CIENA CORP
Form 10-K/A
May 15, 2002

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

FORM 10-K/A

(Mark One)

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

For the fiscal year ended October 31, 2001

OR

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

For the transition period from ..... to.....

Commission file number 0-21969

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

Delaware	**23-2725311**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
1201 Winterson Road, Linthicum, MD	**21090-2205**
(Address of principal executive offices)	(Zip Code)

(410) 865-8500
(Registrant s telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act: **None**

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

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 [X] NO [ ]

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

The aggregate market value of the 328,022,264 shares of Common Stock of the Registrant issued and outstanding as of October 31, 2001, excluding 5,294,320 shares of Common Stock held by affiliates of the Registrant was $4,986,146,734. This amount is based on the average bid and asked price of the Common Stock on the Nasdaq Stock Market of $15.45 per share on November 2, 2001.

DOCUMENTS INCORPORATED BY REFERENCE

Part III of the Form 10-K incorporates by reference certain portions of the Registrant s proxy statement for its 2002 annual meeting of stockholders to be filed with the Commission not later than 120 days after the end of the fiscal year covered by this report.

PART I

The information in this Form 10-K contains certain forward-looking statements, including statements related to markets for the Company s products and trends in its business that involve risks and uncertainties. The Company s actual results may differ materially from the results discussed in the forward-looking statements. Factors that might cause such a difference include those discussed in Management s Discussion and Analysis of Financial Condition and Results of Operations-Risk Factors and Business as well as those discussed elsewhere in this Form 10-K.

Item 1. Business

GENERAL

Overview

CIENA is a leader in the intelligent optical networking equipment market. We offer a portfolio of products for communications service providers worldwide. Our customers include long-distance carriers, competitive and incumbent local exchange carriers, Internet service providers, wireless and wholesale carriers. CIENA offers optical transport and intelligent optical switching systems that enable service providers to provision, manage and deliver high-bandwidth services to their customers. We have pursued a strategy to develop and leverage the power of disruptive technologies to change the fundamental economics of building carrier-class tele- and data-communications networks, thereby providing our customers with a competitive advantage. CIENA s intelligent optical networking products are designed to enable carriers to deliver any time, any size, any priority bandwidth to their customers.

The Company had revenues of $1,603.2 million for its fiscal year ended October 31, 2001, an increase of more than 86% when compared with fiscal 2000 revenues of $858.8 million. The Company recorded a net loss of $1,794.1 million in fiscal 2001 compared with net income of $81.4 million for fiscal 2000.

For the fiscal year ended October 31, 2001, the Company recorded revenue from sales of intelligent optical networking equipment to a total of 53 customers. This represents an increase of more than 65% over 2000 s customer base of 32. During fiscal 2001, Qwest and Sprint each represented more than 10% of CIENA s total revenues.

CIENA believes it holds the leading position in the global next-generation optical networking market with approximately 33% market share. Our belief is based upon estimates developed from a variety of sources, including vendors public statements regarding their optical networking businesses, CIENA internal estimates, and recent discussions with industry analysts, such as RHK, CIR, Dell Oro, Infonetics, KMI, and IDC.

Historically, the majority of CIENA s revenue has come from the sale of products in a single product category: long-distance optical transport equipment. CIENA believes it is one of the worldwide market leaders in field deployment of open-architecture long-distance optical transport equipment utilizing dense wavelength division multiplexing (DWDM) technology. The majority of CIENA s fiscal 2001 revenue was derived from sales of its long distance optical transport products. During the fiscal year 2001, CIENA also recognized meaningful revenue for the first time from the sale of its intelligent optical core switch, MultiWave CoreDirector. CIENA believes it holds an industry-leading market share in this important emerging product category. In addition, during 2001, CIENA also recognized revenue from the sale of its metropolitan optical transport product line, MultiWave Metro, and its next-generation multi-service access and switching platform MultiWave MetroDirector K2.

Our research and development efforts as well as potential future acquisition and partnership activities are targeted at capitalizing on our installed base of carrier customers and leveraging our position as a leader in the rapidly growing optical networking market.

INDUSTRY BACKGROUND

The world s tele- and data-communications infrastructure is formed by fiber optic networks owned and operated by service providers. In recent years, the combination of several factors, including global deregulation which fueled competition among service providers and increased bandwidth demand resulting from the proliferation of the Internet and the emergence of electronic commerce, gave rise to the increased deployment of optical networking equipment.

Deregulation in the United States telecom industry and privatization in the international telecom industry during the 1990 s began a transition from an industry characterized by a small number of heavily regulated large service providers to one in which numerous insurgent competitors began to emerge. Rapid traffic growth and readily available capital further fueled the growth in the number of service providers as emerging carriers built networks and fought to take market share from the incumbents. This rush of capital and new competitors into the market left many service providers with a situation in which capital and operating expenses grew faster than revenues. In addition, many equipment vendors offered substantial vendor financing to service providers as a means to encourage sales, thereby creating a temporary, and ultimately unsustainable demand for networking equipment.

Toward the end of calendar 2000 and into calendar 2001, capital markets tightened, leading to what appears to be a new period of consolidation among service providers. As access to capital lessened, many service providers curtailed further network build-outs and dramatically reduced their overall capital spending. In addition, the industry saw the emergence and general availability of next generation optical networking equipment that enabled carriers to spend less and do more. This new equipment offered carriers the ability to grow their networks more efficiently while lowering both initial capital expenditures and ongoing operational expenses. The combined effect of these developments was a sharp decline in the demand for legacy telecom equipment and a general overall slowdown in carriers equipment purchases. As a result, many equipment vendors, who were now experiencing financial challenges of their own because of the slowdown in demand, stepped away from their previous practice of providing vendor financing. This only exacerbated the capital crunch and caused further capital spending reductions by carriers. In addition, several carriers found that they had built networks in anticipation of demand that failed to materialize and now faced an over capacity situation. Some carriers, with no access to additional capital and inadequate revenue, failed.

During this time service providers looked to new products and technologies, in particular optical networking equipment, to help them more efficiently scale their networks to handle the increased traffic load while also bringing their spending and expenses in line with their revenue growth.

CIENA S SOLUTIONS

CIENA s intelligent optical networking equipment was designed to enable service providers to transition from inefficient, legacy, voice-centric networks to more efficient data-optimized, intelligent optical networks. CIENA s systems address the network scalability and capital spending challenges and the escalating operational costs faced by service providers.

CIENA leverages its expertise in optics, software, systems and Application Specific Integrated Circuits (ASICs), to develop innovative products designed to lower the cost of constructing and operating communications networks.

CIENA s equipment can replace multiple legacy network elements with fewer, more intelligent network elements, thereby simplifying the network and lowering carriers initial capital costs and ongoing operations expenses.

With the bandwidth flexibility and availability enabled by CIENA s optical transport equipment utilizing DWDM technology, service providers are able to ramp their network bandwidth with demand, adding bandwidth when and where it is needed and only paying for capacity as it is added and turned up.

CIENA s equipment is designed to lower network operating costs by enabling carriers to manage network traffic and network bandwidth more efficiently.

CIENA s equipment also is designed to enable carriers to shorten the time it takes to provision services, in

some cases from months to nearly real-time, thereby accelerating revenue generation.

In addition to capital and operational cost savings, CIENA s equipment and network management software is designed to enable carriers to offer new, revenue-generating and service-differentiating optical services.

Our optical networking product portfolio is targeted at the critical areas of service provider networks: intelligent optical switching, long-distance optical transport, short-distance optical transport and network management.

Intelligent Optical Core Switching. Our family of intelligent optical core switches, MultiWave CoreDirector, and MultiWave CoreDirector CI, enable carriers to manage network bandwidth more efficiently. CoreDirector and CoreDirector CI help carriers solve both the challenges of network scalability and escalating operating costs by incorporating the functionality of multiple network elements into a single network element with previously unavailable switching and bandwidth management capabilities.

Multi Service Access and Switching. MultiWave MetroDirector K2 is CIENA s next-generation multi-service access and switching platform designed for service providers seeking increased availability of usable, cost-effective bandwidth. MultiWave MetroDirector K2 has been designed to easily integrate into existing network environments and deliver superior levels of price/performance, bandwidth optimization, reliability, service flexibility, provisioning capabilities, and support for circuit-switched and data-centric traffic. The MultiWave MetroDirector K2 platform has an innovative architecture that helps service providers alleviate traffic gridlock in metropolitan networks, while providing the opportunity for increased revenues and improved performance from their existing network.

Optical Transport. CIENA s long-distance optical transport products, MultiWave CoreStream, MultiWave Sentry, MultiWave 1600, and our short distance products, MultiWave Metro, MultiWave Metro One and MultiWave Firefly, utilize DWDM technology which enables carriers to cost effectively add critical network bandwidth when and where they need it. As a result, service providers are better able to scale their networks to meet demand.

Network Management. ON-Center, CIENA s fully integrated family of software-based tools for comprehensive element, network and service layer management, is designed to enable accelerated deployment of new, differentiating optical services. ON-Center is designed to reduce network operating and management costs.

CIENA calls the network architecture created by these products LightWorks. The components of CIENA s LightWorks architecture can be sold together as a complete network solution or separately as best-of-breed solutions. CIENA s LightWorks architecture is designed to dramatically simplify a carrier s network by reducing the number of network elements. We believe this network simplification will lead to lower capital equipment cost and lower operating cost.

STRATEGY

CIENA s strategy is to maintain and build upon its market leadership in the deployment of intelligent optical networking systems and to leverage our technologies in order to provide solutions for both voice and data communications-based network architectures. We believe that the technological, operational and cost benefits of our optical networking solutions create competitive advantages for service providers worldwide. We believe our solutions will become increasingly important as these service providers are being pressed by their customers to deliver services to address the dramatic growth in Internet and other data communications traffic and at the same time need to find ways to reduce operating and capital expenses while ultimately realizing and improving profits. CIENA s strategy includes the following:

Expand Our Base of Customers Using Our Optical Networking Solutions. We believe that achieving early widespread operational deployment of our systems in a particular carrier s network will provide CIENA significant competitive advantages with respect to additional optical networking deployments and will enhance our marketing to other carriers as a field-proven supplier. While continuing to aggressively serve our existing customers, we intend to actively pursue additional optical networking deployment opportunities among carriers in domestic and foreign long distance, interoffice and local exchange markets.

Target Incumbent Carriers. The nature of our customer base requires a focused sales effort on a customer-by-customer basis. We plan to shift the focus of our sales and marketing efforts towards incumbent carriers.

Sustain Our Investment in Research and Development. We believe our future success will depend heavily on our ability to offer products that excel in meeting the needs of our customers products that will allow them to reduce their capital expenditures and operating costs and to address the obstacles they will confront as they build out, grow and operate next generation optical networks. In order to meet this challenge, we believe we must make significant and sustained investments in enhancing our existing products and developing new ones. We must also continue to monitor developments in optical networking technology and, where appropriate, make strategic investments or acquisitions designed to help us maintain our technological leadership. We will take advantage of our strong balance sheet to continue to make investments in these areas even during periods in which our revenues are reduced by temporary declines in demand.

Continue to Emphasize Technical Support and Customer Service. CIENA markets technically advanced systems to sophisticated customers. The nature of CIENA s systems and market require a high level of technical support and customer service. We believe we have a good reputation for our technical support and customer service and we intend to emphasize our global service, and support capabilities as differentiating factors in our efforts to maintain and enhance our market position. CIENA offers complete engineering, furnishing and installation services as well as full-time customer support from strategic locations worldwide.

Maintain World Class Manufacturing Capability. CIENA s optical networking systems play a critical role in our customers networks. Quality assurance and manufacturing excellence are necessary for CIENA to achieve success. CIENA believes it has developed a world class optical manufacturing and system test capability and this capability provides CIENA with a competitive advantage. In addition, CIENA expects to utilize this expertise to leverage our manufacturing capability with contract manufacturers.

Leverage the Company s High Bandwidth Technologies and Know-How. We believe there will be further opportunities for the application of next generation solutions in service provider networks. We believe, for instance, that the bandwidth and capacity management enabled by next generation equipment at the core of service provider networks will result in the need for more efficient traffic handling and management toward the edge of the network. CIENA expects to leverage the core competencies it has developed in the design, development and manufacturing of its optical transport and intelligent optical switching product lines by pursuing internal product development efforts, forming strategic alliances and making acquisitions to address these expected opportunities, CIENA intends to move aggressively to maintain leadership in the design and development of intelligent optical networking equipment and software that will both respond to customer needs and help customers move toward newer, higher capacity, more cost-efficient network designs for the future.

Pursue the Opportunity for Solution Sales. As one of the few equipment vendors with a complete next generation product set, CIENA is in a position to pursue a solution sale approach with carriers. CIENA is developing the capability to offer carriers a choice of choosing either an open architecture approach to building networks one that potentially combines equipment from multiple vendors, or an integrated solution from CIENA one that utilizes only CIENA equipment. With an integrated CIENA network, service providers will be able to take advantage of significant capital cost savings through the application of integrated optics across CIENA s product lines. In addition, an integrated CIENA network will offer customers significant network management and service provisioning benefits that have the potential to lower operations costs. CIENA believes that during challenging economic times, service providers will look to consolidate the number of vendors from which they purchase. CIENA believes that its ability to offer carriers an integrated solution that delivers significant capital and operational cost savings over other vendors solutions will be a strategic advantage.

PRODUCTS

Our optical networking product portfolio is targeted at the critical areas of service provider networks: intelligent optical switching, long-distance optical transport, short-distance optical transport and network management. CIENA s open architecture design means its products interoperate with most carriers existing fiber optic transmission systems, and network elements, including connecting directly to either traditional voice equipment, or data-centric equipment.

Intelligent Optical Core Switching

Product	Features
MultiWave CoreDirector	Provides traffic management and switching capability beyond current network solutions of up to 256 ports of OC-48 or up to 640 gigabits per second in a single 7 foot bay. Designed for in-service growth: scalable to 1,536 and 3,072 port configurations in the future. Designed to reduce capital equipment costs by displacing multiple legacy network devices.

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	Designed to simplify service provisioning, in some cases reducing provisioning times from months to real-time. Offers the ability to switch at the wavelength level, OC-192, OC-48 or at levels down to an STS-1. May enable new revenue opportunities for service providers through new optical layer capabilities and services. Development to include benefits of both optical optical (OO) and optical-electrical-optical (OEO) switching functionality integrated into one intelligent system.
CoreDirector CI	Delivers CoreDirector functionality in a smaller package and at a lower entry cost that is ideal for lower capacity networks or smaller switching sites. Provides up to 64 ports of OC-48 or up to 160 gigabits per second in half the space occupied by a full size CoreDirector.

Next-Generation Multi-Service Access Switching

Product	Features
MultiWave MetroDirector K2	Provides scalability from 1.5 megabits per second to 10 gigabits per second with total switching capacity of 480 gigabits per second. Extends the intelligence of CoreDirector software to the edge of the network and enables end-to-end point-and-click provisioning. Designed to reduce capital equipment costs by displacing multiple legacy network devices with a single network element. Supports multiple services including voice and native data over SONET, and will enable IP, ATM, 10/100 Ethernet, Gigabit Ethernet and VLAN services.

Long-Distance Optical Transport

Product	Features
MultiWave CoreStream	CIENA s fourth generation carrier-class intelligent optical transport product. First commercially deployed 96-channel DWDM system with commercial shipments beginning in fiscal Q3 1999. Utilizes DWDM technology to deliver up to 96 optical channels at 2.5 gigabits per second (240 gigabits) or up to 48 channels at 10 gigabits per second (480 gigabits). Designed for in-service growth; scalable to handle 3.2 terabits of traffic in the future. With ultra-long haul features ultimately capable of transporting signals up to 5,000 kilometers without electrical regeneration.
MultiWave Sentry 4000	CIENA s third generation carrier-class intelligent optical transport product. First commercially deployed 40-channel system with commercial shipments beginning in fiscal Q2 1998. Utilizes DWDM technology to deliver up to 40 channels at 2.5 gigabits per second (100 gigabits).
MultiWave Sentry 1600	CIENA s second generation carrier-class intelligent optical transport product. First commercially deployed 16-channel system with commercial shipments beginning in the second half of fiscal 1996. Utilizes DWDM technology to deliver up to 16 channels at 2.5 gigabits

	per second (40 gigabits). Incorporated performance monitoring capabilities, not previously available in DWDM equipment.
MultiWave 1600	CIENA s first generation carrier-class intelligent optical transport product. First commercially deployed 16-channel system with commercial shipments beginning in the first half of fiscal 1996. Utilizes DWDM technology to deliver 16 channels at 2.5 gigabits. per second (40 gigabits).

Short-Distance Optical Transport

Product	Features
MultiWave Metro	A carrier-class optical transport product designed specifically to address the performance and economic requirements of metropolitan markets. Provides up to 24 duplex channels over a single fiber pair, enabling a service provider to transport up to 60 gigabits per second. Supports multiple network topologies, such as rings, hubs, and stars. Allows service providers to carry non-SONET/SDH, data formats such as ESCON, Fibre Channel, Gigabit Ethernet and rate-adaptive Gigabit Ethernet, FICON, and digitized video.
MultiWave Metro One	Offers the same carrier-class reliability and functionality as MultiWave Metro, but for a single channel in a reduced size and reduced power consumption package.
MultiWave Firefly	MultiWave Firefly was developed specifically for use by carriers in short-distance, point-to-point applications. This system multiplexes up to 24 channels at 2.5 gigabits per second, over a single fiber pair, allowing a carrier to transport up to 60 gigabits per second.

Network Management

Product	Features
LightWorks ON-Center	Fully integrated family of software-based tools for comprehensive element, network and service layer management across service provider networks. Designed to enable accelerated deployment of new, differentiating optical services, reduced network operating and management costs, and innovative customer service solutions. Designed so that service providers can select any or all components necessary to meet their particular network s management needs. Elements include: An Optical Service Layer Management System for cross-vendor end-to-end service management; an Optical Network Management System for integrated management across all of CIENA s intelligent optical transport, switching and access systems, and; a Modeling and Planning System for network design.

PRODUCT DEVELOPMENT

We believe there will be further opportunities for the application of next generation solutions in service provider networks. We believe, for instance, that the bandwidth and capacity management enabled by next generation equipment at the core of service provider networks will result in the need for more efficient traffic handling and management toward the edge of the network. CIENA expects to leverage the core competencies it has developed in the design, development and manufacturing of its optical transport and intelligent optical switching product lines by pursuing internal product development efforts, forming strategic alliances and making acquisitions to address these expected opportunities. We also believe there may be opportunities for us to develop products and technologies complementary to existing optical networking technologies which may broaden our ability to provide, facilitate and/or interconnect with high bandwidth solutions offered throughout fiber optic networks. CIENA intends to focus its product development efforts and possibly pursue strategic alliances or acquisitions to address expected opportunities in these areas.

MARKETING AND DISTRIBUTION

CIENA s intelligent optical networking systems require substantial investment, and our target customers in the fiber optic telecommunications market where network capacity and reliability are critical are highly demanding and technically sophisticated. There are only a small number of such customers in any country or geographic market. Also, every network operator has unique configuration requirements, which affect the integration of optical networking systems with existing transmission equipment. The convergence of these factors leads to a very long sales cycle for optical networking equipment, often more than a year between initial introduction to the Company and commitment to purchase, and has further led CIENA to pursue sales efforts on a focused, customer-by-customer basis. See Item 7. Management s Discussion and Analysis of Financial Conditions and Results of Operations.

CIENA has organized worldwide sales activities by geographical regions: North America; Latin America; Europe, Middle East, and Africa; and Asia Pacific. Sales teams, comprised of an account manager, systems engineers and technical support and training personnel, are assigned responsibility for each customer account. In some countries CIENA makes use of distributors, independent marketing representatives or independent sales consultants. CIENA has established offices in Belgium, Brazil, Canada, China, France, Germany, Japan, Korea, Mexico, Spain, Sweden, United Kingdom and United States.

In support of its worldwide selling efforts, CIENA conducts marketing communications programs intended to position and promote its products within the telecommunications industry. Marketing personnel also coordinate our participation in trade shows and conduct media relations activities with trade and general business publications.

MANUFACTURING

CIENA conducts most of the optical assembly, final assembly and final component, module and system test functions for its optical transport products at its manufacturing facilities in Maryland. It also manufactures the in-fiber Bragg gratings used in its optical transport product lines. CIENA relies on a small number of contract manufacturers to manufacture its MultiWave CoreDirector and MultiWave MetroDirector K2 product lines, with final system test and assembly performed by CIENA. We also rely on third party manufacturers to manufacture the majority of the components for our products and continue to evaluate whether additional portions of our manufacturing can be done on a reliable and cost-effective basis by third party manufacturers.

CIENA believes that portions of its manufacturing technologies and processes represent a competitive advantage. We have invested significantly in automated production capabilities, production process control systems, and manufacturing process improvements. Certain critical manufacturing functions require a highly skilled work force, and CIENA invests significant resources in training and in maintaining the quality of its manufacturing personnel.

CIENA s optical transport product lines utilize hundreds of individual parts, many of which are customized for us. Component suppliers in the specialized, high technology end of the optical communications industry are generally not as plentiful or, in some cases, as reliable, as component suppliers, in more mature industries. CIENA works closely with its strategic component suppliers to pursue new component technologies that could either reduce cost or enhance the performance of our products.

COMPETITION

Competition in the telecommunications equipment industry is intense, particularly in that portion of the industry focused on delivering higher bandwidth and more cost effective services throughout the telecommunications network. CIENA believes that its position as a leading supplier of open architecture optical networking equipment gives it a competitive advantage and expects to leverage that advantage by gaining general market acceptance of its core and access switching products. However, competition has been and will continue to be very intense. See Item 7. Management s Discussion and Analysis of Financial Conditions and Results of Operations.

CIENA s competition is dominated by a small number of very large, usually multinational, vertically integrated companies, each of which has substantially greater financial, technical and marketing resources, and greater manufacturing capacity as well as better established relationships with the incumbent carriers than CIENA. Included among CIENA s competitors are Lucent Technologies Inc., (Lucent), Northern Telecom Inc. (Nortel), Alcatel Alsthom Group (Alcatel), NEC Corporation (NEC), Cisco Systems, Inc. (Cisco), Siemens AG (Siemens), Fujitsu Group (Fujitsu), Hitachi Ltd. (Hitachi) and Telefon AB LM Ericsson (Ericsson). CIENA also believes that several smaller companies, such as ONI Systems Corp. (ONI), Sycamore Networks, Inc. (Sycamore), Corvis Corporation (Corvis), and Tellium, Inc. (Tellium), will be able to win som share of the optical networking market. CIENA believes each of its major competitors is engaged in the development, introduction or deployment of products directly competitive with CIENA s optical transport, core switching and next-generation multi-service access and switching platforms.

In addition to optical networking equipment suppliers, traditional TDM-based transmission, SONET multiplexing, and digital cross-connect equipment suppliers compete with CIENA in the market for transmission capacity and switching capabilities. Lucent, Alcatel, Tellabs, Inc. (Tellabs), Nortel, Fujitsu, Hitachi and NEC are already providers of a full complement of such transmission and switching equipment. These and other competitors have introduced or are expected to introduce equipment that will offer 10 Gbps transmission and/or switching capability.

Patents and Other Intellectual Property Rights

CIENA has licensed intellectual property from third parties, including certain key enabling technologies with respect to the production of in-fiber Bragg gratings; utilized publicly available technology associated with Erbium-doped fiber amplifiers; and applied its design, engineering and manufacturing skills to develop its optical transport systems. These licenses expire when the last of the licensed patents expires or is abandoned. CIENA also licenses from third parties certain software components for its network management products. These licenses are perpetual but will generally terminate after an uncured breach of the agreement by CIENA. CIENA also relies on contractual rights, trade secrets and copyrights to establish and protect its proprietary rights in its products.

CIENA enforces its intellectual property rights vigorously against infringement or misappropriation. CIENA s practice is to require its employees and consultants to execute non-disclosure and proprietary rights agreements upon commencement of employment or consulting arrangements with CIENA. These agreements acknowledge CIENA s exclusive ownership of all intellectual property developed by the individual during the course of his or her work with CIENA, and require that all proprietary information disclosed to the individual will remain confidential. CIENA s employees generally also sign agreements not to compete with CIENA for a period of twelve months following any termination of employment.

As of November 2001, CIENA had received 81 United States patents, and 213 pending U.S. patent applications. We also have a number of foreign patents and patent applications. Of the United States patents that have been issued to CIENA, the earliest any will expire is 2015. Pursuant to an agreement between CIENA and General Instrument Corporation dated March 10, 1997, CIENA is a co-owner with General Instrument Corporation of a portfolio of 27 United States and foreign patents relating to optical communications, primarily for video-on-demand applications. See Item 7. Management s Discussion and Analysis of Financial Condition and Results of Operations.

EMPLOYEES

As of October 31, 2001, CIENA and its subsidiaries employed 3,778 persons, of whom 962 were primarily engaged in research and development activities, 1,624 in manufacturing, 275 in installation services, 578 in sales, marketing, customer support and related activities and 339 in administration. On November 12, 2001, CIENA announced a reduction in its manufacturing and manufacturing support workforce of approximately 10 percent or approximately 380 employees. None of CIENA s employees are currently represented by a labor union. CIENA considers its relations with its employees to be good.

Directors and Executive Officers

The table below sets forth certain information concerning each of the directors and executive officers of CIENA:

Name	Age	Position
Patrick H. Nettles, Ph.D. (1)	58	Executive Chairman of the Board of Directors
Gary B. Smith (1)	41	President, Chief Executive Officer and Director
Stephen B. Alexander	42	Senior Vice President, Chief Technology Officer
Steve W. Chaddick	50	Senior Vice President, Systems and Technology and Chief Strategy Officer
Joseph R. Chinnici	47	Senior Vice President, Finance and Chief Financial Officer
Michael O. McCarthy III	36	Senior Vice President, Worldwide Sales and Support
Russell B. Stevenson, Jr.	60	Senior Vice President, General Counsel and Secretary
Andrew C. Petrik	38	Vice President, Controller and Treasurer
Stephen P. Bradley, Ph.D. (1)(3)	60	Director
Harvey B. Cash (1)(2)	63	Director
John R. Dillon (1)(3)	60	Director
Lawton W. Fitt (1)(3)	48	Director
Judith M. O Brien (1)(2)	51	Director
Gerald H. Taylor (1)(2)	60	Director

(1) The Company s Directors hold staggered terms of office, expiring as follows: Ms. Fitt and Messrs Dillon and Nettles in 2004; Ms. O Brien and Messrs Cash and Smith in 2002; Messrs Bradley and Taylor in 2003

(2) Member of the Human Resources Committee

(3) Member of the Audit Committee

Patrick H. Nettles, Ph.D. has served as Executive Chairman of the Board of Directors since May 2001. From October 2000 until May 2001, Dr. Nettles served as CIENA s Chairman of the Board of Directors and Chief Executive Officer. From April 1994 until October 2000, Dr. Nettles served as President, Chief Executive Officer and Director of the Company. Dr. Nettles is a Trustee for the California Institute of Technology and a member of the advisory board to the President of Georgia Institute of Technology. Additionally, he serves on the board of trustees of the Center for Excellence in Education and was elected to the board of directors at Axcelis Technologies, Inc. Dr. Nettles received his B.S. degree from the Georgia Institute of Technology and his Ph.D. from the California Institute of Technology.

Gary B. Smith began serving as Chief Executive Officer of CIENA in May 2001, in addition to his existing responsibilities as President and Director, positions he has held since October 2000. Prior to his current role, his positions with the company include: Chief Operating Officer and Senior Vice President of Worldwide Sales. Mr. Smith joined CIENA in November 1997 as Vice President of International Sales. From 1995 through 1997, Mr. Smith served as Vice President of Sales and Marketing for Intelsat. Mr. Smith currently serves on the board of directors for Valaran Corporation. Mr. Smith received an M.B.A. from Ashridge Management College, U.K.

Stephen B. Alexander has served as Senior Vice President and Chief Technology Officer of CIENA since January 2000. He served as CIENA s Vice President and Chief Technology Officer from September 1998 to January 2000, and as Vice President, Transport Products from September 1996 to August 1998. Mr. Alexander has served as an Associate Editor for the Journal of Lightwave Technology and was a General Chair of the conference on Optical Fiber Communication (OFC) in 1997. Mr. Alexander received both his B.S. and M.S. degrees in electrical engineering from the Georgia Institute of Technology.

Steve W. Chaddick was appointed CIENA s Chief Strategy Officer in May 2001, in addition to his existing responsibilities as Senior Vice President, Systems and Technology, a role he has held since February 2000. Between July 1999 and February 2000, Mr. Chaddick served as President of CIENA s Core Switching Division. From August 1998 to July 1999, he served as the Company s Senior Vice President, Strategy and Corporate Development, and from CIENA s inception in 1994 until August 1998, Mr. Chaddick served as Vice President, Product Development, and Senior Vice President, Products and Technologies. Mr. Chaddick holds several patents in the area of WDM systems and techniques, and serves on the Georgia Tech Advisory Board, the Advisory board of the School of Electrical and Computer Engineering. Mr. Chaddick received both his B.S. and M.S. degrees in electrical engineering from the Georgia Institute of Technology and is a member of the Georgia Tech Academy of Distinguished Engineering Alumni.

Joseph R. Chinnici has served as CIENA s Senior Vice President, Finance and Chief Financial Officer since August 1997. From May 1995 to August 1997, Mr. Chinnici served as the Company s Vice President, Finance and Chief Financial Officer. Mr. Chinnici joined CIENA in September 1994 as its Controller. Mr. Chinnici serves on the board of directors for OTG Software and holds a B.S. degree in accounting from Villanova University and an M.B.A. from Southern Illinois University.

Michael O. McCarthy III has served as CIENA s Senior Vice President, Worldwide Sales and Support since May 2001. Mr. McCarthy served as the Company s Vice President and General Counsel from July 1999 to May 2001 and previously served as the Assistant General Counsel from September 1997 to July 1999. From June 1996 to September 1997 Mr. McCarthy was a Corporate Counsel in MCI Communications Corporation s mergers and acquisitions group. Mr. McCarthy holds a B.A. degree in mathematical economics from Colgate University and a J.D. degree from Vanderbilt University s School of Law.

Russell B. Stevenson, Jr. has served as Senior Vice President, General Counsel and Secretary since joining CIENA in August 2001. From March 2000 to August 2001, he was Executive Vice President, General Counsel and Secretary of ARBROS Communications, Inc., an integrated communications provider. From 1996 to 2000, Mr. Stevenson was Executive Vice President and General Counsel of Cyber Cash, Inc. Mr. Stevenson graduated with distinction from Cornell University and Cum Laude from Harvard Law School.

Andrew C. Petrik has served as Vice President, Controller and Treasurer of CIENA since August 1997. He served as Controller and Treasurer for the Company from December 1996 to August 1997. Mr. Petrik joined CIENA in 1996 as Controller. From 1989 to 1996, Mr. Petrik was employed by Microdyne Corporation where he was the Assistant Vice President of Marketing and Product Planning from 1994 to 1996. Mr. Petrik holds a B.S. degree in accounting from the University of Maryland and is a Certified Public Accountant.

Stephen P. Bradley, Ph.D. has served as a Director of the Company since April 1998. Professor Bradley is a William Ziegler Professor of Business Administration and the Chairman of the Program for Management Development at the Harvard Business School. A member of the Harvard faculty since 1968, Professor Bradley is also Chairman of Harvard s Executive Program in Competition and Strategy and teaches in Harvard s Delivering Information Services program. Professor Bradley has written extensively on the telecommunications industry and the impact of technology on competitive strategy. Professor Bradley received his B.E. degree in electrical engineering from Yale University in 1963 and his M.S. degree and Ph.D. in operations research from the University of California, Berkeley, in 1965 and 1968 respectively.

Harvey B. Cash has served as a Director of the Company since April 1994. Mr. Cash is a general partner of InterWest Partners, a venture capital firm in Menlo Park, California that he joined in 1985. Mr. Cash serves on the board of directors of the following public companies; i2 Technologies, Silicon Laboratories, MicroTune, Inc. and Liberté, Inc.. Mr. Cash received a B.S. degree in electrical engineering from Texas A&M University and an M.B.A. degree from Western Michigan University. Mr. Cash served on the board of directors of Benchmarq Microelectronics from 1990 to 1999, on the board of directors of Aurora Electronics, Inc. from 1991 to 1999 and on the Board of AMX Corporation from 1996 to 2001.

John R. Dillon has served as a Director of the Company since October 1999. Mr. Dillon serves on the board of directors of Airgate PCS. Mr. Dillon s experience includes a variety of positions at such companies as The Coca-Cola Company, Scientific Atlanta and Fuqua National. Mr. Dillon joined Cox Communication in 1981 as Vice President Finance, and Chief Financial Officer. He was instrumental in taking the Company private in 1985 and merging it with Cox Newspapers to form Cox Enterprises, at which time he was elected Senior Vice President, CFO and a member of the board of directors. At Cox Enterprises, he was responsible for all corporate financial activities as well as planning and development until his retirement in December 1996. Mr. Dillon holds an M.B.A. degree from Harvard Business School and a B.E.E. degree from Georgia Institute of Technology, where he was elected to the Academy of Distinguished Engineering Alumni in 1997. He was a founding director of the Georgia Center for Advanced Telecommunications Technology and served on the Georgia Institute of Technology National Advisory Board.

Lawton W. Fitt became a Director of the Company in November 2000. Ms. Fitt was elected a partner at Goldman Sachs in 1994 and has been a managing director since 1996. She has been involved in investment banking and equity underwriting for high-technology companies, including numerous initial public offerings in the Internet, software and communications equipment sectors. Ms. Fitt is currently co-head of Goldman Sachs European High Technology Investment Banking Group. Ms. Fitt serves as a director on the boards of Wink Communications, Inc. and NewView Corporation. Ms. Fitt is a trustee of the Darden School Foundation. Ms. Fitt received an A.B. degree in European History from Brown University and her M.B.A degree from the Darden School of the University of Virginia.

Judith M. O Brien has served as a Director of the Company since July 2000. Since February 2001 Ms. O Brien has been a Managing Director at INCUBIC L.L.C. From 1984 until 2001, Ms. O Brien was a partner with Wilson Sonsini Goodrich & Rosati, where she specialized in corporate finance, mergers and acquisitions and general corporate matters. In July 1993, Ms. O Brien was named as one of the top 25 lawyers under 45 in California by the California Law Business, and in 1997 she was named one of the top five women attorneys in Northern California by the California Lawyer as well as one of the leading women securities lawyers by The Recorder. In February 2001, she was named one of the nation's top 100 venture investors in 2000. Ms. O Brien received her B.A. from Smith College and her law degree from UCLA, where she was a member of Order of the Coif.

Gerald H. Taylor has served as a Director of the Company since January 2000. Mr. Taylor serves as a Managing Member of mortonsgroup, LLC. and serves on the board of directors of Lafarge Corporation, INETO and Intelliden. Mr. Taylor brings 29 years of experience from MCI. During his employment with MCI, Mr. Taylor was integrally involved in establishing MCI as one of the world s largest telecommunications companies. In addition to his roles as Chief Executive Officer from November 1996 to October 1998, as President from July 1994 to November 1996, and as Chief Operating Officer from 1993 until 1996, Mr. Taylor held key roles in operations, sales and marketing. Since 1998 Mr. Taylor has worked as an independent consultant for the telecom industry. Mr. Taylor received a B.S. degree in physics from San Francisco State University.

COMPANY

CIENA Corporation was incorporated in Delaware in November 1992. We completed our initial public offering on February 7, 1997, a secondary offering on July 2, 1997, and a follow-on offering on February 9, 2001. CIENA s principal executive offices are located at 1201 Winterson Road, Linthicum, Maryland 21090. Our telephone number is (410) 865-8500.

PART II

Item 6. Selected Consolidated Financial Data

The following selected consolidated financial data should be read in conjunction with Item 7. Management s Discussion and Analysis of Financial Condition and Results of Operations and the consolidated financial statements and the notes thereto included in Item 8. Financial Statements and Supplementary Data . CIENA has a 52 or 53 week fiscal year which ends on the Saturday nearest to the last day of October in each year. For purposes of financial statement presentation, each fiscal year is described as having ended on October 31. Fiscal 1997, 1998, 1999 and 2000 comprised 52 weeks and fiscal 2001 comprised 53 weeks.

Balance Sheet Data:

	As of October 31, (in thousands)				
	1997	**1998**	**1999**	**2000**	**2001**
Cash and cash equivalents	$273,286	$250,714	$143,440	$ 143,187	$ 397,890
Working capital	338,078	391,305	427,471	639,675	1,936,707
Total assets	468,247	602,809	677,835	1,027,201	3,317,301
Long-term obligations, excluding current portion	1,900	3,029	4,881	4,882	869,865
Stockholders equity	$377,278	$501,036	$530,473	$ 809,835	$2,128,982

Statement of Operations Data:

	Year Ended October 31, (in thousands, except per share data)				
	1997	**1998**	**1999**	**2000**	**2001**
Revenue	$413,215	$508,087	$482,085	$858,750	$ 1,603,229
Cost of goods sold	166,472	256,014	299,769	477,393	904,549
Gross profit	246,743	252,073	182,316	381,357	698,680
Operating expenses:					
Research and development(exclusive of $0, $0, $0, $0 and $17,825 deferred stock compensation costs)	23,773	71,186	101,006	125,434	235,831
Selling and marketing (exclusive of $0, $0, $0, $0 and $8,336 deferred stock compensation costs)	22,627	47,343	61,603	90,922	146,949
General and administrative (exclusive of $40, $40, $40, $40 and $15,206 deferred stock compensation costs)	11,436	18,428	22,696	33,960	57,865
Settlement of accrued contract obligation				(8,538)	
Deferred stock compensation costs	40	40	40	40	41,367
Amortization of goodwill		2,341	3,197	3,197	177,786
Amortization of intangible assets		229	438	438	4,413
In-process research and development		9,503			45,900
Restructuring costs					15,439
Goodwill impairment					1,719,426
Pirelli litigation	7,500	30,579			
Merger related costs		2,548	13,021		
Provision for doubtful accounts	489	806	250	28,010	(6,579)

Total operating expenses	65,865	183,003	202,251	273,463	2,438,397
Income (loss) from operations	180,878	69,070	(19,935)	107,894	(1,739,717)
Other income (expense), net	7,178	12,830	13,944	12,680	32,988
Income (loss) before income taxes	188,056	81,900	(5,991)	120,574	(1,706,729)
Provision (benefit) for income taxes	72,488	36,200	(2,067)	39,187	87,333
Net income (loss)	$115,568	$ 45,700	$ (3,924)	$ 81,387	$(1,794,062)
Basic net income (loss) per common share	$ 0.76	$ 0.19	$ (0.01)	$ 0.29	$ (5.75)
Diluted net income (loss) per common and dilutive potential common share	$ 0.55	$ 0.18	$ (0.01)	$ 0.27	$ (5.75)
Weighted average basic common shares outstanding	151,928	235,980	267,042	281,621	311,815
Weighted average basic common and dilutive potential common shares outstanding	209,686	255,788	267,042	299,662	311,815

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

The following discussion and analysis should be read in conjunction with Selected Consolidated Financial Data and the Company s consolidated financial statements and notes thereto included elsewhere in this report on Form 10-K.

Overview

CIENA is a leader in the intelligent optical networking equipment market. We offer a portfolio of products for communications service providers worldwide. Our customers include long-distance carriers, competitive and incumbent local exchange carriers, Internet service providers, wireless and wholesale carriers. CIENA offers optical transport and intelligent optical switching systems that enable service providers to provision, manage and deliver high-bandwidth services to their customers. We have pursued a strategy to develop and leverage the power of disruptive technologies to change the fundamental economics of building carrier-class tele- and data-communications networks, thereby providing our customers with a competitive advantage. CIENA s intelligent optical networking products are designed to enable carriers to deliver any time, any size, any priority bandwidth to their customers.

CIENA s LightWorks architecture is an optical networking architecture designed to reduce both the capital and the operating costs of building service provider networks. The LightWorks architecture addresses the critical areas of optical networking: long-distance optical transport, short-distance optical transport, intelligent optical switching, and network management. It allows us to combine the functionalities that previously required several network elements into a single element, thereby lowering the customer s capital equipment requirements and simplifying its network so as to reduce operating costs.

The products included in CIENA s LightWorks architecture can be sold together as a complete network solution or separately as best-of-breed solutions. Products include four generations of long distance optical transport systems: MultiWave 1600, MultiWave Sentry 1600, MultiWave Sentry 4000, and MultiWave CoreStream. LightWorks also includes CIENA s short distance optical transport products: MultiWave Firefly, MultiWave Metro, and MultiWave Metro One. CIENA s LightWorks architecture also includes its MultiWave CoreDirector family of optical core switching products: MultiWave CoreDirector and MultiWave CoreDirector CI. Our Lightworks architecture also includes MultiWave MetroDirector K2. The recently introduced MultiWave MetroDirector K2 is a next generation multi-service access and switching platform designed to help carriers alleviate metro area gridlock, while providing the opportunity for increased revenue and performance from their existing networks.

On February 9, 2001, we completed a public offering of 11,000,000 shares of common stock at a price of $83.50 per share less underwriters discounts and commissions. Concurrent with this offering we also completed a public offering of 3.75% convertible notes with an aggregate principal amount of $690 million. The aggregate net proceeds from these offerings were approximately $1.6 billion, after deducting underwriting discounts, commissions and offering expenses. Pending our use of the net proceeds, we have invested them in interest bearing, investment grade securities.

On March 29, 2001, CIENA acquired all of the outstanding capital stock, and assumed the options of Cyras Systems, Inc. (Cyras), a privately held provider of next-generation optical networking systems based in Fremont, California. The purchase price was approximately $2.2 billion and consisted of the issuance of approximately 26.1 million shares of CIENA common stock, the assumption of approximately 1.9 million stock options and the indirect assumption of $150 million principal amount of Cyras s convertible subordinated indebtedness. The Cyras K2 product, which has become CIENA s MultiWave MetroDirector K2, became available for shipment in the third quarter of fiscal 2001.

As part of our review of financial results for 2001, we performed an assessment of the carrying value of our long-lived assets including significant amounts of goodwill and other intangible assets recorded in connection with the acquisition of Cyras. Pursuant to Statement Financial Accounting Standards No. 121 Accounting for the Impairment of Long-Lived Assets and for Long-Lived Assets to be Disposed Of (SFAS 121) the assessment was performed because of the significant negative industry and economic trends affecting both the Company s current operations and expected future sales of MultiWave MetroDirector K2 as well as the general decline of technology valuations. It was concluded that the decline in market conditions within the Company s industry was significant and other than temporary. As a result, the Company recorded a charge of $1.7 billion to reduce goodwill during the fourth quarter of 2001 based on the amount by which the carrying amount of these assets exceeded their estimated fair value. The write down is related to the goodwill associated with the Cyras transaction.

In the fourth quarter of fiscal 2001, we also recorded a restructuring charge of $15.4 million related to the consolidation of excess facilities. The consolidation included the closure of certain manufacturing warehouse facilities and the consolidation of certain operational centers related to business activities that have been restructured. The restructuring charge had two primary components. The first component was $7 million related lease terminations and non-cancelable lease costs. This amount is included in the Company s accrued liabilities at October 31, 2001. As of October 31, 2001, none of these exit costs have been paid; the Company expects to pay these costs over the remaining lease terms. There have been no adjustments to the lease liability. The second component of the restructuring was a write-down to fair value of leasehold improvements and fixed assets associated with the leases being consolidated. The company determined the fair value of these assets based on current market conditions and recent sales activity from this type of asset. The write-down of these assets is classified in the restructuring charges on the statement of operations.

As of October 31, 2001, the Company and its subsidiaries employed approximately 3,778 persons, which was an increase of 1,003 persons over the approximate 2,775 employed on October 31, 2000. On November 12, 2001, we announced a workforce reduction of approximately 380 employees concentrated in manufacturing operations staff. Affected employees will be paid through January 10, 2002 and will be eligible for additional severance packages. They also received outplacement assistance and training. CIENA will record a restructuring charge of between $5 million and $6 million associated with this action, in the first quarter of fiscal 2002.

For much of the last five years the market for our equipment has been influenced by the entry into the communications services business of a substantial number of new companies. In the United States this was due largely to changes in the regulatory environment, in particular those brought about by the Telecommunications Act of 1996. These new companies raised billions of dollars in capital, much of which they invested in new plant, causing an acceleration in the growth of the market for telecommunications equipment.

The last year or so has seen a reversal of this trend, including the failure of a large number of the new entrants and a sharp contraction of the availability of capital to the industry. This, in turn, has caused a substantial reduction in demand for telecommunications equipment, including our products.

This industry trend has been compounded by the slowing not only of the United States economy which is now in recession but the economies in virtually all of the countries in which we are marketing our products. Moreover, the economic uncertainty has been accentuated by the events of September 11, 2001. The combination of these factors has caused most of our customers to become more conservative in their capital investment plans and more uncertain about their future purchases. As a consequence, we are facing a market that is, both reduced in absolute size and more difficult to predict and plan for.

Results of Operations

Fiscal Years Ended 2001, 2000 and 1999

Revenue. We recognized $1,603.2 million, $858.8 million and $482.1 million in revenue for the fiscal years ended October 31, 2001, 2000, and 1999, respectively. The increase in revenue of approximately $744.4 million, or 86.7% from fiscal 2000 to 2001 was due primarily to an increase in shipments of both long distance optical transport products, primarily configured for 10.0 Gbps transmission rates, and intelligent core switching products. The increase in revenue of approximately $376.7 million, or 78.1%, from fiscal 1999 to fiscal 2000 was due primarily to an increase in shipments across all product lines.

CIENA recognized revenues from a total of 53, 32 and 27 optical equipment customers during fiscal 2001, 2000, and 1999, respectively. During fiscal 2001, Sprint and Qwest Communications each accounted for at least 10% of our revenue and together they accounted for 50.5% of total revenue. During fiscal 2000, Sprint, Qwest Communications and GTS Network Ltd. each accounted for at least 10% of our revenue and combined they accounted for 60.9% of total revenue. During fiscal 1999 Sprint, WorldCom, and GTS Network Ltd., each accounted for at least 10% of our revenue and combined they accounted for 46.2% of total revenue. Revenue from overseas sales accounted for approximately 23.9%, 33.0% and 44.3%, of our total revenue during fiscal 2001, 2000 and 1999 respectively.

For the reasons discussed above in the overview, we anticipate our revenue for first quarter of fiscal 2002, will be less, and possibly significantly less than our revenues in the 4th fiscal quarter 2001. Given the current uncertainty in the market we have limited visibility of our revenues for fiscal 2002. See Risk Factors.

Gross Profit. Cost of goods sold consists of component costs, direct compensation costs, warranty and other contractual obligations, royalties, license fees, inventory obsolescence costs and overhead related to the Company s manufacturing and engineering, furnishing and installation operations. Gross profit was $698.7 million, $381.4 million and $182.3 million for fiscal 2001, 2000, and 1999, respectively. Gross margin was 43.6%, 44.4% and 37.8% for fiscal 2001, 2000 and 1999, respectively. The decrease in gross margin from fiscal 2000 to fiscal 2001 was due primarily to an increase in inventory obsolescence costs and price reductions resulting from competitive pressures, which were partially offset by increased sales of higher margin products such as MultiWave CoreDirector systems and LightWorks On-Center network element and service management software. The increase in gross margin from fiscal 1999 to fiscal 2000 was due primarily to lower component costs and improved production efficiencies.

As discussed above, our current ability to make reliable forecasts for fiscal 2002 is limited. It is possible, however, that we could experience reductions of gross margins compared to fiscal 2001 as a result of one or more of several factors, including changes in product mix, downward pressure on pricing due to more aggressive competition, decreased manufacturing efficiencies, increases in inventory obsolescence, and increased costs of components.

Research and Development Expenses. Research and development expenses were $235.8 million, $125.4 million and $101.0 million for fiscal 2001, 2000 and 1999, respectively. The approximate $110.4 million, or 88.0% increase from fiscal 2000 to 2001 was related to increases in staffing, prototype parts and depreciation expenses. The approximate $24.4 million, or 24.2% increase from fiscal 1999 to 2000 in research and development expenses related to increased staffing levels, purchases of materials used in development of new or enhanced product prototypes, and outside consulting services in support of certain developments and design efforts. During fiscal 2001, 2000 and 1999, research and development expenses were 14.7% 14.6% and 21.0% of revenue, respectively. CIENA expects that its research and development expenditures will continue to increase in absolute dollars and as a percentage of revenue during fiscal 2002 to support the continued development of CIENA s intelligent optical networking products, the exploration of new or complementary technologies, and the pursuit of various cost reduction strategies. CIENA has expensed research and development costs as incurred.

Selling and Marketing Expenses. Selling and marketing expenses were $146.9 million, $90.9 million and $61.6 million for fiscal 2001, 2000 and 1999, respectively. The approximate $56.0 million or 61.6% increase from fiscal 2000 to 2001 and the approximate $29.3 million or 47.6% increase from fiscal 1999 to 2000 in selling and marketing expenses were primarily the result of increases in staffing levels, commissions earned, depreciation expenses, trade show participation and promotional costs. During fiscal 2001, 2000 and 1999 selling and marketing expenses were 9.2%, 10.6% and 12.8% of revenue, respectively. The Company anticipates that its selling and marketing expenses will increase in absolute dollars and as a percentage of revenue during fiscal 2002 as additional personnel are hired and additional offices are opened to pursue new customers and market opportunities. The Company also expects the portion of selling and marketing expenses attributable to technical assistance and field support, specifically in Europe, Latin America, and Asia, will increase as the Company s installed base of operational MultiWave systems increases.

General and Administrative Expenses. General and administrative expenses were $57.9 million, $34.0 million and $22.7 million for fiscal 2001, 2000 and 1999, respectively. The approximate $23.9 million or 70.4% increase from fiscal 2000 to 2001 and the $11.2 million or 49.5% increase from fiscal year 1999 to 2000 were primarily the result of increased staffing levels and outside consulting services. During fiscal 2001, 2000 and 1999 general and administrative expenses were 3.6%, 4.0% and 4.7% of revenue, respectively. The Company believes that its general and administrative expenses will increase in absolute dollars and as a percentage of revenue during fiscal 2002 as a result of the expansion of the Company s administrative staff required to support its expanding operations.

Settlement of Accrued Contract Obligation. The $8.5 million gain from settlement of accrued contract obligation recorded in fiscal 2000 relates to the July 2000 termination of certain accrued contract obligations that CIENA received from iaxis Limited, one of CIENA s European customers. In September 2000, CIENA was informed that an administrative order had been issued by a London court against iaxis Limited. As a result of this order, joint administrators were appointed to manage the business of iaxis Limited while they marketed the business for sale and formulated a reorganization of the company. See Provision for Doubtful Accounts below.

Deferred Stock Compensation Costs. Deferred stock compensation costs were $41.4 million during fiscal 2001. As part of our acquisition of Cyras, we recorded $98.5 million of deferred stock compensation relating to the unvested stock options and restricted stock assumed in the acquisition. Deferred stock compensation is presented as a reduction of stockholders equity and is amortized over the remaining vesting period of the applicable options.

Amortization of Goodwill. Amortization of goodwill costs were $177.8 million, $3.2 million and $3.2 million for fiscal 2001, 2000 and 1999, respectively. The approximate $174.6 million increase in amortization of goodwill from fiscal 2000 to 2001 was related to CIENA s acquisition of Cyras, which was accounted for under the purchase method of accounting. We recorded goodwill and workforce related intangibles of approximately $2.1 billion representing the excess of the purchase price paid over the fair value of the net tangible and other intangible assets acquired. The goodwill and workforce acquired from the Cyras purchase was amortized using a straight-line method based upon a three to seven-year period during fiscal 2001. As a result of the issuance of SFAS No. 142, we will not record amortization in subsequent fiscal years. See Goodwill Impairment below.

Amortization of Intangible Assets. Amortization of intangible assets was $4.4 million, $0.4 million and $0.4 million for fiscal 2001, 2000 and 1999, respectively. The approximate $4.0 million, or 907.5% increase in amortization from 2000 to 2001 is related to our acquisition of Cyras, for which we recorded $47.7 million worth of other intangible assets. The other intangible assets from the Cyras purchase will be amortized over a seven-year period. See Goodwill Impairment below.

In-Process Research and Development. In connection with the Cyras acquisition, we recorded a $45.9 million charge for in-process research and development during fiscal 2001. This represents the estimated value of purchased in-process technology related to Cyras s K2 product development that had not yet reached technological feasibility and had no alternative future use at the time of the acquisition. The amount of purchase price allocated to in-process research and development was determined using the discounted cash flow method. This method consisted of estimating future net cash flows attributable to the in-process K2 technology for a discrete projection period and discounting the net cash flows back to their present value.

Restructuring Costs. We recorded a restructuring charge of $15.4 million relating to consolidation of excess facilities during fiscal 2001. The consolidation included the closure of certain manufacturing warehouse facilities and the consolidation of certain operational centers related to business activities that have been restructured. The charge included $7.0 million primarily related to lease terminations and non-cancelable lease costs and also included an $8.4 million write-down related to property and equipment consisting primarily of leasehold improvements and production equipment.

Goodwill Impairment. As part of our review of financial results for fiscal 2001, we performed an assessment of the carrying value of our long-lived assets including significant amounts of goodwill and other intangible assets recorded in connection with the acquisition of Cyras. The assessment was performed pursuant to Statement Financial Accounting Standards No. 121 Accounting for the Impairment of Long-Lived Assets and for Long-Lived Assets to be Disposed Of (SFAS 121) because of the significant negative industry and economic trends affecting both the Company s current operations and expected future sales of MultiWave MetroDirector K2 as well as the general decline of technology valuations. The conclusion of that assessment was that the decline in market conditions within the Company s industry was significant and other than temporary. As a result, the Company recorded a charge of $1.7 billion to reduce goodwill during the fourth quarter of 2001 based on the amount by which the carrying amount of these assets exceeded their fair value. The write down is related to the goodwill associated with the Cyras transaction. Fair value was determined based on discounted future cash flows for the operating entity, which had separately identifiable cash flows. The cash flow periods used were six years, applying annual growth rates ranging from 25% to 100%. The discount rate used was 11.3%, and the terminal values were estimated based upon a terminal growth rates of 4%. The assumptions supporting the estimated future cash flows, including the discount rate and estimated terminal values, reflect management s best estimates. The discount rate was based upon the Company s weighted average cost of capital as adjusted for the risks associated with its operations.

Merger Related Costs. The merger costs for fiscal 1999 of approximately $13.0 million were related to CIENA s acquisition of Omnia and Lightera. These costs include an $8.1 million non-cash charge for the acceleration of warrants based upon CIENA s common stock price on June 30, 1999 and $4.9 million for fees, legal and accounting services and other costs. The warrants were issued to one of Omnia s potential customers and became exercisable upon the consummation of the merger between CIENA and Omnia.

Provision for Doubtful Accounts. CIENA performs ongoing credit evaluations of its customers and generally does not require collateral from its customers. CIENA maintains an allowance for potential losses when identified. CIENA s allowance for doubtful accounts as of October 31, 2001 and October 31, 2000 was $1.5 million and $29.6 million, respectively. Approximately $27.8 million of the October 31, 2000 balance relates to provisions made for doubtful accounts associated with iaxis Limited, one of CIENA s European customers. In September 2000, CIENA was informed that an administrative order had been issued by a London court against iaxis Limited. As a result of this order, joint administrators were appointed to manage the business of iaxis Limited while they marketed the business for sale and formulated a reorganization of the company. In November 2000, CIENA was notified that Dynegy Inc. had entered into a proposed agreement to acquire the assets and stock of iaxis Limited from the administrators. As a consequence of the terms of (a) the proposed agreement between the administrators of iaxis Limited and Dynegy, and of (b) a related sales agreement between CIENA and Dynegy, CIENA expected to realize approximately $8.9 million of the gross outstanding accounts receivable balance due from iaxis Limited as of October 31, 2000. In July 2001 CIENA received approximately $15.4 million of the gross outstanding accounts receivable balance due from iaxis Limited primarily through the sales agreement with Dynegy. Accordingly, CIENA recognized a reduction in the provision for doubtful accounts of $6.6 million during fiscal 2001.

Other Income (Expense), Net. Other income (expense), net, consists of interest income earned on the Company s cash, cash equivalents and available-for-sale securities, net of interest expense associated with the Company s debt obligations. Other income (expense), net, was $33.0 million, $12.7 million and $13.9 million for fiscal 2001, 2000 and 1999, respectively. The increase in other income (expense) from fiscal 2000 to 2001 was due to increases in cash, cash equivalents and available-for-sale securities offset by increased interest expense. The decrease in other income (expense) from fiscal 1999 to fiscal 2000 was due to lower balances of cash, cash equivalents and short-term investments in fiscal 2000 as compared to fiscal 1999.

Provision (Benefit) For Income Taxes. CIENA s provision (benefit) for income taxes was (5.1)%, 32.5% and (34.5%) of pre-tax earnings (loss) for fiscal 2001, 2000 and 1999, respectively. The income tax provision for 2001 was $87.3 million. The income tax provision for 2001 was higher than the expected 35% benefit due to the non-deductibility of the goodwill impairment, and in-process research and development. The income tax provision for 2000 was lower than the expected 35% primarily due to benefits from research and development tax credits. The benefit for fiscal 1999 was less than the expected statutory benefit of 35% due to non-deductible merger costs. As of October 31, 2001, CIENA s deferred tax asset was $186.9 million. The realization of this asset could be adversely affected if future earnings are lower than anticipated.

Net Income (Loss). CIENA s net income (loss) was $(1.7) billion, $81.4 million and $(3.9) million for fiscal 2001, 2000 and 1999 respectively.

Liquidity and Capital Resources

At October 31, 2001, CIENA s principal source of liquidity was its cash and cash equivalents, and short-term and long-term investments. The Company had $397.9 million in cash and cash equivalents, and $1,397.3 million short-term and long-term investments.

The Company s operating activities provided cash of $157.0 million, $59.0 million and $28.7 million for fiscal 2001, 2000 and 1999, respectively. Cash provided by operations in fiscal 2001 was primarily attributable to a net loss adjusted for the non-cash charges of amortization of goodwill, other intangibles, deferred stock compensation and debt issuance costs, depreciation, in-process research and development, tax benefit related to exercise of stock options, inventory obsolescence, and warranty, increases in accounts payable and accruals, and deferred revenue and other obligations, offset by increases in accounts receivable, inventories and prepaid expenses.

Cash used in investment activities in fiscal 2001, 2000 and 1999 was $1,490.6 million, $103.2 million and $149.7 million, respectively. Investment activities included the net redemption of $23.8 million of short and long-term investments during 2000 and the net purchase of $103.0 million and $1,293.2 million of short and long-term investments during 1999 and 2001, respectively. Investment activities also include approximately $3.0 million and $13.0 million of equity investments in private companies during fiscal 2000 and 2001, respectively. Also included in investment activities were additions to capital equipment and leasehold improvements in fiscal 2001, 2000 and 1999 of $238.5 million, $123.9 million and $46.8 million, respectively. The capital equipment expenditures were primarily for test, manufacturing and computer equipment. The Company expects additional combined capital equipment and leasehold improvement expenditures of approximately $90.0 million to be made during fiscal 2002 to support selling and marketing, manufacturing and product development activities and the construction of leasehold improvements for its facilities, and we will use our cash and cash equivalents to fund these purchases.

We generated $1,588.4 million, $43.9 million and $13.8 million in cash from financing activities in fiscal 2001, 2000 and 1999, respectively. During fiscal 2001, CIENA received $31.9 million from the exercise of stock options and the sale of stock through our employee stock purchase plan. On February 9, 2001, we completed a public offering of 11,000,000 shares of common stock at a price of $83.50 per share less underwriters discounts and commissions. Concurrent with the offering of common stock, we completed a public offering of 3.75% convertible notes with an aggregate principal amount of $690 million. Net proceeds from these offerings were approximately $1,547.8 million, after deducting underwriting discounts, commissions and offering. During fiscal 2000, CIENA received $44.0 million from the exercise of stock options and the sale of stock through our employee stock purchase plan. During fiscal 1999, CIENA received $11.3 million from the exercise of stock options, the sale of stock through our employee stock purchase plan, and from the additional capitalization of Omnia and Lightera.

Cyras Systems LLC, our wholly owned subsidiary, has $150 million of 4.5% convertible subordinated notes outstanding. In the event that the holders of the Cyras notes convert their notes into our common stock, we would have to issue a significant number of shares of additional common stock. Based on the exchange ratio for the Cyras acquisition of approximately 0.13, we will have to issue approximately 1,037,055 shares of our common stock if holders of the entire $150 million of convertible notes decided to convert their notes. At our current stock price it appears more likely that the holders of the Cyras notes will not elect to convert them into our common stock before March 31, 2002. As a result, it is probable that we will have to make an offer to repurchase the notes at 118.942% of their principal balance on April 30, 2002. If all of the note holders accept that offer, we will have to expend approximately $178 million of our cash and cash equivalents for the repurchase.

We believe that our existing cash balances and investments, together with cash flow from operations, will be sufficient to meet our liquidity and capital spending requirements at least through the end of fiscal 2002. However, investments in or acquisitions of complementary businesses, products or technologies may require us to seek additional financing prior to that time. We cannot be certain that additional debt or equity financing will be available when required or, if available, that we can secure it on terms satisfactory to us.

Effects of Recent Accounting Pronouncements

In July 2001, the Financial Accounting Standards Board issued Statement of Financial Accounting Standards No. 141 Business Combinations (SFAS No. 141) and Statement of Financial Accounting Standards No. 142 Goodwill and Other Intangible Assets (SFAS No. 142). SFAS No. 141 addresses financial accounting and reporting for business combinations. This statement requires the purchase method of accounting to be used for all business

combinations, and prohibits the pooling-of-interests method of accounting. This statement is effective for all business combinations initiated after June 30, 2001 and supercedes APB Opinion No. 16, Business Combinations as well as Financial Accounting Standards Board Statement of Financial Accounting Standards No. 38, Accounting for Preacquisition Contingencies of Purchased Enterprises .

SFAS No. 142 addresses how intangible assets that are acquired individually or with a group of other assets should be accounted for in financial statements upon their acquisition. This statement requires goodwill amortization to cease and for goodwill to be periodically reviewed for impairment, for fiscal years beginning after October 31, 2001. SFAS No. 142 supercedes APB Opinion No. 17, Intangible Assets . The company will adopt the provisions of this standard for its first quarter of fiscal 2002. The Company has recorded goodwill amortization expense of $3.2 million, $3.2 million, and $177.8 million for fiscal years 1999, 2000 and 2001, respectively, and will no longer be recorded in subsequent fiscal year.

In August 2001, the Financial Accounting Standards Board issued Statement of Financial Accounting Standard No. 143, Accounting for Asset Retirement Obligation (SFAS No. 143). SFAS No. 143 is effective for fiscal years beginning after June 15, 2002, and will require companies to record a liability for asset retirement obligations in the period in which they are incurred, which typically could be upon completion or shortly thereafter. The FASB decided to limit the scope to legal obligation and the liability will be recorded at fair value. The effect of adoption of this standard on our results of operations and financial positions is being evaluated.

In October 2001, the Financial Accounting Standards Board issued Statement of Financial Accounting Standard No. 144, Accounting for the Impairment or Disposal of Long-Lived Assets (SFAS No. 144). SFAS No. 144 is effective for fiscal years beginning after December 15, 2001. It provides a single accounting model for long-lived assets to be disposed of and replaces SFAS No. 121 Accounting for the Impairment of Long-Lived Assets and Long-Lived Assets to Be Disposed Of. The effect of adoption of this standard on our results of operations and financial positions is being evaluated.

Quarterly Results of Operations

The tables below (in thousands, except per share data) set forth the operating results and percentage of revenue represented by certain items in CIENA s statements of operations for each of the eight quarters in the period ended October 31, 2001. This information is unaudited, but in our opinion reflects all adjustments (consisting only of normal recurring adjustments) that we consider necessary for a fair presentation of such information in accordance with generally accepted accounting principles. The results for any quarter are not necessarily indicative of results for any future period.

	Jan. 31, 2000	Apr. 30, 2000	Jul. 31, 2000	Oct. 31, 2000	Jan. 31, 2001	Apr. 30, 2001	Jul. 31, 2001	Oct. 31, 2001
Revenue	$152,213	$185,679	$233,268	$287,590	$351,989	$425,396	$458,070	$ 367,774
Cost of goods sold	87,003	104,205	128,172	158,013	191,837	231,509	259,649	221,554
Gross profit	65,210	81,474	105,096	129,577	160,152	193,887	198,421	146,220
Operating expenses:								
Research and development (1)	28,834	29,056	31,788	35,756	42,504	54,344	65,788	73,195
Selling and marketing (2)	18,122	20,331	24,375	28,094	29,636	38,782	39,622	38,909
General and administrative (3)	6,611	7,166	9,329	10,854	11,145	16,787	14,790	15,143
Settlement of accrued contract obligation			(8,538)					
Deferred stock compensation costs	10	10	10	10		2,735	22,231	16,401
Amortization of goodwill	799	799	799	800	898	25,373	75,642	75,873
Amortization of intangible assets	109	110	110	109	109	1,000	1,382	1,922
In-process research and development						45,900		
Restructuring costs								15,439
Goodwill impairment								1,719,426

Provision for doubtful accounts	250		8,538	19,222			(6,579)	
Total operating expenses	54,735	57,472	66,411	94,845	84,292	184,921	212,876	1,956,308
Income (loss) from operations	10,475	24,002	38,685	34,732	75,860	8,966	(14,455)	(1,810,088)
Other income (expense), net	2,950	3,268	3,026	3,436	4,209	13,579	8,542	6,658
Income (loss) before income taxes	13,425	27,270	41,711	38,168	80,069	22,545	(5,913)	(1,803,430)
Provision (benefit) for income taxes	4,363	8,863	13,556	12,405	26,823	73,225	(11,567)	(1,148)
Net income (loss)	$ 9,062	$ 18,407	$ 28,155	$ 25,763	$ 53,246	$ (50,680)	$ 5,654	$ (1,802,282)
Basic net income (loss) per common share	$ 0.03	$ 0.07	$ 0.10	$ 0.09	$ 0.19	$ (0.17)	$ 0.02	$ (5.51)
Diluted net income (loss) per common share and dilutive potential common share	$ 0.03	$ 0.06	$ 0.09	$ 0.09	$ 0.18	$ (0.17)	$ 0.02	$ (5.51)
Weighted average basic common share	276,182	280,162	282,258	285,177	287,001	306,329	324,368	326,834
Weighted average basic common and dilutive potential common share	295,806	299,126	299,790	301,582	300,956	306,329	337,877	326,834

(1) Exclusive of $1,672, $6,464, $9,647 deferred stock compensation costs for quarters ending Apr. 30, 2001, Jul. 31, 2001 and Oct. 31, 2001, respectively

(2) Exclusive of $491, $6,928, $959 deferred stock compensation costs for quarters ending Apr. 30, 2001, Jul. 31, 2001 and Oct. 31, 2001, respectively

(3) Exclusive of $572, $8,839, $5,795 deferred stock compensation costs for quarters ending Apr. 30, 2001, Jul. 31, 2001 and Oct. 31, 2001, respectively. Exclusive of $10 deferred stock compensation cost for each of the quarters ended Jan. 31, 2000, Apr. 30, 2000, July 31, 2000 and Oct. 31, 2000.

	Jan. 31, 2000	Apr. 30, 2000	Jul. 31, 2000	Oct. 31, 2000	Jan. 31, 2001	Apr. 30, 2001	Jul. 31, 2001	Oct. 31, 2001
Revenue	100.0%	100.00%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Cost of goods sold	57.2	56.1	54.9	54.9	54.5	54.4	56.7	60.2
Gross profit	42.8	43.9	45.1	45.1	45.5	45.6	43.3	39.8
Operating expenses:								
Research and development	18.9	15.6	13.7	12.4	12.1	12.9	14.4	19.9
Selling and marketing	11.9	10.9	10.5	9.8	8.4	9.1	8.6	10.6
General and administrative	4.3	3.9	4.0	3.8	3.2	3.9	3.2	4.1
Settlement of accrued contract obligation			(3.7)					
Deferred stock compensation costs						0.6	4.9	4.5
Amortization of goodwill	0.5	0.4	0.3	0.3	0.3	6.0	16.5	20.7
Amortization of intangible assets	0.1	0.1				0.2	0.3	0.5
In-process research and development						10.8		
Restructuring costs								4.2
Goodwill impairment								467.5

CIENA s quarterly operating results have varied, and we expect them to vary in the future. The detailed discussion of risk factors below addresses the principal factors that have caused these variations in the past, and may cause similar variations in the future. See Risk Factors .

CIENA s revenues increased during each of the seven quarters beginning in the first quarter of fiscal 2000 through the third quarter of fiscal 2001 due to a strong demand across existing products and introduction of new products such as MultiWave CoreStream long-distance optical transport systems configured for both 2.5 Gbps and 10.0 Gbps transmission rates, and our intelligent optical core switching product the MultiWave CoreDirector. The decline in revenues during the fourth quarter of fiscal 2001 compared to the third quarter of fiscal 2001 was primarily the result of a reduction in sales of our long-distance optical transport systems partially offset by a continued increase in sales of our intelligent optical switching and multi-service access products, the MultiWave CoreDirector and MultiWave MetroDirector K2.

CIENA s gross margin percentage improved from the first quarter fiscal 2000 to the second quarter fiscal 2001 as a result of component cost reductions, production efficiencies, favorable product mix and relative stable sales pricing. The decline in gross margins in the third quarter of fiscal 2001 was primarily the result of increased inventory obsolescence costs due to the sudden decrease in demand for our older generation long-distance optical transport products. The further decline in gross margin during the fourth quarter of fiscal 2001 was primarily the result of increased production inefficiencies and costs due to lower demand requirements. CIENA s operating expenses have increased in each of the last eight quarters due to continued investments in research and development, selling and marketing, and infrastructure activities. During fiscal 2002, CIENA s operating expenses will continue to increase in absolute dollars and as percentage of revenue. We expect to preserve and enhance our market leadership and build on our installed base with new and additional products in conjunction with increased investments in selling, marketing, and customer service activities. See Risk Factors .

RISK FACTORS

Investing in our securities involves a high degree of risk. In addition to the other information contained in this annual report, including the reports we incorporate by reference, you should consider the following factors before investing in our securities.

Our Business Has Been Adversely Affected by Recent Developments in the Communications Industry and the Economy in General

For much of the last five years the market for our equipment has been influenced by the entry into the communications services business of a substantial number of new companies. In the United States this was due largely to changes in the regulatory environment, in particular those brought about by the Telecommunications Act of 1996. These new companies raised billions of dollars in capital, much of which they invested in new plants, causing an acceleration in the growth of the market for telecommunications equipment.

The last year or so has seen a reversal of this trend, including the failure of a large number of the new entrants and a sharp contraction of the availability of capital to the industry. This, in turn, has caused a substantial reduction in demand for telecommunications equipment, including our products.

This industry trend has been compounded by the slowing not only of the United States economy which is now in recession but the economies in virtually all of the countries in which we are marketing our products. Moreover, the economic uncertainty has been accentuated by the events of September 11, 2001. The combination of these factors has caused most of our customers to become more conservative in their capital investment plans and more uncertain about their future purchases. As a consequence, we are facing a market that is, both reduced in absolute size and more difficult to predict and plan for.

We expect the factors described above to affect our business, for at least several quarters if not longer, in several significant ways compared to the recent past:

it is likely that our markets will be characterized by reduced capital expenditures by our customers;

our ability to forecast the volume and product mix of our sales will be substantially reduced;

managing our expenditures will be significantly more difficult in light of the uncertainties surrounding in our business;

increased competition resulting from reduced demand will put substantial downward pressures on the pricing of our products, tending to reduce our profit margins;

increased competition has also enabled customers to insist on more favorable terms and conditions for sales, including extended payment terms or other financing assistance, as a condition of procuring their business; and

the result in any or combination of these factors could be reduced revenues and profitability and perhaps losses in particular periods or for the entire year.

Our Results Can Fluctuate Unpredictably

In general, our revenues and operating results in any reporting period may fluctuate significantly due to a variety of factors including:

fluctuations in demand for our products;

changes in our pricing policies or the pricing policies of our competitors;

the timing and size of orders from customers;

changes in customers requirements, including changes or cancellations to orders from customers;

the introduction of new products by us or our competitors;

changes in the price or availability of components for our products;

readiness of customer sites for installation;

satisfaction of contractual customer acceptance criteria and related revenue recognition issues;

manufacturing and shipment delays and deferrals;

increased service, installation, warranty or repair costs;

the timing and amount of employer payroll tax to be paid on employee gains on stock options exercised; and

changes in general economic conditions as well as those specific to the telecommunications and intelligent optical networking industries.

Our intelligent optical networking products require large investments. We have only a limited number of potential customers in each geographic market, and each has unique needs. Our customers are generally technically sophisticated and demanding. As a result, the sales cycles for our products are long, often as much as a year or two between initial contact with a potential customer and the recognition of revenue from sales to the customer. Our customers purchases tend to be large and sporadic, depending upon their need to build a customer base, their plans for expanding their networks, the availability of financing, and the effects of regulatory and business conditions in the countries in which they operate. As a result, their purchase decisions can be unpredictable and subject to unanticipated changes. Our results, in turn, tend to fluctuate unpredictably. This tendency has been amplified by conditions arising from the current uncertain economic environment.

Current economic conditions have made it more difficult to make reliable estimates of future revenues. Fluctuations in our revenues can lead to even greater fluctuations in our operating profits. We budget expense levels on our expectations of long-term future revenue. These budgets reflect the substantial investments in financial, engineering, manufacturing and logistics support resources we must make to support large customers, even though we are unsure of the volume, duration or timing of their purchases. In addition, we continue to make substantial expenditures on the development of new and enhanced products. Any substantial adjustment to expenses to account for lower levels of revenue is difficult and takes time. Consequently if our revenue does decline, in the short run our levels of inventory, operating expenses and general overhead would be high relative to our revenue, reducing our profitability, and perhaps resulting in operating losses.

Our Future Success Will Depend on Our Ability to Acquire New Customers

Historically, a large percentage of our sales have been made to emerging carriers, many of which have recently begun to experience severe financial difficulties. Consequently, we expect our sales to emerging carriers to be reduced, and our future success will depend on our ability to increase our sales to incumbent carriers, including, in the United States, the regional Bell operating companies (RBOCs), and abroad, the large,

traditional telecommunications operators (TOs), many of which were formerly government-owned post, telephone and telegraph enterprises. These large companies typically require longer sales cycles, many have long-standing supplier relationships with other vendors, and our experience in selling to them is limited. If we do not succeed in penetrating this segment of the market, our business could suffer.

We May Not Be Able to Successfully Complete Development and Achieve Commercial Acceptance of New Products

It is necessary for us to continually enhance our products Certain enhancements to our products are in the development phase and are not yet ready for commercial manufacturing or deployment. For example, we expect to offer additional feature enhancement releases of the MultiWave CoreDirector product line over the life of the product and we expect to continue to enhance features of our MultiWave CoreStream, MultiWave Metro and MultiWave MetroDirector K2 products over the life of these products. The maturing process from laboratory prototype to customer trials, and subsequently to general availability, involves a number of steps, including:

completion of product development;

the qualification and multiple sourcing of critical components, including ASICs;

validation of manufacturing methods and processes;

extensive quality assurance and reliability testing, and staffing of testing infrastructure;

validation of software; and

establishment of systems integration and systems test validation requirements.

Each of these steps in turn presents serious risks of failure, rework or delay, any one of which could decrease the speed and scope of product introduction and marketplace acceptance of the product. Specialized ASICs and intensive software testing and validation are key to the timely introduction of enhancements to the MultiWave CoreDirector and MultiWave MetroDirector K2 product lines; and schedule delays are common in the final validation phase, as well as in the manufacture of specialized ASICs. In addition, unexpected intellectual property disputes, failure of critical design elements, and a host of other execution risks may delay or even prevent the introduction of these products. If we do not develop and successfully introduce these products in a timely manner, our business, financial condition and results of operations would be harmed.

The markets for our MultiWave CoreDirector and MultiWave MetroDirector K2 product lines are relatively new. We are only beginning to establish commercial acceptance of these products, and we cannot be certain that the substantial sales and marketing efforts necessary to achieve commercial acceptance in traditionally long sales cycles will be successful. If the markets for these products do not develop, or the products are not accepted by the market, our business, financial condition and results of operations would suffer. We have recently written down the value of the goodwill associated with our acquisition of Cyras, the source of our MultiWave MetroDirector K2 product, in recognition of what we believe to be a significant and permanent decline in the market for these types of products.

We Face Intense Competition which Could Hurt Our Sales and Profitability

The market for optical networking equipment is extremely competitive. Competition in the optical networking market is based on varying combinations of price, functionality, software functionality, manufacturing capability, installation, services, scalability and the ability of the system solution to meet customers immediate and future network requirements. A small number of very large companies, including Alcatel, Cisco Systems, Fujitsu Group, Hitachi, Lucent Technologies, NEC Corporation, Nortel Networks, Siemens AG and Telefon AB LM Ericsson, have historically dominated the telecommunications equipment industry. They all have substantial financial, marketing, manufacturing and intellectual property resources and greater resources than CIENA to develop or acquire new technologies. They also often have existing relationships with our potential customers.

Because we sell systems that compete directly with product offerings of these companies, and in some cases displace or replace their equipment, we represent a competitive threat. The continued expansion of our product offerings with the MultiWave CoreDirector and MultiWave MetroDirector K2 product lines and enhancements to our MultiWave CoreStream and MultiWave Metro product lines likely will increase this perceived threat. The recent decline in the market for optical networking equipment has resulted in even greater competitive pressures. We expect that the aggressive tactics we have confronted on the part of many of these competitors will continue, and perhaps become more severe. These tactics include:

price discounting; particularly when a competitor is selling used equipment or inventory that a competitor has written down or written off;

early announcements of competing products and other marketing efforts;

one-stop shopping options;

customer financing assistance;

marketing and advertising assistance; and

intellectual property disputes.

These tactics can be particularly effective in a highly concentrated customer base such as ours. Our customers are under increasing competitive pressure to deliver their services at the lowest possible cost. This pressure may result in the pricing of optical networking systems becoming a more important factor in customer decisions, which may favor larger competitors that can spread the effect of price discounts in their optical networking products across a larger array of products and services and across a larger customer base than ours. If we are unable to offset any reductions in the average sales price for our products by a reduction in the cost of our products, our gross profit margins will be adversely affected. Our inability to compete successfully against our competitors and maintain our gross profit margins would harm our business, financial condition and results of operations.

Many of our customers have indicated that they intend to establish a relationship with at least two vendors for optical networking products. With respect to customers for whom we are the only supplier of intelligent optical products, we do not know when or if these customers will select a second vendor or what impact the selection might have on purchases from us. If a second optical networking supplier is chosen, these customers could reduce their purchases from us, which could in turn have a material adverse effect on us.

New competitors are emerging to compete with our existing products as well as our future products. We expect new competitors to continue to emerge as the optical networking market continues to expand. These companies may achieve commercial availability of their products more quickly due to the narrow and exclusive focus of their efforts. Several of these competitors have raised significant cash and they have in some cases offered stock in their companies, positions on technical advisory boards, or have provided significant vendor financing to attract new customers. Our inability to compete successfully against these companies would harm our business, financial condition and results of operations.

If We Fail to Respond Rapidly to Technological Changes, Our Products Will Become Obsolete, Damaging Our Short-Term Prospects and Threatening Our Long-Term Survival

The market for optical networking products is likely to be characterized by rapid technological change, frequent introductions of new products, and recurring changes in customer requirements. To succeed in this market, we must continue to develop new products and new features for existing products. Doing so is difficult and costly, and there is no assurance that we will continue to be successful. In addition, we must be able to identify and gain access to promising new technologies. A failure to keep pace with technological advances would impair the competitiveness of our products and sooner or later do serious harm to our business.

Several of our new products, including the MultiWave CoreDirector, the MultiWave MetroDirector K2 and enhancements to the MultiWave CoreStream and MultiWave Metro, are based on complex technology which could result in unanticipated delays in the development, manufacturing or deployment of these products. Our LightWorks initiative, which involves modifying these products to enable customers to implement a new type of network architecture, entails similar development risks.

Our customers often require extensive testing of new products before accepting them, and we are typically unable to recognize revenue until the tests are completed satisfactorily. The certification process for new telecommunications equipment used in the networks of the RBOCs and TOs tends to be particularly lengthy and difficult. Complying with these certification requirements may involve unanticipated delays that could adversely affect the timing of our ability to sell our products to these larger carriers.

Concentration of Customers.

Although the number of customers who make purchases from us continues to grow, a substantial fraction of our revenues continues to come from sales to a small number of customers. In fiscal 2001, 50.5% of our revenues came from our two most significant customers, Sprint and Qwest. The loss of, or a substantial reduction in purchases by, either of these customers could reduce our revenues materially. Both of these companies have been affected to some extent by the current economic recession and the even more difficult conditions in the communications industry. The communications industry is, moreover, undergoing a period of consolidation. It is possible that either of these customers could become a party to a merger or other business combination. The distraction and uncertainty inevitably attendant on such a transaction could delay or alter decisions on network deployments or capital expenditures, and this could result in delayed or reduced purchases from us.

We Are Exposed to the Credit Risk of Our Customers

Industry and economic conditions have weakened the financial position of some of our customers. To sell to some of these customers we may be required to take risks of uncollectable accounts. While we monitor these situations carefully and attempt to take appropriate measures to protect ourselves, it is possible that we may have to write down or write off doubtful accounts. Such write-downs or write-offs, if large, could

have a material adverse effect on our operating results and financial condition.

We also continue to experience demands from customer that we finance sales to them. While we have done only a limited amount of such financing in the past, the increasingly competitive environment in which we are now operating may require us to engage in more customer financing in the future. Our ability to recognize revenue from financed sales will depend on the relative financial condition of the specific customer, among other factors. Further, we will need to evaluate the collectability of receivables from these customers if their financial condition deteriorates in the future. Any change in the financial condition of customers to which we provide financing could have a material adverse effect on our operating results and financial condition.

Our Strategy Involves Pursuing Strategic Acquisitions and Investments that May Not Be Successful

Our business strategy includes acquiring or making strategic investments in other companies with a view to expanding our portfolio of products and services, acquiring new technologies, and accelerating the development of new or improved products. To do so, we may issue equity that would dilute our current shareholders percentage ownership or incur debt or assume indebtedness. In addition, we may incur significant amortization expenses related to intangible assets. In the fourth quarter fiscal 2001 we incurred a significant write-off of goodwill associated with our Cyras acquisition completed in March 2001.

Acquisitions and strategic investments involve numerous risks, including difficulties in integrating the operations, technologies, and products of the acquired companies; diversion of management s attention from our core business; potential difficulties in completing projects of the acquired company; the potential loss of key employees of the acquired company; and dependence on unfamiliar or relatively small supply partners. In addition acquisitions and strategic investments may involve risks of entering markets in which we have no or limited direct prior experience and where competitors in such markets have stronger market positions and of obtaining insufficient revenues to offset increased expenses associated with acquisitions. Mergers and acquisitions are inherently risky. Not all of those we have made in the past have been successful; and it is possible that acquisitions we make in the future may be unsuccessful, even to the extent of materially and adversely affecting our business.

We Depend on a Limited Number of Suppliers, and for Some Items We Do Not Have a Substitute Supplier

We depend on a limited number of suppliers for components of our products, as well as for equipment used to manufacture and test our products. Our products include several high-performance components for which reliable, high-volume suppliers are particularly limited. Furthermore, some key optical and electronic components we use in our optical transport systems are currently available only from sole or limited sources, and in some cases, that source also is a competitor. Any delay in component availability for any of our products could result in delays in deployment of these products and in our ability to recognize revenues. These delays could also harm our customer relationships and our results of operations.

Failures of components affect the reliability and performance of our products and can reduce customer confidence in them, perhaps to the extent of adversely affecting our financial performance. On occasion, we have experienced delays in receipt of components and have received components that do not perform according to their specifications. Any future difficulty in obtaining sufficient and timely delivery of components could result in delays or reductions in product shipments which, in turn, could harm our business. A consolidation among suppliers of these components or adverse developments in their businesses affecting their ability to supply us, could adversely impact the availability of components on which we depend. Delayed deliveries of key components from these sources could adversely affect our business.

Any delays in component availability for any of our products or test equipment could result in delays in deployment of these products and in our ability to recognize revenue from them. These delays could also harm our customer relationships and our results of operations.

We Rely on Contract Manufacturers for Our Products

We rely on a small number of contract manufacturers to manufacture our MultiWave CoreDirector and MultiWave MetroDirector K2 product lines and some of the components for our other products. The qualification of these manufacturers is an expensive and time-consuming process, and these contract manufacturers build modules for other companies, including our competitors. In addition, we do not have contracts in place with many of these manufacturers. We may not be able to effectively manage our relationships with our manufacturers and we cannot be certain that they will be able to fill our orders in a timely manner. We provide forecasts of our demand to our contract manufacturers several months prior to scheduled delivery of products. If we overestimate our future product requirements, the contract manufacturers may have excess inventory, which would increase our costs. Conversely, if we underestimate our future product requirements the contract manufacturer may not have enough product to meet our customer requirements, and this could result in delays in the shipment of our products and our ability to recognize revenue. If we cannot effectively manage these manufacturers and forecast future demand, or if they fail to deliver components on time, our business may suffer.

Some of Our Suppliers Are Also Competitors

Some of our component suppliers are both primary sources for components and major competitors in the market for system equipment. For example, we buy components from Alcatel, Lucent Technologies, NEC Corporation, Nortel Networks, and Siemens AG. Each of these companies offers optical communications systems and equipment that are competitive with our products. A decline in reliability or other adverse change in these supply relationships could harm our business.

Our Ability to Compete Could Be Harmed If We Are Unable to Protect and Enforce Our Intellectual Property Rights or If We Infringe on Intellectual Property Rights of Others

We rely on a combination of patent, copyright, trademark and trade secret laws and restrictions on disclosure to protect our intellectual property rights. We also enter into non-disclosure and proprietary rights agreements with our employees and consultants, and license agreements with our corporate partners, and control access to and distribution of our products, documentation and other proprietary information. Despite our efforts to protect our proprietary rights, unauthorized parties may attempt to copy or otherwise obtain and use our products or technology. Monitoring unauthorized use of our products is difficult and we cannot be certain that the steps we have taken will prevent unauthorized use of our technology, particularly in foreign countries where the laws may not protect our proprietary rights as fully as in the United States. If competitors are able to use our technology, our ability to compete effectively could be harmed. We are involved in an intellectual property dispute regarding the use of our technology and may become involved with additional disputes in the future. Such lawsuits can be costly and may significantly divert time and attention from some members of our personnel.

We have received, and may receive in the future, notices from holders of patents in the optical technology field that raise issues of possible infringement by our products. Questions of infringement in the optical networking equipment market often involve highly technical and subjective analysis. We cannot assure you that any of these patent holders or others will not in the future initiate legal proceedings against us, or that we will be successful in defending against these actions. We are involved in an intellectual property dispute regarding the possible infringement of our products. In the past, we have been forced to take a license from the owner of the infringed intellectual property, or to redesign or stop selling the product that includes the challenged intellectual property. If we are sued for infringement and are unsuccessful in defending the suit, we could be subject to significant damages, and our business and customer relationships could be adversely affected.

Product Performance Problems Could Limit Our Sales Prospects

The production of new optical networking products and systems with high technology content involves occasional problems as the technology and manufacturing methods mature. If significant reliability, quality or network monitoring problems develop, including those due to faulty components, a number of negative effects on our business could result, including:

costs associated with reworking our manufacturing processes;

high service and warranty expenses;

high inventory obsolescence expense;

high levels of product returns;

delays in collecting accounts receivable;

reduced orders from existing customers; and

declining interest from potential customers.

Although we maintain accruals for product warranties, actual costs could exceed these amounts. From time to time, there will be interruptions or delays in the activation of our products at a customer s site. These interruptions or delays may result from product performance problems or from aspects of the installation and activation activities, some of which are outside our control. If we experience significant interruptions or delays that we can not promptly resolve, confidence in our products could be undermined, which could harm our business.

We Face Risks Associated with our International Operations

We market, sell and service our products globally. We have established offices around the world, including in North America, Europe, Latin America and in the Asia Pacific region. We will continue to expand our international operations and enter new international markets. This expansion will require significant management attention and financial resources to develop successfully direct and indirect international sales and support channels. We may not be able to maintain or increase international market demand for our products.

International operations are subject to inherent risks, and our future results could be adversely affected by a variety of uncontrollable and changing factors. These include greater difficulty in collecting accounts receivable and longer collection periods; difficulties and costs of staffing and managing foreign operations; the impact of recessions in economies outside the United States; unexpected changes in regulatory requirements; certification requirements, reduced protection for intellectual property rights in some countries; potentially adverse tax consequences; political and economic instability; trade protection measures and other regulatory requirements; service provider and government spending patterns; and natural disasters. Such factors could have a material adverse impact on our operating results and financial condition.

Leverage and Debt Service Obligations May Adversely Affect Our Cash Flow and Our Ability to Repay or Repurchase our Notes

We have approximately $840 million of outstanding principal indebtedness, primarily related to notes offered by us and the assumption of notes from the acquisition of Cyras Systems, Inc. As a result of this indebtedness, we have significant principal and interest payment obligations. There is the possibility that we may be unable to generate sufficient cash to pay the principal of, interest on and other amounts due in respect of our indebtedness, including the notes, when due. We may also add equipment loans and lease lines to finance capital expenditures and may obtain additional long-term debt, working capital lines of credit and lease lines.

Our leverage could have important negative consequences, including:

- increasing our vulnerability to general adverse economic and industry conditions;
- limiting our ability to obtain additional financing;
- requiring the dedication of a substantial portion of our expected cash flow from operations to service our indebtedness, thereby reducing the amount of our expected cash flow available for other purposes, including capital expenditures;
- limiting our flexibility in planning for, or reacting to, changes in our business and the industry in which we compete;
- placing us at a possible competitive disadvantage relative to less leveraged competitors and competitors that have better access to capital resources; and
- making it difficult or impossible for us to pay the principal amount of the notes at maturity or the repurchase price of the notes upon a change of control, thereby causing an event of default under the indenture.

Cyras Systems LLC, our wholly owned subsidiary, has $150 million of 4.5% convertible subordinated notes outstanding. In the event that the holders of the Cyras notes convert their notes into our common stock, we would have to issue a significant number of shares of additional common stock. Based on the exchange ratio for the Cyras acquisition of approximately 0.13, we will have to issue approximately 1,037,055 shares of our common stock if holders of the entire $150 million of convertible notes decided to convert their notes. At our current stock price it appears more likely that the holders of the Cyras notes will not elect to convert them into our common stock before March 31, 2002. As a result, it is probable that we will have to make an offer to repurchase the notes at 118.942% of their principal balance on April 30, 2002. If all of the note holders accept that offer, we will have to expend approximately $178 million of our cash and cash equivalents for the repurchase.

Our Stock Price May Exhibit Volatility

Our common stock price has experienced substantial volatility in the past, and is likely to remain volatile in the future. Volatility can arise as a result of the activities of short sellers and risk arbitrageurs, and may have little relationship to our financial results or prospects. Volatility can also result from any divergence between our actual or anticipated financial results and published expectations of analysts, and announcements that we, our competitors, or our customers may make.

Divergence between our actual results and our anticipated results, analyst estimates and public announcements by us, our competitors, or by customers will occur from time to time in the future, with resulting stock price volatility, irrespective of our overall year-to-year performance or long-term prospects. As long as we continue to depend on a limited customer base, and particularly when a substantial majority of their purchases consist of newly-introduced products, there is substantial chance that our quarterly results will vary widely.

Forward Looking Statements

Some of the statements contained, or incorporated by reference, in this annual report discuss future expectations, contain projections of results of operations or financial condition or state other forward-looking information. Those statements are subject to known and unknown risks, uncertainties and other factors that could cause the actual results to differ materially from those contemplated by the statements. The forward-looking information is based on various factors and was derived using numerous assumptions. In some cases, you can identify these so-called forward-looking statements by words like may, will, should, expects, plans, anticipates, believes, estimates, predicts, continue or the negative of those words and other comparable words. You should be aware that those statements only reflect our predictions. Actual events or results may differ substantially. Important factors that could cause our actual results to be materially different from the forward-looking statements are disclosed throughout this report, particularly under the heading Risk Factors above.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this amended report to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Linthicum, County of Anne Arundel, State of Maryland, on the 15th day of May 2002.

CIENA CORPORATION

By: /s/ Gary B. Smith
Gary B. Smith
President, Chief Executive Officer
and Director

INDEX TO EXHIBITS

Exhibit Number	Description
3.1 (1)	Certificate of Amendment to Third Restated Certificate of Incorporation
3.2 (1)	Third Restated Certificate of Incorporation
3.3 (1)	Amended and Restated Bylaws
3.5 (10)	Certificate of Amendment to Third Restated Certificate of Incorporation dated March 23, 1998
3.6 (10)	Certificate of Amendment to Third Restated Certificate of Incorporation dated March 16, 2000
3.7 (13)	Certificate of Amendment to Third Restated Certificate of Incorporation dated March 13, 2001
4.1 (1)	Specimen Stock Certificate
4.2 (3)	Rights Agreement dated December 29, 1997
4.3 (4)	Amendment to Rights Agreement
4.4 (11)	Amendment No. 2 to Rights Agreement dated September 13, 1998
4.5 (4)	Amendment No. 3 to Rights Agreement dated October 19, 1998
4.6 (12)	Indenture dated February 9, 2001 between CIENA Corporation and First Union National Bank for 3.75% convertible notes due February 1, 2008
4.7 (13)	Indenture dated August 18, 2000 between Cyras Systems, Inc. and State Street Bank and Trust Company for 4.50% convertible notes due August 15, 2005
4.8 (13)	First Supplemental Indenture dated November 27, 2000 to the Indenture dated August 18, 2000 between Cyras Systems, Inc. and State Street Bank and Trust Company for 4.50% convertible subordinated notes due August 15, 2005
4.9 (13)	Second Supplemental Indenture dated November 28, 2000 to the Indenture dated August 18, 2000 between Cyras Systems, Inc. and State Street Bank and Trust Company for 4.50% convertible subordinated notes due August 15, 2005
4.10 (13)	Third Supplemental Indenture dated March 29, 2001 between Cyras Systems, Inc., CIENA Corporation and State Street Bank and Trust Company to the Indenture dated August 18, 2000 between Cyras Systems, Inc. and State Street Bank and Trust Company for 4.50% convertible subordinated notes due August 15, 2005
10.1 (1)	Form of Indemnification Agreement for Directors and Officers
10.2 (14)	Amended and Restated 1994 Stock Option Plan
10.3 (1)	Form of Employee Stock Option Agreements
10.4 (1)	1996 Outside Directors Stock Option Plan
10.5 (1)	Forms of 1996 Outside Directors Stock Option Agreement
10.13 (1)	Employment Agreement dated April 9, 1994 between the Company and Patrick Nettles
10.18 (5)	Form of Transfer of Control/Severance Agreement
10.19 (6)	Lightera 1998 Stock Option Plan and Form of Stock Option Agreement
10.20 (7)	Omnia Communications, Inc. 1997 stock plan and form of agreements
10.21 (9)	Employment Agreement dated August 18, 1999 between the Company and Gary B. Smith
10.22 (9)	1999 Non-Officer Stock Option Plan and Form of Stock Option Agreement
10.24 (13)	Cyras Systems, Inc. 1998 Stock Plan as amended and form of Stock Option Agreement
10.25 (15)	Amendment Number 1 to the 1999 Non Officer Stock Option Plan
21 (15)	Subsidiaries of registrant
23.1 (15)	Consent of Independent Accountants

(1) Incorporated by reference from the Company s Registration Statement on Form S-1 (333-17729)
(2) Incorporated by reference from the Company s Registration Statement on Form S-1 (333-28525)
(3) Incorporated by reference from the Company s Form 8-K dated December 29, 1997.
(4) Incorporated by reference from the Company s Form 8-K dated October 14, 1998.
(5) Incorporated by reference from the Company s Form 10-K dated December 10, 1998.
(6) Incorporated by reference from the Company s Form 10-Q dated May 21, 1999.

(7) Incorporated by reference from the Company s Form 10-Q dated August 19, 1999.
(8) Confidential treatment has been granted by the Securities and Exchange Commission with respect to certain portions of these exhibits.
(9) Incorporated by reference from the Company s Form 10-K dated December 10, 1999.
(10) Incorporated by reference from the Company s Form 10-Q dated May 18, 2000.
(11) Incorporated by reference from the Company s Form 8-K dated September 14, 1998.
(12) Incorporated by reference from the Company s Form 10-Q dated February 15, 2001.
(13) Incorporated by reference from the Company s Form 10-Q dated May 17, 2001.
(14) Incorporated by reference from the Company s Form S-8 dates October 30, 2001.
(15) Filed as an exhibit to the Company s Form 10-K dated December 13, 2001.