payment date first following the Dividend Period for which they accrue. As used herein, the term "accrued" with respect to dividends includes both accrued and accumulated dividends. Accrued and unpaid dividends for any past Dividend Periods may be declared and paid at any time, without reference to any regular dividend payment date, to holders of record on the record date, not less than 10 nor more than 60 days preceding the payment date thereof, as may be fixed by the Board of Directors.

(b) The amount of dividends payable for each full Dividend Period for the Series I Preferred Stock shall be computed by dividing the annual dividend rate by four (rounded to the nearest tenth of a cent). The amount of dividends payable for the initial Dividend Period on the Series I Preferred Stock, or any other period shorter or longer than a full Dividend Period on the Series I Preferred Stock, shall be computed on the basis of a 360-day year consisting of twelve 30-day months. Holders of shares of Series I Preferred Stock called for redemption on a redemption date falling between the close of business on a dividend payment

record date and the close of business on the corresponding dividend payment date shall, in lieu of receiving such dividend on the dividend payment date fixed therefor, receive such dividend payment together with all other accrued and unpaid dividends on the date fixed for redemption (unless such holder converts such shares in accordance with Section 7 hereof). Holders of shares of Series I Preferred Stock shall not be entitled to any dividends, whether payable in cash, property or securities, in excess of cumulative dividends, as herein provided, on the Series I Preferred Stock. No interest, or sum of money in lieu of interest, shall be payable in respect of any dividend payment or payments on the Series I Preferred Stock which are in arrears.

(c) So long as any shares of the Series I Preferred Stock are outstanding, no dividends, except as described in the next succeeding sentence, shall be declared or paid or set apart for payment on any class or series of stock of the Company ranking, as to dividends, on a parity with the Series I Preferred Stock, for any period unless full cumulative dividends have been or contemporaneously are declared and paid or declared and a sum sufficient for the payment thereof is set apart for such payment on the Series I Preferred Stock for all Dividend Periods terminating on or prior to the date of payment, or setting apart for payment, of such dividends on such parity stock. When dividends are not paid in full or a sum sufficient for such payment is not set apart, as aforesaid, upon the shares of the Series I Preferred Stock and any other class or series of stock ranking on a parity as to dividends with the Series I Preferred Stock, all dividends declared upon shares of the Series I Preferred Stock and all dividends declared upon such other stock shall be declared pro rata so that the amounts of dividends per share declared on the Series I Preferred Stock and such other stock shall in all cases bear to each other the same ratio that accrued dividends per share on the shares of the Series I Preferred Stock and on such other stock bear to each other.

(d) So long as any shares of the Series I Preferred Stock are outstanding, no other stock of the Company ranking on a parity with the Series I Preferred Stock as to dividends or upon liquidation, dissolution or winding up shall be redeemed, purchased or otherwise acquired for any consideration (or any moneys be paid to or made available for a sinking fund or otherwise for the purchase or redemption of any shares of any such stock) by the Company (except by conversion into or exchange for stock of the Company ranking junior to the Series I Preferred Stock as to dividends and upon liquidation, dissolution or winding up) unless (i) the full cumulative dividends, if any, accrued on all outstanding shares of the Series I Preferred Stock shall have been paid or set apart for payment for all past Dividend Periods and (ii) sufficient funds shall have been set apart for the payment of the dividend for the current Dividend Period with respect to the Series I Preferred Stock and for the current dividend period with respect to any other stock of the Company ranking on a parity with the Series I Preferred Stock as to dividends.

(e) So long as any shares of the Series I Preferred Stock are outstanding, no dividends (other than dividends or distributions paid in shares of, or options, warrants or rights to subscribe for or purchase shares of, Common Stock or other stock ranking junior to the Series I Preferred Stock as to dividends and upon liquidation, dissolution or winding up) shall be declared or paid or set apart for payment and no other distribution shall be declared or made or set apart for payment, in each case, upon the Common Stock or other stock of the

Company ranking junior to the Series I Preferred Stock as to dividends or upon liquidation, dissolution or winding up, nor shall any Common Stock nor any other such stock of the Company ranking junior to the Series I Preferred Stock as to dividends or upon liquidation, dissolution or winding up be redeemed, purchased or otherwise acquired for any consideration (or any moneys be paid to or made available for a sinking fund or otherwise for the purchase or redemption of any shares of any such stock) by the Company (except by conversion into or exchange for stock of the Company ranking junior to the Series I Preferred Stock as to dividends and upon liquidation, dissolution or winding up) unless, in each case (i) the full cumulative dividends, if any, accrued on all outstanding shares of the Series I Preferred Stock and any other stock of the Company ranking on a parity with the Series I Preferred Stock as to dividends shall have been paid or set apart for payment for all past Dividend Periods and all past dividend periods with respect to such other stock and (ii) sufficient funds shall have been set apart for the payment of the dividend for the current Dividend Period with respect to the Series I Preferred Stock and for the current dividend period with respect to any other stock of the Company ranking on a parity with the Series I Preferred Stock as to dividends.

4. LIQUIDATION PREFERENCE.

(a) In the event of any liquidation, dissolution or winding up of the Company, whether voluntary or involuntary, the holders of the shares of Series I Preferred Stock shall be entitled to receive out of assets of the Company available for distribution to shareholders \$14.00 per share (as adjusted for any stock combinations or splits with respect to the Series I Preferred Stock) plus an amount per share equal to all dividends (whether or not earned or declared) accrued and unpaid thereon to the date of final distribution to such holders (collectively, the "Liquidation Preference") before any payment or distribution of the assets of the Company (whether capital or surplus) shall be made to or set apart for the holders of Common Stock or any other series or class or classes of stock of the Company ranking junior to the Series I Preferred Stock upon liquidation, dissolution or winding up of the Company and no payments or distributions of any assets of the Company shall be made to the holders of any class or series of stock ranking on a parity with the Series I Preferred Stock in respect of the distribution of assets upon dissolution, liquidation or winding up unless there shall likewise be paid at the same time to the holders of the Series I Preferred Stock a like proportionate amount determined ratably in proportion to the full amounts to which the holders of all outstanding shares of Series I Preferred Stock and the holders of all outstanding shares of such parity stock are respectively entitled with respect to such distribution. If, upon any liquidation, dissolution or winding up of the Company, the assets of the Company, or proceeds thereof, distributable among the holders of the shares of Series I Preferred Stock shall be insufficient to pay in full the preferential amount aforesaid and liquidating payments on any other shares of stock ranking, as to the liquidation, dissolution or winding up, on a parity with the Series I Preferred Stock, then such assets, or the proceeds thereof, shall be distributed among the holders of shares of Series I Preferred Stock and any such other stock ratably in accordance with the respective amounts which would be payable on such shares of Series I Preferred Stock and any such other stock if all amounts payable thereon were paid in full. For the purposes of this Section 4, (i) a consolidation or merger of the Company with one or more corporations or other entities, (ii) a sale, lease, exchange or transfer of all or any part of the Company's assets or (iii) a statutory share exchange

shall not be deemed to be a liquidation, dissolution or winding up of the Company, voluntary or involuntary.

(b) Subject to the rights of the holders of shares of any series or class of stock ranking on a parity with the Series I Preferred Stock upon liquidation, dissolution or winding up, upon any liquidation, dissolution or winding up of the Company, after payment shall have been made in full to the holders of Series I Preferred Stock, as provided in this Section 4, any other series or class or classes of stock ranking junior to the Series I Preferred Stock upon liquidation, dissolution or winding up shall, subject to the respective terms and provisions (if any) applying thereto, be entitled to receive any and all assets remaining to be paid or distributed, and the holders of Series I Preferred Stock shall not be entitled to share therein.

(c) Written notice of any liquidation, dissolution or winding up of the Company, stating the payment date or dates when and the place or places where the amounts distributable in such circumstances shall be payable, shall be given by first class mail, postage prepaid, not less than 30 days prior to any payment date stated therein, to the holders of record of the Series I Preferred Stock at their respective addresses as the same shall appear on the books of the Transfer Agent.

5. REDEMPTION.

(a) Except as provided in Section 5(b) hereof, the shares of Series I Preferred Stock may not be redeemed by the Company prior to such date as the Closing Price of the Company's Common Stock is \$28.00 or more per share for 30 consecutive Trading Dates, on or after which the Company, at its option, may redeem the shares of the Series I Preferred Stock, in whole or in part, at any time or from time to time out of funds legally available therefor, subject to the notice provisions and provisions for partial redemption described below, at a price equal to \$14.00 per share (as adjusted for any stock combinations or splits with respect to the Series I Preferred Stock) plus a cash amount equal to accrued and unpaid dividends, if any, to (and including) the date of redemption.

(b) The Company shall redeem all outstanding shares of the Series I Preferred Stock on November 17, 2003 at a price of \$14.00 per Share (as adjusted for any stock combinations or splits with respect to the Series I Preferred Stock), plus accrued and unpaid dividends.

(c) In the event the Company shall redeem shares of Series I Preferred Stock pursuant to Section 5(a) or 5(b) hereof, notice of such redemption shall be given not less than 30 nor more than 60 days prior to the redemption date, to each holder of record of the shares to be redeemed, at such holder's address as the same appears on the stock records of the Company. Each such notice shall state: (i) the redemption date; (ii) the number of shares of Series I Preferred Stock to be redeemed and, if less than all the shares held by such holder are to be redeemed, the number of such shares to be redeemed from such holder; (iii) the redemption price; (iv) the place or places where certificates for such shares are to be surrendered for payment of the redemption price; (v) the then current conversion price; (vi) that dividends on the shares to be redeemed shall cease to accrue on such redemption date and (vii) that shares of Series I

Preferred Stock called for redemption may be converted at any time prior to the close of business on the date of redemption. Notice having been given as aforesaid, from and after the redemption date, unless the Company shall be in default in providing money for the payment of the redemption price (including any accrued and unpaid dividends to (and including) the date fixed for redemption), (i) dividends on the shares of the Series I Preferred Stock so called for redemption shall cease to accrue, (ii) said shares shall be deemed no longer outstanding, and (iii) all rights of the holders thereof as shareholders of the Company (except the right to receive from the Company the moneys payable upon redemption without interest thereon) shall cease. The Company's obligation to provide moneys in accordance with the preceding sentence shall be deemed fulfilled if, on or before the redemption date, the Company shall deposit with a bank or trust company having a capital and surplus of at least \$50,000,000, funds necessary for such redemption, in trust for the account of the holders of the shares to be redeemed (and so as to be and continue to be available therefor), with irrevocable instructions and authority to such bank or trust company that such funds be applied to the redemption of the shares of Series I Preferred Stock so called for redemption. Any interest accrued on such funds shall be paid to the Company from time to time. Any funds so deposited and unclaimed at the end of three years from such redemption date shall be released or repaid to the Company, after which, subject to any applicable laws relating to escheat or unclaimed property, the holder or holders of such shares of Series I Preferred Stock so called for redemption shall look only to the Company for payment of the redemption price.

(d) Upon surrender in accordance with said notice of the certificates for any such shares so redeemed (properly endorsed or assigned for transfer, if the Board of Directors shall so require and the notice shall so state), such shares shall be redeemed by the Company at the applicable redemption price aforesaid. If fewer than all the outstanding shares of Series I Preferred Stock are to be redeemed, shares to be redeemed shall be selected by the Company from outstanding shares of Series I Preferred Stock not previously called for redemption by lot or pro rata (as near as may be). If fewer than all the shares represented by any certificate are redeemed, a new certificate shall be issued representing the unredeemed shares without cost to the holder thereof.

(e) Notwithstanding the foregoing, if notice of redemption has been given pursuant to this Section 5 and any holder of shares of Series I Preferred Stock shall, prior to the close of business on the redemption date, give written notice to the Company pursuant to Section 7(b) hereof of the conversion of any or all of the shares to be redeemed held by such holder (accompanied by a certificate or certificates for such shares, duly endorsed or assigned to the Company), then the conversion of such shares to be redeemed shall become effective as provided in Section 7.

6. SHARES TO BE RETIRED. All shares of Series I Preferred Stock purchased, redeemed, exchanged or converted by the Company shall be retired and canceled and shall be restored to the status of authorized but unissued shares of Preferred Stock, without designation as to series, and may thereafter be reissued.

7. CONVERSION. Holders of shares of Series I Preferred Stock shall have the right to convert all or a portion of such shares (including fractions of such shares) into shares of Common Stock, as follows:

(a) Subject to and upon compliance with the provisions of this Section 7, a holder of shares of Series I Preferred Stock shall have the right, at such holder's option, at any time (except that, with respect to any shares called for redemption or exchange, such right shall terminate at the close of business on the date fixed for redemption or exchange of such shares) to convert any of such shares (or fractions thereof) into the number of fully paid and non-assessable shares of Common Stock (as such shares shall then be constituted) obtained by dividing the aggregate liquidation preference of the shares to be converted by the Conversion Price and by surrender of such shares, such surrender to be made in the manner provided in Section 7(b). Subject to the following provisions of this Section 7(a), any shares of Series I Preferred Stock may be converted, at the option of its holder, in part into Common Stock under the procedure set forth above. If a part of a share of Series I Preferred Stock is converted, then the Company will convert such share into the appropriate number of shares of Common Stock (subject to Section 7(c)). No fractional shares or securities representing fractional shares of Common Stock will be issued upon conversion; in lieu of fractional shares of Common Stock, the Company will pay a cash adjustment based upon the Closing Price of the Common Stock at the close of business on the first Trading Date preceding the date of conversion.

(b) In order to exercise the conversion right, the holder of each share of Series I Preferred Stock (or fraction thereof) to be converted shall surrender the certificate representing such share, duly endorsed or assigned to the Company or in blank, at the office of the Transfer Agent, which shall initially be the Company, accompanied by funds, if any, required by the last paragraph of this Section 7(b), and shall give written notice to the Company in the form set forth on the reverse of the stock certificates for the Series I Preferred Stock that the holder thereof elects to convert such Series I Preferred Stock or a specified portion thereof. Such notice shall also state the name or names (with address) in which the certificate or certificates for shares of Common Stock which shall be issuable upon such conversion shall be issued, and shall be accompanied by funds in an amount sufficient to pay any transfer or similar tax resulting from the issuance of certificates in a name other than the name of the holder of the Series I Preferred Stock. Each share surrendered for conversion shall, unless the shares issuable on conversion are to be issued in the same name as the name in which such share of Series I Preferred Stock is registered, be duly endorsed by, or be accompanied by instruments of transfer (in each case, in form satisfactory to the Company), duly executed by the holder or such holder's duly authorized attorney.

As promptly as practicable after the surrender of certificates for shares of Series I Preferred Stock for conversion and the receipt of such notice and funds, if any, as aforesaid, the Company shall issue and shall deliver at such office to such holder, or on such holder's written order, a certificate or certificates for the number of full shares of Common Stock issuable upon the conversion of such shares of Series I Preferred Stock in accordance with the provisions of this Section 7, a certificate or certificates representing any shares of Series I Preferred Stock not so surrendered for conversion but previously evidenced by the stock

certificate representing shares of Series I Preferred Stock surrendered for conversion and a check or cash in respect of any fractional interest in respect of a share of Common Stock arising upon such conversion, as provided in Section 7(c).

Each conversion shall be deemed to have been effected immediately prior to the close of business on the date on which the certificates for shares of Series I Preferred Stock shall have been surrendered (accompanied by the funds, if any, required by the last paragraph of this section 7(b)) and such notice shall have been received by the Company as aforesaid, and the person or persons in whose name or names any certificate or certificates for shares of Common Stock shall be issuable upon such conversion shall be deemed to have become on said date the holder or holders of record of the shares represented thereby; provided, however, that any surrender on any date when the stock transfer books of the Company shall be closed shall cause the person or persons in whose name or names the certificates are to be issued to become the holder or holders of record thereof for all purposes on the next succeeding day on which such stock transfer books are open, but such conversion shall be at the Conversion Price in effect on the date upon which such shares shall have been surrendered. All shares of Common Stock delivered upon conversion of the Series I Preferred Stock will, upon delivery, be duly and validly issued, fully paid and nonassessable, free from all taxes, liens and charges with respect to the issuance thereof.

If a Holder shall surrender a share of Series I Preferred Stock for conversion during the period from the close of business on any dividend payment record date to the close of business on the following dividend payment date, such holder shall nevertheless be entitled to receive the dividend payable on such shares on such dividend payment date notwithstanding the conversion thereof following the close of business on such former dividend payment record date and prior to the close of business on such latter dividend payment date. However, shares of Series I Preferred Stock surrendered for conversion during the period between the close of business on any dividend payment record date and the close of business on the corresponding dividend payment date (except shares called for redemption or exchange on a redemption date or exchange date during such period) must be accompanied by payment of an amount equal to the dividend payment for the then current Dividend Period with respect to such share of Series I Preferred Stock presented for conversion on such dividend payment date; provided, however, that no such payment need be made if, at the time of conversion, dividends payable on the shares of Series I Preferred Stock outstanding shall be in arrears for more than 30 days beyond the previous dividend payment date. The dividend payment with respect to shares of Series I Preferred Stock which are called for redemption on a redemption date during the period from the close of business on a dividend payment record date to the close of business on the corresponding dividend payment date shall be payable on such dividend payment date to the holder of record of such shares on the books of the Company at the close of business on the dividend payment record date notwithstanding the conversion of such shares during the period between the close of business on such dividend payment record date and the close of business on such dividend payment date, and the holder of such shares need not make a payment equal to the dividend payment amount upon surrender of such shares for conversion. A holder of shares of Series I Preferred Stock on a dividend payment record date will receive the dividend payable by the Company on such shares of Series I Preferred Stock surrendered for conversion. Except as

provided above, the Company shall make no payment or allowances for unpaid dividends, whether or not in arrears, on converted shares or for dividends on the shares of Common Stock issued upon such conversion.

(c) In connection with the conversion of any shares of Series I Preferred Stock, fractions of such shares may be converted; however, no fractional shares or scrip representing fractions of shares of Common Stock shall be issued upon conversion of the Series I Preferred Stock. If more than one share (or fraction thereof) shall be surrendered for conversion at one time by the same holder, the number of full shares of Common Stock issuable upon conversion thereof shall be computed on the basis of the aggregate number of shares of Series I Preferred Stock so surrendered. If any fractional share of Common Stock would otherwise be issuable upon the conversion of a share of Series I Preferred Stock (or fraction thereof), the Company shall make an adjustment therefor in cash (computed to the nearest cent) equal to the Closing Price of Common Stock on the Trading Date immediately preceding the date of conversion multiplied by the fraction of a share of Common Stock otherwise issuable.

(d) The Conversion Price shall be adjusted from time to time by the Company as follows:

(i) This section intentionally omitted.

(ii) In case the Company shall issue after the Issue Date rights or warrants to all holders of Common Stock entitling them to subscribe for or purchase Common Stock at a price per share less than the Current Market Price per share of Common Stock at the record date for the determination of shareholders entitled to receive such rights or warrants, then the Conversion Price in effect immediately prior thereto shall be adjusted to equal the price determined by multiplying (A) the Conversion Price in effect immediately prior to the date of issuance of such rights or warrants by (B) a fraction, the numerator of which shall be the sum of (1) the number of shares of Common Stock outstanding on the date of issuance of such rights or warrants (without giving effect to any such issuance) and (2) the number of shares of Common Stock which the aggregate proceeds from the exercise of such rights or warrants for Common Stock would purchase at such Current Market Price, and the denominator of which shall be the sum of (1) the number of shares of Common Stock outstanding on the date of issuance of such rights or warrants (without giving effect to any such issuance) and (2) the number of additional shares of Common Stock offered for subscription or purchase. Such adjustment shall be made successively whenever any such rights or warrants are issued, and shall become effective immediately after such record date. In determining whether any rights or warrants entitle the holder of Common Stock to subscribe for or purchase shares of Common Stock at less than such Current Market Price, there shall be taken into account any consideration received by the Company upon issuance and upon exercise of such rights or warrants, the value of such consideration, if other than cash, to be reasonably determined in good faith by the Board of Directors.

(iii) In case the Company shall pay a dividend or make a distribution to all holders of its Common Stock after the Issue Date of any shares of capital stock of the Company or its subsidiaries (other than Common Stock, which shall be subject to adjustment pursuant to Section 7(d)(vi)) or evidences of indebtedness of the Company or its subsidiaries or assets (including securities, but excluding those rights, warrants, dividends and distributions referred to in subparagraph (ii) and (vi) of this Section 7(d)), excluding dividends or distributions in connection with the liquidation, dissolution or winding up of the Company and excluding cash dividends referred to in subparagraph (v) of this Section 7(d) then in each such case, the Conversion Price shall be adjusted so that it shall equal the price determined by multiplying (A) the Conversion Price in effect on the record date mentioned below by (B) a fraction, the numerator of which shall be the Current Market Price per share of the Common Stock on the record date mentioned below less the then fair market value (as determined by the Board of Directors, whose determination shall, if made in good faith, be conclusive) as of such record date of the portion of the capital stock or evidences of indebtedness or assets so distributed or of such rights or warrants applicable to one share of Common Stock, and the denominator of which shall be the Current Market Price per share of the Common Stock on such record date. Such adjustment shall become effective immediately, except as provided in Section 7(h) below, after the record date for the determination of shareholders entitled to receive such distribution.

(iv) Notwithstanding anything in subparagraphs (ii) and (iii) of this Section 7(d), if such rights or warrants shall by their terms provide for an increase or increases (or decrease or decreases) with the passage of time or otherwise in the price payable to the Company upon the exercise thereof, the Conversion Price upon any such increase or decrease becoming effective shall forthwith be readjusted (but, in case of an increase or increases in exercise price, to no greater extent than originally adjusted by reason of such issuance or sale) to reflect the same. Upon the expiration or termination of such rights or warrants, if any such rights or warrants shall not have been exercised, then the Conversion Price shall forthwith be readjusted and thereafter be the rate which it would have been had an adjustment been made on the basis that (A) the only rights or warrants issued or sold were those so exercised and they were issued or sold for the consideration actually received by the Company for the granting of all such options, rights or warrants whether or not exercised and (B) the Company issued and sold a number of shares of Common Stock equal to those actually issued upon exercise of such rights, and such shares were issued and sold for a consideration equal to the aggregate exercise price in effect under the exercise rights actually exercised at the respective dates of their exercise. For purposes of subparagraphs (ii) and (iii) of this Section 7(d), the aggregate consideration received by the Company in connection with the issuance of shares of Common Stock or of rights or warrants shall be deemed to be equal to the sum of the aggregate offering price (before deduction of underwriting discounts or commissions and expenses payable to third parties) of all such securities plus the minimum aggregate amount, if any, payable upon the exercise of such rights or warrants into shares of Common Stock.

(v) In case the Company shall, by dividend or otherwise, at any time distribute to all holders of the Common Stock cash (excluding any cash that is distributed as part of a distribution referred to in subparagraph (iii) of this Section 7(d) or in connection with a transaction to which Section 7(e) applies) in an aggregate amount that, together with (A) the aggregate amount of any other distributions to all holders of the Common Stock made exclusively in cash within the 12 months preceding the date fixed for the determination of shareholders entitled to such distribution and in respect of which no Conversion Price adjustment has been made previously and (B) the aggregate amount of any cash plus the fair market value (as determined by the Board of Directors, whose determination shall, if made in good faith, be conclusive) as of such date of determination of any other consideration payable in respect of any tender or exchange offer or other purchase by the Company or a subsidiary of the Company for all or any portion of the Common Stock consummated within 12 months preceding such date of determination and in respect of which no Conversion Price adjustment has been made previously, exceeds 5.0% of the product of the Current Market Price per share of Common Stock multiplied by the number of shares of Common Stock outstanding on such date, then in each such case the Conversion Price shall be reduced (but not increased) so that it shall equal the price obtained by multiplying the Conversion Price in effect immediately prior to the close of business on such date of determination by a fraction of which the numerator shall be (x) the product of the Current Market Price per share of Common Stock on such date, multiplied by the number of shares of Common Stock outstanding on such date, less (y) the sum of (i) the aggregate amount of cash to be distributed at such time, (ii) the aggregate amount of any other distributions to holders of Common Stock made exclusively in cash within the preceding 12 months, in respect of which no Conversion Price adjustment has been made previously, and (iii) the aggregate amount of any cash plus the fair market value (determined as aforesaid) of any other consideration payable in respect of any tender or exchange offer or other purchase by the Company or a subsidiary of the Company for all or any portion of the Common Stock within the preceding 12 months, in respect of which no Conversion Price adjustment has been made previously; and the denominator shall be the product of such Current Market Price, multiplied by the number of shares of Common Stock outstanding on such date. Such reduction shall become effective immediately prior to the opening of business on the date after such determination.

(vi) In case outstanding shares of Common Stock shall be subdivided into a greater number of shares of Common Stock or in case the Company effects a dividend of Common Stock to the holders of its Common Stock, the Conversion Price in effect at the opening of business on the day following the day upon which such subdivision becomes effective or the record date of such dividend, as the case may be, shall be proportionately reduced, and, conversely in case outstanding shares of Common Stock shall be combined into a smaller number of shares of Common Stock, the conversion price in effect at the opening of business on the day following the day upon which such combination becomes effective shall be proportionately increased, such reduction or increase, as the case may be, to become effective immediately after the

opening of business on the day following the day upon which such subdivision or combination becomes effective.

(vii) The reclassification of Common Stock into securities which include securities other than Common Stock (other than any reclassification upon a consolidation or merger) shall be deemed to involve (i) a distribution of such securities other than Common Stock to all holders of Common Stock (and the effective date of such reclassification shall be deemed to be the "date fixed for a determination of shareholders entitled to such distribution" within the meaning of paragraph (iii) of this Section and (ii) a subdivision or combination, as the case may be, of the number of shares of Common Stock outstanding immediately prior to such reclassification into the number of shares of Common Stock outstanding immediately thereafter (and the effective date of such reclassification shall be deemed to be "the day upon which such subdivision becomes effective" or "the day upon which such combination becomes effective," as the case may be, and "the day upon which such subdivision or combination becomes effective" within the meaning of paragraph (vi) of this Section). Rights or warrants issued by the Company to all holders of the Common Stock that entitle the holders thereof to subscribe for or purchase shares of Common Stock (either initially or under certain circumstances), which rights or warrants (i) are deemed to be transferred with such shares of Common Stock, (ii) are not exercisable and (iii) are also issued in respect of future issuances of Common Stock, in each case in clauses (i) through (iii) until the occurrence of a specified event or events ("Trigger Event"), shall for purposes of this Section 7(d)(vii) not be deemed issued until the occurrence of the earliest Trigger Event.

(viii) In case a tender or exchange offer or other purchase made by the Company or any subsidiary of the Company for all or any portion of the Common Stock shall be consummated and such tender or exchange offer or purchase shall involve an aggregate consideration having a fair market value (as determined by the Board of Directors, whose determination shall, if made in good faith, be conclusive) as of the last time (the "Expiration Time") that tenders or exchanges may be made pursuant to such tender or exchange offer (as it shall have been amended) or the date of such other purchase, as the case may be, that, together with (A) the aggregate amount of the cash plus the fair market value (as determined by the Board of Directors, whose determination shall, if made in good faith, be conclusive) as of the Expiration Time of any other consideration paid in respect of any other tender or exchange offer or other purchase by the Company or a subsidiary of the Company for all or any portion of the Common Stock consummated within 12 months preceding the Expiration Time and in respect of which no Conversion Price adjustment has been made previously and (B) the aggregate amount of any distributions to all holders of the Common Stock made exclusively in cash within the 12 months preceding the Expiration Time and in respect of which no Conversion Price adjustment has been made previously, exceeds 5.0% of the product of the Current Market Price per share of Common Stock immediately prior to the Expiration Time times the number of shares of Common Stock outstanding (including any tendered, exchanged or purchased shares) at the Expiration Time, then in each such case the Conversion Price shall be reduced (but not increased) so that it shall equal the price obtained by

multiplying the Conversion Price in effect immediately prior to the Expiration Time by a fraction of which the numerator shall be (x) the product of the Current Market Price per share of Common Stock immediately prior to the Expiration Time, multiplied by the number of shares of Common Stock outstanding (including any tendered, exchanged or purchased shares) at the Expiration Time less (y) the sum of (i) the aggregate amount of cash plus the fair market value (determined as aforesaid) of any other consideration payable in respect of such tender or exchange offer or other purchase, (ii) the aggregate amount of any distributions to holders of Common Stock made exclusively in cash within the preceding 12 months, in respect of which no Conversion Price adjustment has been made previously, and (iii) the aggregate amount of any cash plus the fair market value (determined as aforesaid) of any other consideration payable in respect to any other tender or exchange offer or other purchase by the Company or a subsidiary of the Company for all or any portion of the Common Stock within the preceding 12 months, in respect of which no Conversion Price adjustment has been made previously; and the denominator shall be the product of such Current Market Price, multiplied by the number of shares of Common Stock outstanding (excluding any tendered, exchanged or purchased shares) at the Expiration Time. Such reduction shall become effective immediately prior to the opening of business on the date following the Expiration Time; provided, however, that if the number of tendered, exchanged or purchased shares or the aggregate consideration payable therefor has not been finally determined by such opening of business, the adjustment required by this subparagraph (viii) shall be made based upon the number of tendered, exchanged or purchased shares and the aggregate consideration payable therefor as so finally determined.

(ix) No adjustment in the Conversion Price shall be required unless such adjustment would require an increase or decrease of at least 1% in such price; provided, however, that any adjustments which by reason of this subparagraph (ix) are not required to be made shall be carried forward and taken into account in any subsequent adjustment; and provided, further, that any adjustment required in order to preserve the tax-free nature of a distribution to the holders of shares of Common Stock shall be made when so required. All calculations under this Section 7 shall be made to the nearest cent (with \$.005 being rounded upward). Anything in this Section 7(d) to the contrary notwithstanding, the Company shall be entitled, to the extent permitted by law, to make such reductions in the Conversion Price, in addition to those required by this Section 7(d), as it in its discretion shall determine to be advisable in order that any stock dividends, subdivision or combination of shares, distribution of capital stock or rights or warrants to purchase stock or securities, distribution of evidences of indebtedness or assets or any other transaction which could be treated as any of the foregoing transactions pursuant to Section 305 of the Internal Revenue Code of 1986, as amended (and any successor provision), hereafter made by the Company to its shareholders shall not be taxable to such shareholders.

(e) Subject to the provisions of Section 8, in case the Company shall be a party to any transaction (including, without limitation, a merger, consolidation, sale of all or substantially all of the Company's assets, or recapitalization of the Common Stock and excluding

any transaction as to which paragraph (d)(iii), (vi) or (vii) of this Section 7 applies) (each of the foregoing being referred to as a "Transaction"), in each case as a result of which shares of Common Stock shall be converted into the right to receive stock, securities or other property (including cash or any combination thereof), then each share of the Series I Preferred Stock will thereafter no longer be subject to conversion into Common Stock pursuant to Section 7, but instead shall be convertible into the kind and amount of shares of stock and other securities and property receivable (including cash) upon the consummation of such Transaction by a holder of that number of shares or fraction thereof of Common Stock into which one share of Series I Preferred Stock was convertible immediately prior to such Transaction. The Company shall not be a party to any Transaction unless the terms of such Transaction are consistent with the provisions of this Section 7(e) and it shall not consent or agree to the occurrence of any Transaction until the Company has entered into an agreement with the successor or purchasing entity, as the case may be, for the benefit of the holders of the Series I Preferred Stock which will contain provisions enabling the holders of the Series I Preferred Stock which remains outstanding after such Transaction to convert into the kind and amount of stock, securities or other property (including cash or any combination thereof) which such holder would have been entitled to receive if such holder had held the Common Stock issuable upon conversion of such Series I Preferred Stock immediately prior to such Transaction. In the event that at any time, as a result of an adjustment made pursuant to this Section 7, the Series I Preferred Stock shall become subject to conversion into any securities other than shares of Common Stock, thereafter the number of such other securities so issuable upon conversion of the shares of Series I Preferred Stock shall be subject to adjustment from time to time in a manner and on terms as nearly equivalent as practicable to the provisions with respect to the shares of Series I Preferred Stock contained in this Section 7. The provisions of this Section 7(e) shall similarly apply to successive Transactions.

(f) If:

(i) the Company shall take any action which would require an adjustment in the Conversion Price pursuant to Section 7(d); or

(ii) the Company shall authorize the granting to the holders of its Common Stock generally of rights or warrants to subscribe for or purchase any shares of any class or any other rights or warrants; or

(iii) there shall be any reclassification or change of the Common Stock (other than a subdivision or combination of its outstanding Common Stock or a change in par value) or any consolidation, merger or statutory share exchange to which the Company is a party and for which approval of any shareholders of the Company is required, or the sale or transfer of all or substantially all of the assets of the Company or any Change in Control (each as defined in Section 8 below) or any Transaction; or

(iv) there shall be a voluntary or involuntary dissolution, liquidation or winding up of the Company;

then, except as provided otherwise in Section 8, the Company shall cause to be filed with the Transfer Agent (if different than the Company) and shall cause to be given to the holders of shares of the Series I Preferred Stock, as promptly as possible, but at least 30 days prior to the applicable date hereinafter specified, a notice stating (A) the date on which a record is to be taken for the purpose of such dividend, distribution or granting of rights or warrants, or, if a record is not to be taken, the date as of which the holders of Common Stock of record to be entitled to such dividend, distribution or rights or warrants are to be determined or (B) the date on which such reclassification, change, consolidation, merger, statutory share exchange, sale, Change in Control, transfer, dissolution, Transaction, liquidation or winding up is expected to become effective or occur, and the date as of which it is expected that holders of Common Stock of record shall be entitled to exchange their shares of Common Stock for securities or other property deliverable upon such reclassification, change, consolidation, merger, statutory share exchange, sale, Change in Control, transfer, dissolution, liquidation or winding up. Failure to give such notice or any defect therein shall not affect the legality or validity of the proceedings described in this Section 7(f).

(g) Whenever the Conversion Price is adjusted as herein provided, the Company shall promptly file with the Transfer Agent (if different than the Company) or, if the Transfer Agent is the Company, shall provide to all holders of Series I Preferred Stock an officer's certificate signed by the President or a Vice President and the Chief Financial Officer or the Treasurer setting forth a brief statement of the facts requiring such adjustment and upon which such adjustments are based. Promptly after delivery of such certificate, the Company shall prepare a notice of such adjustment of the Conversion Price setting forth the adjusted Conversion Price, the facts requiring such adjustment and upon which such adjustments are based, the calculation of the Conversion Price adjustment and the date on which such adjustment becomes effective and shall give such notice of such adjustment of the Conversion Price to the holder of each share of Series I Preferred Stock.

(h) In any case in which Section 7(d) provides that an adjustment shall become effective immediately after a record date for an event and the date fixed for such adjustment pursuant to Section 7 occurs after such record date but before the occurrence of such event, the Company may defer until the actual occurrence of such event (i) issuing to the holder of any shares of Series I Preferred Stock converted after such record date and before the occurrence of such event the additional shares of Common Stock issuable upon such conversion by reason of the adjustment required by such event over and above the Common Stock issuable upon such conversion before giving effect to such adjustment and (ii) paying to such holder any amount in cash in lieu of any fraction pursuant to Section 7(c).

(i) For purposes of this Section 7, the number of shares of Common Stock at any time outstanding shall not include any shares of Common Stock then owned or held by or for the account of the Company or any corporation controlled by the Company.

(j) Notwithstanding any other provision herein to the contrary, the issuance of any shares of Common Stock pursuant to any plan providing for the reinvestment of

dividends or interest payable on securities of the Company and the investment of additional optional amounts of shares of Common Stock under any such plan shall not be deemed to constitute an issuance of Common Stock. In case of the issuance of any stock of the Company in a reorganization, acquisition or other similar transaction which would require adjustment of the Conversion Price pursuant to more than one paragraph of this Section 7, only one adjustment shall be made and such adjustment shall be the amount of adjustment which has the highest absolute value to the holders of Series I Preferred Stock.

(k) The Board of Directors may in its discretion, decrease the Conversion Price to the extent permitted by law, in such manner, if any, and at such time, as the Board of Directors determines to be equitable in the circumstances; provided, however, that in no event shall the Board of Directors be required to take any such action.

(l) The Company shall at all times reserve and keep available, free from preemptive rights, out of its authorized but unissued shares of Common Stock, sufficient shares of Common Stock to provide for the conversion of the Series I Preferred Stock from time to time as such Series I Preferred Stock is presented for conversion. For purposes of this Section 7(l), the number of shares of Common Stock which shall be deliverable upon the conversion of all outstanding shares of Series I Preferred Stock shall be computed as if at the time of computation all such outstanding shares were held by a single holder.

Before taking any action which would cause an adjustment reducing the Conversion Price below the then par value of the shares of Common Stock deliverable upon conversion of the Series I Preferred Stock, the Company will take any corporate action which may, in the opinion of its counsel, be necessary in order that the Company may validly and legally issue fully paid and nonassessable shares of Common Stock at such adjusted Conversion Price.

The Company will, pursuant to the Registration Rights Agreement relating to the Series I Preferred Stock, list the shares of Common Stock required to be delivered upon conversion of the Series I Preferred Stock, prior to delivery, upon each national securities exchange, the NASDAQ National Market or any similar system of automated dissemination of securities prices, if any, upon which the Common Stock is listed at the time of delivery.

Prior to the delivery of any securities which the Company shall be obligated to deliver upon conversion of the Series I Preferred Stock, the Company will use its best efforts to comply with all federal and state laws and regulations thereunder requiring the registration of such securities with, or any approval of or consent to the delivery thereof by, any governmental authority.

(m) The Company will pay any and all documentary stamp or similar issue or transfer taxes payable in respect of the issue or delivery of the shares of Series I Preferred Stock (or any other securities issued on account of the Series I Preferred Stock pursuant hereto) or shares of Common Stock issued upon conversion of the Series I Preferred Stock pursuant hereto; provided, however, that the Company shall not be required to pay any tax which may be payable in respect of any transfer involved in the issue or delivery of shares of Series I

Preferred Stock pursuant hereto or shares of Common Stock in a name other than the name in which the shares of Series I Preferred Stock with respect to which such shares of Common Stock are issued were registered and the Company shall not be required to make any issue or delivery unless and until the person requesting such issue or delivery has paid to the Company the amount of any such tax or has established, to the reasonable satisfaction of the Company, that such tax has been paid or is not required to be paid.

8. SPECIAL CONVERSION RIGHTS UPON CHANGE IN CONTROL.

(a) If a Change in Control (as defined below) should occur with respect to the Company, each holder of shares of the Series I Preferred Stock shall have the right, at the holder's option, for a period of 45 days after the giving of notice by the Company that a Change in Control has occurred, to convert all, but not less than all, of such holder's shares of the Series I Preferred Stock into the kind and amount of cash, securities, property or other assets receivable upon such Change in Control by a holder of the number of shares of Common Stock into which such holder's Series I Preferred Stock would have been convertible immediately prior to the Change in Control at an adjusted conversion price equal to the Special Conversion Price (as defined below). Shares of the Series I Preferred Stock that are not converted as provided above will remain convertible into the kind and amount of cash, securities, property or other assets that the holders of the shares of the Series I Preferred Stock would have owned immediately after the Change in Control if the holders had converted the shares of the Series I Preferred Stock immediately before the effective date of the Change in Control. The Company will notify the holders of the Series I Preferred Stock of any pending Change in Control as soon as practicable and in any event at least 30 days in advance of the effective date of such Change in Control. In the event of a pending Change in Control, the Company (or any successor corporation) shall take all action necessary to provide for sufficient amounts of cash, securities, property or other assets for the conversion of the Series I Preferred Stock as provided herein.

(b) If a Change in Control shall occur, then, as soon as practicable and in any event within five (5) business days after the occurrence of such Change in Control, the Company shall provide notice to each registered holder of a share of Series I Preferred Stock a notice (the "Special Conversion Notice") setting forth details regarding the Special Right of the holders to convert their shares of Series I Preferred Stock as a result of such Change in Control. A holder of a share of Series I Preferred Stock must exercise such conversion right within the 45-day period after the giving of the Special Conversion Notice by the Company or such Special Right shall expire. The conversion date for shares so converted shall be the 45th day after the giving of the Special Conversion Notice or, if the merger, consolidation, reorganization, liquidation or dissolution related to such Change in Control has not become effective within 45 days of the giving of the Special Conversion Notice but becomes effective within 90 days after the giving of the Special Conversion Notice, then on the date of such effectiveness. If such merger, consolidation, reorganization, liquidation or dissolution shall not occur within 90 days after the date on which the Special Conversion Notice is given, the Company shall be required to give a new Special Conversion Notice. Within five Business Days following the conversion date, the Company shall deliver a certificate for the Common Stock together with a check for any fractional shares issuable or the cash, securities, property or other assets receivable by a holder.

Exercise of such conversion right to the extent permitted by law (including, if applicable, Rule 13d-3 under the Securities Exchange Act of 1934, as amended (the "Exchange Act")) shall be irrevocable and no dividends on the shares of Series I Preferred Stock tendered for conversion shall accrue from and after the conversion date.

(c) The Special Conversion Notice shall state:

- (i) The event constituting the Change in Control;
- (ii) the last date upon which holders may submit shares of Series I Preferred Stock for conversion at the Special Conversion Price;
- (iii) the Special Conversion Price;
- (iv) the Conversion Price then in effect under Section 7 and the continuing conversion rights, if any, under Section 7;
- (v) the name and address of any paying agent and conversion agent;
- (vi) that holders who wish to convert shares of Series I Preferred Stock must satisfy the requirements of Section 7 and must exercise such conversion right within the 45-day period after giving of such notice by the Company;
- (vii) that exercise of such conversion right shall be irrevocable and no dividends on shares of Series I Preferred Stock tendered for conversion shall accrue from and after the conversion date; and
- (viii) that the consideration to be received shall be delivered within the five Business Days after the last date upon which holders may submit Series I Preferred Stock for conversion.

(d) (i) As used herein, a "Change in Control" with respect to the Company means (A) the acquisition by a person, entity or "group," within the meaning of Section 13(d)(3) of the Exchange Act, (excluding, for this purpose, the Company or any of its subsidiaries and any of Thomas Russell, The AER Trust 1997, Robert Louis-Dreyfus, Gallium Enterprises, Inc. and Reuben Richards which acquires beneficial ownership of voting securities of the Company) of securities of the Company that result in such person, entity or group having beneficial ownership (within the meaning of Rule 13d-3 promulgated under the Exchange Act) of (x) 50% or more of either the then outstanding shares of Common Stock or the combined voting power of the Company's then outstanding voting securities entitled to vote generally in the election of directors or (y) 35% or more of either the then outstanding shares of Common Stock or the combined voting power of the Company's then outstanding voting securities entitled to vote generally in the election of directors, unless Thomas Russell, The AER Trust 1997, Robert Louis-Dreyfus, Gallium Enterprises, Inc. and Reuben Richards collectively beneficially own a greater percentage than such person, entity or "group"; (B) approval by the shareholders of the

Company of a reorganization, merger or consolidation, in each case, with respect to which persons who were the shareholders of the Company immediately prior to such reorganization, merger or consolidation do not, immediately thereafter, own more than 50% of the combined voting power entitled to vote generally in the election of directors of the reorganized, merged or consolidated company's then outstanding voting securities (a "Control Transaction"); or (C) approval of the Board of Directors and, if required, of the shareholders of the Company of a liquidation or dissolution of the Company (other than pursuant to the United States Bankruptcy Code) or the sale of all or substantially all of the assets of the Company.

(ii) As used herein, a person shall be deemed to have "beneficial ownership" with respect to, and shall be deemed to "beneficially own," any securities of the Company in accordance with the definitions of such terms in Section 13 of the Exchange Act and rules and regulations (including Rule 13d-3, Rule 13d-5, and any successor rules) promulgated by the Securities and Exchange Commission thereunder; PROVIDED, HOWEVER, that a person shall be deemed to have beneficial ownership of all securities that any such person has a right to acquire whether such right is exercisable immediately or only after the passage of time and without regard to the 60-day limitation referred to in Rule 13d-3.

(iii) As used herein, the "Market Value" of a share of the Common Stock shall be the average of the Closing Prices of the Common Stock for the five Trading Dates ending on the last Trading Day preceding the date of the Change in Control provided that, in the event the Change in Control was not announced at least ten (10) Trading Dates prior to its occurrence, then five Trading Dates ending ten (10) Trading Dates after a public announcement of such Change in Control.

(iv) As used herein, the "Special Conversion Price" shall mean the lower of the Market Value of the Common Stock or \$14.00 per share (which amount will, each time the Conversion Price is adjusted, be likewise adjusted).

9. REPURCHASE AT OPTION OF HOLDERS UPON CHANGE IN CONTROL.

(a) Upon the occurrence of a Change in Control (as defined in Section 8(d)) each holder of Series I Preferred Stock shall have the right (the "Repurchase Right") to require the Company to repurchase all of such holder's Series I Preferred Stock, or any portion thereof which is 100 shares or any integral multiple thereof at a price equal to 101% of the liquidation preference of the Series I Preferred Stock, plus accrued and unpaid dividends, if any, to the Repurchase Date. Such repurchase shall occur on the date (the "Repurchase Date") that is 45 days after the date of the Company Notice (as defined below). The Company will give a notice containing the information set forth in Section 9(b) below (the "Company Notice") to all holders within five (5) business days following any Change in Control, and the Company will purchase all tendered shares of Series I Preferred Stock by making payment of 101% of the liquidation preference plus accrued and unpaid dividends, if any, on the Repurchase Date. The Company shall promptly deliver a copy of the Company Notice to the Transfer Agent and shall cause a copy of

such notice to be published in the Wall Street Journal or another newspaper of national circulation. The Company intends not to treat for tax purposes the Preferred Stock as having a redemption premium which is required to be treated as distributed pursuant to Section 305(c) of the Internal Revenue code.

(b) The Company Notice shall state

(i) that a Change in Control has occurred and that each holder has the right to require the Company to repurchase such holder's shares of Series I Preferred Stock for cash at a price equal to 101% of the liquidation preference of the Series I Preferred Stock, plus accrued and unpaid dividends, if any, to the Repurchase Date and the amount of such repurchase price;

(ii) the circumstances and relevant facts regarding the Change in Control;

(iii) the Repurchase Date and the instructions a holder must follow in order to have such holder's securities repurchased in accordance with this Section 9.

(iv) that any shares of Series I Preferred Stock not tendered will continue to accrue dividends.

(v) that on the Repurchase Date any share of Series I Preferred Stock tendered for payment pursuant to the terms hereof and for which money sufficient to repurchase the shares of Series I Preferred Stock has been deposited by the Company as required by Section 9(c) hereof, shall cease to accrue dividends after the Repurchase Date;

(vi) that holders electing to have shares of Series I Preferred Stock repurchased pursuant to this Section 9 will be required to surrender such shares, duly endorsed for transfer, together with irrevocable notice of such holder's intent to exercise such Repurchase Right, to the Company at the address specified in the Company Notice on or prior to the close of business on the 35th day after the date the Company's Notice is given; and

(vii) such other information as may be required by applicable law or regulations;

PROVIDED that no failure of the Company to give the foregoing notices and no defect therein shall limit the holder's Repurchase Right or affect the validity of the proceedings for the repurchase of the shares of Series I Preferred Stock pursuant to this Section 9.

(c) Following a Change in Control, the Company shall accept for payment shares of Series I Preferred Stock properly tendered pursuant to this Section 9. Prior to the Repurchase Date, the Company shall deposit with a bank or trust company having a capital

and surplus of at least \$50,000,000, funds sufficient to pay the redemption price for all shares of Series I Preferred Stock tendered and shall deliver, or cause to be delivered to such bank or trust company, the shares of Series I Preferred Stock properly tendered pursuant to this Section 9 and accepted together with an officer's certificate describing the shares of Series I Preferred Stock so tendered to and being purchased by the Company. On the Repurchase Date, the bank or trust company shall, to the extent that monies deposited with such bank or trust company are available therefor, give to the holders of shares of Series I Preferred Stock so tendered and accepted payment in an amount equal to the redemption price and, as soon as possible after such payment, the bank or trust company shall cancel the shares of Series I Preferred Stock so tendered and accepted. The Company will publicly announce the results of the Change in Control tender offer as soon as practicable after the Repurchase Date. The Company will issue to holders whose shares of Series I Preferred Stock are purchased only in part new shares of Series I Preferred Stock equal in principal amount to the unpurchased portion of the shares of Series I Preferred Stock surrendered.

(d) Notwithstanding the foregoing, in repurchasing the shares of Series I Preferred Stock pursuant to this Section 9, the Company will comply with all applicable tender offer rules, including but not limited to Sections 13(e) and 14(e) under the Exchange Act and Rules 13c-1 and 14c-1 thereunder.

10. RANKING. Any class or classes of stock of the Company shall be deemed to rank:

(i) prior to the Series I Preferred Stock, as to dividends or as to the distribution of assets upon liquidation, dissolution or winding up, if the holders of such class shall be entitled to the receipt of dividends or of amounts distributable upon liquidation, dissolution winding up, as the case may be, in preference or priority to the holders of Series I Preferred Stock.

(ii) on a parity with the Series I Preferred Stock, as to dividends or as to the distribution of assets upon liquidation, dissolution or winding up, whether or not the dividend rates, dividend payment dates or redemption or liquidation prices per share thereof be different from those of the Series I Preferred Stock, if the holders of such class of stock and the Series I Preferred Stock shall be entitled to the receipt of dividends or of amounts distributable upon liquidation, dissolution or winding up, as the case may be, in proportion to their respective amount of accrued and unpaid dividends per share or liquidation prices, without preference or priority of one over the other, and

(iii) junior to the Series I Preferred Stock, as to dividends or as to the distribution of assets upon liquidation, dissolution or winding up, if such stock shall be Common Stock or if the holders of Series I Preferred Stock shall be entitled to receipt of dividends or of amounts distributable upon liquidation, dissolution or winding up, as the case may be, in preference or priority to the holders of shares of such stock.

11. VOTING.

(a) (i) Except as herein provided or as otherwise from time to time required by law, holders of Series I Preferred Stock shall have one vote per share of Common Stock issuable upon conversion thereof on all matters submitted to the holders of the Common Stock, and shall vote with the Common Stock as a single class. Whenever, at any time or times, dividends payable on the shares of Series I Preferred Stock shall be cumulatively in arrears in an amount equal to or greater than the amount payable in respect of six complete Dividend Periods; the holders of Series I Preferred Stock shall have the exclusive right, voting separately as a class to elect two directors of the Company at the Company's next annual meeting of shareholders and at each subsequent annual meeting of shareholders until such dividends have been paid. If such voting rights shall become vested more than 90 days or less than 20 days before the date prescribed for the annual meeting of shareholders, thereupon the holders of the shares of Series I Preferred Stock shall be entitled to exercise their voting rights at a special meeting of the holders of Series I Preferred Stock as set forth in paragraphs (ii) and (iii) of this Section 11(a). At elections for such directors, each holder of Series I Preferred Stock shall be entitled to one vote for each share held by such holder. Upon the vesting of such right of the holders of the Series I Preferred Stock, the maximum authorized number of members of the Board of Directors shall automatically be increased by two, the size of the Board of Directors shall automatically be increased by two directors and the two vacancies so created shall be filled by vote of the holders of outstanding Series I Preferred Stock as hereinabove set forth. The right of holders of the Series I Preferred Stock, voting separately as a class, to elect members of the Board of Directors as aforesaid shall continue until such time as all dividends accumulated on the Series I Preferred Stock shall have been paid, or declared and funds or additional shares of Series I Preferred Stock set aside for payment in full, at which time such right shall terminate, except as herein or by law expressly provided, subject to revesting in the event of each and every such subsequent default. Notwithstanding the foregoing, in the event the holders of Preferred Stock are entitled to elect a director as provided in Section 11(b), the number of directors which the holders of the Series I Preferred Stock may elect pursuant to this Section 11(a) shall be one, and the number of directors which the holders of the Series I Preferred Stock may elect pursuant to Section 11(b) shall be one.

(ii) Whenever such voting right shall have vested, such right may be exercised initially either, as provided in Section 11(a) (i) or 11(b), at a special meeting of the holders of shares of the Series I Preferred Stock called as hereinafter provided, or at any annual meeting of shareholders held for the purposes of electing directors, and thereafter at such meetings or by the written consent of such holders pursuant to the Business Corporation Act of the State of New Jersey.

(iii) At any time when such voting rights shall have vested in the holders of shares of the Series I Preferred Stock and if such right shall not already have been initially exercised, an officer of the Company shall, upon the written request of holders of record of 10% or more of shares of the Series I Preferred Stock then outstanding, addressed to the Chief Financial Officer of the Company, call a special meeting of holders of shares of the Series I Preferred Stock. Such meeting shall be held

at the earliest practicable date upon the notice required for annual meetings of shareholders at the place for holding annual meetings of shareholders of the Company or, if none, at a place designated by the Chief Financial Officer of the Company. If such meeting shall not be called by the proper officers of the Company within 30 days after the personal service of such written request upon the Chief Financial Officer of the Company, or within 30 days after giving notice, then the holders of record of 10% of the shares of the Series I Preferred Stock then outstanding may designate in writing any person to call such meeting at the expense of the Company, and such meeting may be called by such person so designated upon the notice required for annual meetings of shareholders and shall be held at the location requested by the person calling the meeting. Any holder of shares of the Series I Preferred Stock then outstanding that would be entitled to vote at such meeting shall have access to the stock record books of the Company for the purpose of causing a meeting of shareholders to be called pursuant to the provisions of this paragraph. Notwithstanding the provisions of this paragraph, however, no such special meeting shall be called or held during a period within 45 days immediately preceding the date fixed for the next annual meeting of shareholders.

(iv) The directors elected pursuant to this Section 11(a) shall serve until the earlier of (A) the next annual meeting or until their respective successors shall be elected and shall qualify or (B) the date that the Company has paid all accrued and unpaid dividends on the Series I Preferred Stock. Any director elected by the holders of Series I Preferred Stock may be removed by, and shall not be removed otherwise than by, the vote of the holders of a majority of the outstanding shares of the Series I Preferred Stock, as applicable, voting as a separate class, at a meeting called for such purpose or by written consent as permitted by law and the Certificate of Incorporation and By-laws of the Company; provided, that upon payment of all accrued, but unpaid dividends, such person shall automatically and without further action cease to be members of the Company's Board of Directors. If the office of any director elected by the holders of the Series I Preferred Stock, as applicable, voting as a class, becomes vacant by reason of death, resignation, retirement, disqualification or removal from office or otherwise, the remaining director elected by the holders of the Series I Preferred Stock may choose a successor who shall hold office for the unexpired term in respect of which such vacancy occurred. Upon any termination of the right of the holders of the Series I Preferred Stock to vote for directors as herein provided, the term of office of all directors then in office elected by the holders of the Series I Preferred Stock shall terminate immediately. Whenever the terms of office of the directors elected by the holders of the Series I Preferred Stock shall so terminate and the special voting powers vested in the holders of the Series I Preferred Stock shall have expired, the number of directors shall be such number as may be provided for pursuant to the By-laws of the Company irrespective of any increase made pursuant to the provisions of this Section 11.

(b) Until such time as there are outstanding a number of shares of Series I Preferred Stock less than that number of shares equal to two-thirds of the number of shares of Series I Preferred Stock issued in November 1998 to Hakuto Co., Ltd., Union Miniere, Inc. and Uniroyal Technology Corporation (as adjusted for any stock combinations or splits with

respect to such shares) (the "Threshold Amount"), if the Company materially breaches a substantive provision of one of the Strategic Agreements (as defined below), the holders of Series I Preferred Stock who are a party to one or more of the Strategic Agreements that have been breached by the Company shall collectively have the right, voting separately as a class, to elect one director of the Company at the Company's next annual meeting of the shareholders; provided, however, that if such voting rights shall become vested more than 90 days or less than 20 days before the date of the prescribed annual meeting of shareholders, such holders of the shares of Series I Preferred Stock shall be entitled to exercise their voting rights at a special meeting of the holders of the shares of Series I Preferred Stock as set forth in Sections 11(a)(ii) and (iii). At such elections for directors, each such holder of Series I Preferred Stock shall be entitled to one vote for each share held. Upon the vesting of such right of the holders of Series I Preferred Stock, the maximum authorized number of members of the Board shall automatically be increased by one, the size of the Board of Directors shall automatically be increased by one director and the one vacancy so created shall be filled by vote of the holders of Series I Preferred Stock as hereinabove set forth. The right of holders of Series I Preferred Stock, voting separately as a class, to elect a member of the Board of Directors pursuant to this Section 11(b) shall continue until the earlier of (i) the cure of each material breach giving rise such right or (ii) the date that less than the Threshold Amount of shares of Series I Preferred Stock is outstanding. As used herein the term "Strategic Agreements" shall mean the following agreements as each may be amended and any material agreements related thereto: distributorship agreements with Hakuto Co., Ltd.; the Joint-Venture Agreement between the Company and Union Miniere Inc., the Limited Liability Company Agreement of Umcore LLC, the Management and Services Agreement between Umcore LLC and the Company, the Party IP License Agreement between the Company and Umcore LLC, the New Application License Agreement between the Company and Umcore LLC, the Amended and Restated Joint Venture Agreement, dated November 1998 among the Company, Uniroyal Technology Corporation and Uniroyal Optoelectronics, Inc. and the Amended and Restated Technology License Agreement, dated November 1998 among the Company, Uniroyal Technology Corporation and Uniroyal Optoelectronics, Inc.

(c) So long as any shares of the Series I Preferred Stock remain outstanding, the consent of the holders of at least two-thirds of the shares of Series I Preferred Stock outstanding at the time, given in person or by proxy either in writing (as permitted by law and the Certificate of Incorporation and By-laws of the Company) or at any special or annual meeting, shall be necessary to permit, effect or validate any one or more of the following:

(i) the authorization, creation or issuance, or any increase in the authorized or issued amount of any class or series of stock, or any security convertible into stock of such class or series, ranking prior to or on parity with the Series I Preferred Stock (including the authorization or issuance of additional shares of Series I Preferred Stock other than issuances of Series I Preferred Stock as a dividend on any then outstanding shares of Series I Preferred Stock) as to dividends or the distribution of assets upon liquidation, dissolution or winding up;

(ii) the amendment, alteration or repeal, whether by merger, consolidation or otherwise, of any of the provisions of the Certificate of Incorporation

(including this Certificate) or the Bylaws of the Company which would adversely affect any right, preference, privilege or voting power of the Series I Preferred Stock or of the holders thereof; provided, however, that the creation and issuance of other series of preferred stock, or any increase in the amount of authorized shares of such series or of any other series of preferred stock, in each case ranking junior to the Series I Preferred Stock with respect to the payment of dividends and the distribution of assets upon liquidation, dissolution or winding up, shall not be deemed to adversely affect such rights, preferences, privileges or voting powers; or

(iii) the authorization of any reclassification of the Series I Preferred Stock.

The unanimous consent of the Series I Preferred Stock is required to modify or eliminate the mandatory redemption provisions in Section 5(b) hereof. The foregoing voting provisions shall not apply if, at or prior to the time when the act with respect to which such vote would otherwise be required shall be effected, all outstanding shares of Series I Preferred Stock shall have been redeemed or sufficient funds shall have been deposited in trust to effect such redemption, scheduled to be consummated within three months after such time.

12. PREEMPTIVE RIGHTS. Subject to Section 12(d), for so long as at least the Threshold Amount of shares of Series I Preferred Stock is outstanding, each time the Company proposes to sell shares of its capital stock or options, warrants or other rights to buy capital stock for cash, the Company shall also make an offering of such securities to the holders of Series I Preferred Stock in accordance with the following provisions:

(a) The Company shall deliver a notice to each holder of Series I Preferred Stock stating the number of securities to be offered and the price and the terms on which it proposes to offer such securities. Such notice shall be sent to the addresses set forth in the records of the Company.

(b) Each holder of Series I Preferred Stock may elect to purchase, at the price and on the terms specified in the notice, up to its Pro Rata Portion of such securities by delivering written notice of such election to the Company within 14 calendar days of the giving of such notice. Such election to purchase shall state that it is a binding commitment to purchase the securities. "Pro Rata Portion" shall mean the number of securities determined by multiplying the number of securities subject to the notice in Section 12(a) above by a fraction the numerator of which is the number of shares of Series I Preferred Stock held by such holder and the denominator of which is the number of shares of Series I Preferred Stock held by all holders provided, however, that if any of the holders of Series I Preferred Stock shall not elect to purchase their full Pro Rata Portion, the Pro Rata Portion of each holder electing to purchase its full Pro Rata Portion (without giving effect to this oversubscription adjustment) shall be increased by a proportionate amount of such unsubscribed shares.

(c) Any shares referred to in the notice that are not elected to be purchased as provided in subsection (b) above may, during the 180-day period thereafter, be

offered by the Company to any other person or persons at a price not less than, and on terms not materially more favorable to the offeree than, those specified in the notice.

(d) The preemptive rights set forth in this Section 12 shall not be applicable to the issuance of (i) securities to directors, officers, or employees of the Company as a form of compensation or in connection with their initial employment, (ii) shares of common stock issuable upon exercise of any options or warrants, (iii) capital stock in connection with a merger, acquisition, plan of exchange or consolidation of another company, (iv) capital stock in connection with a joint venture, (v) securities pursuant to a registration statement filed pursuant to the Securities Act with the Securities and Exchange Commission, (vi) Common Stock or other securities issued upon conversion of the Series I Preferred Stock or (vii) Series I Preferred Stock issued as a dividend on the Series I Preferred Stock.

13. RECORD HOLDERS. The Company and the Transfer Agent may deem and treat the record holder of any shares of Series I Preferred Stock as the true and lawful owner thereof for all purposes, and neither the Company nor the Transfer Agent shall be affected by any notice to the contrary.

14. NOTICE. Except as may otherwise be provided for herein, all notices referred to herein shall be in writing, and all notices hereunder shall be deemed to have been given upon receipt, in the case of a notice of conversion given to the Company as contemplated in Section 7(b) hereof, or, in all other cases, upon the earlier of receipt of such notice or three Business Days after the giving of such notice if sent by registered mail (unless first-class mail shall be specifically permitted for such notice under the terms of this Certificate) with postage prepaid, addressed: if to the Company, to its offices at 394 Elizabeth Avenue, Somerset, New Jersey 08873, Attention: Chief Financial Officer, or other agent of the Company designated as permitted by this Certificate, or, if to any holder of the Series I Preferred Stock, to such holder at the address of such holder of the Series I Preferred Stock as listed in the stock record books of the Company (which may include the records of any Transfer Agent for the Series I Preferred Stock); or to such other address as the Company or holder, as the case may be, shall have designated by notice similarly given, provided, that, any notice given to Hakuto Co., Ltd. shall be given by facsimile at the facsimile number provided to the Company followed by a confirmation copy by mail, postage prepaid.

EXECUTION
COPY

THIRD AMENDMENT TO REVOLVING LOAN AND SECURITY AGREEMENT

THIS THIRD AMENDMENT TO REVOLVING LOAN AND SECURITY AGREEMENT (this "Third Amendment"), dated as of December 1, 1999, is entered into by and between EMCORE CORPORATION, a New Jersey corporation (the "Borrower") and FIRST UNION NATIONAL BANK (the "Bank").

RECITALS:

A. The Borrower and the Bank are parties to a certain Revolving Loan and Security Agreement, dated as of March 31, 1997, as amended by a certain Consent and Amendment Agreement, dated as of December 5, 1997 (the "First Amendment"), as further modified pursuant to a certain Extension Letter dated September 29, 1998 issued by the Bank and accepted by the Borrower (the "First Extension Letter"), as further amended pursuant to a certain Second Amendment to Revolving Loan and Security Agreement dated as of November 30, 1998 (the "Second Amendment"), as further amended pursuant to a certain Waiver and Amendment Letter Agreement dated as March 8, 1999 (the "First Amendment Letter"), as further amended pursuant to a certain Acknowledgment, Consent and Amendment Letter dated as of May 26, 1999 (the "Second Amendment Letter") and as further modified pursuant to a certain letter of the Bank dated September 22, 1999 (the "Second Extension Letter"). Said loan agreement, as amended by the First Amendment, the First Extension Letter, the Second Amendment, First Amendment Letter, the Second Amendment Letter and the Second Extension Letter is hereinafter referred to as the "Loan Agreement".

B. The Revolving Loan Commitment (as defined in the Loan Agreement) is due to expire on January 1, 2000 and, therefore, the Borrower has requested a renewal and extension thereof to January 31, 2001.

C. The Bank is willing to amend the Loan Agreement to reflect the parties understanding with respect to the renewal and extension of the Revolving Loan Commitment to January 31, 2001 subject to, and in accordance with, the terms and conditions set forth herein.

NOW, THEREFORE, in consideration of the premises and the covenants and agreements set forth herein, and for value received by each party, the parties hereto agree as follows:

SECTION 1. DEFINITIONS

1.1. EXISTING DEFINITIONS. Unless otherwise defined herein, capitalized terms used herein shall have the meanings set forth in the Loan Agreement. Upon the effectiveness of this Third Amendment, the following defined terms shall be amended as set forth herein and such amended definitions shall apply wherever such defined terms are used in the Loan Documents.

(a) The defined term "Commitment Expiration Date" is hereby amended and restated to read as follows:

"Commitment Expiration Date" means January 31, 2001, unless extended in accordance with Section 2.5 hereof."

(b) The defined term "EBIT" is hereby amended and restated to read as follows:

"EBIT" means, with respect to the Borrower, for any period, the sum of (i) Net Income, (ii) Interest Expense, (iii) depreciation and amortization, and (iv) provisions for Federal, state and local income taxes, of the Borrower, based on income, computed in accordance with GAAP."

(c) The defined term "Eligible Accounts" is hereby amended and restated to read as follows:

"Eligible Accounts" means, without limiting the Bank's sole discretion to determine Eligible Accounts, those Accounts created by the Borrower:

- (i) which are genuine and not fraudulent;
- (ii) which arise from undisputed, bona fide sales of goods and/or services in the ordinary course of business completed in accordance with the terms and provisions contained in any documents related thereto;
- (iii) as to which the amounts of such Accounts shown on any schedule of Accounts provided to the Bank are actually and absolutely owing to Borrower, are not contingent for any reason and have not remained unpaid for more than 90 days after the invoice date thereof;
- (iv) which do not arise from sales on consignment, guaranteed sale or other terms under which payment by the Account debtor may be conditional;
- (v) which, in the case of Accounts where the Account debtor is a non-resident of the

United States or Canada, are secured by a letter of credit issued by a bank that is reasonably acceptable to Bank, provided, however, that Accounts where the Account Debtor is any one of Hakuto Co., Ltd., S&T Enterprises, Ltd., a wholly-owned subsidiary of Hakuto Co., Ltd., Siemens AG, D.I. Systems, Philips AG, Thomson, L.M. Ericsson AB, Samsung Co., L.G. Semiconductor Corporation, Hyundai Electronics, Daewoo Co. or Azea, Brown and Bavari (ABB) need not be secured by a letter of credit;

(vi) which do not consist of "bill and hold" invoices or retainage invoices;

(vii) with respect to which there are no set-offs, counterclaims or disputes existing and there are no facts, events or occurrences which in any manner would impair the validity or enforceability or collectibility of such Accounts or reduce the amount payable or delay payment thereunder;

(viii) as to which goods giving rise thereto are not, and were not, at the time of the sale thereof, subject to any Liens except those permitted by the Bank under this Agreement;

(ix) which are not Accounts with respect to which the Account debtor is:

- i. an officer, employer or agent of the Borrower;
- ii. the United States or any of its departments or instrumentalities unless the Assignment of Claims Act has been complied with;
- iii. a Subsidiary or an Affiliate of the Borrower;
- iv. a Division of the Borrower (including, but not limited to, the so-called "EMCORE West" division); or
- v. an Unconsolidated Affiliate;

(x) as to which there are no proceedings or actions which are threatened or pending against the Account debtor of any such Account which is reasonably likely to result in any material adverse change in the Account debtor's financial condition;

(xi) which are owed by Account debtors deemed creditworthy and acceptable at all times by the Bank in exercise of its reasonable discretion; and

(xii) which otherwise constitute Collateral acceptable for lending purposes in the sole discretion of the Bank."

(d) The defined term "Eligible Inventory" is hereby amended and restated to read as follows:

"Eligible Inventory" means Inventory located at Borrower's facilities at 394 Elizabeth Avenue, Somerset, New Jersey and the NM Facility and comprising only raw materials. Specifically excluded from the term "Eligible Inventory" shall be work-in-process, finished goods, supplies, packing materials, Inventory in transit and Inventory located in any location other than the locations specified above (unless the Bank is satisfied it has a perfected first priority security interest in such Inventory)."

(e) The defined term "Fixed Charge Coverage Ratio" is hereby amended and restated to read as follows:

"Fixed Charge Coverage Ratio" shall mean, with respect to the Borrower for the applicable period of determination, the ratio of (A) the sum of (i) EBIT for the period of determination, PLUS (ii) Imputed Warrant Interest Expense for the period of determination, PLUS Net Loss In Unconsolidated Affiliates determined as of the end of the period of determination TO (B) the sum of (i) the aggregate of payment of principal with respect to Indebtedness of the Borrower during the period of determination, PLUS (ii) Capitalized Lease obligations during the period of determination, PLUS (iii) Interest Expense during the period of determination."

(f) The defined term "Imputed Warrant Interest Expense" is hereby amended and restated to read as follows:

"Imputed Warrant Interest Expense" means, for any period of determination, the non-cash interest expense of the Borrower in respect of the Warrants determined in accordance with GAAP."

(g) The defined term "Warrants" is hereby amended and restated to read as follows:

"Warrants" means collectively, (i) the warrants listed on SCHEDULE A attached to the Third Amendment hereto dated as of December 1, 1999, and (ii) up to 300,000 warrant having exercise price of at least \$15 per share to be issued to Thomas J. Russell in consideration for his past guaranty of the Revolving Loans.

1.2. ADDITIONAL DEFINITIONS. For purposes of the Loan Agreement and the other Loan Documents, the following terms are hereby incorporated into Section 1 of the Loan Agreement in their respective appropriate alphabetical order:

"Net Loss In Unconsolidated Affiliates" means, with respect to the Borrower, for the relevant period the net loss appearing as an expense on an income statement of the Borrower prepared in accordance with GAAP, consistently applied, attributable to its investment in Unconsolidated Affiliates.

"Unconsolidated Affiliates" means UMcore LLC, the Borrower's joint venture with Union Miniere Inc., GELCORE LLC, the Borrower's joint venture with General Electric Company, and Uniroyal Optoelectronics LLC, the Borrower's joint venture with Uniroyal Technology Corporation, in each case so long as the Borrower's investment in each such joint venture can be accounted for using the equity method of accounting as a result of the Borrower's inability to directly or indirectly control economic and voting interests in said joint ventures.

SECTION 2. EXISTING OBLIGATIONS

2.1. ACKNOWLEDGMENT OF EVENTS OF DEFAULT, WAIVER, AMOUNTS OUTSTANDING.

(a) The Borrower acknowledges that it has failed to comply with certain of the terms and conditions of the Loan Agreement, specifically the Fixed Charge Ratio set forth in Section 10.14(a) of the Loan Agreement (all as more particularly described on SCHEDULE I annexed hereto (the "Specified Default") and that, as a result of the Borrower's failure to perform and satisfy its obligations under the Loan Agreement, an Event of Default existed thereunder. The Borrower represents and warrants to the Bank that no Events of Default or Unmatured Events of Default (other than the Specified Default) have occurred and are continuing.

(b) The Bank agrees that, upon the satisfaction of the conditions precedent set forth in Section 4 of this Third Amendment and the execution of this Third Amendment by all parties, the Specified Default shall be waived. Such waiver shall be effective only with respect to the Specified Default and only as said default relates to the Borrower's failure to comply with the provisions related to such default as of September 30, 1999 and shall not affect or be deemed to relate to any other Events of Default which have occurred and are continuing as of the date hereof or which may occur after the date hereof. No course of dealing or custom shall be implied or construed with respect to any other instance of non-compliance with any term or provision of the Loan Documents occurring in the past, existing at present, or arising in the future by virtue of the waiver contained herein. This waiver shall not constitute a waiver of any of the rights and remedies available to the Bank elsewhere in the Loan Documents, all of which are specifically reserved.

(c) The Borrower further acknowledges that, as of the date hereof, the aggregate principal amount outstanding under the Revolving Loans is \$0.

2.2. WAIVER OF CLAIMS AND DEFENSES; RELEASE.

(a) The Borrower agrees that, as of the date hereof, it has no claim, counterclaim, cause of action or defense of any kind by way of offset or otherwise to the payment and satisfaction in full of the Revolving Loans. The foregoing notwithstanding, to the extent that any such a claim or defense may or does exist, as of the date hereof, the Borrower waives and releases any and all such claims, counterclaims, causes of action and defenses.

(b) The Borrower further waives and releases and affirmatively agrees not to allege or otherwise pursue, in any manner, any and all defenses, affirmative defenses, counterclaims, claims, causes of action, set-offs or other rights that it may have as of the date hereof to contest: (i) the Specified Default; (ii) any provisions of the Loan Agreement and other Loan Documents; (iii) the rights of the Bank to all rents, issues, profits, products and proceeds of the Collateral for the Revolving Loans; (iv) the liens for the benefit of the Bank in any property (whether real or personal, tangible or intangible), right or other interest, now or hereafter arising in connection with the Collateral for the Revolving Loans; and (v) any and all acts or omissions of the Bank in administering the amounts outstanding under the Loan Agreement or otherwise; and the Borrower fully and forever releases and discharges the Bank from any and all claims or liability of any kind or nature with respect to the foregoing.

2.3 REAFFIRMATION OF SECURITY INTEREST AND LIENS. The Borrower acknowledges and agrees that the security interests and other liens granted to the Bank in the Collateral described in Section 7 of the Loan Agreement are and remain valid and first priority liens on the assets subject thereto. The Borrower further represents and warrants that (i) such collateral includes, but is not limited to, all such Collateral located, or arising as a result of operations, at the NM Facility and (ii) there are no claims, set-offs or defenses to the Bank's exercise of any rights or remedies available to it as a creditor in realizing upon such collateral under the terms and conditions of the Loan Documents. The Borrower further acknowledges that the obligations secured by and under the Loan Agreement include, but are not limited to, all such obligations of the Borrower related to the Revolving Loans as modified hereby.

SECTION 3. LOANS

3.1 RENEWAL OF REVOLVING LOAN COMMITMENT. Upon satisfaction of the conditions to effectiveness set forth in Section 4 of this Third Amendment, the Revolving Loan Commitment made available by the Bank to the Borrower pursuant to the Loan Agreement shall be extended and renewed through and including January 31, 2001. The Borrower and the Bank hereby acknowledge that interest shall accrue on the unpaid principal amount of each Revolving Credit Loan at a PER ANNUM ratio equal to the Prime Rate PLUS fifty basis points (.50%), subject to increase to the Default Rate in accordance with the terms of the Loan Documents. In consideration of the renewal and extension of the Revolving Loan Commitment, the Borrower shall pay to the Bank a non-refundable renewal fee in the amount of \$50,000 of which shall be due and payable upon execution and delivery of this Third Amendment.

SECTION 4. CONDITIONS PRECEDENT

4.1. CONDITIONS TO THIS THIRD AMENDMENT. This Third Amendment shall become effective

as of the date first written above upon fulfilment of the following conditions precedent, all as determined by the Bank, in its sole and absolute discretion:

(a) The Borrower shall have paid and/or reimbursed the Bank for all costs and expenses incurred in connection with the extension herein contemplated, including, without limitation, the reasonable fees and disbursements of the Bank's outside counsel, Windels, Marx, Davies & Ives;

(b) The Borrower shall have caused to be delivered by the Guarantor a Guarantor Agreement, in substantially the form of EXHIBIT "A" attached hereto, duly executed and delivered by the Guarantor to the Bank;

(c) The Borrower shall have provided to the Bank resolutions of the boards of directors of the Borrower and the Guarantor, certified by the secretary of each of them as of the date hereof to be duly adopted and in full force and effect on such date, authorizing the consummation of each of the transactions contemplated by this Third Amendment;

(d) The Borrower shall have provided to the Bank certificates of the appropriate governmental authorities, dated the most recent practicable date prior to the date hereof, showing that Borrower and the Guarantor are in good standing in the States of New Jersey and New Mexico, and in such other jurisdictions as the Bank shall reasonably request;

(e) The Borrower shall have caused to be delivered to the Bank an opinion of counsel to the Borrower and the Guarantor, in form and substance satisfactory to the Bank and its counsel, regarding such matters as the Bank may reasonably request in connection with the transactions contemplated in this Third Amendment;

(f) The Borrower shall have caused to be delivered to the Bank evidence that the insurance policies provided for in Section 10.7 of the Loan Agreement are in full force and effect, with appropriate loss payee and additional insured clauses in favor of the Bank, certified by the insurer;

(g) The Borrower shall have caused to be delivered to the Bank payment of the renewal fee referenced in Section 3.1 hereof; and

(h) Such additional information and documents as the Bank may request.

SECTION 5. RATIFICATION AND AMENDMENT OF REPRESENTATIONS, WARRANTIES AND COVENANTS

5.1. RATIFICATION. Borrower hereby ratifies, confirms and restates, as if set forth herein in their entirety, all representations, warranties, covenants, acknowledgments and agreements set forth in Section 8 of the Loan Agreement, as amended prior the date hereof, at and as of the date hereof (other than representations, warranties and covenants which expressly speak only as of a different date), and

affirmatively states that all of the same are true and accurate and shall be and remain in full force and effect, subject only to changes effected by this Third Amendment and/or changes previously disclosed to the Bank in writing. In addition, Borrower represents and warrants to the Bank that:

(a) the Borrower has the power and authority to enter into this Third Amendment;

(b) the Borrower's unaudited consolidated financial statements as of June 30, 1999, which were furnished previously to the Bank, were prepared in accordance with GAAP consistently applied throughout the period involved, and present fairly the financial position of the Borrower as at the date thereof and the results of operations and cash flows of the Borrower for the period then ended;

(c) no changes having a material adverse effect have occurred since the date of such financial statements referred to in Section 5.1(b) above;

(d) the execution, delivery and performance of this Third Amendment and the instruments and agreements executed and delivered in connection herewith by the Borrower have been duly authorized by all requisite corporate action and this Third Amendment and the instruments and agreements executed and delivered in connection herewith constitute the legal, valid and binding obligations of the Borrower, enforceable against it in accordance with their terms;

(e) the Borrower is not in default with respect to any judgment, writ, injunction, decree, rule or regulation of any court or other governmental authority which would have a material adverse effect;

(f) there have been no changes to the certificate of incorporation or by-laws of any of the Borrower or the Guarantor since March 31, 1999; and

(g) no Event of Default or Unmatured Event of Default has occurred and is continuing or will result from the execution, delivery and performance of this Third Amendment and the instruments and agreements executed and delivered in connection herewith.

5.2. AMENDMENT OF CERTAIN PROVISIONS OF LOAN AGREEMENT.

(a) The last paragraph of Section 2.2 of the Loan Agreement (which was added to the Loan Agreement pursuant to Section 1(d) of the First Amendment) is hereby deleted in its entirety.

(b) Section 6.2 of the Loan Agreement is hereby deleted in its place there shall appear the following:

"6.2 COMMITMENT FEE. [INTENTIONALLY DELETED]"

(c) There shall be added to Section 10.1 of the Loan Agreement, the following new reporting requirements:

"(i) In addition to, and not in lieu of, the information required pursuant to clauses (d) and (f) above, by no later than the date that is 7 Business Days following the end of the Borrower's fiscal quarter ending March 31, 2000, (x) a completed Borrowing Base Certificate (in the form annexed hereto as Exhibit 10.1 (E)) for the quarter then ended, signed by the Chief Financial Officer of the Borrower, detailing the Borrower's availability under the Borrowing Base and (y) a certificate of the Chief Financial Officer or President of the Borrower stating that such officer has obtained no knowledge of any Unmatured Event of Default or Event of Default except as specified in such certificate and showing in detail the calculations supporting such statement in respect of Section 10.14."

"(j) By no later than 15 Business Days following the end of each fiscal quarter of the Borrower, commencing with the fiscal quarter ending December 31, 1999, detailed management-prepared financial projections for the next four (4) succeeding fiscal quarters, in substantially the same format previously furnished to the Bank."

(d) Clause (b) of Section 10.14 of the Loan Agreement is hereby amended and restated in its entirety to read as follows:

"(b) EFFECTIVE TANGIBLE NET WORTH. The Borrower shall maintain an Effective Tangible Net Worth all times of not less than \$65,000,000.00. "Effective Tangible Net Worth" means total assets MINUS total liabilities, PLUS the accumulated Net Loss In Unconsolidated Affiliates from October 1, 1999 through the time of computation of Effective Tangible Net Worth (to the extent that such accumulated Net Loss. In Unconsolidated Affiliates has been subtracted from the retained earnings of the Borrower's for the purpose of calculation of said Effective Tangible Net Worth) in each case determined in accordance with GAAP, applied on a consistent basis. For purposes of this computation, the aggregate amount of any assets classified as Intangibles shall be subtracted from total assets and total liabilities shall not include the Borrower's obligations with respect to the New Preferred Stock to the extent that such obligations are otherwise classified as liabilities of the Borrower in accordance with GAAP. "

(e) Section 10.17 of the Loan Agreement is hereby amended and restated in its entirety to read as follows:

"LIMITATION ON INVESTMENTS. The Borrower shall not purchase any stock, bonds, notes, debentures or other securities of or any assets constituting a business unit of any Person, except (i) investments in direct Obligations of the United States government and certificates of deposit of United States commercial banks having a tier 1 capital ratio of not less than 6%, and then in an amount not to exceed 10% of the issuing bank's unimpaired capital and surplus and (ii) investments in the form of capital contributions in the amount of \$6,000,000 to Uniroyal Optoelectronics LLC, a capital contribution of \$600,000 to UMCORE LLC and the initial capital contribution of \$15,680,00 to GELCORE LLC". The foregoing shall not, however, be construed as an express or implied consent by the Bank to any transaction otherwise prohibited or restricted by this Agreement undertaken by the Borrower to obtain the funds for any such investment.

(f) Section 10.27 of the Loan Agreement (which was added to the Loan Agreement pursuant to Section 1(q) of the First Amendment) is hereby deleted and in its place there shall appear the following:

"10.27. [INTENTIONALLY DELETED]"

SECTION 6. MISCELLANEOUS.

6.1. CONTINUED EFFECTIVENESS. Except as specifically amended by and/or inconsistent with this Third Amendment, all of the terms and conditions of the Loan Agreement shall remain unchanged and in full force and effect and are hereby ratified, adopted and confirmed in all respects. All references to the Loan Agreement in any Loan Document shall hereafter be deemed to refer to the Loan Agreement as amended prior to the date hereof and by this Third Amendment. This Third Amendment is a Loan Document.

6.2. PAYMENT OF EXPENSES. Borrower shall pay the reasonable fees and expenses (including, but not limited to, reasonable attorneys' fees and expenses) incurred by the Bank in connection with the preparation, negotiation, execution and delivery and enforcement of this Third Amendment and the documents executed and delivered in connection herewith and any and all renewals, modifications, amendments and waivers hereof and hereunder.

6.3. ENTIRE AGREEMENT. This Third Amendment, together with the other Loan Documents, constitutes the entire agreement between the parties with respect to the subject matter hereof and supersedes any prior agreements, written or oral, with respect to such subject matter.

6.4. COUNTERPARTS. This Third Amendment may be executed in one or more counterparts, each of which shall be deemed to be an original and all of which together shall constitute one and the same agreement, and any party may execute this Third Amendment by signing any such counterpart.

6.5. GOVERNING LAW. This Third Amendment shall be interpreted, and the rights and liabilities of the parties hereto, whether arising in contract or tort and howsoever pertaining to the parties' relationship, shall be determined in accordance with the laws of the State of New Jersey.

6.6. HEADINGS. The section titles contained in this Third Amendment shall be without substantive meaning or content of any kind whatsoever and are not a part of the agreement between the parties.

SECTION 7. RELEASE OF GUARANTY OF THOMAS J. RUSSELL AND TJR HOLDING TRUST.

7.1 RELEASE. Upon the satisfaction of the condition precedent to the effectiveness of this Third Amendment set forth in Section 4 hereof, the unconditional guaranty of Thomas J. Russell and TJR Holding Trust (together, the "Guarantors") as provided in that certain Amended and Restated Unconditional Guaranty dated April 29, 1999 (the "Guaranty") and the collateral securing such Guarantors' obligations thereunder provided in that certain Amended and Restated Pledge and Assignment Agreement dated April 29, 1999 (the "Pledge") are hereby released, terminated and of no further in force and effect. The release herein provided is intended to be self-operative and the Guarantors may present this Third Amendment to any interested party to evidence the Guarantors' complete release from all obligations to guaranty and provide collateral for the Revolving Loans under the Loan Documents pursuant to the Guaranty and the Pledge, respectively. The Bank shall execute any further instruments of release or termination statements as the Guarantors may reasonably request, all at Guarantors' sole cost and expense.

IN WITNESS WHEREOF, the parties have executed this Third Amendment the day and year first above-written.

EMCORE CORPORATION,
a New Jersey corporation

By: /s/ Thomas G. Werthan

Name: Thomas G. Werthan
Title: CFO & Vice President

FIRST UNION NATIONAL BANK

By: /s/ Robert G. Murphy, Jr.

Name: Robert G. Murphy, Jr.
Title: Vice President

SCHEDULE I

SPECIFIED DEFAULT

1. Failure to comply with the Fixed Charge Ratio covenant set forth in Section 10.14(a) of the Loan Agreement for the fiscal period ending September 30, 1999.

EXHIBIT A
GUARANTOR AGREEMENT OF
MICROOPTICAL DEVICES, INC.

SUBSIDIARY OF THE REGISTRANT

MicroOptical Devices, Inc., a Delaware corporation

CONSENT OF INDEPENDENT ACCOUNTANTS

We consent to the incorporation by reference in Registration Statements Nos. 333-27507, 333-36445, 333-39547 and 333-45827 of EMCORE Corporation on Form S-8 and Registration No. 333-87753 of EMCORE Corporation on Form S-3 of our report dated November 10, 1999 appearing in this Annual Report on Form 10-K of EMCORE Corporation for the year ended September 30, 1999.

DELOITTE & TOUCHE LLP
Parsippany, New Jersey
December 28, 1999

THIS SCHEDULE CONTAINS SUMMARY FINANCIAL INFORMATION EXTRACTED FROM THE CONSOLIDATED FINANCIAL STATEMENTS OF EMCORE CORPORATION FOR THE FISCAL YEAR ENDED SEPTEMBER 30, 1999, AND IS QUALIFIED IN ITS ENTIRETY BY REFERENCE TO SUCH FINANCIAL STATEMENTS.

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| 12-MOS | | |
| | SEP-30-1999 | |
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| | | 7,165 |
| | | 0 |
| | 14,466 | |
| | (563) | |
| | 13,990 | |
| | 35,447 | |
| | | 69,241 |
| | (22,959) | |
| | 99,611 | |
| 14,757 | | |
| | | 0 |
| 14,193 | | |
| | | 0 |
| | 152,426 | |
| | (90,803) | |
| 99,611 | | |
| | | 58,341 |
| | 58,341 | |
| | | (33,158) |
| | (33,158) | |
| | (44,921) | |
| | 0 | |
| (1,617) | | |
| | (21,355) | |
| | | 0 |
| | 0 | |
| | 0 | |
| | (1,334) | |
| | | 0 |
| | (22,689) | |
| | (2.18) | |
| | (2.18) | |