AS FILED WITH THE SECURITIES AND EXCHANGE COMMISSION ON FEBRUARY 5, 2001

REGISTRATION NO. 333-53922

SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

PRE-EFFECTIVE AMENDMENT NO. 2

TO

FORM S-3
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

CIENA CORPORATION
(EXACT NAME OF REGISTRANT AS SPECIFIED IN ITS CHARTER)

DELAWARE	23-2725311
(STATE OR OTHER JURISDICTION OF INCORPORATION OR ORGANIZATION)	(IRS EMPLOYER IDENTIFICATION NO.)

1201 WINTERSON ROAD
LINTHICUM, MARYLAND 21090
(410) 865-8500
(ADDRESS, INCLUDING ZIP CODE, AND TELEPHONE NUMBER, INCLUDING AREA CODE, OF REGISTRANT'S PRINCIPAL EXECUTIVE OFFICES)

MICHAEL O. MCCARTHY III
SENIOR VICE PRESIDENT, GENERAL COUNSEL AND SECRETARY
1201 WINTERSON ROAD
LINTHICUM, MARYLAND 21090
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APPROXIMATE DATE OF COMMENCEMENT OF PROPOSED SALE TO THE PUBLIC: As soon as practicable after this Registration Statement becomes effective.

If the only securities being registered on this form are being offered pursuant to dividend or interest reinvestment plans, please check the following box: [ ]

If any of the securities being registered on this form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, as amended (the "Securities Act") check the following box: [ ]

If this form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. [ ]

If this form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. [ ]

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If delivery of the prospectus is expected to be made pursuant to Rule 434, please check the following box. [ ]

CALCULATION OF REGISTRATION FEE

TITLE OF EACH CLASS OF SECURITIES TO BE REGISTERED	PROPOSED MAXIMUM AGGREGATE OFFERING PRICE(1)	AMOUNT OF REGISTRATION FEE(2)
Common Stock(3).....	$925,000,000	$231,250
% Convertible notes due , 2008(3)(4).....	$575,000,000	$143,750

(1)We estimated these amounts based on Rule 457(o).

(2)Previously paid in connection with the filing of this Registration Statement on January 18, 2001.

(3)Includes rights to purchase Series A Junior Participating Preferred Stock attached to the Common Stock.

(4)In addition to the securities issued directly under this Registration Statement, we are registering an indeterminate number of shares of common stock issuable upon conversion of the Notes. Pursuant to Rule 457(i), no additional fee is required because no separate consideration will be received for any shares of Common Stock so issued upon conversion.

THE REGISTRANT HEREBY AMENDS THIS REGISTRATION STATEMENT ON THE DATE OR DATES AS MAY BE NECESSARY TO DELAY ITS EFFECTIVE DATE UNTIL THE REGISTRANT SHALL FILE A FURTHER AMENDMENT WHICH SPECIFICALLY STATES THAT THIS REGISTRATION STATEMENT SHALL THEREAFTER BECOME EFFECTIVE IN ACCORDANCE WITH SECTION 8(a) of the Securities Act of 1933 or until the Registration Statement shall become effective on such date as the Commission, acting pursuant to said Section 8(a), may determine.

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EXPLANATORY NOTE

This registration statement consists of two preliminary prospectuses relating to currently proposed separate common stock and convertible debt offerings. These prospectuses supersede the prospectus supplements and base prospectus that were filed as part of Pre-Effective Amendment No. 1 to this Registration Statement on January 26, 2001.

THE INFORMATION CONTAINED IN THIS PRELIMINARY PROSPECTUS IS NOT COMPLETE AND MAY BE CHANGED. WE MAY NOT SELL THESE SECURITIES UNTIL THE REGISTRATION STATEMENT FILED WITH THE SECURITIES AND EXCHANGE COMMISSION IS EFFECTIVE. THIS PRELIMINARY PROSPECTUS IS NOT AN OFFER TO SELL THESE SECURITIES AND IS NOT SOLICITING AN OFFER TO BUY THESE SECURITIES IN ANY STATE WHERE THE OFFER OR SALE IS NOT PERMITTED.

SUBJECT TO COMPLETION. DATED FEBRUARY 5, 2001.

[CIENA LOGO]

8,000,000 SHARES

CIENA CORPORATION
Common Stock

The common stock is quoted on the Nasdaq National Market under the symbol "CIEN". The last reported sale price for the common stock on February 2, 2001 was $83.75 per share.

Concurrently with this offering, CIENA is also conducting a separate offering of $350 million in % convertible notes due , 2008 by a separate prospectus. Neither the completion of the convertible debt offering nor the completion of this common stock offering is contingent upon the other.

See "Risk Factors" beginning on page 6 in this prospectus to read about certain factors you should consider before buying shares of the common stock.

NEITHER THE SECURITIES AND EXCHANGE COMMISSION NOR ANY OTHER REGULATORY BODY HAS APPROVED OR DISAPPROVED OF THESE SECURITIES OR PASSED UPON THE ACCURACY OR ADEQUACY OF THE PROSPECTUS. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

	Per Share	Total
Initial price to public	$	$
Underwriting discount	$	$
Proceeds, before expenses, to CIENA	$	$

To the extent the underwriters sell more than 8,000,000 shares of common stock, the underwriters have the option to purchase up to an additional 1,200,000 shares from CIENA at the initial price to public, less the underwriting discount.

The underwriters expect to deliver the shares in New York, New York on February , 2001.

GOLDMAN, SACHS & CO.
MORGAN STANLEY DEAN WITTER
BANC OF AMERICA SECURITIES LLC
ROBERTSON STEPHENS

Prospectus dated February , 2001.

PROSPECTUS SUMMARY

You should read this summary together with the entire prospectus, including the more detailed information in our financial statements and accompanying notes incorporated by reference in this prospectus.

CIENA CORPORATION

We are an established leader in the rapidly growing intelligent optical networking equipment market. We offer a comprehensive portfolio of products for communications service providers worldwide, including long-distance and metropolitan optical transport, intelligent optical core switching and network management solutions. Our customers include long-distance carriers, competitive and incumbent local exchange carriers, Internet service providers and wholesale carriers. We have pursued a strategy to develop and leverage the power of our technologies to change the fundamental economics of building carrier-class tele- and data-communications networks, thereby providing our customers with a competitive advantage. Our intelligent optical networking products are designed to enable carriers to deliver any time, any size, any priority bandwidth to their customers. Our optical networking products add intelligence to the network, enabling communications service providers to optimize network capacity and to offer a new range of services on demand at a substantially lower cost than traditional products. Furthermore, our products allow service providers to optimize their investments in fiber-optic infrastructure while positioning them to easily transition to next-generation optical network architectures.

Rapidly increasing use of the Internet and Internet-based applications and services has fueled dramatic growth in the volume of data traffic in the public communications network. In response, communications service providers are making significant investments to upgrade their network infrastructure by laying fiber-optic cable and installing transmission equipment based on optical technology. While advances in optical technology have enabled carriers to expand network capacity, they continue to face critical challenges including network scalability, escalating capital and operational costs and network management difficulties.

We provide a comprehensive portfolio of optical networking solutions that address these challenges by optimizing bandwidth in critical areas of service provider networks: long-distance and metropolitan optical transport, intelligent optical core switching and network management. Our solutions provide our customers with the following benefits:

- greater bandwidth capacity;
- simplified and more scalable networks;
- enhanced network manageability;
- lower capital and operational costs;
- ability to provision high-bandwidth services rapidly and flexibly; and
- ability to offer new revenue-generating services.

We have shipped products to over 35 customers, including 27 new customers since the end of fiscal 1998. Our customers include:

- Bell South;
- Broadwing;
- Cable & Wireless (U.S. & U.K.);
- CrossWave Communications;
- Enron;
- GTS (now known as eBone);
- MobilCom AG;
- PSINet;
- Qwest;
- Sprint;
- Telecom Developpement;
- Telia AB;
- Verizon;
- WorldCom (U.S. & Europe); and
- XO Communications.

Our strategy is to maintain and build upon our market leadership in the development and deployment of intelligent optical networking systems and to leverage our bandwidth-optimizing technologies to provide solutions for both voice and data communications-based networks. Important elements of our strategy are to:

- expand our base of customers using our intelligent optical networking solutions;
- increase sales and marketing efforts;
- continue to emphasize technical support and customer service;
- maintain world class manufacturing capability; and
- leverage bandwidth-optimizing technology and know-how.

Our revenue and net income for the fiscal year ended October 31, 2000 were $858.8 million and $81.4 million, respectively. Of our revenue for this period, 33.0% was derived from international sales. We recorded revenue for the fiscal year ended October 31, 2000 from sales to 32 customers, including 12 new customers.

We were incorporated in Delaware in 1992. Our principal executive offices are located at 1201 Winterson Road, Linthicum, Maryland 21090. Our telephone number is (410) 865-8500.

THE OFFERING

Common Stock offered by CIENA.....	8,000,000 shares
Common Stock to be outstanding after this offering.....	296,060,207 shares
Use of Proceeds.....	For general corporate purposes, which may include working capital, capital expenditures and acquisitions
Nasdaq National Market Symbol.....	CIEN

The number of shares of our common stock to be outstanding immediately after this offering is based on the number of shares outstanding as of January 31, 2001. It excludes, as of January 31, 2001, 30,294,778 shares of common stock subject to options outstanding under our stock incentive plans with a weighted average exercise price of $49.81 per share, 13,262,264 shares of common stock available for future grant under these plans, and approximately 27 million shares issuable in our pending acquisition of Cyras Systems, Inc.

Unless otherwise indicated, all information contained in this prospectus assumes no exercise of the underwriters' option to purchase additional shares in this offering. The share and per share numbers presented in this prospectus have been retroactively restated to give effect to all stock splits.

CONCURRENT NOTES OFFERING

Concurrent with this offering of common stock, CIENA is conducting a separate public offering of convertible notes with an aggregate principal amount of $350 million. The common stock to be outstanding after this offering in the table above excludes the shares of common stock issuable upon the conversion or redemption of these notes. This offering of common stock is not conditioned on the completion of the offering of our notes.

RECENT DEVELOPMENTS

PROPOSED ACQUISITION OF CYRAS SYSTEMS, INC.

On December 19, 2000, we announced an agreement to acquire all of the outstanding capital stock, options and warrants of Cyras Systems, Inc., a privately held provider of next-generation optical networking systems based in Fremont, California. As consideration in the acquisition, we agreed to issue a total of approximately 27 million shares of our common stock and indirectly assume $150 million principal amount of Cyras's convertible subordinated indebtedness.

Cyras is designing and developing next-generation optical networking solutions for telecommunications carriers. The Cyras K2 product, which is in the development phase and is not yet ready for commercial manufacturing or deployment, will enable carriers of metropolitan area networks to consolidate multiple legacy network elements into a single transport and switching platform. This consolidation results in the increased cost effectiveness, network optimization and scalability that are demanded in today's increasingly data-oriented carrier environment. We believe that the addition of the K2 product to our portfolio will increase our market opportunity by leveraging this leading-edge product for the metropolitan network with our CoreDirector(TM) and long-haul optical transport presence, extensive sales force and global services and support infrastructure. These capabilities will enable us to offer carriers seamless end-to-end service creation and management with unmatched scalability, agility and efficiency using our LightWorks architecture for smart bandwidth provisioning and network-wide service management.

We will account for the Cyras acquisition as a purchase. We expect to complete the acquisition in the first calendar quarter of 2001. If and when we complete the acquisition of Cyras, we will record a charge for acquired in-process research and development, which we currently estimate will be approximately $16.4 million, and will amortize goodwill and other intangibles of approximately $1.6 billion over a three- to seven-year period and deferred stock compensation of approximately $255 million over the relevant vesting periods. We expect the Cyras acquisition to be dilutive to our fiscal 2001 earnings by $0.19 to $0.22 per share and, excluding one-time charges associated with the acquisition and amortization of intangibles and deferred stock compensation, accretive during the latter half of our fiscal 2002, assuming expected revenue and cost synergies as well as anticipated product cost and pricing.

For the nine months ended September 30, 2000, Cyras recorded no revenues, incurred operating expenses of $53.8 million and had a net loss of $54.4 million. Additional audited and unaudited financial information of Cyras, and unaudited pro forma combined financial statements showing the pro forma effect of the acquisition on our historical financial statements, are incorporated in this prospectus by reference to our Form 8-K report filed on January 18, 2001.

The Cyras acquisition is subject to customary closing conditions, including regulatory approvals. See "Risk Factors -- Risks Related to the Cyras Acquisition".

RISK FACTORS

Investing in our securities involves a high degree of risk. Before making an investment decision, you should carefully consider the risk factors set forth below as well as other information we include or incorporate by reference in this prospectus and the additional information in the other reports we file with the SEC. The risks and uncertainties we have described are not the only ones facing our company. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also affect us.

OUR RESULTS CAN BE UNPREDICTABLE

Our ability to recognize revenue during a quarter from a customer depends upon our ability to ship product and satisfy other contractual obligations of a customer sale in that quarter. In general, revenue and operating results in any reporting period may fluctuate due to factors including:

- loss of a customer;
- the timing and size of orders from customers;
- changes in customers' requirements, including changes 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, 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 a relatively large investment, and our target customers are highly demanding and technically sophisticated. There are only a limited number of potential customers in each geographic market, and each customer has unique needs. As a result, the sales cycles for our products are long, often more than a year between our initial contact with the customer and its commitment to purchase.

We budget expense levels on our expectations of long-term future revenue. These budgets reflect our substantial investment in the financial, engineering, manufacturing and logistics support resources we think we may need for large potential customers, even though we do not know the volume, duration or timing of any purchases from them. In addition, we make a substantial investment in financial, manufacturing and engineering resources for the development of new and enhanced products. As a result, we may continue to experience high inventory levels, operating expenses and general overhead.

We have experienced rapid expansion in all areas of our operations, particularly in the manufacturing of our products. Our future operating results will depend on our ability to continue to expand our manufacturing facilities in a timely manner so that we can satisfy our delivery commitments to our customers. Our failure to expand these facilities in a timely manner and meet

our customer delivery commitments would harm our business, financial condition and results of operations.

Our product development efforts will require us to incur ongoing development and operating expenses, and any delay in the contributions from new products, such as the MultiWave CoreDirector product line, and enhancements to our existing optical transport products could harm our business.

CHANGES IN TECHNOLOGY OR THE DELAYS IN THE DEPLOYMENT OF NEW PRODUCTS COULD HURT OUR NEAR-TERM PROSPECTS

The market for optical networking equipment is changing at a rapid pace. The accelerated pace of deregulation and the adoption of new technology in the telecommunications industry likely will intensify the competition for improved optical networking products. Our ability to develop, introduce and manufacture new and enhanced products will depend upon our ability to anticipate changes in technology, industry standards and customer requirements. Our failure to introduce new and enhanced products in a timely manner could harm our competitive position and financial condition. Several of our new products, including the MultiWave CoreDirector and the enhancements to the MultiWave CoreStream products, are based on complex technology which could result in unanticipated delays in the development, manufacture or deployment of these products. In addition, our ability to recognize revenue from these products could be adversely affected by the extensive testing required for these products by our customers. The complexity of technology associated with support equipment for these products could also result in unanticipated delays in their deployment. These delays could harm our competitive and financial condition.

Competition from competitive products, the introduction of new products embodying new technologies, a change in the requirements of our customers, or the emergence of new industry standards could delay or hinder the purchase and deployment of our products and could render our existing products obsolete, unmarketable or uncompetitive from a pricing standpoint. The long certification process for new telecommunications equipment used in the networks of the regional Bell operating companies, referred to as RBOCs, has in the past resulted in and may continue to result in unanticipated delays which may affect the deployment of our products for the RBOC market.

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 installation and test services 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. These companies have substantial financial, marketing, manufacturing and intellectual property resources. In addition, these companies have substantially greater resources to develop or acquire new technologies than we do and often have existing relationships with our potential customers. We sell systems that compete directly with product offerings of these companies and in some cases displace or replace equipment they have traditionally supplied for telecommunications networks. As such, we represent a specific threat to these companies. The continued expansion of our product offerings with the MultiWave CoreDirector product line and enhance-

ments to our MultiWave CoreStream product line likely will increase this perceived threat. We expect continued aggressive tactics from many of these competitors, including:

- price discounting;

- 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 pricing for 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, 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 significantly more 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. In particular, a number of companies, including several start-up companies and recently public companies that have raised substantial equity capital, have announced products that compete with our products. Our inability to compete successfully against these companies would harm our business, financial condition and results of operations.

WE MAY NOT BE ABLE TO SUCCESSFULLY COMPLETE DEVELOPMENT AND ACHIEVE COMMERCIAL ACCEPTANCE OF NEW PRODUCTS

Our MultiWave CoreDirector CI product and some enhancements to the MultiWave CoreDirector and MultiWave CoreStream product lines and LightWorks Toolkit are in the development phase and are not yet ready for commercial manufacturing or deployment. We expect to offer additional releases of the MultiWave CoreDirector product over the life of the product and continue to enhance features of our MultiWave CoreStream product, including the longer reach and higher channel count functionality of our product line. The initial release of MultiWave CoreDirector CI is expected in limited availability for customer trials during the first

calendar quarter of 2001. 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 application-specific integrated circuits, referred to as ASICs;
- validation of manufacturing methods and processes;
- extensive quality assurance and reliability testing, and staffing of testing infrastructure;
- validation of embedded software;
- establishment of systems integration and systems test validation requirements; and
- identification and qualification of component suppliers.

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, in particular, are key to the timely introduction of enhancements to the MultiWave CoreDirector product line, 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 product line are relatively new. We have not established commercial acceptance of these products, and we cannot assure you 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 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 sources, and in some cases, that sole source is also a competitor. A worldwide shortage of some electrical components has caused an increase in the price of components. 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.

Failures of components can affect customer confidence in our products and could adversely affect our financial performance and the reliability and performance of our products. 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 recent wave of consolidation among suppliers of these components, such as the recent and pending purchases of E-TEK and SDL, respectively, by JDS Uniphase, 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 CoreDirector product line 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 for 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. If we cannot effectively manage these manufacturers or they fail to deliver components in a timely manner, it may have an adverse effect on our business and results of operations.

SOME OF OUR SUPPLIERS ARE ALSO OUR 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. Also, Lucent is the sole source of two components and is one of two suppliers of two others. Recently, Lucent has announced that it intends to spin off a portion of its components business. Our supply of components from Lucent may be adversely affected by this restructuring. Alcatel and Nortel are suppliers of lasers used in our products, and NEC is a supplier of an important piece of testing equipment. A decline in reliability or other adverse change in these supply relationships could harm our business.

SALES TO EMERGING CARRIERS MAY INCREASE THE UNPREDICTABILITY OF OUR RESULTS

As we continue to address emerging carriers, timing and volume of purchasing from these carriers can also be more unpredictable due to factors such as their need to build a customer base, acquire rights of way and interconnections necessary to sell network service, and build out new capacity, all while working within their capital budget constraints. Sales to these carriers may increase the unpredictability of our financial results because even these emerging carriers purchase our products in multi-million dollar increments.

Unanticipated changes in customer purchasing plans also create unpredictability in our results. A portion of our anticipated revenue over the next several quarters is comprised of orders of less than $25 million each from several customers, some of which may involve extended payment terms or other financing assistance. Our ability to recognize revenue from financed sales to emerging carriers will depend on the relative financial condition of the specific customer, among other factors. Further, we will need to evaluate the collectibility of receivables from these customers if their financial conditions deteriorate in the future. Purchasing delays and changes in the financial condition or the amount of purchases by any of these customers could have a material adverse effect on us. In the past we have had to make provisions for the accounts receivables from customers that experienced financial difficulty. If additional customers face similar financial difficulties, our receivables from these customers may become uncollectible,

and we would have to write off the asset or decrease the value of the asset to the extent the receivable could not be collected. These write-downs or write-offs would adversely affect our financial performance.

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.

OUR PROSPECTS DEPEND ON DEMAND WHICH WE CANNOT RELIABLY PREDICT OR CONTROL

We may not anticipate changes in direction or magnitude of demand for our products. The product offerings of our competitors could adversely affect the demand for our products. In addition, unanticipated reductions in demand for our products could adversely affect us.

Demand for our products depends on our customers' requirements. These requirements may vary significantly from quarter to quarter due to factors such as:

- the type and quantity of optical equipment needed by our customers;

- the timing of the deployment of optical equipment by our customers;

- the rate at which our current customers fund their network build-outs; and

- the equipment configurations and network architectures our customers want.

Customer determinations are subject to abrupt changes in response to their own competitive pressures, capital requirements and financial performance expectations. These changes could harm our business.

Recently we have experienced an increased level of sales activity that could lead to an upsurge in demand that is reflected in the overall increase in demand for optical networking and similar products in the telecommunications industry. Our results may suffer if we are unable to address this demand adequately by successfully scaling up our manufacturing capacity and hiring additional qualified personnel. To date we have largely depended on our own manufacturing and assembly facilities to meet customer expectations, but we cannot be sure that we can satisfy our customers' expectations in all cases by internal capabilities. In that case, we face the challenge of adequately managing customer expectations and finding alternative means of meeting them. If we fail to manage these expectations we could lose customers or receive smaller orders from customers.

OUR SUCCESS LARGELY DEPENDS ON OUR ABILITY TO RETAIN KEY PERSONNEL

Our success has always depended in large part on our ability to attract and retain highly-skilled technical, managerial, sales and marketing personnel, particularly those skilled and experienced with optical communications equipment. Our key founders and employees, together with the key founders and employees of our acquired companies, have received a substantial number of our shares and vested options that can be sold at substantial gains. In many cases, these individuals could become financially independent through these sales before our future products have matured into commercially deliverable products. These circumstances may make it difficult to retain and motivate these key personnel.

As we have grown and matured, competitors' efforts to hire our employees have intensified, particularly among competitive start-up companies and other early stage companies. We have agreements in place with most of our employees that limit their ability to work for a competitor and prohibit them from soliciting our other employees and our customers following termination of their employment. Our employees and our competitors may not respect these agreements. We have in the past been required to enforce, and are currently in the process of enforcing, some of these agreements. We expect in the future to continue to be required to resort to legal actions to enforce these agreements and could incur substantial costs in doing so. We may not be successful in these legal actions, and we may not be able to retain all of our key employees or attract new personnel to add to or replace them. The loss of key personnel would likely harm our business.

PART OF OUR STRATEGY INVOLVES PURSUING STRATEGIC ACQUISITIONS THAT MAY NOT BE SUCCESSFUL

As part of our strategy for growth, we will consider acquiring businesses that are intended to accelerate our product and service development processes and add complementary products and services. We may issue equity or incur debt to finance these acquisitions and may incur significant amortization expenses related to goodwill and other intangible assets. Acquisitions involve a number of operational risks, including risks that the acquired business will not be successfully integrated, may distract management attention and may involve unforeseen costs and liabilities.

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 likely 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 like the MultiWave CoreStream, MultiWave CoreDirector and MultiWave Metro, there is substantial risk that our quarterly results will vary widely.

FUTURE SALES OF OUR COMMON STOCK COULD DEPRESS ITS MARKET PRICE

Sales of substantial amounts of common stock by our officers, directors and other stockholders in the public market after this offering, or the awareness that a large number of shares is available for sale, could adversely affect the market price of our common stock. In addition to the adverse effect a price decline would have on holders of our common stock, that decline would impede our ability to raise capital through the issuance of additional shares of common stock or other equity or convertible debt securities. Substantially all of the shares of our common stock currently outstanding are eligible for resale in the public market. Furthermore, we will issue approximately 27 million additional shares of common stock if our acquisition of Cyras is consummated, almost all of which will be freely tradeable.

Although some of our officers and directors have agreed that for 90 days after the date of this prospectus they will not offer, sell, contract to sell or otherwise dispose of any shares of our common stock, Goldman, Sachs & Co. may, in its discretion, waive this lock-up at any time for any holder.

RISKS RELATED TO THE CYRAS ACQUISITION

THE ACQUISITION MAY NOT BE COMPLETED

We currently expect to complete the acquisition of Cyras Systems, Inc. in the first calendar quarter of 2001, but because completion is subject to regulatory approvals and a shareholder vote of Cyras, the acquisition may be delayed or not completed at all.

WE MAY NOT BE ABLE TO ACHIEVE THE BENEFITS WE SEEK FROM THE ACQUISITION OR TO INTEGRATE CYRAS SUCCESSFULLY INTO OUR OPERATIONS

Even if the acquisition of Cyras is completed, we cannot be certain that we will achieve the benefits we envision from the acquisition. These benefits, including the accretion to our earnings we expect to achieve in the second half of fiscal 2002, depend on our ability to successfully complete the development of the Cyras K2 product and integrate it into our product portfolio, achieve market acceptance for the Cyras product, achieve our revenue expectations for the Cyras product and the expected synergies, and successfully integrate and retain Cyras personnel. Cyras's product is in the development phase and is not yet ready for commercial manufacturing or deployment, and we cannot assure you that the substantial efforts necessary to complete development of the product and achieve commercial acceptance will be successful. We have only limited experience in significant acquisitions and cannot assure you that this acquisition will be successful.

The integration of Cyras into our operations following our merger with Cyras involves a number of risks, including:

- difficulty assimilating Cyras's operations and personnel;
- diversion of management attention;
- potential disruption of ongoing business;
- inability to retain key personnel;
- inability to maintain uniform standards, controls, procedures and policies; and
- impairment of relationships with employees, customers or vendors.

Failure to overcome these risks or any other problems encountered in connection with the merger could have a material adverse effect on our business, results of operations and financial condition.

SIGNIFICANT MERGER-RELATED CHARGES AGAINST EARNINGS WILL REDUCE OUR EARNINGS IN THE QUARTER IN WHICH WE CONSUMMATE THE MERGER AND DURING THE POST-MERGER INTEGRATION PERIOD

If and when we complete the acquisition of Cyras, we will incur a charge for in-process research and development, which we currently estimate will be approximately $16.4 million. The actual charge we incur could be greater than this estimate, which could have a material adverse effect on our results of operations and financial condition. Also, in the future we will incur non-cash charges in connection with the merger related to goodwill and other intangible amortization and amortization of deferred stock compensation. Other merger-related costs will be capitalized as part of the acquisition's purchase price and amortized in future periods. We could also incur other additional unanticipated merger costs relating to our acquisition of Cyras.

WE WILL INCUR SIGNIFICANT ADDITIONAL DEBT IN CONNECTION WITH THE MERGER

Cyras has $150 million of 4 1/2% convertible subordinated notes outstanding. We will indirectly assume these notes at the effective date of the merger. This additional indebtedness could adversely affect CIENA in a number of ways, including:

- limiting our ability to obtain necessary financing in the future;
- limiting our flexibility to plan for, or react to, changes in our business;
- requiring us to use a substantial portion of our cash flow from operations or utilize a significant portion of cash on hand to repay the debt when due in August 2005, or earlier if we are required to offer to repurchase the notes, as described below, rather than for other purposes, such as working capital or capital expenditures;

- making us more highly leveraged than some of our competitors, which may place us at a competitive disadvantage; and

- making us more vulnerable to a downturn in our business.

Additionally, in the event that the holders of the notes convert their notes into our common stock, we would have to issue a significant number of shares of additional common stock. For example, if our merger with Cyras had closed on December 28, 2000, when the estimated exchange ratio would have been approximately 0.13, we would have had to issue approximately 1,000,000 shares of our common stock if holders of the entire $150 million of convertible notes decided to convert their notes.

In the event that the holders of the notes do not elect to convert them into our common stock before March 31, 2002, and if a "complying public equity offering" has not occurred on or before that date, we will have to make an offer to repurchase the notes at 118.942% of the principal balance of the notes on April 30, 2002. A "complying public equity offering" is defined as a firm commitment underwritten public offering of the common stock of Cyras, in which Cyras raises at least $50 million in gross proceeds.

FOLLOWING THE COMPLETION OF OUR ACQUISITION OF CYRAS, A SIGNIFICANT NUMBER OF ADDITIONAL SHARES WILL BE ADDED TO OUR PUBLIC FLOAT

We will issue approximately 27 million shares of our common stock as consideration in the Cyras acquisition. These shares represent 9.4% of our outstanding common stock as of January 31, 2001. Almost all of these shares will be freely tradable immediately following the closing of the acquisition which is currently expected to be in the first calendar quarter of 2001. Any sales of substantial numbers of shares of our common stock in the public market following the completion of the Cyras acquisition could adversely affect the market price of our common stock.

FORWARD LOOKING STATEMENTS

Some of the statements contained, or incorporated by reference, in this prospectus 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," "potential" or "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 prospectus.

USE OF PROCEEDS

We estimate that our net proceeds from the sale of the 8,000,000 shares of common stock that we are offering will be approximately $641.2 million, at the assumed public offering price of $83.75 per share, after deducting an assumed underwriting discount and estimated offering expenses. If the underwriters' option to purchase additional shares in this offering is exercised in full, we estimate that our net proceeds will be approximately $737.4 million.

Concurrent with this offering of common stock, CIENA is conducting a separate offering of convertible notes with an aggregate principal amount of $350 million. This offering of common stock is not conditioned on the completion of the offering of our notes.

The principal purpose of this offering is to obtain additional capital. We may use the net proceeds for working capital, capital expenditures, acquisitions and other general corporate purposes.

We have not determined the amounts we plan to spend on any of the uses described above or the timing of these expenditures. Pending our use of the net proceeds, we intend to invest them in short-term, interest-bearing, investment grade securities.

PRICE RANGE OF COMMON STOCK

CIENA common stock is, and the shares of CIENA common stock offered hereby are expected to be, quoted on the Nasdaq National Market and traded under the symbol "CIEN." The following table sets forth the high and low sales price per share of CIENA common stock as reported by the Nasdaq National Market for the periods indicated, adjusted to reflect the two-for-one stock split of the common stock of CIENA, which became effective on September 18, 2000.

	PRICE RANGE OF COMMON STOCK	
	HIGH	LOW
Fiscal Year ending October 31, 1998		
First Quarter	$ 31.78	$23.72
Second Quarter	$ 29.13	$18.63
Third Quarter	$ 46.19	$23.44
Fourth Quarter	$ 37.94	$ 4.06
Fiscal Year ending October 31, 1999		
First Quarter	$ 11.50	$ 6.22
Second Quarter	$ 14.63	$ 8.31
Third Quarter	$ 18.88	$11.35
Fourth Quarter	$ 21.41	$14.53
Fiscal Year ending October 31, 2000		
First Quarter	$ 39.69	$16.75
Second Quarter	$ 94.50	$30.03
Third Quarter	$ 90.13	$44.94
Fourth Quarter	$151.00	$64.19
Fiscal Year ending October 31, 2001		
First Quarter	$121.38	$59.56
Second Quarter (through February 2, 2001)	$92.625	$83.50

On February 2, 2001, the last reported sale price of our common stock on the Nasdaq National Market was $83.75 per share. As of January 31, 2001, there were approximately 1,479 holders of record of our common stock.

DIVIDEND POLICY

We have never declared or paid any cash dividends on our capital stock and do not anticipate paying any cash dividends in the foreseeable future.

SELECTED CONSOLIDATED FINANCIAL DATA

The following selected consolidated financial data should be read in conjunction with "Management's Discussion and Analysis of Financial Condition and Results of Operations." 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 1996 comprised 53 weeks.

	YEAR ENDED OCTOBER 31,				
	1996	1997	1998	1999	2000
	(IN THOUSANDS, EXCEPT PER SHARE DATA)				
STATEMENT OF OPERATIONS DATA:					
Revenue	$88,463	$413,215	$508,087	$482,085	$858,750
Cost of goods sold	47,315	166,472	256,014	299,769	477,393
Gross profit	41,148	246,743	252,073	182,316	381,357
Operating expenses:					
Research and development	8,922	23,773	73,756	104,641	129,069
Selling and marketing	5,641	22,627	47,343	61,603	90,922
General and administrative	6,346	11,476	18,468	22,736	34,000
Settlement of accrued contract obligation	--	--	--	--	(8,538)
Purchased research and development	--	--	9,503	--	--
Pirelli litigation	--	7,500	30,579	--	--
Merger-related costs	--	--	2,548	13,021	--
Provision for doubtful accounts	76	489	806	250	28,010
Total operating expenses	20,985	65,865	183,003	202,251	273,463
Income (loss) from operations	20,163	180,878	69,070	(19,935)	107,894
Other income (expense), net	653	7,178	12,830	13,944	12,680
Income (loss) before income taxes	20,816	188,056	81,900	(5,991)	120,574
Provision (benefit) for income taxes	3,553	72,488	36,200	(2,067)	39,187
Net income (loss)	$17,263	$115,568	$ 45,700	$ (3,924)	$ 81,387
Basic net income (loss) per common share	$ 0.62	$ 0.76	$ 0.19	$ (0.01)	$ 0.29
Diluted net income (loss) per common and dilutive potential common share	$ 0.09	$ 0.55	$ 0.18	$ (0.01)	$ 0.27
Weighted average basic common shares outstanding	27,634	151,928	235,980	267,042	281,621
Weighted average basic common and dilutive potential common shares outstanding	184,814	209,686	255,788	267,042	299,662

	OCTOBER 31,				
	1996	1997	1998	1999	2000
	(IN THOUSANDS)				
BALANCE SHEET DATA:					
Cash and cash equivalents	$24,040	$273,286	$250,714	$143,440	$ 143,187
Working capital	42,240	338,078	391,305	427,471	639,675
Total assets	79,676	468,247	602,809	677,835	1,027,201
Long-term obligations, excluding current portion	3,465	1,900	3,029	4,881	4,882
Mandatorily redeemable preferred stock	40,404	--	--	--	--
Stockholders' equity	10,783	377,278	501,036	530,473	809,835

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."

OVERVIEW

CIENA is a leader in the rapidly growing intelligent optical networking equipment market. We offer a comprehensive 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. CIENA's intelligent optical networking products are designed to enable carriers to deliver any time, any size, any priority bandwidth to their customers.

CIENA has increased the number of revenue-generating optical networking equipment customers from a total of 27 customers during fiscal 1999 to 32 customers for fiscal 2000. During fiscal 2000, three customers each represented more than 10% of CIENA's total revenues. We intend to preserve and enhance our market leadership and eventually build on our installed base with new and additional products. CIENA believes that its product and service quality, manufacturing experience, and proven track record of delivery will enable it to endure competitive pricing pressure while concentrating on efforts to reduce product costs and maximize production efficiencies. See "Risk Factors" in the prospectus.

As of October 31, 2000, CIENA and its subsidiaries employed approximately 2,775 persons, which was an increase of 847 persons over the approximate 1,928 employed on October 31, 1999.

RESULTS OF OPERATIONS

FISCAL YEARS ENDED 2000, 1999 AND 1998

REVENUE. CIENA recognized $858.8 million, $482.1 million and $508.1 million in revenue for the fiscal years ended October 31, 2000, 1999 and 1998, respectively. The approximate $376.7 million or 78.1% increase in revenue from fiscal 1999 to fiscal 2000 was due primarily to an increase in product shipments across all product lines. The approximate $26.0 million or 5.1% decrease in revenue from fiscal 1998 to fiscal 1999 was largely the result of reduced selling prices.

CIENA recognized revenues from a total of 32, 27, and 14 optical equipment customers during fiscal 2000, 1999, and 1998, respectively. During fiscal year 2000, Sprint, Qwest Communications and GTS Network Ltd. each accounted for at least 10% or more of CIENA's revenue and all three combined accounted for 60.9% of CIENA's fiscal 2000 revenue. During fiscal year 1999 Sprint, WorldCom and GTS Network Ltd. each accounted for at least 10% or more of CIENA's revenue and all three combined accounted for 46.2% of CIENA's fiscal 1999 revenue. This compares to fiscal 1998 in which Sprint was the only 10% customer and in total accounted for 52.5% of CIENA's fiscal 1998 revenue. Revenue derived from foreign sales accounted for approximately 33.0%, 44.3%, and 23.0% of CIENA's total revenues during fiscal 2000, 1999, and 1998, respectively.

For fiscal 2000, CIENA's optical network equipment revenues were derived from sales of the MultiWave Sentry 4000, MultiWave CoreStream configured for both 2.5 gigabits per second ("Gbps") and 10.0 Gbps transmission rates, MultiWave Sentry 1600, MultiWave Metro, MultiWave 1600, MultiWave CoreDirector, MultiWave Firefly systems and MultiWave MetroOne. During fiscal 1999, CIENA recognized revenues from sales of MultiWave Sentry 4000, MultiWave

Sentry 1600, MultiWave 1600, MultiWave Metro, MultiWave Firefly, and MultiWave CoreStream systems. During fiscal 1998, CIENA recognized revenues from sales of MultiWave Sentry 1600, MultiWave 1600, MultiWave Firefly and MultiWave Sentry 4000 systems. The revenues for fiscal 2000 improved as compared to fiscal 1999 due to increased sales of MultiWave Sentry 4000, MultiWave CoreStream, MultiWave Sentry 1600, MultiWave Metro, and MultiWave Firefly systems, and also from the introduction of revenues from MultiWave CoreDirector and MultiWave MetroOne systems. The amount of revenue recognized from MultiWave Sentry 1600 and MultiWave 1600 declined in fiscal 1999 as compared to fiscal 1998. This decline in MultiWave Sentry 1600 sales in fiscal 1999 was offset by the introduction of new revenues from the MultiWave CoreStream and MultiWave Metro products in fiscal 1999. Fiscal 1999 revenues from MultiWave Sentry 4000 and MultiWave Firefly were comparable to the revenues recognized for these products in fiscal 1998. Revenues derived from engineering, furnishing and installation services as a percentage of total revenue were 8.4%, 12.1%, and 9.2% for the fiscal years 2000, 1999, and 1998, respectively.

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 CIENA's manufacturing and engineering, furnishing and installation operations. Gross profit was $381.4 million, $182.3 million, and $252.1 million for fiscal years 2000, 1999, and 1998, respectively. Gross margin was 44.4%, 37.8%, and 49.6% for fiscal 2000, 1999, and 1998, respectively. The increase in gross profit from fiscal 1999 to fiscal 2000 was due primarily to lower component costs and improved production efficiencies. The decrease in gross profit from fiscal 1998 to fiscal 1999 was largely attributable to lower selling prices.

CIENA's gross margins may be affected by a number of factors, including product mix, continued competitive market pricing, outsourcing of manufacturing, manufacturing volumes and efficiencies, competition for skilled labor, and fluctuations in component costs. Downward pressures on our gross margins may be further impacted by an increased percentage of engineering, furnishing and installation revenues from services or additional service requirements. CIENA will continue to concentrate on efforts to reduce product costs and maximize production efficiencies and, if successful in these efforts, may be able to improve gross margins in the future. See "Risk Factors".

RESEARCH AND DEVELOPMENT EXPENSES. Research and development expenses were $129.1 million, $104.6 million, and $73.8 million for fiscal 2000, 1999, and 1998, respectively. The approximate $24.4 million or 23.3% increase from fiscal 1999 to 2000 and the approximate $30.9 million or 41.9% increase from fiscal 1998 to 1999 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 2000, 1999, and 1998 research and development expenses were 15.0%, 21.7%, and 14.5% of revenue, respectively. CIENA expects that its research and development expenditures will continue to increase in absolute dollars and perhaps as a percentage of revenue during fiscal 2001 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 $90.9 million, $61.6 million, and $47.3 million for fiscal 2000, 1999, and 1998, respectively. The approximate $29.3 million or 47.6% increase from fiscal 1999 to 2000 and the approximate $14.3 million or 30.1% increase from fiscal 1998 to 1999 in selling and marketing expenses was primarily the result of increased staffing levels in the areas of sales, technical assistance and field support, and increases in commissions earned, trade show participation and promotional costs. During fiscal 2000, 1999, and 1998 selling and marketing expenses were 10.6%, 12.8%, and 9.3% of revenue, respectively. CIENA anticipates that its selling and marketing expenses may increase in

absolute dollars and perhaps as a percentage of revenue during fiscal 2001 as additional personnel are hired and additional offices are opened to allow CIENA to pursue new customers and market opportunities. CIENA 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 CIENA's installed base of operational MultiWave systems increases.

GENERAL AND ADMINISTRATIVE EXPENSES. General and administrative expenses were $34.0 million, $22.7 million and $18.5 million for fiscal 2000, 1999, and 1998, respectively. The approximate $11.2 million or 49.5% increase from fiscal year 1999 to 2000 and the approximate $4.3 million or 23.1% increase from fiscal year 1998 to 1999 in general and administrative expenses was primarily the result of increased staffing levels and outside consulting services. During fiscal 2000, 1999, and 1998 general and administrative expenses were 4.0%, 4.7%, and 3.6% of revenue, respectively. CIENA believes that its general and administrative expenses will increase in absolute dollars and perhaps as a percentage of revenue during fiscal 2001 as a result of the expansion of CIENA'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 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. See "Provision for Doubtful Accounts" below.

PURCHASED RESEARCH AND DEVELOPMENT. Purchased research and development costs were $9.5 million for the fiscal year 1998. These costs were for the purchase of technology and related assets associated with the acquisition of Terabit during the second quarter of fiscal 1998.

PIRELLI LITIGATION. The Pirelli litigation costs of $30.6 million in fiscal 1998 were attributable to a $30.0 million payment made to Pirelli during the third quarter of 1998 and to additional other legal and related costs incurred in connection with the settlement of this litigation.

MERGER-RELATED COSTS. The merger costs for fiscal 1999 of approximately $13.0 million were costs 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. The merger-related costs for fiscal 1998 were costs related to the contemplated merger between CIENA and Tellabs. These costs include approximately $1.2 million in Securities and Exchange Commission filing fees and approximately $1.3 million in legal, accounting, and other related expenses.

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, 2000 was $29.6 million. Approximately $27.8 million 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. In November 2000, CIENA was notified that Dynegy Inc. and its subsidiaries 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, Dynegy and its subsidiaries, and of (b) a related sales agreement between CIENA and Dynegy, CIENA expects to realize approximately $8.9 million of the gross

outstanding accounts receivable balance due from iaxis Limited as of October 31, 2000. While the proposed purchase agreement between the administrators of iaxis Limited and Dynegy is subject to certain administrative and judicial approvals, CIENA believes that such approvals will be ultimately obtained and that CIENA will be successful in collecting the net $8.9 million outstanding accounts receivable balance from the customer. However, should such approvals not occur, additional write-offs might be required.

OTHER INCOME (EXPENSE), NET. Other income (expense), net, consists of interest income earned on CIENA's cash, cash equivalents and marketable debt securities, net of interest expense associated with CIENA's debt obligations. Other income (expense), net, was $12.7 million, $13.9 million, and $12.8 million for fiscal 2000, 1999, and 1998, respectively. The decrease in other income (expense) from fiscal 1999 to fiscal 2000 was due to lower balances of cash, cash equivalents and marketable debt securities in fiscal 2000 as compared to fiscal 1999. The increase in companies other income (expense) from fiscal 1998 to fiscal 1999 was primarily the result of the investment of the net proceeds of CIENA's stock offerings and net earnings.

PROVISION (BENEFIT) FOR INCOME TAXES. CIENA's provision (benefit) for income taxes was 32.5%, (34.5%), and 44.2% of pre-tax earnings (loss) for fiscal 2000, 1999 and 1998, respectively. 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. The income tax provision for 1998 was higher than the expected statutory rate of 35%, due primarily to charges for purchased research and development and state tax charges related to the Alta acquisition. Purchased research and development charges are not deductible for tax purposes. Exclusive of the effect of these charges, CIENA's provision for income taxes was 38.6% of income before income taxes in fiscal 1998. As of October 31, 2000, CIENA's deferred tax asset was $143.0 million. The realization of this asset could be adversely affected if future earnings are lower than anticipated.

QUARTERLY RESULTS OF OPERATIONS

The tables below 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, 2000. This information is unaudited, but in the opinion of CIENA reflects all adjustments (consisting only of normal recurring adjustments) that CIENA considers 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.

	QUARTER ENDED							
	JAN. 31, 1999	APR. 30, 1999	JUL. 31, 1999	OCT. 31, 1999	JAN. 31, 2000	APR. 30, 2000	JUL. 31, 2000	OCT. 31, 2000
	(IN THOUSANDS, EXCEPT PER SHARE DATA)							
Revenue	$100,417	$111,490	$128,826	$141,352	$152,213	$185,679	$233,268	$287,590
Cost of goods sold	65,778	71,238	79,361	83,392	87,003	104,205	128,172	158,013
Gross profit	34,639	40,252	49,465	57,960	65,210	81,474	105,096	129,577
Operating expenses:								
Research and development	22,218	24,094	28,402	29,927	29,742	29,965	32,697	36,665
Selling and marketing	13,608	13,092	16,839	18,064	18,122	20,331	24,375	28,094
General and administrative	5,036	5,849	5,433	6,418	6,621	7,176	9,339	10,864
Settlement of accrued contract obligation	--	--	--	--	--	--	(8,538)	--
Merger-related costs	--	2,253	10,768	--	--	--	--	--
Provision for doubtful accounts	--	--	--	250	250	--	8,538	19,222
Total operating expenses	40,862	45,288	61,442	54,659	54,735	57,472	66,411	94,845
Income (loss) from operations	(6,223)	(5,036)	(11,977)	3,301	10,475	24,002	38,685	34,732
Other income (expense), net	3,301	3,583	3,492	3,568	2,950	3,268	3,026	3,436
Income (loss) before income taxes	(2,922)	(1,453)	(8,485)	6,869	13,425	27,270	41,711	38,168
Provision (benefit) for income taxes	(1,041)	(468)	(2,928)	2,370	4,363	8,863	13,556	12,405
Net income (loss)	$ (1,881)	$ (985)	$ (5,557)	$ 4,499	$ 9,062	$ 18,407	$ 28,155	$ 25,763
Basic net income (loss) per common share (1)	$ (0.01)	$ 0.00	$ (0.02)	$ 0.02	$ 0.03	$ 0.07	$ 0.10	$ 0.09
Diluted net income (loss) per common share and dilutive potential common share (1)	$ (0.01)	$ 0.00	$ (0.02)	$ 0.02	$ 0.03	$ 0.06	$ 0.09	$ 0.09
Weighted average basic common share (1)	262,404	265,060	266,032	267,616	276,182	280,162	282,258	285,177
Weighted average basic common and dilutive potential common share (1)	262,404	265,060	266,032	290,604	295,806	299,126	299,790	301,582

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(1) All share and per share information has been retroactively restated to reflect the two-for-one stock split effective September 18, 2000.

	QUARTER ENDED							
	JAN. 31, 1999	APR. 30, 1999	JUL. 31, 1999	OCT. 31, 1999	JAN. 31, 2000	APR. 30, 2000	JUL. 31, 2000	OCT. 31, 2000
	(AS A PERCENTAGE OF REVENUE)							
Revenue	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Cost of goods sold	65.5	63.9	61.6	59.0	57.2	56.1	54.9	54.9
Gross profit	34.5	36.1	38.4	41.0	42.8	43.9	45.1	45.1
Operating expenses:								
Research and development	22.1	21.6	22.0	21.2	19.5	16.1	14.0	12.7
Selling and marketing	13.6	11.7	13.1	12.8	11.9	10.9	10.4	9.8
General and administrative	5.0	5.2	4.2	4.5	4.3	3.9	4.0	3.8
Settlement of accrued contract obligation	--	--	--	--	--	--	(3.7)	--
Merger-related costs	--	2.0	8.4	--	--	--	--	--
Provision for doubtful accounts	--	--	--	0.2	0.2	--	3.7	6.7
Total operating expenses	40.7	40.5	47.7	38.7	35.9	30.9	28.4	33.0
Income (loss) from operations	(6.2)	(4.4)	(9.3)	2.3	6.9	13.0	16.7	12.1
Other income (expense), net	3.3	3.2	2.7	2.5	1.9	1.8	1.3	1.2
Income (loss) before income taxes	(2.9)	(1.2)	(6.6)	4.8	8.8	14.8	18.0	13.3
Provision (benefit) for income taxes	(1.0)	(0.4)	(2.3)	1.7	2.9	4.8	5.8	4.3
Net income(loss)	(1.9)%	(0.8)%	(4.3)%	3.1%	5.9%	10.0%	12.2%	9.0%

CIENA's quarterly operating results have varied and are expected to vary in the future. CIENA's detailed discussion of risk factors addresses the many factors that have caused such variation in the past, and may cause similar variations in the future. See "Risk Factors". CIENA's revenues have increased in each of the last eight quarters due to strong demand across existing products and introduction of new products such as MultiWave CoreStream configured for both 2.5 Gbps and 10.0 Gbps transmission rates. CIENA's gross margin percentage has improved from the first quarter fiscal 1999 to the fourth quarter fiscal 2000 as a result of component cost reductions, production efficiencies, and relative stable sales pricing. 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. Exclusive of provisions for doubtful accounts and merger-related costs, the Company's operating expenses as a percentage of revenue have generally decreased each of the last eight quarters. During fiscal 2001, CIENA's operating expenses will continue to increase in absolute dollars and may increase 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".

LIQUIDITY AND CAPITAL RESOURCES

At October 31, 2000, CIENA's principal source of liquidity was its cash and cash equivalents. CIENA had $143.2 million in cash and cash equivalents, and $95.1 million in corporate debt securities and U.S. Government obligations. CIENA's corporate debt securities and U.S. Government obligations have contractual maturities of six months or less.

CIENA's operating activities provided cash of $59.0 million, $28.7 million, and $48.8 million for fiscal 2000, 1999, and 1998, respectively. Cash provided by operations in fiscal 2000 was primarily attributable to a net gain adjusted for the non-cash charges of depreciation, amortization, tax benefit related to exercise of stock options, provisions for doubtful accounts, inventory obsolescence, and warranty, increases in accounts payable, and accrued expenses, offset by increases in accounts receivable and inventories.

Cash used in investing activities in fiscal 2000, 1999, and 1998 was $103.2 million, $149.7 million, and $107.0 million, respectively. Included in investment activities were additions to capital equipment and leasehold improvements in fiscal 2000, 1999, and 1998 of $123.9 million, $46.8 million, and $88.9 million, respectively. The capital equipment expenditures were primarily for test, manufacturing and computer equipment. CIENA expects additional combined capital

equipment and leasehold improvement expenditures of approximately $208 million to be made during fiscal 2001 to support selling and marketing, manufacturing and product development activities and the construction of leasehold improvements for its facilities.

We generated $43.9 million, $13.8 million, and $35.6 million in cash from financing activities in fiscal 2000, 1999, and 1998, respectively. 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. During fiscal 1998, CIENA received approximately $34.3 million from the issuance of stock associated with the capitalization of Omnia and Lightera, and from the exercise of stock options.

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 2001. However, possible investments in or acquisitions of complementary businesses, products or technologies may require additional financing prior to such time. There can be no assurance that additional debt or equity financing will be available when required or, if available, can be secured on terms satisfactory to us.

EFFECTS OF RECENT ACCOUNTING PRONOUNCEMENTS

In June 1998, the Financial Accounting Standards Board issued Statement of Financial Accounting Standards No. 133 (SFAS No. 133), "Accounting for Derivative Instruments and Hedging Activities". This Statement requires companies to record derivatives on the balance sheet as assets or liabilities, measured at fair value. Gains or losses resulting from changes in the values of those derivatives would be accounted for depending on the use of the derivative and whether it qualifies for hedge accounting. SFAS No. 133, as amended by SFAS No. 137 "Accounting for Derivative Instruments and Hedging Activities -- Deferral of the Effective Date for SFAS No. 133", will be effective for the Company's fiscal year ending October 31, 2000. The Company believes the adoption of SFAS No. 133 and SFAS No. 137 will not have a material effect on the consolidated financial statements.

In December 1999, the Securities and Exchange Commission released Staff Accounting Bulletin No. 101, "Revenue Recognition in Financial Statements," (SAB 101) which clarifies the Securities and Exchange Commission's view on revenue recognition. Subsequently, the SEC released SAB 101B, which delayed the implementation date of SAB 101 for registrants with fiscal years that begin between December 16, 1999 and March 15, 2000. CIENA is required to be in conformity with the provisions of SAB 101, as amended, no later than January 31, 2001, with the impact of such adoption being treated on a cumulative basis as of November 1, 2000. While management will continue to assess SAB 101, CIENA presently believes its existing revenue recognition policies and procedures are generally in compliance with SAB 101 and, therefore, SAB 101's adoption will have no material impact on CIENA's financial condition, results of operations or cash flows.

In July 2000, the FASB's Emerging Issues Task Force ("EITF") reached a final consensus that the income tax benefit realized by a company upon the exercise of a nonqualified stock option or the disqualifying disposition of an incentive stock option should be classified in the operating section of the statement of cash flows. The consensus is effective for the Company's quarters ending after July 20, 2000. All comparative cash flow statements as presented have been restated to comply with this consensus.

In September 2000, the FASB issued SFAS No. 140, "Accounting for the Transfers and Servicing of Financial Assets and Extinguishments of Liabilities". SFAS No. 140 is effective for transfers occurring after March 31, 2001 and for disclosures relating to the securitization transactions and collateral for fiscal years ending after December 15, 2000. The Company believes the adoption of SFAS No. 140 will not have a material effect on the consolidated financial statements.

BUSINESS

OVERVIEW

CIENA is an established leader in the rapidly growing intelligent optical networking equipment market. We offer a comprehensive 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 intelligent optical transport and 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 our 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.

Historically, the significant majority of CIENA's revenue has come from the sale of 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, or DWDM, technology. The majority of CIENA's fiscal 2000 revenue was derived from sales of its long-distance optical transport products, including MultiWave CoreStream(TM) and MultiWave Sentry 4000(TM). During the fiscal year 2000, CIENA also recognized revenue from the sale of seven optical networking products including sales of its metropolitan optical transport product, MultiWave(R) Metro and its intelligent optical core switch, MultiWave CoreDirector(TM).

For the fiscal year ended October 31, 2000, CIENA recorded revenue from sales of intelligent optical networking equipment to a total of 32 customers. 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 communications equipment utilizing dense wavelength division multiplexing technology.

DWDM replaces the single beam of light that traverses fiber-optic cable in legacy networks with multiple colors of light, each of which is capable of carrying tens of thousands of voice conversations or data transmissions. Prior to the emergence of DWDM, service providers could increase network capacity either by adding new physical fibers to their network or by increasing the rate of transmission through the fiber. In many cases DWDM has proven to be more cost efficient than physically deploying new fibers, and it has enabled the delivery of significantly more traffic by service providers.

The widespread adoption of DWDM enabled carriers to efficiently and economically expand network capacity, or bandwidth, while reducing bandwidth costs. CIENA believes that the application of products using DWDM has led to a dramatic decline in service providers' capital cost per bit from 1995 to present, thereby enabling pricing competition between carriers and significant bandwidth price declines of up to 80% in some U.S. regions.

NETWORK SCALABILITY CHALLENGES

For the past several years DWDM has been implemented by carriers to increase capacity between discrete points in their long-distance networks. To construct a network using DWDM equipment as its backbone, a carrier must interconnect the point-to-point high-capacity links and manage all traffic flowing through them. For example, an important element enabling this interconnection in traditional architectures has been the SONET/SDH add/drop multiplexer, or ADM. In most network architectures, a SONET ADM is used to transmit the information-carrying signal for each DWDM optical channel. A second ADM then is used to receive the information-carrying signal from each DWDM optical channel. As a result, every time an additional optical channel is deployed, two additional SONET ADMs must be purchased, installed and maintained -- one for each end of the traffic-carrying route. For example, in order to transmit/receive the traffic from a DWDM optical transport system with 96 channels of DWDM, a service provider would require a total of 192 SONET ADMs.

Though DWDM gave carriers the ability to solve the bandwidth problem in the core of their networks, the technology created operational and scalability challenges for carriers. Historically this method has been the only way available to service providers to scale their networks. Unfortunately, this approach creates upwardly spiraling costs. In addition to the capital equipment costs associated with the equipment, each SONET ADM uses valuable central office space and power. Furthermore, as the number of DWDM channels and links increases, the carrier's management of the network grows more complex, making manual service provisioning and network operation more difficult and costly.

ESCALATING OPERATIONAL COSTS

In addition to the problems inherent in scaling traditional network architectures, carriers are challenged to scale their operating staff as quickly as they can grow their networks. According to information filed by carriers with the United States Securities and Exchange Commission, many service providers are spending more on operating, growing, and managing their networks than they are on capital expenditures relating to their networks. In some cases, service providers are spending two to four dollars on network operations and support expenses for every dollar spent on network capital equipment. In addition, in many cases, network operations and support expenses are increasing at a significantly faster rate than revenues.

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 both the network scalability challenges and the escalating operational costs faced by service providers by:

- leveraging expertise in optics, software, systems and Application Specific Integrated Circuits, or ASICs, to develop innovative products designed to dramatically lower the cost of constructing service provider networks;

- replacing multiple traditional network elements such as ADMs and digital cross-connects with fewer, more intelligent network elements, thereby simplifying the network and lowering carriers' capital and operational costs;

- enhancing bandwidth availability to service providers, thereby allowing them to increase network bandwidth with growing Internet demand;

- lowering ongoing network operating costs by enabling carriers to more efficiently manage network traffic;

- enabling carriers to shorten the time it takes to provision services, in some cases from months to minutes, thereby accelerating the generation of revenue; and

- enabling new, revenue-generating and differentiated optical services.

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

- OPTICAL TRANSPORT. CIENA's long-distance optical transport products, MultiWave CoreStream(TM), MultiWave Sentry(TM) and MultiWave 1600, and our short-distance products, MultiWave Metro(TM), Metro One(TM) and MultiWave Firefly(TM), utilize DWDM technology and should enable carriers to cost effectively add critical network bandwidth when and where they need it. As a result, service providers should be better able to scale their networks to meet demand.

- INTELLIGENT OPTICAL CORE SWITCHING. Our intelligent optical core switches, MultiWave CoreDirector(TM) and MultiWave CoreDirector CI(TM), which is currently under development, allow carriers to manage the bandwidth created with optical transport products. CoreDirector and CoreDirector CI help carriers solve both the issues of network scalability and escalating operating costs by incorporating the functionality of multiple network elements into single elements with previously unavailable switching capabilities and management.

- NETWORK MANAGEMENT. ON-Center, CIENA's recently introduced 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 should also reduce network operating and management costs.

CIENA calls the network architecture created by these products "CIENA LightWorks". The components of CIENA's LightWorks 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 enable service providers to lower capital equipment and operating costs.

STRATEGY

CIENA's strategy is to maintain and build upon its market leadership in the deployment of intelligent optical networking systems and to leverage its technologies in order to provide solutions for both voice and data communications-based network architectures. CIENA believes that the technological, operational and cost benefits of its 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. CIENA's strategy includes the following initiatives:

- EXPAND OUR BASE OF CUSTOMERS USING OUR INTELLIGENT 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 fiber-optic carriers in domestic and foreign long distance, interoffice and local exchange markets.

- INCREASE SALES AND MARKETING EFFORTS. The nature of the target customer base for all our product lines requires a focused sales effort on a customer-by-customer basis. We will continue to increase our sales and marketing efforts aimed at the worldwide market of service providers. CIENA increased the number of revenue-generating optical networking customers from 27 during 1999 to 32 in 2000. In addition, CIENA has a significant international presence, particularly in Europe. Revenues from international customers represented 33.0% of CIENA's total revenues in fiscal 2000. CIENA plans to continue to strengthen its marketing programs and to increase its domestic and international presence through both direct sales and distributor relationships.

- 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 excellence and capabilities as differentiating factors in our efforts to maintain and enhance our market position. CIENA offers complete engineering, furnishing and installation services in addition to 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 capability, and this capability provides CIENA with a significant competitive advantage. CIENA achieved ISO 9001 certification in July 1997 in further support of this element of its strategy. CIENA expects to continue to invest in both the capital and the human resources necessary to maintain and leverage this advantage. In addition, CIENA expects to utilize this expertise to leverage our manufacturing capability with contract manufacturers.

- LEVERAGE CIENA'S BANDWIDTH-OPTIMIZING TECHNOLOGY AND KNOW-HOW. We believe the overall growth in demand for bandwidth and the need for intelligent bandwidth-optimizing services in telecommunications networks will lead to transmission bottlenecks in other segments of the networks where the application of optical technologies and other high bandwidth enabling technologies may provide solutions, either within existing network architectures, or as part of the design and development of alternative data communications-based network architectures. 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 and key enabling components by pursuing new product development efforts, and strategic alliances or acquisitions, to address these expected opportunities. CIENA intends to move aggressively to maintain leadership in the design and development of intelligent optical networking equipment, components and software which will both respond to customer needs and help customers move toward newer, higher capacity, more cost-efficient network designs for the future.

PRODUCTS

Our optical networking product portfolio is targeted at the critical areas of service provider networks: long-distance and metropolitan optical transport, intelligent optical core switching and network management. CIENA's open architecture design allows its products to operate with most carriers' existing fiber-optic transmission systems and network elements, including connecting directly to either traditional SONET equipment, ATM switches or IP routers.

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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 the third fiscal quarter of 1999. - Utilizes DWDM technology to deliver up to 96 optical channels at 2.5Gbps (240 gigabits) or up to 48 channels at 10Gbps (480 gigabits). - Designed for in-service growth; scalable to handle 2 terabits of traffic in the future. - With its longer reach feature set, will ultimately be 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 the second fiscal quarter of 1998. - Utilizes DWDM technology to deliver up to 40 channels at 2.5Gbps (100 gigabits).
MULTIWAVE SENTRY 1600	- CIENA's second generation carrier-class intelligent optical transport product. - Utilizes DWDM technology to deliver up to 16 channels at 2.5Gbps (40 gigabits). - Incorporated performance monitoring capabilities, not previously available in DWDM equipment beginning in the second half of fiscal 1996.
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 2.5Gbps (40 gigabits).

METROPOLITAN 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 60Gbps. - Supports multiple network topologies, such as rings, hubs, and stars. - Offers a wide range of interfaces from 100 megabits per second up to 10Gbps.
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. - Multiplexes up to 24 channels at 2.5Gbps, over a single fiber pair, allowing a carrier to transport up to 60Gbps.

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 640Gbps in a single 7 foot bay. - Designed to reduce capital equipment costs by displacing multiple traditional devices. - CoreDirector's intelligence is designed to simplify service provisioning, in some cases reducing provisioning times from months to seconds. - CoreDirector offers the ability to switch at the wavelength level or at levels of granularity down to an STS-1. - CoreDirector should enable new revenue opportunities for service providers through new optical layer capabilities and services.
COREDIRECTOR CI	- When available, CoreDirector CI will provide up to 64 ports of OC-48 or up to 160Gbps in a half bay. - CoreDirector CI will deliver CoreDirector functionality in a smaller package and at a lower entry cost that is ideal for lower capacity networks or smaller switching sites.

NETWORK MANAGEMENT

PRODUCT	FEATURES
LIGHTWORKS ON-CENTER	- A fully integrated family of software-based tools for comprehensive element, network and service layer management across service provider networks. - ON-Center is 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, LightWorks ON-Center is comprised of:

  - 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.

NEW OPTICAL SERVICES

In addition to allowing significant capital equipment and operational cost savings, CIENA's intelligent optical networking equipment is designed to enable its customers to offer new, revenue-generating optical layer services. CIENA's LightWorks Toolkit(TM) is designed to allow carriers to offer dynamic high-bandwidth services and handle real-time service provisioning and prioritization. By mixing and matching CIENA's ToolKit options, carriers will be able to offer customized services and further differentiate themselves from their competition.

When development is completed, the breadth of options in the LightWorks ToolKit will ultimately include:

SERVICE	DESCRIPTION
OPTICAL PRIORITY PROVISIONING	- Optical Priority Provisioning is designed to allow carriers to turn-up optical services in seconds, and to specify priority levels for further differentiation of optical services. For instance, a carrier may elect to offer multiple levels of optical bandwidth, ranging from "premium" to "best-effort" service, with each level of service being priced and delivered differently. Optical Priority Provisioning is designed to help carriers more easily meet service level agreements by assigning and adjusting traffic priorities in seconds, potentially allowing carriers to unlock more revenue from data services. - Optical Priority Provisioning should simplify the delivery of differentiated optical services by providing access to service templates of predefined restoration priorities, preemptability, and linear, ring and mesh protection options. Using these simplified templates, service provisioners should be able to deliver optical services, at any service level, in just a few clicks of a mouse.
FLEXIBLE CONCATENATION	- In legacy networks, bandwidth demand is arbitrarily shoehorned into SONET/SDH-sized transport containers where the size of the container is fixed. For example, if a customer requires OC-15 service, the customer must purchase OC-48 service, even though only a fraction of

the 48 time slots in the transport container will be filled with bits. In this scenario, the customer is paying for bandwidth it is not using and the carrier is losing valuable network bandwidth. CIENA is using a combination of silicon and software to redefine how carriers access and deliver bandwidth.

- When available, Flexible Concatenation will allow carriers to access all time slots within the SONET/SDH frame -- even when those frames are fractionally filled. That means carriers will be able to create true OC-"N" services in which "N" can be any number between 1 and 48 and in the future will be 192 and eventually 768 instead of the current restrictions of SONET, which sets fixed sizes on transport containers. Flexible concatentation is designed to enable carriers to maximize their network bandwidth and deliver customer-specific service.

RATE ADAPTIVE GIGABIT ETHERNET

- CIENA's Rate-Adaptive Gigabit Ethernet technology uses software and ASICs to enable service providers to sell Gigabit Ethernet services in customizable increments of 50Mbps (STS-1) up to 1.25Gbps.

- When available, service providers will be able to use Rate Adaptive Gigabit Ethernet to create a wide range of customized optical service options for end-users and deliver those services over more efficient access and core networks that leverage the economies of Gigabit Ethernet transmission.

VSR OPTICS

- For increased profitability, carriers must continually drop their cost per bit. However, to stay competitive, carriers must continue to increase the value of their services. VSR (Very Short Reach) Optics are designed to provide lower-cost, high-capacity connections between Internet and optical networking systems within a service provider's central office. VSR Optics leverage Vertical Cavity Surface Emitting Laser (VCSEL) technology and Gigabit Ethernet standards to make variable-rate optical services possible and economical -- a valuable service for unpredictable bandwidth demands. When available, CIENA will apply this data rate-scalable technology to 10Gbps network connections.

TRANSPARENT SERVICE MULTIPLEXING

- As opposed to traditional SONET/SDH multiplexing, CIENA's "transparent" multiplexing is designed to enable optical services to be delivered without compromising the SONET/SDH overheads of individual tributaries that make up the aggregate signal. Enabling multiple signals to be transparently multiplexed, transported and demultiplexed means signals are delivered as if they were connected directly to the destination equipment by their own unique wavelength, maintaining the customers'

	signal security and integrity. When available, Transparent Service Multiplexing (TSM) should be ideal for delivering IP traffic, wavelength services and other new optical services that CIENA's Toolkit enables. With TSM, each end device appears to communicate over its own unique wavelength while actually being economically consolidated with other signals.
WAVELENGTH BINDING	- With unprecedented traffic growth and changing traffic demands, Internet-centric carriers are looking for ways to better match the changes in IP router traffic demands with the provisioned bandwidth capacities available within their networks. To meet this need, CIENA is developing Wavelength Binding.
	- Wavelength Binding will leverage intellectual property to enable a device of any speed to be connected to a network operating at a lower speed by building "virtual channels" of multiple wavelengths bound together in a single, very high-capacity bitstream. As a result, when Wavelength Binding is available, CIENA's customers will be able to deliver 40Gbps without changing their transport infrastructure. Wavelength Binding will also give carriers previously unavailable network flexibility by enabling them to bundle and unbundle wavelengths as network capacity demands change.

PRODUCT DEVELOPMENT

We believe the overall growth in utilization of fiber-optic telecommunications networks will lead to transmission bottlenecks in other segments of the networks where the application of optical networking technologies may provide solutions. 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, including our recently announced acquisition of Cyras Systems, Inc.

CUSTOMERS

CIENA has announced publicly relationships with the following customers:

DOMESTIC	INTERNATIONAL
Alltel	Cable & Wireless, UK
Bell South	CompleTel, France
Broadwing	Crosswave Communications, Japan
Cable & Wireless	Daini Deuden, Japan
Digital Teleport	Dynegy, Austria
Enron	ESAT Telecom, Ireland
Genuity Solutions	Fibernet
Intermedia Communications	Global Crossing, UK
PSINet	GTS (now known as eBone), Belgium
Qwest	HanseNet Telekommunikation, Germany

DOMESTIC	INTERNATIONAL
RCN of Pennsylvania	Interoute, UK
Sprint	Japan Telecom, Japan
Verizon	KDD/Teleway Japan, Japan
Williams Communications	Korea Telecom, Korea
WorldCom	MobilCom AG, Germany
XO Communications	Operadora Protel, Mexico
	Telecom Developpement, France
	Telia AB, Sweden
	WorldCom, Europe

In addition, CIENA has a number of unannounced customer relationships.

CUSTOMERS BY CATEGORY

INTEREXCHANGE CARRIERS (IXCS)

The initial deployments of CIENA's bandwidth enhancing optical transport equipment occurred in the core of the U.S. long-distance network with the interexchange carriers, or IXCs. IXCs provide connections between local exchanges in different geographic areas. In recent years, incumbent IXCs such as Sprint, WorldCom and AT&T have seen increased competition from emerging long-distance carriers such as Qwest Communications, Global Crossing, Broadwing Communications Services, Inc., and Level 3 Communications. We expect that continued competition in long-distance call rates, as well as the carriers' desire for market and service differentiation, will continue to drive demand for the increased capacity and features offered by CIENA's optical networking equipment.

INCUMBENT LOCAL EXCHANGE CARRIERS

Incumbent local exchange carriers, such as the RBOCs, are very active in interoffice and local exchange markets and, under the Telecommunications Act of 1996, RBOCs are eligible to enter the long-distance market once they have met certain requirements for opening their local markets to competition. CIENA believes that over time the RBOCs will continue to gain approval to offer long-distance services, although when and how they will offer these services is unclear. For instance, the RBOCs' move to offering long-distance services could occur through the establishment of owned network facilities, through the purchase of long-distance capacity from other long-distance carriers, or through some combination of the two. Regardless of the timing of any such move, CIENA believes there are opportunities for in-region deployment of CIENA's long-distance and metropolitan optical transport products at certain RBOCs.

INTERNATIONAL COMPETITIVE CARRIERS

New competitive carriers are emerging as a result of deregulation in the international telecommunications markets. CIENA has concentrated its sales efforts on these emerging carriers as opposed to the traditional carriers or PTTs. During fiscal 2000, CIENA increased its announced international customer base from fourteen to eighteen customers. In many cases, these new competitive carriers do not have the installed fiber base of the larger carriers and therefore are in need of the scalable bandwidth CIENA's optical transport systems offer. In addition, because of the economies and flexibility afforded by the application of DWDM technology, CIENA's equipment is being used on several new projects where the service provider is physically constructing the network. CIENA expects that in the near term, the majority of its international revenue will come from these smaller, more aggressive competitive carriers, and CIENA will continue to concentrate its sales efforts accordingly.

COMPETITIVE LOCAL EXCHANGE CARRIERS (CLECS)

Deregulation has fueled the growth of U.S. competitive local exchange carriers, or CLECs. CIENA believes that in the short term, CLECs could benefit from the hesitancy of incumbent local exchange carriers, such as the Regional Bell Operation Companies, or RBOCs, to open their local markets to competitors, and that these CLECs are likely to move aggressively to capitalize on opportunities in the local area. CIENA recognized revenues from CLEC customers in fiscal 2000 and expects that tactical CLEC applications for its long-haul products, as well as the short-distance products, will be well suited to CLEC network applications.

NON-TRADITIONAL TELECOMMUNICATION SERVICE PROVIDERS

The growth of the Internet has produced traffic growth substantial enough to attract new, non-traditional telecommunication service providers to compete in this market as well. Both domestically and internationally, companies with rights-of-way, such as utility companies, cable TV providers, and railroads are capitalizing on their "network", whether a pipeline, a railroad, or a highway, and in some cases, are laying optical fiber and constructing telecommunications networks along those rights-of-way. The transmission capabilities of CIENA's optical networking equipment enable these new carriers to provide competitive services while purchasing and laying a minimal amount of fiber-optic cable.

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 impact 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 CIENA and the customer's commitment to purchase, and has further led CIENA to pursue sales efforts on a focused, customer-by-customer basis. See "Management's Discussion and Analysis of Financial Conditions and Results of Operations" and "Risk Factors".

CIENA has organized its resources for the separate but coordinated approach to United States and international customers. In the United States market, a sales team, comprised of an account manager, systems engineers and technical support and training personnel, is assigned responsibility for each customer account, and for the coordination and pursuit of sales contacts. In the international market, CIENA pursues prospective customers through direct sales efforts, as well as through distributors, independent marketing representatives and independent sales consultants. Through its subsidiaries, CIENA has established offices in the U.S., Europe and Latin America, including offices in the U.K., Germany, France, Spain, Mexico and Brazil. CIENA has distributor or marketing representative arrangements, including agreements with agents in Italy, the Republic of Korea, Japan, Venezuela, Columbia and Chile.

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. We also manufacture the in-fiber Bragg gratings used in our optical transport product lines. We expect the majority of the manufacturing associated with our MultiWave CoreDirector

and CoreDirector CI products will be performed by third-party manufacturers, with only final system test and assembly performed by CIENA. We also rely on third-party manufacturers to manufacture some of our 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 key competitive advantage. Accordingly, we have invested significantly in automated production capabilities and manufacturing process improvements and expect to further enhance our manufacturing process with additional production process control systems. Some critical manufacturing functions require a highly skilled work force, and CIENA puts significant efforts into training and maintaining the quality of its manufacturing personnel and in maintaining its proprietary information in this area.

CIENA's optical transport product lines utilize hundreds of individual parts, many of which are customized for CIENA. 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 and the field-tested design and performance of its optical transport products give it a competitive advantage, and CIENA expects to leverage that advantage in bringing its core switching products to market. However, competition has been and will continue to be very intense. See "Management's Discussion and Analysis of Financial Conditions and Results of Operations" and "Risk Factors".

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 more established customer relationships with long distance carriers than CIENA. Included among CIENA's competitors are Alcatel Alsthom Group, Cisco, Fujitsu Group, Hitachi Ltd., Lucent Technologies Inc., NEC Corporation, Nortel Networks Corporation, Siemens AG, Telefon AB LM Ericsson and several new companies, such as ONI Systems, Sycamore Networks, Corvis Systems, and Tellium, Inc. CIENA believes each of its major competitors is in various stages of development, introduction or deployment of products directly competitive with CIENA's optical transport, core switching and service delivery systems.

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

PATENTS AND OTHER INTELLECTUAL PROPERTY RIGHTS

CIENA has licensed intellectual property from third parties, including 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 some

software components for its network management products. These licenses are perpetual but will generally terminate after an uncured breach of the agreement by CIENA. We have registered trademarks for CIENA, WaveWatcher, MODULE SCOPE, CIENA Optical Communications, Multiwave and Multiwave Sentry. CIENA also relies on contractual rights, trade secrets and copyrights to establish and protect its proprietary rights in its products.

CIENA intends to enforce vigorously its intellectual property rights if infringement or misappropriation occurs.

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 2000, CIENA had received fifty-eight United States patents, and had one hundred sixteen 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 2012. 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 "Management's Discussion and Analysis of Financial Condition and Results of Operations" and "Risk Factors".

EMPLOYEES

As of October 31, 2000, CIENA and its subsidiaries employed 2,775 persons, of whom 527 were primarily engaged in research and development activities, 1,233 in manufacturing, 412 in installation services, 372 in sales, marketing, customer support and related activities and 231 in administration. None of CIENA's employees are currently represented by a labor union. CIENA considers its relations with its employees to be good.

UNDERWRITING

CIENA and the underwriters for the offering named below have entered into an underwriting agreement with respect to the shares being offered. Subject to certain conditions, each underwriter has severally agreed to purchase the number of shares indicated in the following table. Goldman, Sachs & Co., Morgan Stanley & Co. Incorporated, Banc of America Securities LLC and Robertson Stephens, Inc. are the representatives of the underwriters.

UNDERWRITERS	NUMBER OF SHARES
Goldman, Sachs & Co.	
Morgan Stanley & Co. Incorporated.....	
Banc of America Securities LLC.....	
Robertson Stephens, Inc.	
Total.....	8,000,000

If the underwriters sell more shares than the total number set forth in the table above, the underwriters have an option to buy up to an additional 1,200,000 shares from CIENA to cover such sales. They may exercise that option for 30 days. If any shares are purchased pursuant to this option, the underwriters will severally purchase shares in approximately the same proportion as set forth in the table above.

The following table shows the per share and total underwriting discounts and commissions to be paid to the underwriters by CIENA. Such amounts are shown assuming both no exercise and full exercise of the underwriters' option to purchase additional shares.

	NO EXERCISE	FULL EXERCISE
Per share.....	$	$
Total.....	$	$

Shares sold by the underwriters to the public will initially be offered at the initial price to public set forth on the cover of this prospectus. Any shares sold by the underwriters to securities dealers may be sold at a discount of up to $ per share from the initial price to public. Any such securities dealers may resell any shares purchased from the underwriters to certain other brokers or dealers at a discount of up to $ per share from the initial price to public. If all the shares are not sold at the initial price to public, the underwriters may change the offering price and the other selling terms.

CIENA and some of its officers and directors have agreed with the underwriters not to dispose of or hedge any of our common stock or securities convertible into or exchangeable for shares of common stock during the period from the date of this prospectus continuing through the date 90 days after the date of this prospectus, except with the prior written consent of Goldman, Sachs & Co. CIENA's agreement does not apply to any securities issued: (i) under employee benefit plans or dividend reinvestment plans, (ii) upon exercise of currently outstanding stock options, (iii) upon conversion or exchange of currently outstanding convertible or exchangeable securities, (iv) in connection with the acquisition of Cyras Systems, Inc. or (v) in connection with other mergers, acquisitions or similar transactions so long as those parties agree to be bound by the terms of the lock-up. This agreement does not restrict us from filing a shelf registration statement which includes equity securities. CIENA will issue approximately 27 million shares of common stock if the Cyras acquisition is consummated, almost all of which shares will be freely tradeable.

The common stock is quoted on the Nasdaq National Market under the symbol "CIEN".

In connection with the offering, the underwriters may purchase and sell shares of common stock in the open market. These transactions may include short sales, stabilizing transactions

and purchases to cover positions created by short sales. Short sales involve the sale by the underwriters of a greater number of shares than they are required to purchase in the offering. "Covered" short sales are sales made in an amount not greater than the underwriters' option to purchase additional shares from the Company in the offering. The underwriters may close out any covered short position by either exercising their option to purchase additional shares or purchasing shares in the open market. In determining the source of shares to close out the covered short position, the underwriter will consider, among other things, the price of shares available for purchase in the open market as compared to the price at which they may purchase shares through the overallotment option. "Naked" short sales are sales in excess of such option. The underwriters must close out any naked short position by purchasing shares in the open market. A naked short position is more likely to be created if the underwriters are concerned that there may be downward pressure on the price of the common stock in the open market after pricing that could adversely affect investors who purchase in the offering. Stabilizing transactions consist of certain bids or purchases of common stock made by the underwriters in the open market prior to the completion of the offering.

The underwriters also may impose a penalty bid. This occurs when a particular underwriter repays to the underwriters a portion of the underwriting discount received by it because the representatives have repurchased shares sold by or for the account of such underwriter in stabilizing or short covering transactions.

Purchases to cover a short position and stabilizing transactions may have the effect of preventing or retarding a decline in the market price of the common stock, and together with the imposition of the penalty bid, may stabilize, maintain, or otherwise affect the market price of the common stock. As a result, the price of the common stock may be higher than the price that otherwise might exist in the open market. If these activities are commenced, they may be discontinued by the underwriters at any time. These transactions may be effected on the Nasdaq National Market, in the over-the-counter market or otherwise.

CIENA has agreed to indemnify the several underwriters against certain liabilities, including liabilities under the Securities Act of 1933.

CIENA estimates that its share of the total expenses of the offering, excluding underwriting discounts and commissions, will be approximately $305,000.

Some of the underwriters have from time to time performed, and may in the future perform, certain investment banking and advisory services for CIENA for which they have received, and may in the future receive, customary fees and expenses.

Lawton W. Fitt, a director of CIENA, is a Managing Director of Goldman, Sachs & Co., one of the underwriters in this offering.

LEGAL MATTERS

Hogan & Hartson L.L.P., Baltimore, Maryland, will provide CIENA with an opinion as to legal matters in connection with the common stock offered by this prospectus. Certain legal matters in connection with this offering will be passed on for the underwriters by Hale and Dorr LLP, Reston, Virginia.

EXPERTS

The consolidated financial statements of CIENA Corporation as of October 31, 2000 and 1999 and for each of the three years in the period ended October 31, 2000 incorporated in this prospectus by reference to CIENA's Annual Report on Form 10-K for the year ended October 31, 2000, as amended January 18, 2001, have been so incorporated in reliance on the report of PricewaterhouseCoopers LLP, given on the authority of said firm as experts in auditing and accounting.

The financial statements of Cyras Systems, Inc. as of December 31, 1998 and 1999 and for the period from July 24, 1998 (inception) to December 31, 1998 and for the year ended December 31, 1999, incorporated in this prospectus by reference to the current report on Form 8-K of CIENA Corporation filed January 18, 2001, have been audited by Deloitte & Touche LLP, independent auditors, as stated in their report, which is incorporated herein by reference, and have been so incorporated by reference in reliance upon the report of such firm given upon their authority as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the SEC under the Securities Act a registration statement on Form S-3. This prospectus does not contain all of the information contained in the registration statement, certain portions of which have been omitted under the rules of the SEC. We also file annual, quarterly and special reports, proxy statements and other information with the SEC under the Exchange Act. The Exchange Act file number for our SEC filings is 000-21969. You may read and copy the registration statement and any other document we file at the following SEC public reference rooms:

Judiciary Plaza 450 Fifth Street, N.W. Rm. 1024 Washington, D.C. 20549	500 West Madison Street 14th Floor Chicago, Illinois 60661	7 World Trade Center Suite 1300 New York, New York 10048

You may obtain information on the operation of the public reference room in Washington, D.C. by calling the SEC at 1-800-SEC-0330. We file information electronically with the SEC. Our SEC filings are available from the SEC's Internet site at http://www.sec.gov, which contains reports, proxy and information statements and other information regarding issuers that file electronically. You may read and copy our SEC filings and other information at the offices of Nasdaq Operations, 1735 K Street, N.W., Washington, D.C. 20006.

INCORPORATION BY REFERENCE

The SEC allows us to "incorporate by reference" the documents we file with it, which means that we can disclose important information to you by referring you to those documents instead of reproducing that information in this prospectus. The information incorporated by reference is considered to be part of this prospectus, and information in documents that we file later with the SEC will automatically update and supersede information in this prospectus. We incorporate by reference the documents listed below:

- Our Annual Report on Form 10-K for the fiscal year ended October 31, 2000, as amended on January 18, 2001;

- Our Form 8-K filed on January 18, 2001;

- All documents filed by us pursuant to Section 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934 after the date of this prospectus and before the termination of the offering; and

- The description of common stock contained in our Form 8-A filed on January 13, 1997, as amended.

We will provide a copy of the documents we incorporate by reference, at no cost, to any person who receives this prospectus. To request a copy of any or all of these documents, you should write or telephone us at: 1201 Winterson Road, Linthicum, MD, (410) 865-8500, Attention: Director, Investor Relations.

No dealer, salesperson or other person is authorized to give any information or to represent anything not contained in this prospectus. You must not rely on any unauthorized information or representations. This prospectus is an offer to sell only the shares offered hereby, but only under circumstances and in jurisdictions where it is lawful to do so. The information contained in this prospectus is current only as of its date.

TABLE OF CONTENTS

8,000,000 Shares

CIENA CORPORATION

Common Stock

[Ciena logo]

GOLDMAN, SACHS & CO.
MORGAN STANLEY DEAN WITTER
BANC OF AMERICA SECURITIES LLC

ROBERTSON STEPHENS

THE INFORMATION CONTAINED IN THIS PRELIMINARY PROSPECTUS IS NOT COMPLETE AND MAY BE CHANGED. WE MAY NOT SELL THESE SECURITIES UNTIL THE REGISTRATION STATEMENT FILED WITH THE SECURITIES AND EXCHANGE COMMISSION IS EFFECTIVE. THIS PRELIMINARY PROSPECTUS IS NOT AN OFFER TO SELL THESE SECURITIES AND IS NOT SOLICITING AN OFFER TO BUY THESE SECURITIES IN ANY STATE WHERE THE OFFER OR SALE IS NOT PERMITTED.

SUBJECT TO COMPLETION. DATED FEBRUARY 5, 2001.

[CIENA LOGO]

$350,000,000

CIENA CORPORATION
% Convertible Notes due , 2008

You may convert the notes into shares of CIENA Corporation's common stock at any time before their maturity or their prior redemption or repurchase by CIENA. The notes will mature on , 2008. The conversion rate is shares per each $1,000 principal amount of notes, subject to adjustment in some circumstances. This is equivalent to a conversion price of approximately $ per share. On February 2, 2001, the last reported sale price for CIENA's common stock on the Nasdaq National Market was $83.75 per share. The common stock is quoted on the Nasdaq National Market under the symbol "CIEN".

CIENA will pay interest on the notes on February and August of each year. The first interest payment will be made on August , 2001. The notes will be issued only in denominations of $1,000 and integral multiples of $1,000.

On or after the third business day after , 2004, CIENA has the option to redeem all or a portion of the notes that have not been previously converted at the redemption prices set forth in this prospectus. You have the option, subject to certain conditions, to require CIENA to repurchase any notes held by you in the event of a "change in control", as described in this prospectus, at a price equal to 100% of the principal amount of the notes plus accrued interest to the date of repurchase.

Concurrently with this offering, CIENA is also conducting a separate public offering of 8,000,000 shares of its common stock by a separate prospectus. Neither the completion of the common stock offering nor the completion of this convertible debt offering is contingent upon the other.

See "Risk Factors" beginning on page 8 in this prospectus to read about certain factors you should consider before buying our convertible debt securities.

NEITHER THE SECURITIES AND EXCHANGE COMMISSION NOR ANY OTHER REGULATORY BODY HAS APPROVED OR DISAPPROVED OF THESE SECURITIES OR PASSED UPON THE ACCURACY OR ADEQUACY OF THE PROSPECTUS. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

	Per Note	Total
Initial public offering price.....	%	$
Underwriting discount.....	%	$
Proceeds, before expenses, to CIENA.....	%	$

The offering prices set forth above do not include accrued interest, if any. Interest on the notes will accrue from the date of original issuance of the notes, expected to be February , 2001.

To the extent the underwriters sell more than $350,000,000 of notes at the initial public offering price, the underwriters have the option to purchase up to an additional $52,500,000 of notes from CIENA at the initial offering price less the underwriting discount.

The underwriters expect to deliver the notes in book-entry form only through the facilities of the Depository Trust Company in New York, New York on February

, 2001.

GOLDMAN, SACHS & CO.
MORGAN STANLEY DEAN WITTER
BANC OF AMERICA SECURITIES LLC
ROBERTSON STEPHENS

Prospectus dated February , 2001

PROSPECTUS SUMMARY

You should read this summary together with the entire prospectus, including the more detailed information in our financial statements and accompanying notes incorporated by reference in this prospectus.

CIENA CORPORATION

We are an established leader in the rapidly growing intelligent optical networking equipment market. We offer a comprehensive portfolio of products for communications service providers worldwide, including long-distance and metropolitan optical transport, intelligent optical core switching and network management solutions. Our customers include long-distance carriers, competitive and incumbent local exchange carriers, Internet service providers and wholesale carriers. We have pursued a strategy to develop and leverage the power of our technologies to change the fundamental economics of building carrier-class tele- and data-communications networks, thereby providing our customers with a competitive advantage. Our intelligent optical networking products are designed to enable carriers to deliver any time, any size, any priority bandwidth to their customers. Our optical networking products add intelligence to the network, enabling communications service providers to optimize network capacity and to offer a new range of services on demand at a substantially lower cost than traditional products. Furthermore, our products allow service providers to optimize their investments in fiber-optic infrastructure while positioning them to easily transition to next-generation optical network architectures.

Rapidly increasing use of the Internet and Internet-based applications and services has fueled dramatic growth in the volume of data traffic in the public communications network. In response, communications service providers are making significant investments to upgrade their network infrastructure by laying fiber-optic cable and installing transmission equipment based on optical technology. While advances in optical technology have enabled carriers to expand network capacity, they continue to face critical challenges including network scalability, escalating capital and operational costs and network management difficulties.

We provide a comprehensive portfolio of optical networking solutions that address these challenges by optimizing bandwidth in critical areas of service provider networks: long-distance and metropolitan optical transport, intelligent optical core switching and network management. Our solutions provide our customers with the following benefits:

- greater bandwidth capacity;
- simplified and more scalable networks;
- enhanced network manageability;
- lower capital and operational costs;
- ability to provision high-bandwidth services rapidly and flexibly; and
- ability to offer new revenue-generating services.

We have shipped products to over 35 customers, including 27 new customers since the end of fiscal 1998. Our customers include:

- Bell South;
- Broadwing;
- Cable & Wireless (U.S. & U.K.);
- CrossWave Communications;
- Enron;
- GTS (now known as eBone);
- MobilCom AG;
- PSINet;
- Qwest;
- Sprint;
- Telecom Developpement;
- Telia AB;
- Verizon;
- WorldCom (U.S. & Europe); and
- XO Communications.

Our strategy is to maintain and build upon our market leadership in the development and deployment of intelligent optical networking systems and to leverage our bandwidth-optimizing technologies to provide solutions for both voice and data communications-based networks. Important elements of our strategy are to:

- expand our base of customers using our intelligent optical networking solutions;
- increase sales and marketing efforts;
- continue to emphasize technical support and customer service;
- maintain world class manufacturing capability; and
- leverage bandwidth-optimizing technology and know-how.

Our revenue and net income for the fiscal year ended October 31, 2000 were $858.8 million and $81.4 million, respectively. Of our revenue for this period, 33.0% was derived from international sales. We recorded revenue for the fiscal year ended October 31, 2000 from sales to 32 customers, including 12 new customers.

We were incorporated in Delaware in 1992. Our principal executive offices are located at 1201 Winterson Road, Linthicum, Maryland 21090. Our telephone number is (410) 865-8500.

RATIO OF EARNINGS TO FIXED CHARGES

We present below the ratio of our earnings to our fixed charges for each of the fiscal years ended October 31, 1996, 1997, 1998, 1999 and 2000:

	YEARS ENDED OCTOBER 31,				
	1996	1997	1998	1999	2000
Ratio of earnings to fixed charges.....	33.8x	153.1x	36.2x	--	25.9x

These computations include CIENA and its consolidated subsidiaries. For these ratios "earnings" represents income (loss) before taxes plus fixed charges. "Fixed charges" consists of interest on all indebtedness and interest expense under operating leases deemed by us to be representative of the interest factor. Due to the loss before income taxes in the year ended October 31, 1999, the ratio coverage was less than 1:1. CIENA must have generated additional earnings of $5,991,000 to achieve a coverage ratio of 1:1 for the year ended October 31, 1999.

THE OFFERING

Securities offered.....	$350.0 million aggregate principal amount of % Convertible Notes due , 2008 ($402.5 million if the underwriters exercise their overallotment option).
Offering price.....	100% of the principal amount of the notes, plus accrued interest, if any, from February , 2001.
Interest.....	We will pay interest on the notes semi-annually on February and August of each year, commencing August , 2001.
Conversion.....	You may convert your notes into shares of our common stock at a conversion rate of shares of common stock per $1,000 principal amount of notes. This is equivalent to a conversion price of approximately $ per share. The conversion rate is subject to adjustment in certain events. The notes will be convertible at any time before the close of business on the maturity date, unless we have previously redeemed or repurchased the notes. You may convert your notes called for redemption or submitted for repurchase up to and including the business day immediately preceding the date fixed for redemption or repurchase, as the case may be.
Global note; Book-entry system.....	We will issue the notes only in fully registered form with interest coupons and in minimum denominations of $1,000. The notes will be evidenced by one or more global notes deposited with the trustee for the notes, as custodian for DTC. Beneficial interests in the global note will be shown on, and transfers of those beneficial interests can only be made through, records maintained by DTC and its participants.
Optional redemption by CIENA.....	On or after the third business day after February , 2004, we have the right, at any time, to redeem some or all of your notes at the redemption prices set forth in this prospectus plus accrued and unpaid interest.
Repurchase at the option of the holders upon a change in control.....	In the event of a change in control, as that term is defined in "Description of the Notes -- Repurchase at Option of Holders Upon a Change in Control", you will have the right, subject to conditions and restrictions, to require us to repurchase some or all of your notes at a price equal to 100% of the principal amount, plus accrued and unpaid interest to the repurchase date. The repurchase price is payable in cash or, at our option and subject to certain conditions, in shares of our common stock, valued at 95% of the average closing sales prices of the common stock for the five trading days preceding and including the third trading day prior to the repurchase date.
Use of proceeds.....	We will use the net proceeds from the offering for general corporate purposes, which may include working capital, capital expenditures and acquisitions. We have not determined the amount we plan to spend on any of the uses described above or the timing of these expenditures. Pending our use of the net

	proceeds, we intend to invest them in short-term interest-bearing, investment grade securities.
Events of default.....	The following will be events of default under the indenture for the notes: - we fail to pay principal of, or any premium on, any note when due, whether or not the payment is prohibited by the subordination provisions of the indenture; - we fail to pay any interest on any note when due and that default continues for 30 days; - we fail to provide the notice that we are required to give in the event of a change in control; - we fail to perform any other covenant in the indenture and that failure continues for 60 days after written notice to us by the trustee or the holders of at least 25% in aggregate principal amount of outstanding notes; - we or any of our significant subsidiaries fail to pay when due at final maturity thereof, either at its maturity or upon acceleration, any indebtedness under any bonds, debentures, notes or other evidences of indebtedness for money borrowed, or any guarantee thereof, in excess of $25 million if the indebtedness is not discharged, or the acceleration is not annulled, within 30 days after written notice to us by the trustee or the holders of at least 25% in aggregate principal amount of the outstanding notes; and - events of bankruptcy, insolvency or reorganization with respect to us or any of our significant subsidiaries specified in the indenture.
Listing of notes.....	The notes will not be listed on any securities exchange or quoted on the Nasdaq National Market. Our common stock is quoted on the Nasdaq National Market under the symbol "CIEN".
Governing law.....	The indenture and the notes will be governed by the laws of the State of New York.

CONCURRENT COMMON STOCK OFFERING

Concurrent with this offering of convertible notes, CIENA is conducting a separate public offering of 8,000,000 shares of its common stock by a separate prospectus. Neither the completion of the common stock offering nor the completion of this convertible debt offering is contingent upon the other.

RECENT DEVELOPMENTS

PROPOSED ACQUISITION OF CYRAS SYSTEMS, INC.

On December 19, 2000, we announced an agreement to acquire all of the outstanding capital stock, options and warrants of Cyras Systems, Inc., a privately held provider of next-generation optical networking systems based in Fremont, California. As consideration in the acquisition, we agreed to issue a total of approximately 27 million shares of our common stock and indirectly assume $150 million principal amount of Cyras's convertible subordinated indebtedness.

Cyras is designing and developing next-generation optical networking solutions for telecommunications carriers. The Cyras K2 product, which is in the development phase and is not yet ready for commercial manufacturing or deployment, will enable carriers of metropolitan area networks to consolidate multiple legacy network elements into a single transport and switching platform. This consolidation results in the increased cost effectiveness, network optimization and scalability that are demanded in today's increasingly data-oriented carrier environment. We believe that the addition of the K2 product to our portfolio will increase our market opportunity by leveraging this leading-edge product for the metropolitan network with our CoreDirector(TM) and long-haul optical transport presence, extensive sales force and global services and support infrastructure. These capabilities will enable us to offer carriers seamless end-to-end service creation and management with unmatched scalability, agility and efficiency using our LightWorks architecture for smart bandwidth provisioning and network-wide service management.

We will account for the Cyras acquisition as a purchase. We expect to complete the acquisition in the first calendar quarter of 2001. If and when we complete the acquisition of Cyras, we will record a charge for acquired in-process research and development, which we currently estimate will be approximately $16.4 million, and will amortize goodwill and other intangibles of approximately $1.6 billion over a three- to seven-year period and deferred stock compensation of approximately $255 million over the relevant vesting periods. We expect the Cyras acquisition to be dilutive to our fiscal 2001 earnings by $0.19 to $0.22 per share and, excluding one-time charges associated with the acquisition and amortization of intangibles and deferred stock compensation, accretive during the latter half of our fiscal 2002, assuming expected revenue and cost synergies as well as anticipated product cost and pricing.

For the nine months ended September 30, 2000, Cyras recorded no revenues, incurred operating expenses of $53.8 million and had a net loss of $54.4 million. Additional audited and unaudited financial information of Cyras, and unaudited pro forma combined financial statements showing the pro forma effect of the acquisition on our historical financial statements, are incorporated in this prospectus by reference to our Form 8-K report filed on January 18, 2001.

The Cyras acquisition is subject to customary closing conditions, including regulatory approvals. See "Risk Factors -- Risks Related to the Cyras Acquisition".

RISK FACTORS

Investing in our securities involves a high degree of risk. Before making an investment decision, you should carefully consider the risk factors set forth below as well as other information we include or incorporate by reference in this prospectus and the additional information in the other reports we file with the SEC. The risks and uncertainties we have described are not the only ones facing our company. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also affect us.

OUR RESULTS CAN BE UNPREDICTABLE

Our ability to recognize revenue during a quarter from a customer depends upon our ability to ship product and satisfy other contractual obligations of a customer sale in that quarter. In general, revenue and operating results in any reporting period may fluctuate due to factors including:

- loss of a customer;
- the timing and size of orders from customers;
- changes in customers' requirements, including changes 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, 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 a relatively large investment, and our target customers are highly demanding and technically sophisticated. There are only a limited number of potential customers in each geographic market, and each customer has unique needs. As a result, the sales cycles for our products are long, often more than a year between our initial contact with the customer and its commitment to purchase.

We budget expense levels on our expectations of long-term future revenue. These budgets reflect our substantial investment in the financial, engineering, manufacturing and logistics support resources we think we may need for large potential customers, even though we do not know the volume, duration or timing of any purchases from them. In addition, we make a substantial investment in financial, manufacturing and engineering resources for the development of new and enhanced products. As a result, we may continue to experience high inventory levels, operating expenses and general overhead.

We have experienced rapid expansion in all areas of our operations, particularly in the manufacturing of our products. Our future operating results will depend on our ability to continue to expand our manufacturing facilities in a timely manner so that we can satisfy our delivery commitments to our customers. Our failure to expand these facilities in a timely manner and meet our customer delivery commitments would harm our business, financial condition and results of operations.

Our product development efforts will require us to incur ongoing development and operating expenses, and any delay in the contributions from new products, such as the MultiWave CoreDirector product line, and enhancements to our existing optical transport products could harm our business.

CHANGES IN TECHNOLOGY OR THE DELAYS IN THE DEPLOYMENT OF NEW PRODUCTS COULD HURT OUR NEAR-TERM PROSPECTS

The market for optical networking equipment is changing at a rapid pace. The accelerated pace of deregulation and the adoption of new technology in the telecommunications industry likely will intensify the competition for improved optical networking products. Our ability to develop, introduce and manufacture new and enhanced products will depend upon our ability to anticipate changes in technology, industry standards and customer requirements. Our failure to introduce new and enhanced products in a timely manner could harm our competitive position and financial condition. Several of our new products, including the MultiWave CoreDirector and the enhancements to the MultiWave CoreStream products, are based on complex technology which could result in unanticipated delays in the development, manufacture or deployment of these products. In addition, our ability to recognize revenue from these products could be adversely affected by the extensive testing required for these products by our customers. The complexity of technology associated with support equipment for these products could also result in unanticipated delays in their deployment. These delays could harm our competitive and financial condition.

Competition from competitive products, the introduction of new products embodying new technologies, a change in the requirements of our customers, or the emergence of new industry standards could delay or hinder the purchase and deployment of our products and could render our existing products obsolete, unmarketable or uncompetitive from a pricing standpoint. The long certification process for new telecommunications equipment used in the networks of the regional Bell operating companies, referred to as RBOCs, has in the past resulted in and may continue to result in unanticipated delays which may affect the deployment of our products for the RBOC market.

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 installation and test services 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. These companies have substantial financial, marketing, manufacturing and intellectual property resources. In addition, these companies have substantially greater resources to develop or acquire new technologies than we do and often have existing relationships with our potential customers. We sell systems that compete directly with product offerings of these companies and in some cases displace or replace equipment they have traditionally supplied for telecommunications networks. As such, we represent a specific threat to these companies. The continued expansion of our product offerings with the MultiWave CoreDirector product line and enhancements to our MultiWave CoreStream product line likely will increase this perceived threat. We expect continued aggressive tactics from many of these competitors, including:

- price discounting;

- 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 pricing for 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, 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 significantly more 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. In particular, a number of companies, including several start-up companies and recently public companies that have raised substantial equity capital, have announced products that compete with our products. Our inability to compete successfully against these companies would harm our business, financial condition and results of operations.

WE MAY NOT BE ABLE TO SUCCESSFULLY COMPLETE DEVELOPMENT AND ACHIEVE COMMERCIAL ACCEPTANCE OF NEW PRODUCTS

Our MultiWave CoreDirector CI product and some enhancements to the MultiWave CoreDirector and MultiWave CoreStream product lines and LightWorks Toolkit are in the development phase and are not yet ready for commercial manufacturing or deployment. We expect to offer additional releases of the MultiWave CoreDirector product over the life of the product and continue to enhance features of our MultiWave CoreStream product, including the longer reach and higher channel count functionality of our product line. The initial release of MultiWave CoreDirector CI is expected in limited availability for customer trials during the first calendar quarter of 2001. 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 application-specific integrated circuits, referred to as ASICs;

- validation of manufacturing methods and processes;

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

- validation of embedded software;

- establishment of systems integration and systems test validation requirements; and

- identification and qualification of component suppliers.

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, in particular, are key to the timely introduction of enhancements to the MultiWave CoreDirector product line, 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 product line are relatively new. We have not established commercial acceptance of these products, and we cannot assure you 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 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 sources, and in some cases, that sole source is also a competitor. A worldwide shortage of some electrical components has caused an increase in the price of components. 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.

Failures of components can affect customer confidence in our products and could adversely affect our financial performance and the reliability and performance of our products. 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 recent wave of consolidation among suppliers of these components, such as the recent and pending purchases of E-TEK and SDL, respectively, by JDS Uniphase, 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 CoreDirector product line 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 for 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. If we cannot effectively manage these manufacturers or they fail to deliver components in a timely manner, it may have an adverse effect on our business and results of operations.

SOME OF OUR SUPPLIERS ARE ALSO OUR 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. Also, Lucent is the sole source of two components and is one of two suppliers of two others. Recently, Lucent has announced that it intends to spin off a portion of its components business. Our supply of components from Lucent may be adversely affected by this restructuring. Alcatel and Nortel are suppliers of lasers used in our products, and NEC is a supplier of an important piece of testing equipment. A decline in reliability or other adverse change in these supply relationships could harm our business.

SALES TO EMERGING CARRIERS MAY INCREASE THE UNPREDICTABILITY OF OUR RESULTS

As we continue to address emerging carriers, timing and volume of purchasing from these carriers can also be more unpredictable due to factors such as their need to build a customer base, acquire rights of way and interconnections necessary to sell network service, and build out new capacity, all while working within their capital budget constraints. Sales to these carriers may increase the unpredictability of our financial results because even these emerging carriers purchase our products in multi-million dollar increments.

Unanticipated changes in customer purchasing plans also create unpredictability in our results. A portion of our anticipated revenue over the next several quarters is comprised of orders of less than $25 million each from several customers, some of which may involve extended payment terms or other financing assistance. Our ability to recognize revenue from financed sales to emerging carriers will depend on the relative financial condition of the specific customer, among other factors. Further, we will need to evaluate the collectibility of receivables from these customers if their financial conditions deteriorate in the future. Purchasing delays and changes in the financial condition or the amount of purchases by any of these customers could have a material adverse effect on us. In the past we have had to make provisions for the accounts receivables from customers that experienced financial difficulty. If additional customers face similar financial difficulties, our receivables from these customers may become uncollectible, and we would have to write off the asset or decrease the value of the asset to the extent the receivable could not be collected. These write-downs or write-offs would adversely affect our financial performance.

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.

OUR PROSPECTS DEPEND ON DEMAND WHICH WE CANNOT RELIABLY PREDICT OR CONTROL

We may not anticipate changes in direction or magnitude of demand for our products. The product offerings of our competitors could adversely affect the demand for our products. In addition, unanticipated reductions in demand for our products could adversely affect us.

Demand for our products depends on our customers' requirements. These requirements may vary significantly from quarter to quarter due to factors such as:

- the type and quantity of optical equipment needed by our customers;

- the timing of the deployment of optical equipment by our customers;

- the rate at which our current customers fund their network build-outs; and

- the equipment configurations and network architectures our customers want.

Customer determinations are subject to abrupt changes in response to their own competitive pressures, capital requirements and financial performance expectations. These changes could harm our business.

Recently we have experienced an increased level of sales activity that could lead to an upsurge in demand that is reflected in the overall increase in demand for optical networking and similar products in the telecommunications industry. Our results may suffer if we are unable to address this demand adequately by successfully scaling up our manufacturing capacity and hiring additional qualified personnel. To date we have largely depended on our own manufacturing and assembly facilities to meet customer expectations, but we cannot be sure that we can satisfy our customers' expectations in all cases by internal capabilities. In that case, we face the challenge of adequately managing customer expectations and finding alternative means of meeting them. If we fail to manage these expectations we could lose customers or receive smaller orders from customers.

OUR SUCCESS LARGELY DEPENDS ON OUR ABILITY TO RETAIN KEY PERSONNEL

Our success has always depended in large part on our ability to attract and retain highly-skilled technical, managerial, sales and marketing personnel, particularly those skilled and experienced with optical communications equipment. Our key founders and employees, together with the key founders and employees of our acquired companies, have received a substantial number of our shares and vested options that can be sold at substantial gains. In many cases, these individuals could become financially independent through these sales before our future products have matured into commercially deliverable products. These circumstances may make it difficult to retain and motivate these key personnel.

As we have grown and matured, competitors' efforts to hire our employees have intensified, particularly among competitive start-up companies and other early stage companies. We have agreements in place with most of our employees that limit their ability to work for a competitor and prohibit them from soliciting our other employees and our customers following termination of their employment. Our employees and our competitors may not respect these agreements. We have in the past been required to enforce, and are currently in the process of enforcing, some of these agreements. We expect in the future to continue to be required to resort to legal actions to enforce these agreements and could incur substantial costs in doing so. We may not be successful in these legal actions, and we may not be able to retain all of our key employees or attract new personnel to add to or replace them. The loss of key personnel would likely harm our business.

PART OF OUR STRATEGY INVOLVES PURSUING STRATEGIC ACQUISITIONS THAT MAY NOT BE SUCCESSFUL

As part of our strategy for growth, we will consider acquiring businesses that are intended to accelerate our product and service development processes and add complementary products and services. We may issue equity or incur debt to finance these acquisitions and may incur significant amortization expenses related to goodwill and other intangible assets. Acquisitions involve a number of operational risks, including risks that the acquired business will not be successfully integrated, may distract management attention and may involve unforeseen costs and liabilities.

RISKS RELATED TO THE CYRAS ACQUISITION

THE ACQUISITION MAY NOT BE COMPLETED

We currently expect to complete the acquisition of Cyras Systems, Inc. in the first calendar quarter of 2001, but because completion is subject to regulatory approvals and a shareholder vote of Cyras, the acquisition may be delayed or not completed at all.

WE MAY NOT BE ABLE TO ACHIEVE THE BENEFITS WE SEEK FROM THE ACQUISITION OR TO INTEGRATE CYRAS SUCCESSFULLY INTO OUR OPERATIONS

Even if the acquisition of Cyras is completed, we cannot be certain that we will achieve the benefits we envision from the acquisition. These benefits, including the accretion to our earnings,

which we expect to achieve in the second half of fiscal 2002, depend on our ability to successfully complete the development of the Cyras K2 product and integrate it into our product portfolio, achieve market acceptance for the Cyras product, achieve our revenue expectations for the Cyras product and the expected synergies, and successfully integrate and retain Cyras personnel. Cyras's product is in the development phase and is not yet ready for commercial manufacturing or deployment, and we cannot assure you that the substantial efforts necessary to complete development of the product and achieve commercial acceptance will be successful. We have only limited experience in significant acquisitions and cannot assure you that this acquisition will be successful.

The integration of Cyras into our operations following our merger with Cyras involves a number of risks, including:

- difficulty assimilating Cyras's operations and personnel;
- diversion of management attention;
- potential disruption of ongoing business;
- inability to retain key personnel;
- inability to maintain uniform standards, controls, procedures and policies; and
- impairment of relationships with employees, customers or vendors.

Failure to overcome these risks or any other problems encountered in connection with the merger could have a material adverse effect on our business, results of operations and financial condition.

SIGNIFICANT MERGER-RELATED CHARGES AGAINST EARNINGS WILL REDUCE OUR EARNINGS IN THE QUARTER IN WHICH WE CONSUMMATE THE MERGER AND DURING THE POST-MERGER INTEGRATION PERIOD

If and when we complete the acquisition of Cyras, we will incur a charge for in-process research and development, which we currently estimate will be approximately $16.4 million. The actual charge we incur could be greater than this estimate, which could have a material adverse effect on our results of operations and financial condition. Also, in the future we will incur non-cash charges in connection with the merger related to goodwill and other intangible amortization and amortization of deferred stock compensation. Other merger-related costs will be capitalized as part of the acquisition's purchase price and amortized in future periods. We could also incur other additional unanticipated merger costs relating to our acquisition of Cyras.

WE WILL INCUR SIGNIFICANT ADDITIONAL DEBT IN CONNECTION WITH THE MERGER

Cyras has $150 million of 4 1/2% convertible subordinated notes outstanding. We will indirectly assume these notes at the effective date of the merger. This additional indebtedness could adversely affect CIENA in a number of ways, including:

- limiting our ability to obtain necessary financing in the future;
- limiting our flexibility to plan for, or react to, changes in our business;
- requiring us to use a substantial portion of our cash flow from operations or utilize a significant portion of cash on hand to repay the debt when due in August 2005, or earlier if we are required to offer to repurchase the notes, as described below, rather than for other purposes, such as working capital or capital expenditures;
- making us more highly leveraged than some of our competitors, which may place us at a competitive disadvantage; and
- making us more vulnerable to a downturn in our business.

Additionally, in the event that the holders of the notes convert their notes into our common stock, we would have to issue a significant number of shares of additional common stock. For example, if our merger with Cyras had closed on December 28, 2000, when the estimated

exchange ratio would have been approximately 0.13, we would have had to issue approximately 1,000,000 shares of our common stock if holders of the entire $150 million of convertible notes decided to convert their notes.

In the event that the holders of the notes do not elect to convert them into our common stock before March 31, 2002, and if a "complying public equity offering" has not occurred on or before that date, we will have to make an offer to repurchase the notes at 118.942% of the principal balance of the notes on April 30, 2002. A "complying public equity offering" is defined as a firm commitment underwritten public offering of the common stock of Cyras, in which Cyras raises at least $50 million in gross proceeds.

FOLLOWING THE COMPLETION OF OUR ACQUISITION OF CYRAS, A SIGNIFICANT NUMBER OF ADDITIONAL SHARES WILL BE ADDED TO OUR PUBLIC FLOAT

We will issue approximately 27 million shares of our common stock as consideration in the Cyras acquisition. These shares represent 9.4% of our outstanding common stock as of February 1, 2001. Almost all of these shares will be freely tradable immediately following the closing of the acquisition which is currently expected to be in the first calendar quarter of 2001. Any sales of substantial numbers of shares of our common stock in the public market following the completion of the Cyras acquisition could adversely affect the market price of our common stock.

RISKS RELATED TO THE NOTES

SIGNIFICANT LEVERAGE AND DEBT SERVICE OBLIGATIONS MAY ADVERSELY AFFECT OUR CASH FLOW AND OUR ABILITY TO REPAY OR REPURCHASE THE NOTES

We will have significant amounts of outstanding indebtedness, primarily related to the notes, upon the completion of this offering, and will assume significant additional indebtedness if our acquisition of Cyras is consummated. As a result of this indebtedness, our principal and interest payment obligations will increase substantially. 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 significant 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.

In addition, the notes will be our obligation exclusively. The indenture for the notes does not limit our ability, or that of our subsidiaries, to incur other indebtedness and liabilities. We may have difficulty paying what we owe under the notes if we or our subsidiaries incur additional indebtedness or other liabilities.

THERE CURRENTLY IS NO PUBLIC MARKET FOR THE NOTES BEING OFFERED

Prior to the sale of the notes in this offering, there has been no public market for any of the notes, and there can be no assurance as to:

- the liquidity of any such market that may develop;

- the ability of the holders to sell their notes; or

- the price at which the holders would be able to sell their notes.

If such a market were to exist, the notes could trade at prices that may be higher or lower than the principal amount or purchase price, depending on many factors, including prevailing interest rates, the market for similar notes, and our financial performance. We do not presently intend to apply for the listing of the notes on any securities exchange or for inclusion of the notes in the automated quotation system of the National Association of Securities Dealers, Inc.

The underwriters have advised us that they presently intend to make a market in the notes. The underwriters are not obligated, however, to make a market in the notes, and any such market-making may be discontinued at any time at the sole discretion of the underwriters. In addition, such market-making activity will be subject to the limits imposed by the Securities Act. and the Exchange Act. Accordingly, no assurance can be given as to the development or liquidity of any market for the notes.

FUTURE SALES OF OUR COMMON STOCK COULD DEPRESS THE PRICE OF OUR NOTES

Sales of substantial amounts of common stock by our officers, directors and other stockholders in the public market after this offering, or the awareness that a large number of shares is available for sale, could adversely affect the market price of our notes and common stock. In addition to the adverse effect a price decline would have on holders of our notes and common stock, that decline would impede our ability to raise capital through the issuance of additional shares of common stock or other equity or convertible debt securities. Substantially all of the shares of our common stock currently outstanding are eligible for resale in the public market. Furthermore, we will issue approximately 27 million additional shares of common stock if our acquisition of Cyras is consummated, almost all of which will be freely tradeable.

Although some of our officers and directors have agreed that for 90 days after the date of this prospectus they will not offer, sell, contract to sell or otherwise dispose of any shares of our common stock, Goldman, Sachs & Co. may, in its discretion, waive this lock-up at any time for any holder.

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. The value of the notes will depend, in part, on the market price of our common stock. 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 likely 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 like the MultiWave CoreStream, MultiWave CoreDirector and MultiWave Metro, there is substantial risk that our quarterly results will vary widely.

FORWARD LOOKING STATEMENTS

Some of the statements contained, or incorporated by reference, in this prospectus 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," "potential" or "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 prospectus.

USE OF PROCEEDS

We estimate that our net proceeds from the sale of our convertible notes will be approximately $339.2 million, after deducting an assumed underwriting discount and estimated offering expenses. If the underwriters' option to purchase additional convertible notes in this offering is exercised in full, we estimate that our net proceeds will be approximately $390.1 million.

Concurrent with the offering of convertible notes, CIENA is conducting a separate offering of 8,000,000 shares of common stock. This offering of convertible notes is not conditioned on the completion of the offering of our common stock.

We may use the net proceeds for working capital, capital expenditures, acquisitions and other general corporate purposes.

We have not determined the amounts we plan to spend on any of the uses described above or the timing of these expenditures. Pending our use of the net proceeds, we intend to invest them in short-term, interest-bearing, investment grade securities.

SELECTED CONSOLIDATED FINANCIAL DATA

The following selected consolidated financial data should be read in conjunction with "Management's Discussion and Analysis of Financial Condition and Results of Operations." 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 1996 comprised 53 weeks.

	YEAR ENDED OCTOBER 31,				
	1996	1997	1998	1999	2000
	(IN THOUSANDS, EXCEPT PER SHARE DATA)				
STATEMENT OF OPERATIONS DATA:					
Revenue	$ 88,463	$413,215	$508,087	$482,085	$858,750
Cost of goods sold	47,315	166,472	256,014	299,769	477,393
Gross profit	41,148	246,743	252,073	182,316	381,357
Operating expenses:					
Research and development	8,922	23,773	73,756	104,641	129,069
Selling and marketing	5,641	22,627	47,343	61,603	90,922
General and administrative	6,346	11,476	18,468	22,736	34,000
Settlement of accrued contract obligation	--	--	--	--	(8,538)
Purchased research and development	--	--	9,503	--	--
Pirelli litigation	--	7,500	30,579	--	--
Merger related costs	--	--	2,548	13,021	--
Provision for doubtful accounts	76	489	806	250	28,010
Total operating expenses	20,985	65,865	183,003	202,251	273,463
Income (loss) from operations	20,163	180,878	69,070	(19,935)	107,894
Other income (expense), net	653	7,178	12,830	13,944	12,680
Income (loss) before income taxes	20,816	188,056	81,900	(5,991)	120,574
Provision (benefit) for income taxes	3,553	72,488	36,200	(2,067)	39,187
Net income (loss)	$ 17,263	$115,568	$ 45,700	$ (3,924)	$ 81,387
Basic net income (loss) per common share	$ 0.62	$ 0.76	$ 0.19	$ (0.01)	$ 0.29
Diluted net income (loss) per common and dilutive potential common share	$ 0.09	$ 0.55	$ 0.18	$ (0.01)	$ 0.27
Weighted average basic common shares outstanding	27,634	151,928	235,980	267,042	281,621
Weighted average basic common and dilutive potential common shares outstanding	184,814	209,686	255,788	267,042	299,662

	OCTOBER 31,				
	1996	1997	1998	1999	2000
	(IN THOUSANDS)				
BALANCE SHEET DATA:					
Cash and cash equivalents	$24,040	$273,286	$250,714	$143,440	$ 143,187
Working capital	42,240	338,078	391,305	427,471	639,675
Total assets	79,676	468,247	602,809	677,835	1,027,201
Long-term obligations, excluding current portion	3,465	1,900	3,029	4,881	4,882
Mandatorily redeemable preferred stock	40,404	--	--	--	--
Stockholders' equity	10,783	377,278	501,036	530,473	809,835

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."

OVERVIEW

CIENA is a leader in the rapidly growing intelligent optical networking equipment market. We offer a comprehensive 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. CIENA's intelligent optical networking products are designed to enable carriers to deliver any time, any size, any priority bandwidth to their customers.

CIENA has increased the number of revenue-generating optical networking equipment customers from a total of 27 customers during fiscal 1999 to 32 customers for fiscal 2000. During fiscal 2000, three customers each represented more than 10% of CIENA's total revenues. We intend to preserve and enhance our market leadership and eventually build on our installed base with new and additional products. CIENA believes that its product and service quality, manufacturing experience, and proven track record of delivery will enable it to endure competitive pricing pressure while concentrating on efforts to reduce product costs and maximize production efficiencies. See "Risk Factors" in the prospectus.

As of October 31, 2000, CIENA and its subsidiaries employed approximately 2,775 persons, which was an increase of 847 persons over the approximate 1,928 employed on October 31, 1999.

RESULTS OF OPERATIONS

FISCAL YEARS ENDED 2000, 1999 AND 1998

REVENUE. CIENA recognized $858.8 million, $482.1 million and $508.1 million in revenue for the fiscal years ended October 31, 2000, 1999 and 1998, respectively. The approximate $376.7 million or 78.1% increase in revenue from fiscal 1999 to fiscal 2000 was due primarily to an increase in product shipments across all product lines. The approximate $26.0 million or 5.1% decrease in revenue from fiscal 1998 to fiscal 1999 was largely the result of reduced selling prices.

CIENA recognized revenues from a total of 32, 27, and 14 optical equipment customers during fiscal 2000, 1999, and 1998, respectively. During fiscal year 2000, Sprint, Qwest Communications and GTS Network Ltd. each accounted for at least 10% or more of CIENA's revenue and all three combined accounted for 60.9% of CIENA's fiscal 2000 revenue. During fiscal year 1999 Sprint, WorldCom and GTS Network Ltd. each accounted for at least 10% or more of CIENA's revenue and all three combined accounted for 46.2% of CIENA's fiscal 1999 revenue. This compares to fiscal 1998 in which Sprint was the only 10% customer and in total accounted for 52.5% of CIENA's fiscal 1998 revenue. Revenue derived from foreign sales accounted for approximately 33.0%, 44.3%, and 23.0% of CIENA's total revenues during fiscal 2000, 1999, and 1998, respectively.

For fiscal 2000, CIENA's optical network equipment revenues were derived from sales of the MultiWave Sentry 4000, MultiWave CoreStream configured for both 2.5 gigabits per second ("Gbps") and 10.0 Gbps transmission rates, MultiWave Sentry 1600, MultiWave Metro, MultiWave 1600, MultiWave CoreDirector, MultiWave Firefly systems and MultiWave MetroOne. During fiscal 1999, CIENA recognized revenues from sales of MultiWave Sentry 4000, MultiWave Sentry 1600, MultiWave 1600, MultiWave Metro, MultiWave Firefly, and MultiWave CoreStream systems. During fiscal 1998, CIENA recognized revenues from sales of MultiWave Sentry 1600,

MultiWave 1600, MultiWave Firefly and MultiWave Sentry 4000 systems. The revenues for fiscal 2000 improved as compared to fiscal 1999 due to increased sales of MultiWave Sentry 4000, MultiWave CoreStream, MultiWave Sentry 1600, MultiWave Metro, and MultiWave Firefly systems, and also from the introduction of revenues from MultiWave CoreDirector and MultiWave MetroOne systems. The amount of revenue recognized from MultiWave Sentry 1600 and MultiWave 1600 declined in fiscal 1999 as compared to fiscal 1998. This decline in MultiWave Sentry 1600 sales in fiscal 1999 was offset by the introduction of new revenues from the MultiWave CoreStream and MultiWave Metro products in fiscal 1999. Fiscal 1999 revenues from MultiWave Sentry 4000 and MultiWave Firefly were comparable to the revenues recognized for these products in fiscal 1998. Revenues derived from engineering, furnishing and installation services as a percentage of total revenue were 8.4%, 12.1%, and 9.2% for the fiscal years 2000, 1999, and 1998, respectively.

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 CIENA's manufacturing and engineering, furnishing and installation operations. Gross profit was $381.4 million, $182.3 million, and $252.1 million for fiscal years 2000, 1999, and 1998, respectively. Gross margin was 44.4%, 37.8%, and 49.6% for fiscal 2000, 1999, and 1998, respectively. The increase in gross profit from fiscal 1999 to fiscal 2000 was due primarily to lower component costs and improved production efficiencies. The decrease in gross profit from fiscal 1998 to fiscal 1999 was largely attributable to lower selling prices.

CIENA's gross margins may be affected by a number of factors, including product mix, continued competitive market pricing, outsourcing of manufacturing, manufacturing volumes and efficiencies, competition for skilled labor, and fluctuations in component costs. Downward pressures on our gross margins may be further impacted by an increased percentage of engineering, furnishing and installation revenues from services or additional service requirements. CIENA will continue to concentrate on efforts to reduce product costs and maximize production efficiencies and, if successful in these efforts, may be able to improve gross margins in the future. See "Risk Factors".

RESEARCH AND DEVELOPMENT EXPENSES. Research and development expenses were $129.1 million, $104.6 million, and $73.8 million for fiscal 2000, 1999, and 1998, respectively. The approximate $24.4 million or 23.3% increase from fiscal 1999 to 2000 and the approximate $30.9 million or 41.9% increase from fiscal 1998 to 1999 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 2000, 1999, and 1998 research and development expenses were 15.0%, 21.7%, and 14.5% of revenue, respectively. CIENA expects that its research and development expenditures will continue to increase in absolute dollars and perhaps as a percentage of revenue during fiscal 2001 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 $90.9 million, $61.6 million, and $47.3 million for fiscal 2000, 1999, and 1998, respectively. The approximate $29.3 million or 47.6% increase from fiscal 1999 to 2000 and the approximate $14.3 million or 30.1% increase from fiscal 1998 to 1999 in selling and marketing expenses was primarily the result of increased staffing levels in the areas of sales, technical assistance and field support, and increases in commissions earned, trade show participation and promotional costs. During fiscal 2000, 1999, and 1998 selling and marketing expenses were 10.6%, 12.8%, and 9.3% of revenue, respectively. CIENA anticipates that its selling and marketing expenses may increase in absolute dollars and perhaps as a percentage of revenue during fiscal 2001 as additional personnel are hired and additional offices are opened to allow CIENA to pursue new customers

and market opportunities. CIENA 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 CIENA's installed base of operational MultiWave systems increases.

GENERAL AND ADMINISTRATIVE EXPENSES. General and administrative expenses were $34.0 million, $22.7 million and $18.5 million for fiscal 2000, 1999, and 1998, respectively. The approximate $11.2 million or 49.5% increase from fiscal year 1999 to 2000 and the approximate $4.3 million or 23.1% increase from fiscal year 1998 to 1999 in general and administrative expenses was primarily the result of increased staffing levels and outside consulting services. During fiscal 2000, 1999, and 1998 general and administrative expenses were 4.0%, 4.7%, and 3.6% of revenue, respectively. CIENA believes that its general and administrative expenses will increase in absolute dollars and perhaps as a percentage of revenue during fiscal 2001 as a result of the expansion of CIENA'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 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. See "Provision for Doubtful Accounts" below.

PURCHASED RESEARCH AND DEVELOPMENT. Purchased research and development costs were $9.5 million for the fiscal year 1998. These costs were for the purchase of technology and related assets associated with the acquisition of Terabit during the second quarter of fiscal 1998.

PIRELLI LITIGATION. The Pirelli litigation costs of $30.6 million in fiscal 1998 were attributable to a $30.0 million payment made to Pirelli during the third quarter of 1998 and to additional other legal and related costs incurred in connection with the settlement of this litigation.

MERGER-RELATED COSTS. The merger costs for fiscal 1999 of approximately $13.0 million were costs 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. The merger-related costs for fiscal 1998 were costs related to the contemplated merger between CIENA and Tellabs. These costs include approximately $1.2 million in Securities and Exchange Commission filing fees and approximately $1.3 million in legal, accounting, and other related expenses.

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, 2000 was $29.6 million. Approximately $27.8 million 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. In November 2000, CIENA was notified that Dynegy Inc. and its subsidiaries 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, Dynegy and its subsidiaries, and of (b) a related sales agreement between CIENA and Dynegy, CIENA expects to realize approximately $8.9 million of the gross outstanding accounts receivable balance due from iaxis Limited as of October 31, 2000. While the proposed purchase agreement between the administrators of iaxis Limited and Dynegy is subject to certain administrative and judicial approvals, CIENA believes that such approvals will be

ultimately obtained and that CIENA will be successful in collecting the net $8.9 million outstanding accounts receivable balance from the customer. However, should such approvals not occur, additional write-offs might be required.

OTHER INCOME (EXPENSE), NET. Other income (expense), net, consists of interest income earned on CIENA's cash, cash equivalents and marketable debt securities, net of interest expense associated with CIENA's debt obligations. Other income (expense), net, was $12.7 million, $13.9 million, and $12.8 million for fiscal 2000, 1999, and 1998, respectively. The decrease in other income (expense) from fiscal 1999 to fiscal 2000 was due to lower balances of cash, cash equivalents and marketable debt securities in fiscal 2000 as compared to fiscal 1999. The increase in companies other income (expense) from fiscal 1998 to fiscal 1999 was primarily the result of the investment of the net proceeds of CIENA's stock offerings and net earnings.

PROVISION (BENEFIT) FOR INCOME TAXES. CIENA's provision (benefit) for income taxes was 32.5%, (34.5%), and 44.2% of pre-tax earnings (loss) for fiscal 2000, 1999 and 1998, respectively. 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. The income tax provision for 1998 was higher than the expected statutory rate of 35%, due primarily to charges for purchased research and development and state tax charges related to the Alta acquisition. Purchased research and development charges are not deductible for tax purposes. Exclusive of the effect of these charges, CIENA's provision for income taxes was 38.6% of income before income taxes in fiscal 1998. As of October 31, 2000, CIENA's deferred tax asset was $143.0 million. The realization of this asset could be adversely affected if future earnings are lower than anticipated.

QUARTERLY RESULTS OF OPERATIONS

The tables below 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, 2000. This information is unaudited, but in the opinion of CIENA reflects all adjustments (consisting only of normal recurring adjustments) that CIENA considers 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.

	QUARTER ENDED							
	JAN. 31, 1999	APR. 30, 1999	JUL. 31, 1999	OCT. 31, 1999	JAN. 31, 2000	APR. 30, 2000	JUL. 31, 2000	OCT. 31, 2000
	(IN THOUSANDS, EXCEPT PER SHARE DATA)							
Revenue	$100,417	$111,490	$128,826	$141,352	$152,213	$185,679	$233,268	$287,590
Cost of goods sold	65,778	71,238	79,361	83,392	87,003	104,205	128,172	158,013
Gross profit	34,639	40,252	49,465	57,960	65,210	81,474	105,096	129,577
Operating expenses:								
Research and development	22,218	24,094	28,402	29,927	29,742	29,965	32,697	36,665
Selling and marketing	13,608	13,092	16,839	18,064	18,122	20,331	24,375	28,094
General and administrative	5,036	5,849	5,433	6,418	6,621	7,176	9,339	10,864
Settlement of accrued contract obligation	--	--	--	--	--	--	(8,538)	--
Merger-related costs	--	2,253	10,768	--	--	--	--	--
Provision for doubtful accounts	--	--	--	250	250	--	8,538	19,222
Total operating expenses	40,862	45,288	61,442	54,659	54,735	57,472	66,411	94,845
Income (loss) from operations	(6,223)	(5,036)	(11,977)	3,301	10,475	24,002	38,685	34,732
Other income (expense), net	3,301	3,583	3,492	3,568	2,950	3,268	3,026	3,436
Income (loss) before income taxes	(2,922)	(1,453)	(8,485)	6,869	13,425	27,270	41,711	38,168
Provision (benefit) for income taxes	(1,041)	(468)	(2,928)	2,370	4,363	8,863	13,556	12,405
Net income (loss)	$ (1,881)	$ (985)	$ (5,557)	$ 4,499	$ 9,062	$ 18,407	$ 28,155	$ 25,763
Basic net income (loss) per common share (1)	$ (0.01)	$ 0.00	$ (0.02)	$ 0.02	$ 0.03	$ 0.07	$ 0.10	$ 0.09
Diluted net income (loss) per common share and dilutive potential common share (1)	$ (0.01)	$ 0.00	$ (0.02)	$ 0.02	$ 0.03	$ 0.06	$ 0.09	$ 0.09
Weighted average basic common share (1)	262,404	265,060	266,032	267,616	276,182	280,162	282,258	285,177
Weighted average basic common and dilutive potential common share (1)	262,404	265,060	266,032	290,604	295,806	299,126	299,790	301,582

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(1) All share and per share information has been retroactively restated to reflect the two-for-one stock split effective September 18, 2000.

	QUARTER ENDED							
	JAN. 31, 1999	APR. 30, 1999	JUL. 31, 1999	OCT. 31, 1999	JAN. 31, 2000	APR. 30, 2000	JUL. 31, 2000	OCT. 31, 2000
	(AS A PERCENTAGE OF REVENUE)							
Revenue	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Cost of goods sold	65.5	63.9	61.6	59.0	57.2	56.1	54.9	54.9
Gross profit	34.5	36.1	38.4	41.0	42.8	43.9	45.1	45.1
Operating expenses:								
Research and development	22.1	21.6	22.0	21.2	19.5	16.1	14.0	12.7
Selling and marketing	13.6	11.7	13.1	12.8	11.9	10.9	10.4	9.8
General and administrative	5.0	5.2	4.2	4.5	4.3	3.9	4.0	3.8
Settlement of accrued contract obligation	--	--	--	--	--	--	(3.7)	--
Merger-related costs	--	2.0	8.4	--	--	--	--	--
Provision for doubtful accounts	--	--	--	0.2	0.2	--	3.7	6.7
Total operating expenses	40.7	40.5	47.7	38.7	35.9	30.9	28.4	33.0
Income (loss) from operations	(6.2)	(4.4)	(9.3)	2.3	6.9	13.0	16.7	12.1
Other income (expense), net	3.3	3.2	2.7	2.5	1.9	1.8	1.3	1.2
Income (loss) before income taxes	(2.9)	(1.2)	(6.6)	4.8	8.8	14.8	18.0	13.3
Provision (benefit) for income taxes	(1.0)	(0.4)	(2.3)	1.7	2.9	4.8	5.8	4.3
Net income(loss)	(1.9)%	(0.8)%	(4.3)%	3.1%	5.9%	10.0%	12.2%	9.0%

CIENA's quarterly operating results have varied and are expected to vary in the future. CIENA's detailed discussion of risk factors addresses the many factors that have caused such variation in the past, and may cause similar variations in the future. See "Risk Factors". CIENA's revenues have increased in each of the last eight quarters due to strong demand across existing products and introduction of new products such as MultiWave CoreStream configured for both 2.5 Gbps and 10.0 Gbps transmission rates. CIENA's gross margin percentage has improved from the first quarter fiscal 1999 to the fourth quarter fiscal 2000 as a result of component cost reductions, production efficiencies, and relative stable sales pricing. 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. Exclusive of provisions for doubtful accounts and merger-related costs, the Company's operating expenses as a percentage of revenue have generally decreased each of the last eight quarters. During fiscal 2001, CIENA's operating expenses will continue to increase in absolute dollars and may increase 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".

LIQUIDITY AND CAPITAL RESOURCES

At October 31, 2000, CIENA's principal source of liquidity was its cash and cash equivalents. CIENA had $143.2 million in cash and cash equivalents, and $95.1 million in corporate debt securities and U.S. Government obligations. CIENA's corporate debt securities and U.S. Government obligations have contractual maturities of six months or less.

CIENA's operating activities provided cash of $59.0 million, $28.7 million, and $48.8 million for fiscal 2000, 1999, and 1998, respectively. Cash provided by operations in fiscal 2000 was primarily attributable to a net gain adjusted for the non-cash charges of depreciation, amortization, tax benefit related to exercise of stock options, provisions for doubtful accounts, inventory obsolescence, and warranty, increases in accounts payable, and accrued expenses, offset by increases in accounts receivable and inventories.

Cash used in investing activities in fiscal 2000, 1999, and 1998 was $103.2 million, $149.7 million, and $107.0 million, respectively. Included in investment activities were additions to capital equipment and leasehold improvements in fiscal 2000, 1999, and 1998 of $123.9 million, $46.8 million, and $88.9 million, respectively. The capital equipment expenditures were primarily for test, manufacturing and computer equipment. CIENA expects additional combined capital

equipment and leasehold improvement expenditures of approximately $208 million to be made during fiscal 2001 to support selling and marketing, manufacturing and product development activities and the construction of leasehold improvements for its facilities.

We generated $43.9 million, $13.8 million, and $35.6 million in cash from financing activities in fiscal 2000, 1999, and 1998, respectively. 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. During fiscal 1998, CIENA received approximately $34.3 million from the issuance of stock associated with the capitalization of Omnia and Lightera, and from the exercise of stock options.

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 2001. However, possible investments in or acquisitions of complementary businesses, products or technologies may require additional financing prior to such time. There can be no assurance that additional debt or equity financing will be available when required or, if available, can be secured on terms satisfactory to us.

EFFECTS OF RECENT ACCOUNTING PRONOUNCEMENTS

In June 1998, the Financial Accounting Standards Board issued Statement of Financial Accounting Standards No. 133 (SFAS No. 133), "Accounting for Derivative Instruments and Hedging Activities". This Statement requires companies to record derivatives on the balance sheet as assets or liabilities, measured at fair value. Gains or losses resulting from changes in the values of those derivatives would be accounted for depending on the use of the derivative and whether it qualifies for hedge accounting. SFAS No. 133, as amended by SFAS No. 137 "Accounting for Derivative Instruments and Hedging Activities -- Deferral of the Effective Date for SFAS No. 133", will be effective for the Company's fiscal year ending October 31, 2000. The Company believes the adoption of SFAS No. 133 and SFAS No. 137 will not have a material effect on the consolidated financial statements.

In December 1999, the Securities and Exchange Commission released Staff Accounting Bulletin No. 101, "Revenue Recognition in Financial Statements," (SAB 101) which clarifies the Securities and Exchange Commission's view on revenue recognition. Subsequently, the SEC released SAB 101B, which delayed the implementation date of SAB 101 for registrants with fiscal years that begin between December 16, 1999 and March 15, 2000. CIENA is required to be in conformity with the provisions of SAB 101, as amended, no later than January 31, 2001, with the impact of such adoption being treated on a cumulative basis as of November 1, 2000. While management will continue to assess SAB 101, CIENA presently believes its existing revenue recognition policies and procedures are generally in compliance with SAB 101 and, therefore, SAB 101's adoption will have no material impact on CIENA's financial condition, results of operations or cash flows.

In July 2000, the FASB's Emerging Issues Task Force ("EITF") reached a final consensus that the income tax benefit realized by a company upon the exercise of a nonqualified stock option or the disqualifying disposition of an incentive stock option should be classified in the operating section of the statement of cash flows. The consensus is effective for the Company's quarters ending after July 20, 2000. All comparative cash flow statements as presented have been restated to comply with this consensus.

In September 2000, the FASB issued SFAS No. 140, "Accounting for the Transfers and Servicing of Financial Assets and Extinguishments of Liabilities". SFAS No. 140 is effective for transfers occurring after March 31, 2001 and for disclosures relating to the securitization transactions and collateral for fiscal years ending after December 15, 2000. The Company believes the adoption of SFAS No. 140 will not have a material effect on the consolidated financial statements.

BUSINESS

OVERVIEW

CIENA is an established leader in the rapidly growing intelligent optical networking equipment market. We offer a comprehensive 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 intelligent optical transport and 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 our 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.

Historically, the significant majority of CIENA's revenue has come from the sale of 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, or DWDM, technology. The majority of CIENA's fiscal 2000 revenue was derived from sales of its long-distance optical transport products, including MultiWave CoreStream(TM) and MultiWave Sentry 4000(TM). During the fiscal year 2000, CIENA also recognized revenue from the sale of seven optical networking products including sales of its metropolitan optical transport product, MultiWave(R) Metro and its intelligent optical core switch, MultiWave CoreDirector(TM).

For the fiscal year ended October 31, 2000, CIENA recorded revenue from sales of intelligent optical networking equipment to a total of 32 customers. 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 communications equipment utilizing dense wavelength division multiplexing technology.

DWDM replaces the single beam of light that traverses fiber-optic cable in legacy networks with multiple colors of light, each of which is capable of carrying tens of thousands of voice conversations or data transmissions. Prior to the emergence of DWDM, service providers could increase network capacity either by adding new physical fibers to their network or by increasing the rate of transmission through the fiber. In many cases DWDM has proven to be more cost efficient than physically deploying new fibers, and it has enabled the delivery of significantly more traffic by service providers.

The widespread adoption of DWDM enabled carriers to efficiently and economically expand network capacity, or bandwidth, while reducing bandwidth costs. CIENA believes that the application of products using DWDM has led to a dramatic decline in service providers' capital cost per bit from 1995 to present, thereby enabling pricing competition between carriers and significant bandwidth price declines of up to 80% in some U.S. regions.

NETWORK SCALABILITY CHALLENGES

For the past several years DWDM has been implemented by carriers to increase capacity between discrete points in their long-distance networks. To construct a network using DWDM equipment as its backbone, a carrier must interconnect the point-to-point high-capacity links and manage all traffic flowing through them. For example, an important element enabling this interconnection in traditional architectures has been the SONET/SDH add/drop multiplexer, or ADM. In most network architectures, a SONET ADM is used to transmit the information-carrying signal for each DWDM optical channel. A second ADM then is used to receive the information-carrying signal from each DWDM optical channel. As a result, every time an additional optical channel is deployed, two additional SONET ADMs must be purchased, installed and maintained -- one for each end of the traffic-carrying route. For example, in order to transmit/receive the traffic from a DWDM optical transport system with 96 channels of DWDM, a service provider would require a total of 192 SONET ADMs.

Though DWDM gave carriers the ability to solve the bandwidth problem in the core of their networks, the technology created operational and scalability challenges for carriers. Historically this method has been the only way available to service providers to scale their networks. Unfortunately, this approach creates upwardly spiraling costs. In addition to the capital equipment costs associated with the equipment, each SONET ADM uses valuable central office space and power. Furthermore, as the number of DWDM channels and links increases, the carrier's management of the network grows more complex, making manual service provisioning and network operation more difficult and costly.

ESCALATING OPERATIONAL COSTS

In addition to the problems inherent in scaling traditional network architectures, carriers are challenged to scale their operating staff as quickly as they can grow their networks. According to information filed by carriers with the United States Securities and Exchange Commission, many service providers are spending more on operating, growing, and managing their networks than they are on capital expenditures relating to their networks. In some cases, service providers are spending two to four dollars on network operations and support expenses for every dollar spent on network capital equipment. In addition, in many cases, network operations and support expenses are increasing at a significantly faster rate than revenues.

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 both the network scalability challenges and the escalating operational costs faced by service providers by:

- leveraging expertise in optics, software, systems and Application Specific Integrated Circuits, or ASICs, to develop innovative products designed to dramatically lower the cost of constructing service provider networks;

- replacing multiple traditional network elements such as ADMs and digital cross-connects with fewer, more intelligent network elements, thereby simplifying the network and lowering carriers' capital and operational costs;

- enhancing bandwidth availability to service providers, thereby allowing them to increase network bandwidth with growing Internet demand;

- lowering ongoing network operating costs by enabling carriers to more efficiently manage network traffic;

- enabling carriers to shorten the time it takes to provision services, in some cases from months to minutes, thereby accelerating the generation of revenue; and

- enabling new, revenue-generating and differentiated optical services.

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

- OPTICAL TRANSPORT. CIENA's long-distance optical transport products, MultiWave CoreStream(TM), MultiWave Sentry(TM) and MultiWave 1600, and our short-distance products, MultiWave Metro(TM), Metro One(TM) and MultiWave Firefly(TM), utilize DWDM technology and should enable carriers to cost effectively add critical network bandwidth when and where they need it. As a result, service providers should be better able to scale their networks to meet demand.

- INTELLIGENT OPTICAL CORE SWITCHING. Our intelligent optical core switches, MultiWave CoreDirector(TM) and MultiWave CoreDirector CI(TM), which is currently under development, allow carriers to manage the bandwidth created with optical transport products. CoreDirector and CoreDirector CI help carriers solve both the issues of network scalability and escalating operating costs by incorporating the functionality of multiple network elements into single elements with previously unavailable switching capabilities and management.

- NETWORK MANAGEMENT. ON-Center, CIENA's recently introduced 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 should also reduce network operating and management costs.

CIENA calls the network architecture created by these products "CIENA LightWorks." The components of CIENA's LightWorks 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 enable service providers to lower capital equipment and operating costs.

STRATEGY

CIENA's strategy is to maintain and build upon its market leadership in the deployment of intelligent optical networking systems and to leverage its technologies in order to provide solutions for both voice and data communications-based network architectures. CIENA believes that the technological, operational and cost benefits of its 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. CIENA's strategy includes the following initiatives:

- EXPAND OUR BASE OF CUSTOMERS USING OUR INTELLIGENT 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 fiber-optic carriers in domestic and foreign long distance, interoffice and local exchange markets.

- INCREASE SALES AND MARKETING EFFORTS. The nature of the target customer base for all our product lines requires a focused sales effort on a customer-by-customer basis. We will continue to increase our sales and marketing efforts aimed at the worldwide market of service providers. CIENA increased the number of revenue-generating optical networking customers from 27 during 1999 to 32 in 2000. In addition, CIENA has a significant international presence, particularly in Europe. Revenues from international customers represented 33.0% of CIENA's total revenues in fiscal 2000. CIENA plans to continue to

strengthen its marketing programs and to increase its domestic and international presence through both direct sales and distributor relationships.

- 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 excellence and capabilities as differentiating factors in our efforts to maintain and enhance our market position. CIENA offers complete engineering, furnishing and installation services in addition to 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 capability, and this capability provides CIENA with a significant competitive advantage. CIENA achieved ISO 9001 certification in July 1997 in further support of this element of its strategy. CIENA expects to continue to invest in both the capital and the human resources necessary to maintain and leverage this advantage. In addition, CIENA expects to utilize this expertise to leverage our manufacturing capability with contract manufacturers.

- LEVERAGE CIENA'S BANDWIDTH-OPTIMIZING TECHNOLOGY AND KNOW-HOW. We believe the overall growth in demand for bandwidth and the need for intelligent bandwidth-optimizing services in telecommunications networks will lead to transmission bottlenecks in other segments of the networks where the application of optical technologies and other high bandwidth enabling technologies may provide solutions, either within existing network architectures, or as part of the design and development of alternative data communications-based network architectures. 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 and key enabling components by pursuing new product development efforts, and strategic alliances or acquisitions, to address these expected opportunities. CIENA intends to move aggressively to maintain leadership in the design and development of intelligent optical networking equipment, components and software which will both respond to customer needs and help customers move toward newer, higher capacity, more cost-efficient network designs for the future.

PRODUCTS

Our optical networking product portfolio is targeted at the critical areas of service provider networks: long-distance and metropolitan optical transport, intelligent optical core switching and network management. CIENA's open architecture design allows its products to operate with most carriers' existing fiber-optic transmission systems and network elements, including connecting directly to either traditional SONET equipment, ATM switches or IP routers.

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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 the third fiscal quarter of 1999. - Utilizes DWDM technology to deliver up to 96 optical channels at 2.5Gbps (240 gigabits) or up to 48 channels at 10Gbps (480 gigabits). - Designed for in-service growth; scalable to handle 2 terabits of traffic in the future. - With its longer reach feature set, will ultimately be 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 the second fiscal quarter of 1998. - Utilizes DWDM technology to deliver up to 40 channels at 2.5Gbps (100 gigabits).
MULTIWAVE SENTRY 1600	- CIENA's second generation carrier-class intelligent optical transport product. - Utilizes DWDM technology to deliver up to 16 channels at 2.5Gbps (40 gigabits). - Incorporated performance monitoring capabilities, not previously available in DWDM equipment beginning in the second half of fiscal 1996.
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 2.5Gbps (40 gigabits).

METROPOLITAN 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 60Gbps.

	- Supports multiple network topologies, such as rings, hubs, and stars. - Offers a wide range of interfaces from 100 megabits per second up to 10Gbps.
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. - Multiplexes up to 24 channels at 2.5Gbps, over a single fiber pair, allowing a carrier to transport up to 60Gbps.

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 640Gbps in a single 7 foot bay. - Designed to reduce capital equipment costs by displacing multiple traditional devices. - CoreDirector's intelligence is designed to simplify service provisioning, in some cases reducing provisioning times from months to seconds. - CoreDirector offers the ability to switch at the wavelength level or at levels of granularity down to an STS-1. - CoreDirector should enable new revenue opportunities for service providers through new optical layer capabilities and services.
COREDIRECTOR CI	- When available, CoreDirector CI will provide up to 64 ports of OC-48 or up to 160Gbps in a half bay. - CoreDirector CI will deliver CoreDirector functionality in a smaller package and at a lower entry cost that is ideal for lower capacity networks or smaller switching sites.

NETWORK MANAGEMENT

PRODUCT	FEATURES
LIGHTWORKS ON-CENTER	- A fully integrated family of software-based tools for comprehensive element, network and service layer management across service provider networks. - ON-Center is 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, LightWorks ON-Center is comprised of:

- 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.

NEW OPTICAL SERVICES

In addition to allowing significant capital equipment and operational cost savings, CIENA's intelligent optical networking equipment is designed to enable its customers to offer new, revenue-generating optical layer services. CIENA's LightWorks Toolkit(TM) is designed to allow carriers to offer dynamic high-bandwidth services and handle real-time service provisioning and prioritization. By mixing and matching CIENA's ToolKit options, carriers will be able to offer customized services and further differentiate themselves from their competition.

When development is completed, the breadth of options in the LightWorks ToolKit will ultimately include:

SERVICE	DESCRIPTION
OPTICAL PRIORITY PROVISIONING	- Optical Priority Provisioning is designed to allow carriers to turn-up optical services in seconds, and to specify priority levels for further differentiation of optical services. For instance, a carrier may elect to offer multiple levels of optical bandwidth, ranging from "premium" to "best-effort" service, with each level of service being priced and delivered differently. Optical Priority Provisioning is designed to help carriers more easily meet service level agreements by assigning and adjusting traffic priorities in seconds, potentially allowing carriers to unlock more revenue from data services. - Optical Priority Provisioning should simplify the delivery of differentiated optical services by providing access to service templates of predefined restoration priorities, preemptability, and linear, ring and mesh protection options. Using these simplified templates, service provisioners should be able to deliver optical services, at any service level, in just a few clicks of a mouse.
FLEXIBLE CONCATENATION	- In legacy networks, bandwidth demand is arbitrarily shoehorned into SONET/SDH-sized transport containers where the size of the container is fixed. For example, if a customer requires OC-15 service, the customer must purchase OC-48 service, even though only a fraction of the 48 time slots in the transport container will be filled with bits. In this scenario, the customer is paying for bandwidth it is not using and the carrier is losing valuable network bandwidth. CIENA is using a combination of silicon and software to redefine how carriers access and deliver bandwidth. - When available, Flexible Concatenation will allow carriers to access all time slots within the SONET/SDH frame --

even when those frames are fractionally filled. That means carriers will be able to create true OC-"N" services in which "N" can be any number between 1 and 48 and in the future will be 192 and eventually 768 instead of the current restrictions of SONET, which sets fixed sizes on transport containers. Flexible concatentation is designed to enable carriers to maximize their network bandwidth and deliver customer-specific service.

RATE ADAPTIVE GIGABIT ETHERNET

- CIENA's Rate-Adaptive Gigabit Ethernet technology uses software and ASICs to enable service providers to sell Gigabit Ethernet services in customizable increments of 50Mbps (STS-1) up to 1.25Gbps.

- When available, service providers will be able to use Rate Adaptive Gigabit Ethernet to create a wide range of customized optical service options for end-users and deliver those services over more efficient access and core networks that leverage the economies of Gigabit Ethernet transmission.

VSR OPTICS

- For increased profitability, carriers must continually drop their cost per bit. However, to stay competitive, carriers must continue to increase the value of their services. VSR (Very Short Reach) Optics are designed to provide lower-cost, high-capacity connections between Internet and optical networking systems within a service provider's central office. VSR Optics leverage Vertical Cavity Surface Emitting Laser (VCSEL) technology and Gigabit Ethernet standards to make variable-rate optical services possible and economical -- a valuable service for unpredictable bandwidth demands. When available, CIENA will apply this data rate-scalable technology to 10Gbps network connections.

TRANSPARENT SERVICE MULTIPLEXING

- As opposed to traditional SONET/SDH multiplexing, CIENA's "transparent" multiplexing is designed to enable optical services to be delivered without compromising the SONET/SDH overheads of individual tributaries that make up the aggregate signal. Enabling multiple signals to be transparently multiplexed, transported and demultiplexed means signals are delivered as if they were connected directly to the destination equipment by their own unique wavelength, maintaining the customers' signal security and integrity. When available, Transparent Service Multiplexing (TSM) should be ideal for delivering IP traffic, wavelength services and other new optical services that CIENA's Toolkit enables. With TSM, each end device appears to communicate over its own unique wavelength while actually being economically consolidated with other signals.

WAVELENGTH BINDING

- With unprecedented traffic growth and changing traffic demands, Internet-centric carriers are looking for ways

to better match the changes in IP router traffic demands with the provisioned bandwidth capacities available within their networks. To meet this need, CIENA is developing Wavelength Binding.

- Wavelength Binding will leverage intellectual property to enable a device of any speed to be connected to a network operating at a lower speed by building "virtual channels" of multiple wavelengths bound together in a single, very high-capacity bitstream. As a result, when Wavelength Binding is available, CIENA's customers will be able to deliver 40Gbps without changing their transport infrastructure. Wavelength Binding will also give carriers previously unavailable network flexibility by enabling them to bundle and unbundle wavelengths as network capacity demands change.

PRODUCT DEVELOPMENT

We believe the overall growth in utilization of fiber-optic telecommunications networks will lead to transmission bottlenecks in other segments of the networks where the application of optical networking technologies may provide solutions. 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, including our recently announced acquisition of Cyras Systems, Inc.

CUSTOMERS

CIENA has announced publicly relationships with the following customers:

DOMESTIC	INTERNATIONAL
Alltel	Cable & Wireless, UK
Bell South	CompleTel, France
Broadwing	Crosswave Communications, Japan
Cable & Wireless	Daini Deuden, Japan
Digital Teleport	Dynegy, Austria
Enron	ESAT Telecom, Ireland
Genuity Solutions	Fibernet
Intermedia Communications	Global Crossing, UK
PSINet	GTS (now known as eBone), Belgium
Qwest	HanseNet Telekommunikation, Germany
RCN of Pennsylvania	Interoute, UK
Sprint	Japan Telecom, Japan
Verizon	KDD/Teleway Japan, Japan
Williams Communications	Korea Telecom, Korea
WorldCom	MobilCom AG, Germany
XO Communications	Operadora Protel, Mexico
	Telecom Developpement, France
	Telia AB, Sweden
	WorldCom, Europe

In addition, CIENA has a number of unannounced customer relationships.

CUSTOMERS BY CATEGORY

INTEREXCHANGE CARRIERS (IXCS)

The initial deployments of CIENA's bandwidth enhancing optical transport equipment occurred in the core of the U.S. long-distance network with the interexchange carriers, or IXCs. IXCs provide connections between local exchanges in different geographic areas. In recent years, incumbent IXCs such as Sprint, WorldCom and AT&T have seen increased competition from emerging long-distance carriers such as Qwest Communications, Global Crossing, Broadwing Communications Services, Inc., and Level 3 Communications. We expect that continued competition in long-distance call rates, as well as the carriers' desire for market and service differentiation, will continue to drive demand for the increased capacity and features offered by CIENA's optical networking equipment.

INCUMBENT LOCAL EXCHANGE CARRIERS

Incumbent local exchange carriers, such as the RBOCs, are very active in interoffice and local exchange markets and, under the Telecommunications Act of 1996, RBOCs are eligible to enter the long-distance market once they have met certain requirements for opening their local markets to competition. CIENA believes that over time the RBOCs will continue to gain approval to offer long-distance services, although when and how they will offer these services is unclear. For instance, the RBOCs' move to offering long-distance services could occur through the establishment of owned network facilities, through the purchase of long-distance capacity from other long-distance carriers, or through some combination of the two. Regardless of the timing of any such move, CIENA believes there are opportunities for in-region deployment of CIENA's long-distance and metropolitan optical transport products at certain RBOCs.

INTERNATIONAL COMPETITIVE CARRIERS

New competitive carriers are emerging as a result of deregulation in the international telecommunications markets. CIENA has concentrated its sales efforts on these emerging carriers as opposed to the traditional carriers or PTTs. During fiscal 2000, CIENA increased its announced international customer base from fourteen to eighteen customers. In many cases, these new competitive carriers do not have the installed fiber base of the larger carriers and therefore are in need of the scalable bandwidth CIENA's optical transport systems offer. In addition, because of the economies and flexibility afforded by the application of DWDM technology, CIENA's equipment is being used on several new projects where the service provider is physically constructing the network. CIENA expects that in the near term, the majority of its international revenue will come from these smaller, more aggressive competitive carriers, and CIENA will continue to concentrate its sales efforts accordingly.

COMPETITIVE LOCAL EXCHANGE CARRIERS (CLECS)

Deregulation has fueled the growth of U.S. competitive local exchange carriers, or CLECs. CIENA believes that in the short term, CLECs could benefit from the hesitancy of incumbent local exchange carriers, such as the Regional Bell Operation Companies, or RBOCs, to open their local markets to competitors, and that these CLECs are likely to move aggressively to capitalize on opportunities in the local area. CIENA recognized revenues from CLEC customers in fiscal 2000 and expects that tactical CLEC applications for its long-haul products, as well as the short-distance products, will be well suited to CLEC network applications.

NON-TRADITIONAL TELECOMMUNICATION SERVICE PROVIDERS

The growth of the Internet has produced traffic growth substantial enough to attract new, non-traditional telecommunication service providers to compete in this market as well. Both domestically and internationally, companies with rights-of-way, such as utility companies, cable TV providers, and railroads are capitalizing on their "network", whether a pipeline, a railroad, or a highway, and in some cases, are laying optical fiber and constructing telecommunications

networks along those rights-of-way. The transmission capabilities of CIENA's optical networking equipment enable these new carriers to provide competitive services while purchasing and laying a minimal amount of fiber-optic cable.

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 impact 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 CIENA and the customer's commitment to purchase, and has further led CIENA to pursue sales efforts on a focused, customer-by-customer basis. See "Management's Discussion and Analysis of Financial Conditions and Results of Operations" and "Risk Factors".

CIENA has organized its resources for the separate but coordinated approach to United States and international customers. In the United States market, a sales team, comprised of an account manager, systems engineers and technical support and training personnel, is assigned responsibility for each customer account, and for the coordination and pursuit of sales contacts. In the international market, CIENA pursues prospective customers through direct sales efforts, as well as through distributors, independent marketing representatives and independent sales consultants. Through its subsidiaries, CIENA has established offices in the U.S., Europe and Latin America, including offices in the U.K., Germany, France, Spain, Mexico and Brazil. CIENA has distributor or marketing representative arrangements, including agreements with agents in Italy, the Republic of Korea, Japan, Venezuela, Columbia and Chile.

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. We also manufacture the in-fiber Bragg gratings used in our optical transport product lines. We expect the majority of the manufacturing associated with our MultiWave CoreDirector and CoreDirector CI products will be performed by third-party manufacturers, with only final system test and assembly performed by CIENA. We also rely on third-party manufacturers to manufacture some of our 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 key competitive advantage. Accordingly, we have invested significantly in automated production capabilities and manufacturing process improvements and expect to further enhance our manufacturing process with additional production process control systems. Some critical manufacturing functions require a highly skilled work force, and CIENA puts significant efforts into training and maintaining the quality of its manufacturing personnel and in maintaining its proprietary information in this area.

CIENA's optical transport product lines utilize hundreds of individual parts, many of which are customized for CIENA. 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 and the field-tested design and performance of its optical transport products give it a competitive advantage, and CIENA expects to leverage that advantage in bringing its core switching products to market. However, competition has been and will continue to be very intense. See "Management's Discussion and Analysis of Financial Conditions and Results of Operations" and "Risk Factors".

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 more established customer relationships with long distance carriers than CIENA. Included among CIENA's competitors are Alcatel Alsthom Group, Cisco, Fujitsu Group, Hitachi Ltd., Lucent Technologies Inc., NEC Corporation, Nortel Networks Corporation, Siemens AG, Telefon AB LM Ericsson and several new companies, such as ONI Systems, Sycamore Networks, Corvis Systems, and Tellium, Inc. CIENA believes each of its major competitors is in various stages of development, introduction or deployment of products directly competitive with CIENA's optical transport, core switching and service delivery systems.

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

PATENTS AND OTHER INTELLECTUAL PROPERTY RIGHTS

CIENA has licensed intellectual property from third parties, including 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 some software components for its network management products. These licenses are perpetual but will generally terminate after an uncured breach of the agreement by CIENA. We have registered trademarks for CIENA, WaveWatcher, MODULE SCOPE, CIENA Optical Communications, Multiwave and Multiwave Sentry. CIENA also relies on contractual rights, trade secrets and copyrights to establish and protect its proprietary rights in its products.

CIENA intends to enforce vigorously its intellectual property rights if infringement or misappropriation occurs.

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 2000, CIENA had received fifty-eight United States patents, and had one hundred sixteen 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 2012. 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 "Management's Discussion and Analysis of Financial Condition and Results of Operations" and "Risk Factors".

EMPLOYEES

As of October 31, 2000, CIENA and its subsidiaries employed 2,775 persons, of whom 527 were primarily engaged in research and development activities, 1,233 in manufacturing, 412 in installation services, 372 in sales, marketing, customer support and related activities and 231 in administration. None of CIENA's employees are currently represented by a labor union. CIENA considers its relations with its employees to be good.

DESCRIPTION OF NOTES

The notes will be issued under an indenture between us and First Union National Bank, as trustee, substantially in the form filed as an exhibit to the registration statement of which this prospectus forms a part. The indenture and the notes are governed by New York law. Because this section is a summary, it does not describe every aspect of the notes and the indenture. The following summaries of certain provisions of the indenture do not purport to be complete and are subject to, and are qualified in their entirety by reference to, the detailed provision of the notes and the indenture, including the definitions therein of certain terms.

GENERAL

The notes will be senior, unsecured general obligations of CIENA. The notes will be limited to $350.0 million aggregate principal amount or $402.5 million if the underwriters exercise in full their right to purchase additional notes to cover over-allotments. We are required to repay the principal amount of the notes in full on February , 2008, unless they are redeemed or repurchased on an earlier date. The notes will rank equally with our other senior unsecured obligations.

The notes will bear interest at the rate per annum shown on the front cover of this prospectus from February , 2001. We will pay interest on the notes on February and August of each year, commencing on August , 2001. Interest payable per $1,000 principal amount of notes for the period from February , 2001 to August , 2001 will be $.

You may convert the notes into shares of our common stock initially at the conversion rate stated on the front cover of this prospectus at any time before the close of business on February , 2008, unless the notes have been previously redeemed or repurchased. Holders of notes called for redemption or submitted for repurchase will be entitled to convert the notes up to and including the business day immediately preceding the date fixed for redemption or repurchase, as the case may be. The conversion rate may be adjusted as described below.

We may redeem the notes at our option at any time on or after the third business day after February , 2004, in whole or in part, at the redemption prices set forth below under "--Optional Redemption by CIENA", plus accrued and unpaid interest to the redemption date. If we undergo a change in control of us, you will have the right to require us to repurchase your notes as described below under "-- Repurchase at Option of Holders Upon a Change In Control".

FORM, DENOMINATION, TRANSFER, EXCHANGE AND BOOK-ENTRY PROCEDURES

The notes will be issued:

- only in fully registered form;
- without interest coupons; and
- in denominations of $1,000 and greater multiples.

The notes will be evidenced by one or more global notes, which will be deposited with the trustee as custodian for the Depository Trust Company, or DTC, and registered in the name of Cede & Co., as nominee of DTC. Except as set forth below, record ownership of the global note may be transferred, in whole or in part, only to another nominee of DTC or to a successor of DTC or its nominee.

The global note will not be registered in the name of any person, or exchanged for notes that are registered in the name of any person, other than DTC or its nominee, unless either of the following occurs:

- DTC notifies us that it is unwilling, unable or no longer qualified to continue acting as the depositary for the global note; or

- an event of default with respect to the notes represented by the global note has occurred and is continuing.

In those circumstances, DTC will determine in whose names any securities issued in exchange for the global note will be registered.

DTC or its nominee will be considered the sole owner and holder of the global note for all purposes, and as a result:

- you cannot receive notes registered in your name if they are represented by the global note;

- you cannot receive physical certificated notes in exchange for your beneficial interest in the global note;

- you will not be considered to be the owner or holder of the global note or any note it represents for any purpose; and

- all payments on the global note will be made to DTC or its nominee.

The laws of some jurisdictions require that certain kinds of purchasers, such as insurance companies, can only own securities in definitive, certificated form. These laws may limit your ability to transfer your beneficial interests in the global note to these types of purchasers.

Only institutions, such as a securities broker or dealer, that have accounts with DTC or its nominee, called "participants", and persons that may hold beneficial interests through participants can own a beneficial interest in the global note. The only place where the ownership of beneficial interests in the global note will appear and the only way the transfer of those interests can be made will be on the records kept by DTC for their participants' interests and the records kept by those participants for interests of persons held by participants on their behalf.

Secondary trading in bonds and notes of corporate issuers is generally settled in clearinghouse, that is, next-day, funds. In contrast, beneficial interests in a global note usually trade in DTC's same-day funds settlement system, and settle in immediately available funds. We make no representations as to the effect that settlement in immediately available funds will have on trading activity in those beneficial interests.

We will make cash payments of interest on and principal and the redemption or repurchase price of the global note, as well as any payment of liquidated damages, to Cede, the nominee for DTC, as the registered owner of the global note. We will make these payments by wire transfer of immediately available funds on each payment date.

We have been informed that DTC's practice is to credit participants' accounts on the payment date with payments in amounts proportionate to their respective beneficial interests in the notes represented by the global note as shown on DTC's records, unless DTC has reason to believe that it will not receive payment on that payment date. Payments by participants to owners of beneficial interests in notes represented by the global note held through participants will be the responsibility of those participants, as is now the case with securities held for the accounts of customers registered in street name.

We will send any redemption notices to Cede. We understand that if less than all the notes are being redeemed, DTC's practice is to determine by lot the amount of the holdings of each participant to be redeemed.

We also understand that neither DTC nor Cede will consent or vote with respect to the notes. We have been advised that under its usual procedures, DTC will mail an "omnibus proxy" to us as soon as possible after the record date for any vote or consent. The omnibus proxy assigns Cede's consenting or voting rights to those participants to whose accounts the notes are credited on the record date identified in a listing attached to the omnibus proxy.

Because DTC can only act on behalf of participants, who in turn act on behalf of indirect participants, the ability of a person having a beneficial interest in the principal amount

represented by the global note to pledge the interest to persons or entities that do not participate in the DTC book-entry system, or otherwise take actions in respect of that interest, may be affected by the lack of a physical certificate evidencing its interest.

DTC has advised us that it will take any action permitted to be taken by a holder of notes, including the presentation of notes for exchange, only at the direction of one or more participants to whose account with DTC interests in the global note are credited and only in respect of such portion of the principal amount of the notes represented by the global note as to which such participant or participants has or have given such direction.

DTC has also advised us as follows:

- DTC is a limited purpose trust company organized under the laws of the State of New York, member of the Federal Reserve System, "clearing corporation" within the meaning of the Uniform Commercial Code and "clearing agency" registered pursuant to the provisions of Section 17A of the Exchange Act;

- DTC was created to hold securities for its participants and facilitate the clearance and settlement of securities transactions between participants through electronic book-entry changes in accounts of its participants;

- participants include securities brokers and dealers, banks, trust companies and clearing corporations and may include certain other organizations;

- certain participants, or their representatives, together with other entities, own DTC; and

- indirect access to the DTC system is available to other entities such as banks, brokers, dealers and trust companies that clear through or maintain a custodial relationship with a participant, either directly or indirectly.

The policies and procedures of DTC, which may change periodically, will apply to payments, transfers, exchanges and other matters relating to beneficial interests in the global note. We and the trustee have no responsibility or liability for any aspect of DTC's or any participant's records relating to beneficial interests in the global note, including for payments made on the global note. Further, we and the trustee are not responsible for maintaining, supervising or reviewing any of those records.

CONVERSION RIGHTS

You have the option to convert any portion of the principal amount of any note that is an integral multiple of $1,000 into shares of our common stock at any time on or prior to the close of business on the maturity date, unless the notes have been previously redeemed or repurchased. The conversion rate will be equal to shares per $1,000 principal amount of notes. The conversion rate is equivalent to a conversion price of approximately $ per share. Your right to convert a note called for redemption or delivered for repurchase will terminate at the close of business on the business day immediately preceding the redemption date or repurchase date for that note, unless we default in making the payment due upon redemption or repurchase.

You may convert all or part of any note by delivering the note at the Corporate Trust Office of the trustee in the Borough of Manhattan, The City of New York, accompanied by a duly signed and completed conversion notice, a copy of which may be obtained from the trustee. The conversion date will be the date on which the note and the duly signed and completed conversion notice are so delivered.

As promptly as practicable on or after the conversion date, we will issue and deliver to the trustee a certificate or certificates for the number of full shares of our common stock issuable upon conversion, together with payment in lieu of any fraction of a share. The certificate or certificates will then be sent by the trustee to the conversion agent for delivery to the holder of the note being converted. The shares of our common stock issuable upon conversion of the

notes will be fully paid and nonassessable and will rank equally with the other shares of our common stock.

If you surrender a note for conversion on a date that is not an interest payment date, you will not be entitled to receive any interest for the period from the immediately preceding interest payment date to the conversion date, except as described below in this paragraph. Any note surrendered for conversion during the period from the close of business on any regular record date to the opening of business on the next succeeding interest payment date, except notes, or portions thereof, called for redemption on a redemption date or to be repurchased on a repurchase date for which the right to convert would terminate during such period, must be accompanied by payment of an amount equal to the interest payable on such interest payment date on the principal amount of notes being surrendered for conversion. In the case of any note that has been converted after any regular record date but before the next succeeding interest payment date, interest payable on such interest payment date shall be payable on such interest payment date notwithstanding such conversion, and such interest shall be paid to the holder of such note on such regular record date.

No other payment or adjustment for interest, or for any dividends in respect of our common stock, will be made upon conversion. Holders of our common stock issued upon conversion will not be entitled to receive any dividends payable to holders of our common stock as of any record time or date before the close of business on the conversion date. We will not issue fractional shares upon conversion. Instead, we will pay cash based on the market price of our common stock at the close of business on the conversion date.

You will not be required to pay any taxes or duties relating to the issue or delivery of our common stock on conversion, but you will be required to pay any tax or duty relating to any transfer involved in the issue or delivery of our common stock in a name other than yours. Certificates representing shares of our common stock will not be issued or delivered unless all taxes and duties, if any, payable by you have been paid.

The conversion rate will be subject to adjustment for, among other things:

- dividends and other distributions payable in our common stock on shares of our capital stock;

- the issuance to all holders of our common stock of rights, options or warrants entitling them to subscribe for or purchase our common stock at less than the then current market price of such common stock as of the record date for shareholders entitled to receive such rights, options or warrants;

- subdivisions, combinations and reclassifications of our common stock;

- distributions to all holders of our common stock of evidences of our indebtedness, shares of capital stock, cash or assets, including securities, but excluding:

    - those dividends, rights, options, warrants and distributions referred to above;

    - dividends and distributions paid exclusively in cash; and

    - distributions upon mergers or consolidations discussed below;

- distributions consisting exclusively of cash, excluding any cash portion of distributions referred to in the bullet point immediately above, or cash distributed upon a merger or consolidation to which the next succeeding bullet point applies, to all holders of our common stock in an aggregate amount that, combined together with:

    - other all-cash distributions made within the preceding 365-day period in respect of which no adjustment has been made; and

    - any cash and the fair market value of other consideration payable in connection with any tender offer by us or any of our subsidiaries for our common stock

concluded within the preceding 365-day period in respect of which no adjustment has been made,

exceeds 10% of our market capitalization, being the product of the current market price per share of our common stock on the record date for such distribution and the number of shares of common stock then outstanding; and

- the successful completion of a tender offer made by us or any of our subsidiaries for our common stock which involves an aggregate consideration that, together with:

  - any cash and other consideration payable in a tender offer by us or any of our subsidiaries for our common stock expiring within the 365-day period preceding the expiration of that tender offer in respect of which no adjustment has been made; and

  - the aggregate amount of all cash distributions referred to in the immediately preceding bullet point above to all holders of our common stock within the 365-day period preceding the expiration of that tender offer in respect of which no adjustments have been made,

  exceeds 10% of our market capitalization on the expiration of such tender offer.

We reserve the right to effect such increases in the conversion rate in addition to those required by the foregoing provisions as we consider to be advisable so that any event treated for United States federal income tax purposes as a dividend of stock or stock rights will not be taxable to the recipients. We will not be required to make any adjustment to the conversion rate until the cumulative adjustments amount to 1.0% or more of the conversion rate. We will compute all adjustments to the conversion rate and will give notice by mail to holders of the registered notes of any adjustments.

If we consolidate or merge with or into another entity or another entity is merged into us, or in case of any sale or transfer of all or substantially all of our assets, each note then outstanding will become convertible only into the kind and amount of securities, cash and other property receivable upon such consolidation, merger, sale or transfer by a holder of the number of shares of common stock into which the notes were convertible immediately prior to the consolidation or merger or sale or transfer. The preceding sentence will not apply to a merger that does not result in any reclassification, conversion, exchange or cancellation of our common stock.

We may increase the conversion rate for any period of at least 20 days, upon at least 15 days notice, if our board of directors determines that the increase would be in our best interest. The board of directors' determination in this regard will be conclusive. We will give holders of notes at least 15 days' notice of such an increase in the conversion rate. No such increase, however, will be taken into account for purposes of determining whether the closing price of our common stock exceeds the conversion price by 105% in connection with an event that otherwise would be a change in control as defined below.

If at any time we make a distribution of property to our stockholders that would be taxable to such stockholders as a dividend for United States federal income tax purposes, such as distributions of evidences of indebtedness or assets by us, but generally not stock dividends on common stock or rights to subscribe for common stock, and, pursuant to the anti-dilution provisions of the indenture, the number of shares into which notes are convertible is increased, that increase may be deemed for United States federal income tax purposes to be the payment of a taxable dividend to holders of notes. See "Important United States Federal Income Tax Consequences -- U.S. Holders".

OPTIONAL REDEMPTION BY CIENA

On or after the third business day after February , 2004, we may redeem the notes in whole or in part, at our option, at the prices set forth below. If we elect to redeem all or part of the notes, we will give at least 30, but no more than 60, days notice to you.

The redemption price, expressed as a percentage of principal amount, is as follows for the following periods:

PERIOD	REDEMPTION PRICE
Beginning on the third business day after February , 2004 and ending on February , 2005	%
Beginning on February , 2005 and ending on February , 2006	%
Beginning on February , 2006 and ending on February , 2007	%
Beginning on February , 2007 and ending on February , 2008	%

and thereafter is equal to 100% of the principal amount. In each case, we will pay interest to, but excluding the redemption date.

No sinking fund is provided for the notes, which means that the indenture does not require us to redeem or retire the notes periodically.

We may, to the extent permitted by applicable law, at any time purchase notes in the open market, by tender at any price or by private agreement. Any note that we purchase may, to the extent permitted by applicable law, be re-issued or resold or may, at our option, be surrendered to the trustee for cancellation. Any notes surrendered for cancellation may not be re-issued or resold and will be canceled promptly.

PAYMENT AND CONVERSION

We will make all payments of principal and interest on the notes by dollar check drawn on an account maintained at a bank in The City of New York. If you hold registered notes with a face value greater than $2,000,000, at your request we will make payments of principal or interest to you by wire transfer to an account maintained by you at a bank in The City of New York. Payment of any interest on the notes will be made to the person in whose name the note, or any predecessor note, is registered at the close of business on February or August , whether or not a business day, immediately preceding the relevant interest payment date, a "regular record date". If you hold registered notes with a face value in excess of $2,000,000 and you would like to receive payments by wire transfer, you will be required to provide the trustee with wire transfer instructions at least 15 days prior to the relevant payment date.

Payments on any global note registered in the name of DTC or its nominee will be payable by the trustee to DTC or its nominee in its capacity as the registered holder under the indenture. Under the terms of the indenture, we and the trustee will treat the persons in whose names the notes, including any global note, are registered as the owners for the purpose of receiving payments and for all other purposes. Consequently, neither we, the trustee nor any of our agents or the trustee's agents has or will have any responsibility or liability for:

- any aspect of DTC's records or any participant's or indirect participant's records relating to or payments made on account of beneficial ownership interests in the global note, or for maintaining, supervising or reviewing any of DTC's records or any participant's or indirect participant's records relating to the beneficial ownership interests in the global note; or

- any other matter relating to the actions and practices of DTC, or any of its participants or indirect participants.

We will not be required to make any payment on the notes due on any day which is not a business day until the next succeeding business day. The payment made on the next succeeding business day will be treated as though it were paid on the original due date and no interest will accrue on the payment for the additional period of time.

Notes may be surrendered for conversion at the Corporate Trust Office of the trustee in the Borough of Manhattan, New York. Notes surrendered for conversion must be accompanied by

appropriate notices and any payments in respect of interest or taxes, as applicable, as described above under "-- Conversion Rights".

We have initially appointed the trustee as paying agent and conversion agent. We may terminate the appointment of any paying agent or conversion agent and appoint additional or other paying agents and conversion agents. However, until the notes have been delivered to the trustee for cancellation, or moneys sufficient to pay the principal of, premium, if any, and interest on the notes have been made available for payment, and either paid or returned to us as provided in the indenture, the trustee will maintain an office or agency in the Borough of Manhattan, New York for surrender of notes for conversion. Notice of any termination or appointment and of any change in the office through which any paying agent or conversion agent will act will be given in accordance with "-- Notices" below.

All moneys deposited with the trustee or any paying agent, or then held by us, in trust for the payment of principal of, premium, if any, or interest on any notes which remain unclaimed at the end of two years after the payment has become due and payable will be repaid to us, and you will then look only to us for payment.

REPURCHASE AT OPTION OF HOLDERS UPON A CHANGE IN CONTROL

If a "change in control" as defined below occurs, you will have the right, at your option, to require us to repurchase all of your notes not previously called for redemption, or any portion of the principal amount thereof, that is equal to $1,000 or an integral multiple of $1,000. The price we are required to pay is 100% of the principal amount of the notes to be repurchased, together with interest accrued to, but excluding, the repurchase date.

At our option, instead of paying the repurchase price in cash, we may pay the repurchase price in our common stock valued at 95% of the average of the closing prices of our common stock for the five trading days immediately preceding and including the third trading day prior to the repurchase date. We may only pay the repurchase price in our common stock if we satisfy conditions provided in the indenture.

Within 30 days after the occurrence of a change in control, we are obligated to give to you notice of the change in control and of the repurchase right arising as a result of the change of control. We must also deliver a copy of this notice to the trustee. To exercise the repurchase right, you must deliver on or before the 30th day after the date of our notice irrevocable written notice to the trustee of your exercise of your repurchase right, together with the notes with respect to which that right is being exercised. We are required to repurchase the notes on the date that is 45 days after the date of our notice.

A change in control will be deemed to have occurred at the time after the notes are originally issued that any of the following occurs:

- any person, as defined below, acquires beneficial ownership, directly or indirectly, through a purchase, merger or other acquisition transaction or series of transactions, of shares of our capital stock entitling that person to exercise 50% or more of the total voting power of all shares of our capital stock that is entitled to vote generally in elections of directors, other than an acquisition by us, any of our subsidiaries or any of our employee benefit plans; or

- we merge or consolidate with or into any other person, any merger of another person into us or we convey, sell, transfer or lease all or substantially all of our assets to another person, other than any such transaction:

    - that does not result in any reclassification, conversion, exchange or cancellation of outstanding shares of our capital stock;

    - pursuant to which the holders of 50% or more of the total voting power of all shares of our capital stock entitled to vote generally in elections of directors immediately prior to such transaction have the entitlement to exercise, directly

or indirectly, 50% or more of the total voting power of all shares of capital stock entitled to vote generally in the election of directors of the continuing or surviving corporation immediately after such transaction; or

- which is effected solely to change our jurisdiction of incorporation and results in a reclassification, conversion or exchange of outstanding shares of our common stock into solely shares of common stock of the surviving entity.

However, a change in control will not be deemed to have occurred if either:

- the closing price per share of our common stock for any five trading days within the period of 10 consecutive trading days ending immediately after the later of the change in control or the public announcement of the change in control, in the case of a change in control relating to an acquisition of capital stock, or the period of 10 consecutive trading days ending immediately before the change in control, in the case of change in control relating to a merger, consolidation or asset sale, equals or exceeds 105% of the conversion price of the notes in effect on each of those five trading days; or

- all of the consideration, excluding cash payments for fractional shares and cash payments made pursuant to dissenters' appraisal rights, in a merger or consolidation otherwise constituting a change of control under the first and second bullet points in the preceding paragraph above consists of shares of common stock traded on a national securities exchange or quoted on the Nasdaq National Market, or will be so traded or quoted immediately following such merger or consolidation, and as a result of such merger or consolidation the notes become convertible solely into such common stock.

For purposes of these provisions:

- the conversion price is equal to $1,000 divided by the conversion rate;

- whether a person is a "beneficial owner" will be determined in accordance with Rule 13d-3 under the Exchange Act; and

- a "person" includes any syndicate or group that would be deemed to be a person under Section 13(d)(3) of the Exchange Act.

The rules and regulations promulgated under the Exchange Act require the dissemination of prescribed information to security holders in the event of an issuer tender offer and may apply if the repurchase option becomes available to you. We will comply with these rules to the extent they apply to us at that time.

The definition of change in control includes a phrase relating to the conveyance, transfer, sale, lease or disposition of all or substantially all of our assets. There is no precise, established definition of the phrase "substantially all" under applicable law. Accordingly, your ability to require us to repurchase your notes as a result of conveyance, transfer, sale, lease or other disposition of less than all of our assets may be uncertain.

The foregoing provisions would not necessarily provide you with the protection if we are involved in a highly leveraged or other transaction that may adversely affect you.

Our ability to repurchase notes upon the occurrence of a change in control is subject to important limitations. Some of the events constituting a change in control could result in an event of default under, or be prohibited or limited by, the terms of our then existing borrowing arrangements. Further, although we have the right to repurchase the notes with our common stock, subject to certain conditions, we cannot assure you that we would have the financial resources, or would be able to arrange financing, to pay the repurchase price in cash for all the notes that might be delivered by holders of notes seeking to exercise the repurchase right. If we were to fail to repurchase the notes when required following a change in control, an event of default under the indenture would occur, whether or not such repurchase is permitted by the terms of our then existing borrowing arrangements. Any such default may, in turn, cause a default under our other debt.

MERGERS AND SALES OF ASSETS BY CIENA

We may not consolidate with or merge into any other person or convey, transfer, sell or lease our properties and assets substantially as an entirety to any person, and we may not permit any person to consolidate with or merge into us or convey, transfer, sell or lease such person's properties and assets substantially as an entirety to us unless:

- the person formed by such consolidation or into or with which we are merged or the person to which our properties and assets are so conveyed, transferred, sold or leased, shall be a corporation, limited liability company, partnership or trust organized and validly existing under the laws of the United States, any State within the United States or the District of Columbia and, if we are not the surviving person, the surviving person files a supplement to the indenture and expressly assumes the payment of the principal of, premium, if any, and interest on the notes and the performance of our other covenants under the indenture;

- immediately after giving effect to the transaction, no event of default, and no event that, after notice or lapse of time or both, would become an event of default, will have occurred and be continuing; and

- other requirements as described in the indenture are met.

EVENTS OF DEFAULT

The following will be events of default under the indenture:

- we fail to pay principal of or premium, if any, on any note when due;

- we fail to pay any interest on any note when due, which failure continues for 30 days;

- we fail to provide notice of a change in control;

- we fail to perform any other covenant in the indenture, which failure continues for 60 days after written notice as provided in the indenture;

- any indebtedness under any bonds, debentures, notes or other evidences of indebtedness for money borrowed, or any guarantee thereof, by us or any of our significant subsidiaries in an aggregate principal amount in excess of $25 million is not paid when due either at its stated maturity or upon acceleration thereof, and such indebtedness is not discharged, or such acceleration is not rescinded or annulled, within a period of 30 days after notice as provided in the indenture; and

- certain events of bankruptcy, insolvency or reorganization involving us or any of our significant subsidiaries.

Subject to the provisions of the indenture relating to the duties of the trustee in case an event of default shall occur and be continuing, the trustee will be under no obligation to exercise any of its rights or powers under the indenture at the request or direction of any holder, unless the holder shall have furnished reasonable indemnity to the trustee. Subject to providing indemnification of the trustee, the holders of a majority in aggregate principal amount of the outstanding notes will have the right to direct the time, method and place of conducting any proceeding for any remedy available to the trustee or exercising any trust or power conferred on the trustee.

If an event of default other than an event of default arising from events of insolvency, bankruptcy or reorganization occurs and is continuing, either the trustee or the holders of at least 25% in principal amount of the outstanding notes may accelerate the maturity of all notes. However, after such acceleration, but before a judgment or decree based on acceleration, the holders of a majority in aggregate principal amount of outstanding notes may, under certain circumstances, rescind and annul the acceleration if all events of default, other than the non-payment of principal of the notes that have become due solely by such declaration of acceleration, have been cured or waived as provided in the indenture. If an event of default

arising from events of insolvency, bankruptcy or reorganization occurs, then the principal of, and accrued interest on, all the notes will automatically become immediately due and payable without any declaration or other act on the part of the holders of the notes or the trustee. For information as to waiver of defaults, see "-- Meetings, Modification and Waiver" below.

You will not have any right to institute any proceeding with respect to the indenture, or for any remedy under the indenture, unless:

- you give the trustee written notice of a continuing event of default;
- the holders of at least 25% in aggregate principal amount of the outstanding notes have made written request and offered reasonable indemnity to the trustee to institute proceedings;
- the trustee has not received from the holders of a majority in aggregate principal amount of the outstanding notes a direction inconsistent with the written request; and
- the trustee shall have failed to institute such proceeding within 60 days of the written request.

However, these limitations do not apply to a suit instituted by you for the enforcement of payment of the principal of, premium, if any, or interest on your note on or after the respective due dates expressed in your note or your right to convert your note in accordance with the indenture.

We will be required to furnish to the trustee annually a statement as to our performance of certain of our obligations under the indenture and as to any default in such performance.

MEETINGS, MODIFICATION AND WAIVER

The indenture contains provisions for convening meetings of the holders of notes to consider matters affecting their interests.

Certain limited modifications of the indenture may be made without the necessity of obtaining the consent of the holders of the notes. Other modifications and amendments of the indenture may be made, and certain past defaults by us may be waived, either:

- with the written consent of the holders of not less than a majority in aggregate principal amount of the notes at the time outstanding; or
- by the adoption of a resolution, at a meeting of holders of the notes at which a quorum is present, by the holders of at least 66 2/3% in aggregate principal amount of the notes represented at such meeting.

The quorum at any meeting called to adopt a resolution will be persons holding or representing a majority in aggregate principal amount of the notes at the time outstanding and, at any reconvened meeting adjourned for lack of a quorum, 25% of such aggregate principal amount.

However, a modification or amendment requires the consent of the holder of each outstanding note affected if it would:

- change the stated maturity of the principal or interest of a note;
- reduce the principal amount of, or any premium or interest on, any note;
- reduce the amount payable upon a redemption or mandatory repurchase;
- modify the provisions with respect to the repurchase rights of holders of notes in a manner adverse to the holders;
- change the place or currency of payment on a note;
- impair the right to institute suit for the enforcement of any payment on any note;
- modify our obligation to maintain an office or agency in New York City;

- adversely affect the right to convert the notes;

- reduce the above-stated percentage of the principal amount of the holders whose consent is needed to modify or amend the indenture;

- reduce the percentage of the principal amount of the holders whose consent is needed to waive compliance with certain provisions of the indenture or to waive certain defaults; or

- reduce the percentage required for the adoption of a resolution or the quorum required at any meeting of holders of notes at which a resolution is adopted.

The holders of a majority in aggregate principal amount of the outstanding notes may waive compliance by us with certain restrictive provisions of the indenture by written consent. Holders of at least 66 2/3% in aggregate of the principal amount of notes represented at a meeting may also waive compliance by us with certain restrictive provisions of the indenture by the adoption of a resolution at the meeting if a quorum of holders are present and certain other conditions are met. The holders of a majority in aggregate principal amount of the outstanding notes also may waive by written consent any past default under the indenture, except a default in the payment of principal, premium, if any, or interest.

NOTICES

Notice to holders of the registered notes will be given by mail to the addresses as they appear in the security register. Notices will be deemed to have been given on the date of such mailing.

Notice of a redemption of notes will be given not less than 30 nor more than 60 days prior to the redemption date and will specify the redemption date. A notice of redemption of the notes will be irrevocable.

REPLACEMENT OF NOTES

We will replace any note that becomes mutilated, destroyed, stolen or lost at the expense of the holder upon delivery to the trustee of the mutilated notes or evidence of the loss, theft or destruction satisfactory to us and the trustee. In the case of a lost, stolen or destroyed note, indemnity satisfactory to the trustee and us may be required at the expense of the holder of the note before a replacement note will be issued.

PAYMENT OF STAMP AND OTHER TAXES

We will pay all stamp and other duties, if any, that may be imposed by the United States or any political subdivision thereof or taxing authority thereof or therein with respect to the issuance of the notes or of shares of stock upon conversion of the notes. We will not be required to make any payment with respect to any other tax, assessment or governmental charge imposed by any government or any political subdivision thereof or taxing authority thereof or therein.

GOVERNING LAW

The indenture and the notes will be governed by and construed in accordance with the laws of the State of New York, United States of America.

THE TRUSTEE

If an event of default occurs and is continuing, the trustee will be required to use the degree of care of a prudent person in the conduct of his own affairs in the exercise of its powers. Subject to such provisions, the trustee will be under no obligation to exercise any of its rights or powers under the indenture at the request of any of the holders of notes, unless they shall have furnished to the trustee reasonable security or indemnity.

IMPORTANT UNITED STATES FEDERAL INCOME TAX CONSEQUENCES

The following is a summary of some U.S. federal income tax considerations relating to the purchase, ownership and disposition of the notes and common stock into which the notes may be converted, but does not purport to be a complete analysis of all the potential tax considerations relating to the notes. This summary is based on laws, regulations, rulings and decisions now in effect, all of which are subject to change or differing interpretation, possibly with retroactive effect. This summary applies only to beneficial owners that will hold notes and common stock into which notes may be converted as "capital assets" within the meaning of Section 1221 of the Internal Revenue Code of 1986, or the "Code". For purposes of this discussion, U.S. Holders are holders who, for U.S. federal income tax purposes, are: (1) individual citizens or residents of the U.S.; (2) corporations, partnerships or other entities created or organized in or under the laws of the U.S. or of any political subdivision thereof unless, in the case of a partnership, Treasury Regulations otherwise provide; (3) estates, the incomes of which are subject to U.S. federal income taxation regardless of the source of such income or; (4) trusts subject to the primary supervision of a U.S. court and the control of one or more U.S. persons (collectively, "U.S. Holders").

Persons other than U.S. Holders ("Non-U.S. Holders") are subject to special U.S. federal income tax considerations, some of which are discussed below. This discussion does not address tax considerations applicable to an investor's particular circumstances or to investors that may be subject to special tax rules, such as: banks; holders subject to the alternative minimum tax; tax-exempt organizations; insurance companies; foreign persons or entities, except to the extent specifically set forth below; dealers in securities or currencies; persons that will hold notes as a position in a hedging transaction, "straddle" or "conversion transaction" for tax purposes; or persons deemed to sell notes or common stock under the constructive sale provisions of the Code.

This summary discusses the tax considerations applicable to initial purchasers of the notes who purchase the notes at their "issue price" as defined in Section 1273 of the Code and does not discuss the tax considerations applicable to subsequent purchasers of the notes. We have not sought any ruling from the Internal Revenue Service, or the IRS, or an opinion of counsel with respect to the statements made and the conclusions reached in the following summary. We cannot assure you that the IRS will agree with these statements and conclusions. In addition, the IRS is not precluded from successfully adopting a contrary position. This summary does not consider the effect of the federal estate or gift tax laws, except as set forth below with respect to Non-U.S. Holders, or of any applicable foreign, state, local or other jurisdiction.

INVESTORS CONSIDERING THE PURCHASE OF NOTES SHOULD CONSULT THEIR OWN TAX ADVISORS WITH RESPECT TO THE APPLICATION OF THE UNITED STATES FEDERAL TAX LAWS TO THEIR PARTICULAR SITUATIONS AS WELL AS ANY TAX CONSEQUENCES ARISING UNDER THE FEDERAL ESTATE OR GIFT TAX RULES OR UNDER THE LAWS OF ANY STATE, LOCAL OR FOREIGN TAXING JURISDICTION OR UNDER ANY APPLICABLE TAX TREATY.

U.S. HOLDERS

TAXATION OF INTEREST

Interest paid on the notes will be included in the income of a U.S. Holder as ordinary income at the time it is treated as received or accrued, in accordance with such holder's regular method of accounting for U.S. federal income tax purposes. Under Treasury Regulations, the possibility of differences in the amount and/or timing of payments under a note in the event of certain contingencies may be disregarded for purposes of determining the amount of interest income to be recognized by a holder in respect of such note, or the timing of such recognition, if the likelihood of the contingency, as of the date the notes are issued, is remote. We intend to take the position that an early redemption or repurchase of the notes by us, including a required redemption of the notes by us at the option of the holder in the event of a change of control, is

remote under the Treasury Regulations, and do not intend to treat such contingencies as affecting the yield to maturity of any note. In the event any such contingency occurs, it would affect the amount and timing of the income that must be recognized by a U.S. Holder of notes. We cannot assure you that the IRS will agree with this position.

SALE, EXCHANGE OR REDEMPTION OF THE NOTES

Upon the sale, exchange, other than a conversion, or redemption of a note, a U.S. Holder generally will recognize capital gain or loss equal to the difference between (1) the amount of cash proceeds and the fair market value of any property received on the sale, exchange or redemption, except to the extent this amount is attributable to accrued interest income not previously included in income, which will be taxable as ordinary income, or is attributable to accrued interest that was previously included in income, which amount may be received without generating further income, and (2) the holder's adjusted tax basis in the note. A U.S. Holder's adjusted tax basis in a note generally will equal the cost of the note to the holder. This capital gain or loss will be long-term capital gain or loss if the U.S. Holder's holding period in the note is more than one year at the time of sale, exchange or redemption. Long-term capital gains recognized by some non-corporate U.S. Holders, including individuals, will generally be subject to a maximum rate of tax of 20%, except in the case of long-term capital gains from notes held more than five years, in which case the maximum tax rate is 18%. The deductibility of capital losses is subject to limitations.

CONVERSION OF THE NOTES

A U.S. Holder generally will not recognize any income, gain or loss upon conversion of a note into common stock except with respect to (i) common stock received with respect to interest that has accrued but was not included in income and (ii) cash received in lieu of a fractional share of common stock. Common stock received with respect to interest that has accrued but was not included in income will be taxable to a U.S. Holder as ordinary interest income. A U.S. Holder's tax basis in the common stock received on conversion of a note will be the same as the holder's adjusted tax basis in the note at the time of conversion, reduced by any basis allocable to a fractional share interest, and the holding period for the common stock received on conversion will generally include the holding period of the note converted. However, a U.S. Holder's tax basis in shares of common stock considered attributable to accrued interest generally will equal the amount of the accrued interest included in income, and the holding period for the shares shall begin on the date of conversion.

Cash received in lieu of a fractional share of common stock upon conversion will be treated as a payment in exchange for the fractional share of common stock. Accordingly, the receipt of cash in lieu of a fractional share of common stock generally will result in capital gain or loss, measured by the difference between the cash received for the fractional share and the holder's adjusted tax basis in the fractional share.

ADJUSTMENTS TO CONVERSION PRICE OF NOTES

Holders of convertible debt instruments such as the notes may, in some circumstances, be deemed to have received distributions of stock if the conversion price of these instruments is adjusted. Adjustments to the conversion price made pursuant to a bona fide reasonable adjustment formula that has the effect of preventing the dilution of the interest of the holders of the debt instruments, however, will generally not be considered to result in a constructive distribution of stock. Some of the possible adjustments provided in the notes, including, without limitation, adjustments in respect of taxable dividends to our stockholders, will not qualify as being pursuant to a bona fide reasonable adjustment formula. If these adjustments are made, the U.S. Holders of notes will be deemed to have received constructive distributions taxable as dividends to the extent of our current and accumulated earnings and profits even though they have not received any cash or property as a result of these adjustments. In some circumstances, the failure to provide for an adjustment may result in taxable dividend income to the U.S. Holders of common stock.

DIVIDENDS ON COMMON STOCK

Distributions, if any, made on the common stock after a conversion generally will be included in the income of a U.S. Holder as ordinary dividend income to the extent of our current or accumulated earnings and profits. Distributions in excess of our current and accumulated earnings and profits will be treated as a return of capital to the extent of the U.S. Holder's basis in the common stock and thereafter as capital gain. A dividend distribution to a corporate U.S. Holder may qualify for a dividends received deduction.

SALE OF COMMON STOCK

Upon the sale or exchange of common stock, a U.S. Holder generally will recognize capital gain or loss equal to the difference between (1) the amount of cash and the fair market value of any property received on the sale or exchange and (2) the U.S. Holder's adjusted tax basis in the common stock. This capital gain or loss will be long-term capital gain or loss if the U.S. Holder's holding period in common stock is more than one year at the time of the sale or exchange. Long-term capital gains recognized by some non-corporate U.S. Holders, including individuals, will generally be subject to a maximum rate of tax of 20%, except in the case of common stock held for more than five years, in which case the maximum tax rate is 18%. A U.S. Holder's basis and holding period in common stock received upon conversion of a note are determined as discussed above under "Conversion of the Notes". The deductibility of capital losses is subject to limitations.

SPECIAL TAX RULES APPLICABLE TO NON-U.S. HOLDERS

In general, subject to the discussion below concerning backup withholding:

(a) Payments of principal or interest on the notes by us or any paying agent to a beneficial owner of a note that is a Non-U.S. Holder will not be subject to U.S. withholding tax, provided that, in the case of interest,

(1) the Non-U.S. Holder does not own, actually or constructively, 10% or more of the total combined voting power of all classes of our stock entitled to vote within the meaning of Section 871(h)(3) of the Code,

(2) the Non-U.S. Holder is not a "controlled foreign corporation" with respect to which we are a "related person" within the meaning of the Code,

(3) the Non-U.S. Holder is not a bank receiving interest described in Section 881 (c)(3)(A) of the Code, and

(4) the U.S. payor of interest does not have actual knowledge or reason to know that you are a United States person and the certification requirements under Section 871(h) or Section 881(c) of the Code and related Treasury Regulations, discussed below, are satisfied;

(b) A Non-U.S. Holder of a note or common stock will not be subject to U.S. federal income tax on gains realized on the sale, exchange or other disposition of such note or common stock unless

(1) the Non-U.S. Holder is an individual who is present in the U.S. for 183 days or more in the taxable year of sale, exchange or other disposition, and certain conditions are met,

(2) the gain is effectively connected with the conduct by the Non-U.S. Holder of a trade or business in the U.S. and, if certain U.S. income tax treaties apply, is attributable to a U.S. permanent establishment maintained by the Non-U.S. Holder,

(3) the Non-U.S. Holder is subject to Code provisions applicable to some U.S. expatriates, or

(4) in the case of a Non-U.S. Holder who holds more than 5% of the notes or the common stock, we are or have been, at any time within the shorter of the five-year period preceding the sale or other disposition or the period such Non-U.S. Holder held the note or common stock, a U.S. real property holding corporation, or a USRPHC for U.S. federal

income tax purposes. We do not believe that we are currently a USRPHC or that we will become one in the future;

(c) Interest on notes not excluded from U.S. withholding tax as described in (a) above and dividends on common stock after conversion generally will be subject to U.S. withholding tax at a 30% rate, except where an applicable tax treaty provides for the reduction or elimination of such withholding tax.

The conversion price of the notes is subject to adjustment in some circumstances. Any such adjustment could, in some circumstances, give rise to a deemed distribution to Non-U.S. Holders of the notes. See "U.S. Holders -- Adjustments to Conversion Price" above. In such case, the deemed distribution would be subject to the rules described above regarding U.S. withholding tax on dividends.

A Non-U.S. Holder generally should not be subject to U.S. federal income tax on the conversion of a note into common stock. To the extent a non-U.S. holder receives cash in lieu of a fractional share of common stock upon conversion, such cash may give rise to gain that would subject to the rules described above with respect to the sale, exchange or redemption of a note or common stock. To the extent a Non-U.S. Holder receives upon conversion common stock that is attributable to accrued interest not previously included in income, such stock may give rise to income that would subject to the rules described above with respect to the taxation of interest.

To satisfy the certification requirements referred to in (a)(4) above, Sections 871(h) and 881(c) of the Code and the Treasury Regulations thereunder require that either (1) the beneficial owner of a note must certify, under penalties of perjury, to us or our paying agent, as the case may be, that the owner is a Non-U.S. Holder and must provide the owner's name and address, and U.S. taxpayer identification number, or TIN, if any, on Form W-8BEN, or a suitable substitute form; or (2) an intermediary payee (such as a withholding foreign partnership, qualified intermediary or U.S. branch of a non-U.S. bank or of a non-U.S. insurance company) provides to us, or our paying agent, as the case may be, a Form W-8IMY, signed under penalties of perjury and such intermediary payee has obtained appropriate certification from the beneficial owner on Form W-8IMY, W-8BEN or W-8ECI, as to the beneficial owners U.S. status; or (3) a securities clearing organization, bank or other financial institution that holds customer securities in the ordinary course of its trade or business, which we refer to as a "Financial Institution", and holds the note on behalf of the beneficial owner must certify, under penalties of perjury, to us or our paying agent, as the case may be, that a Form W-8BEN or a suitable substitute form has been received from the beneficial owner and must furnish the payor with a copy thereof.

If a Non-U.S. Holder of a note or common stock is engaged in a trade or business in the U.S. and if interest on the note, dividends on the common stock, or gain realized on the sale, exchange or other disposition of the note or common stock is effectively connected with the conduct of the trade or business (and, if certain tax treaties apply, is attributable to a U.S. permanent establishment maintained by the Non-U.S. Holder in the U.S.), the Non-U.S. Holder, although exempt from U.S. withholding tax (provided that the certification requirements discussed in the next sentence are met), will generally be subject to U.S. federal income tax on such interest, dividends or gain on a net income basis in the same manner as if it were a U.S. Holder. In lieu of the certificate described above, such a Non-U.S. Holder will be required to provide us with a properly executed IRS Form W-8ECI or successor form in order to claim an exemption from withholding tax. In addition, if such Non-U.S. Holder is a foreign corporation, it may be subject to a branch profits tax equal to 30%, or any lower rate provided by an applicable treaty, of its effectively connected earnings and profits for the taxable year, subject to adjustment.

A note held by an individual who at the time of death is not a citizen or resident of the U.S., as specially defined for U.S. federal estate tax purposes, will not be subject to U.S. federal estate tax if the individual did not actually or constructively own 10% or more of the total combined voting power of all classes of our stock and, at the time of the individual's death, payments with respect to the note would not have been effectively connected with the conduct by such

individual of a trade or business in the U.S. Common stock held by an individual who at the time of death is not a citizen or resident of the U.S., as specially defined for U.S. federal estate tax purposes, will be included in such individual's estate for U.S. federal estate tax purposes, unless an applicable estate tax treaty otherwise applies.

Non-U.S. Holders should consult with their tax advisors regarding U.S. and foreign tax consequences with respect to the notes and common stock.

BACKUP WITHHOLDING AND INFORMATION REPORTING

Backup withholding of U.S. federal income tax at a rate of 31% may apply to payments pursuant to the terms of a note or common stock to a U.S. Holder that is not an "exempt recipient" and that fails to provide certain identifying information, such as the holder's TIN, in the manner required. Generally, individuals are not exempt recipients, whereas corporations and some other entities are exempt recipients. Payments made in respect of a note or common stock must be reported to the IRS, unless the U.S. holder is an exempt recipient or otherwise establishes an exemption.

In the case of payments of interest on a note to a Non-U.S. Holder, Treasury Regulations provide that backup withholding and information reporting will not apply to payments with respect to which either requisite certification has been received or an exemption has otherwise been established, provided that neither we nor a paying agent has actual knowledge that the holder is a U.S. Holder or that the conditions of any other exemption are not in fact satisfied.

Dividends on the common stock paid to Non-U.S. Holders that are subject to U.S. withholding tax, as described above, generally will be exempt from U.S. backup withholding tax.

Payments of the proceeds of the sale of a note or common stock to or through a foreign office of a U.S. broker or a foreign office of a broker that is a U.S. related person are currently subject to certain information reporting requirements, unless the payee is an exempt recipient or the broker has the requisite certification or documentary evidence in its records that the payee is a Non-U.S. Holder and no actual knowledge that the evidence is false and certain other conditions are met. Temporary Treasury Regulations indicate that these payments are not currently subject to backup withholding.

Under current Treasury Regulations, payments of the proceeds of a sale of a note or common stock to or through the U.S. office of a broker will be subject to information reporting and backup withholding unless the payee certifies under penalties of perjury as to his or her status as a Non-U.S. Holder and satisfies certain other qualifications (and no agent of the broker who is responsible for receiving or viewing such statement has actual knowledge that it is incorrect) and provides his or her name and address or the payee otherwise establishes an exemption.

Any amounts withheld under the backup withholding rules from a payment to a holder of a note or common stock will be allowed as a refund or credit against such holder's U.S. federal income tax provided that the required information is furnished to the IRS in a timely manner. THE PRECEDING DISCUSSION OF CERTAIN UNITED STATES FEDERAL INCOME TAX CONSIDERATIONS IS FOR GENERAL INFORMATION ONLY AND IS NOT TAX ADVICE. ACCORDINGLY, EACH PROSPECTIVE INVESTOR SHOULD CONSULT ITS OWN TAX ADVISOR AS TO THE PARTICULAR U.S. FEDERAL, STATE AND LOCAL TAX CONSEQUENCES OF PURCHASING, HOLDING AND DISPOSING OF THE NOTES AND COMMON STOCK OF CIENA. TAX ADVISORS SHOULD ALSO BE CONSULTED AS TO THE U.S. ESTATE AND GIFT TAX CONSEQUENCES AND THE FOREIGN TAX CONSEQUENCES OF PURCHASING, HOLDING AND DISPOSING OF THE NOTES AND COMMON STOCK OF CIENA, AS WELL AS THE CONSEQUENCES OF ANY PROPOSED CHANGE IN APPLICABLE LAWS.

UNDERWRITING

CIENA and the underwriters named below have entered into an underwriting agreement with respect to the notes being offered. Subject to certain conditions, each underwriter has severally agreed to purchase the aggregate principal amount at maturity of notes indicated in the following table. Goldman, Sachs & Co., Morgan Stanley & Co. Incorporated, Banc of America Securities LLC and Robertson Stephens, Inc. are the representatives of the underwriters.

UNDERWRITERS	AGGREGATE PRINCIPAL AMOUNT AT MATURITY OF NOTES
Goldman, Sachs & Co.	$
Morgan Stanley & Co. Incorporated	
Banc of America Securities LLC	
Robertson Stephens, Inc.	
Total	$350,000,000

If the underwriters sell more notes than the total principal amount set forth in the table above, the underwriters have an option to buy up to an additional $52.5 million principal amount of notes from CIENA to cover such sales. They may exercise that option for 30 days. If any notes are purchased pursuant to this option, the underwriters will severally purchase notes in approximately the same proportion as set forth in the table above.

Notes sold by the underwriters to the public will initially be offered at the initial public offering price set forth on the cover of this prospectus. Any notes sold by the underwriters to securities dealers may be sold at a discount from the initial public offering price of up to $ per note. Any such securities dealers may resell any notes purchased from the underwriters to certain other brokers or dealers at a discount from the initial public offering price of up to $ per note. If all the notes are not sold at the initial public offering price, the underwriters may change the offering price and the other selling terms.

CIENA and some of its officers and directors have agreed with the underwriters not to dispose of or hedge any of our common stock or securities convertible into or exchangeable for shares of common stock during the period from the date of this prospectus continuing through the date 90 days after the date of this prospectus, except with the prior written consent of Goldman, Sachs & Co. CIENA's agreement does not apply to any securities issued: (i) under employee benefit plans or dividend reinvestment plans, (ii) upon exercise of currently outstanding stock options, (iii) upon conversion or exchange of currently outstanding convertible or exchangeable securities, (iv) in connection with the acquisition of Cyras Systems, Inc. or (v) in connection with other mergers, acquisitions or similar transactions so long as the parties agree to be bound by the terms of the lock-up. This agreement does not restrict us from filing a shelf registration statement which includes equity securities. CIENA will issue approximately 27 million shares of common stock if the Cyras acquisition is consummated, almost all of which shares will be freely tradeable.

The notes are a new issue of securities with no established trading market. CIENA has been advised by the underwriters that the underwriters intend to make a market in the notes but are not obligated to do so and may discontinue market making at any time without notice. No assurance can be given as to the liquidity of the trading market for the notes.

In connection with the offering, the underwriters may purchase and sell notes in the open market. These transactions may include short sales, stabilizing transactions and purchases to cover positions created by short sales. Short sales involve the sale by the underwriters of a greater number of notes than they are required to purchase in the offering. Stabilizing transactions consist of certain bids or purchases made for the purpose of preventing or retarding a decline in the market price of the notes while the offering is in progress.

The underwriters may also impose a penalty bid. This occurs when a particular underwriter repays to the underwriters a portion of the underwriting discount received by it because the other underwriters have repurchased notes sold by or for the account of such underwriter in stabilizing or short covering transactions.

These activities by the underwriters may stabilize, maintain or otherwise affect the market price of the notes. As a result, the price of the notes may be higher than the price that otherwise might exist in the open market. If these activities are commenced, they may be discontinued by the underwriters at any time. These transactions may be effected in the over-the-counter market or otherwise.

CIENA has agreed to indemnify the several underwriters against certain liabilities, including liabilities under the Securities Act of 1933, as amended.

CIENA estimates that its share of the total expenses of the offering, excluding underwriting discounts and commissions, will be approximately $305,000.

Some of the underwriters have from time to time performed, and may in the future perform, certain investment banking and advisory services for CIENA for which they have received, and may in the future receive, customary fees and expenses.

Lawton W. Fitt, a director of CIENA, is a Managing Director of Goldman, Sachs & Co., one of the underwriters in this offering.

LEGAL MATTERS

Hogan & Hartson L.L.P., Baltimore, Maryland, will provide CIENA with an opinion as to legal matters in connection with the notes and common stock issuable upon conversion of the notes offered by this prospectus. Certain legal matters in connection with this offering will be passed on for the underwriters by Hale and Dorr LLP, Reston, Virginia.

EXPERTS

The consolidated financial statements of CIENA Corporation as of October 31, 2000 and 1999 and for each of the three years in the period ended October 31, 2000 incorporated in this prospectus by reference to CIENA's Annual Report on Form 10-K for the year ended October 31, 2000, as amended January 18, 2001, have been so incorporated in reliance on the report of PricewaterhouseCoopers LLP, given on the authority of said firm as experts in auditing and accounting.

The financial statements of Cyras Systems, Inc. as of December 31, 1998 and 1999 and for the period from July 24, 1998 (inception) to December 31, 1998 and for the year ended December 31, 1999, incorporated in this prospectus by reference to the current report on Form 8-K of CIENA Corporation filed January 18, 2001, have been audited by Deloitte & Touche LLP, independent auditors, as stated in their report, which is incorporated herein by reference, and have been so incorporated by reference in reliance upon the report of such firm given upon their authority as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the SEC under the Securities Act a registration statement on Form S-3. This prospectus does not contain all of the information contained in the registration statement, certain portions of which have been omitted under the rules of the SEC. We also file annual, quarterly and special reports, proxy statements and other information with the SEC under the Exchange Act. The Exchange Act file number for our SEC filings is 000-21969. You may read and

copy the registration statement and any other document we file at the following SEC public reference rooms:

Judiciary Plaza 450 Fifth Street, N.W. Rm. 1024 Washington, D.C. 20549	500 West Madison Street 14th Floor Chicago, Illinois 60661	7 World Trade Center Suite 1300 New York, New York 10048

You may obtain information on the operation of the public reference room in Washington, D.C. by calling the SEC at 1-800-SEC-0330. We file information electronically with the SEC. Our SEC filings are available from the SEC's Internet site at http://www.sec.gov, which contains reports, proxy and information statements and other information regarding issuers that file electronically. You may read and copy our SEC filings and other information at the offices of Nasdaq Operations, 1735 K Street, N.W., Washington, D.C. 20006.

INCORPORATION BY REFERENCE

The SEC allows us to "incorporate by reference" the documents we file with it, which means that we can disclose important information to you by referring you to those documents instead of reproducing that information in this prospectus. The information incorporated by reference is considered to be part of this prospectus, and information in documents that we file later with the SEC will automatically update and supersede information in this prospectus. We incorporate by reference the documents listed below:

- Our Annual Report on Form 10-K for the fiscal year ended October 31, 2000, as amended on January 18, 2001;

- Our Form 8-K filed on January 18, 2001;

- All documents filed by us pursuant to Section 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934 after the date of this prospectus and before the termination of the offering; and

- The description of common stock contained in our Form 8-A filed on January 13, 1997, as amended.

We will provide a copy of the documents we incorporate by reference, at no cost, to any person who receives this prospectus. To request a copy of any or all of these documents, you should write or telephone us at: 1201 Winterson Road, Linthicum, MD, (410) 865-8500, Attention: Director, Investor Relations.

No dealer, salesperson or other person is authorized to give any information or to represent anything not contained in this prospectus. You must not rely on any unauthorized information or representations. This Prospectus is an offer to sell only the notes offered hereby, but only under circumstances and in jurisdictions where it is lawful to do so. The information contained in this prospectus is current only as of its date.

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$350,000,000

CIENA CORPORATION

% Convertible Notes due , 2008

[CIENA LOGO]

GOLDMAN, SACHS & CO.

MORGAN STANLEY DEAN WITTER

BANC OF AMERICA SECURITIES LLC

ROBERTSON STEPHENS

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

ITEM 14. OTHER EXPENSES OF ISSUANCE AND DISTRIBUTION.

The following table sets forth the fees and expenses in connection with the issuance and distribution of the securities being registered. Except for the SEC registration fee, all amounts are estimates.

Securities and Exchange Commission registration fee.....	$375,000
Transfer agent's and trustee's fees and expenses.....	25,000
Printing and engraving expenses.....	50,000
Legal fees and expenses.....	100,000
Accounting fees and expenses.....	35,000
Miscellaneous expenses.....	25,000
Total.....	$610,000

ITEM 15. INDEMNIFICATION OF DIRECTORS AND OFFICERS.

Section 145 of the Delaware General Corporation Law, as amended ("DGCL") authorizes a court to award, or a corporation's board of directors to grant indemnity to directors and officers under some circumstances for liabilities incurred in connection with their activities in such capacities (including reimbursement for expenses incurred). The Registrant's Third Amended and Restated Certificate of Incorporation provides that no director of the Registrant will be personally liable to the Registrant or its stockholders for monetary damages for breach of fiduciary duty as a director, except for liability (i) for any breach of the director's duty of loyalty to the Registrant or to its stockholders, (ii) for acts or omissions not made in good faith or which involved intentional misconduct or a knowing violation of the law, (iii) under Section 174 of the DGCL, or (iv) for any transactions from which the director derives an improper personal benefit. In addition, the Registrant's Amended and Restated Bylaws provide that any director or officer who was or is a party or is threatened to be made a party to any action or proceeding by reason of his or her services to the Registrant will be indemnified to the fullest extent permitted by the DGCL.

The Registrant has entered into agreements with each of its executive officers and directors under which the Registrant has agreed to indemnify each of them against expenses and losses incurred for claims brought against them by reason of their being an officer or director of the Registrant. There is no pending litigation or proceeding involving a director or officer of the Registrant as to which indemnification is being sought, nor is the Registrant aware of any pending or threatened litigation that may result in claims for indemnification by any director or executive officer.

The form of Underwriting Agreements to be entered into by the Registrant and one or more underwriters will provide for indemnification and rights of contribution that would inure to the benefit of the underwriters and their controlling persons for liabilities under the federal securities laws arising from misstatements in and omissions from the registration statement, and the related prospectus and prospectus supplements. These provisions may inure to the benefit of Lawton W. Fitt, a managing director of Goldman, Sachs & Co. and a director of the Registrant.

ITEM 16. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES.

(a) Exhibits:

EXHIBIT NUMBER	DESCRIPTION
1.1	Form of Underwriting Agreement for Common Stock (filed herewith)
1.2	Form of Underwriting Agreement for % Convertible Notes due , 2008 (filed herewith)
3.1*	Certificate of Amendment to Third Restated Certificate of Incorporation of the Registrant
3.2*	Third Restated Certificate of Incorporation
3.3*	Amended and Restated Bylaws of the Registrant
3.5****	Certificate of Amendment to Third Restated Certificate of Incorporation dated March 23, 1998
3.6****	Certificate of Amendment to Third Restated Certificate of Incorporation dated March 16, 2000
4.1**	Rights Agreement dated December 29, 1997
4.2***	Amendment to Rights Agreement
4.3*	Form of Common Stock Certificate
4.4	Form of Indenture for % Convertible Notes due , 2008 (filed herewith)
5.1	Opinion of Hogan & Hartson L.L.P. (filed herewith)
5.2	Opinion of Hogan & Hartson L.L.P. (filed herewith)
12.1	Statement of Computation of Ratio of Earnings to Fixed Charges (previously filed)
23.1	Consent of PricewaterhouseCoopers LLP (filed herewith)
23.2	Consent of Hogan & Hartson L.L.P. (included in Exhibits 5.1 and 5.2)
23.3	Consent of Deloitte & Touche LLP (filed herewith)
24.1	Powers of Attorney (previously filed)
25.1	Form T-1 Statement of Eligibility under the Trust Indenture Act of 1939 (% Convertible Notes due , 2008) (filed herewith)

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* Incorporated by reference to the Company's Registration Statement on Form S-1 (333-17729).

** Incorporated by reference from the Company's Form 8-K dated December 29, 1997.

*** Incorporated by reference from the Company's Form 8-K dated October 14, 1998.

**** Incorporated by reference from the Company's Form 10-Q dated May 18, 2000.

ITEM 17. UNDERTAKINGS.

(a) The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act, each filing of the registrant's annual report pursuant to Section 13(a) or Section 15(d) of the Securities Exchange Act (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Exchange Act) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered herein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(b) The undersigned Registrant hereby undertakes that:

(1) For purposes of determining any liability under the Securities Act of 1933, the information omitted from the form of prospectus filed as part of this registration statement in reliance under Rule 430A and contained in a form of prospectus filed by the Registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act of 1933 shall be deemed to be part of this registration statement as of the time it was declared effective.

(2) For the purpose of determining any liability under the Securities Act of 1933, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(c) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question of whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Linthicum, State of Maryland, on February 5, 2001.

CIENA CORPORATION

By: /s/ MICHAEL O. MCCARTHY III

Michael O. McCarthy III

Senior Vice President, General Counsel and Secretary

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed by the following persons in the capacities and on the dates indicated.

By: /s/ PATRICK H. NETTLES, PH.D.* Patrick H. Nettles, Ph.D.	Chairman and Chief Executive Officer (Principal Executive Officer)	Date: February 5, 2001
By: /s/ GARY B. SMITH* Gary B. Smith	President and Director	Date: February 5, 2001
By: /s/ JOSEPH R. CHINNICI* Joseph R. Chinnici	Sr. Vice President, Chief Financial Officer (Principal Financial Officer)	Date: February 5, 2001
By: /s/ ANDREW C. PETRIK* Andrew C. Petrik	Vice President, Controller and Treasurer (Principal Accounting Officer)	Date: February 5, 2001
By: /s/ STEPHEN P. BRADLEY* Stephen P. Bradley	Director	Date: February 5, 2001
By: /s/ HARVEY B. CASH* Harvey B. Cash	Director	Date: February 5, 2001
By: /s/ JOHN R. DILLON* John R. Dillon	Director	Date: February 5, 2001
By: /s/ LAWTON W. FITT* Lawton W. Fitt	Director	Date: February 5, 2001
By: /s/ JUDITH M. O'BRIEN* Judith M. O'Brien	Director	Date: February 5, 2001
By: /s/ GERALD H. TAYLOR* Gerald H. Taylor	Director	Date: February 5, 2001

*pursuant to power of attorney

By: /s/ MICHAEL O. MCCARTHY III

Michael O. McCarthy III

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EXHIBIT 1.1

CIENA CORPORATION

COMMON STOCK, PAR VALUE $.01 PER SHARE

UNDERWRITING AGREEMENT

February __, 2001

Goldman, Sachs & Co.
Morgan Stanley & Co. Incorporated
Banc of America Securities LLC
Robertson Stephens, Inc.
As representatives of the several
Underwriters named in Schedule I hereto,
c/o Goldman, Sachs & Co.,
85 Broad Street, New York, New York 10004.

Ladies and Gentlemen:

CIENA Corporation, a Delaware corporation (the "Company"), proposes, subject to the terms and conditions stated herein, to issue and sell to the Underwriters named in Schedule I hereto (the "Underwriters") an aggregate of 8,000,000 shares (the "Firm Shares") and, at the election of the Underwriters, up to 1,200,000 additional shares (the "Optional Shares") of Common Stock, par value $.01 per share ("Stock") of the Company (the Firm Shares and the Optional Shares that the Underwriters elect to purchase pursuant to Section 2 hereof are herein collectively called the "Shares").

1. The Company represents and warrants to, and agrees with, each of the Underwriters that:

(a) A registration statement on Form S-3 (File No. 333-53922) (the "Initial Registration Statement") in respect of the Shares and the Company's __% Convertible Notes Due _____, 2008 (the "Notes") has been filed with the Securities and Exchange Commission (the "Commission"); the Initial Registration Statement and any post-effective amendment thereto, each in the form heretofore delivered to you, and, excluding exhibits thereto but including all documents incorporated by reference in the prospectus contained therein, to you for each of the other Underwriters, have been declared effective by the Commission in such form; other than a registration statement, if any, increasing the size of the offering (a "Rule 462(b) Registration Statement"), filed pursuant to Rule 462(b) under the Securities Act of 1933, as amended (the "Act"), which became effective upon filing, no other document with respect to the Initial Registration Statement or document incorporated by reference therein has heretofore been filed with the Commission; and no stop order suspending the effectiveness of the Initial Registration Statement, any post-effective amendment thereto or the Rule 462(b) Registration Statement, if any, has been issued and no proceeding for that purpose has been initiated or threatened by the Commission (any preliminary prospectus included in the Initial Registration Statement or filed with the Commission pursuant to Rule 424(a) of the rules and regulations of the Commission under the Act, is hereinafter called a "Preliminary Prospectus"; the various parts of the Initial Registration Statement and the Rule 462(b) Registration Statement, if any,

including all exhibits thereto and including (i) the information contained in the form of final prospectus filed with the Commission pursuant to Rule 424(b) under the Act in accordance with Section 5(a) hereof and deemed by virtue of Rule 430A under the Act to be part of the Initial Registration Statement at the time it was declared effective and (ii) the documents incorporated by reference in the prospectus contained in the Initial Registration Statement at the time such part of the Initial Registration Statement became effective, each as amended at the time such part of the Initial Registration Statement became effective or such part of the Rule 462(b) Registration Statement, if any, became or hereafter becomes effective, are hereinafter collectively called the "Registration Statement"; such final prospectus, in the form first filed pursuant to Rule 424(b) under the Act, is hereinafter called the "Prospectus"; and any reference herein to any Preliminary Prospectus or the Prospectus shall be deemed to refer to and include the documents incorporated by reference therein pursuant to Item 12 of Form S-3 under the Act, as of the date of such Preliminary Prospectus or Prospectus, as the case may be; and any reference to any amendment or supplement to any Preliminary Prospectus or the Prospectus shall be deemed to refer to and include any documents filed after the date of such Preliminary Prospectus or Prospectus, as the case may be, under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and incorporated by reference in such Preliminary Prospectus or Prospectus, as the case may be; and any reference to any amendment to the Registration Statement shall be deemed to refer to and include any annual report of the Company filed pursuant to Section 13(a) or 15(d) of the Exchange Act after the effective date of the Initial Registration Statement that is incorporated by reference in the Registration Statement.)

(b) No order preventing or suspending the use of any Preliminary Prospectus has been issued by the Commission, and each Preliminary Prospectus, at the time of filing thereof, conformed in all material respects to the requirements of the Act and the rules and regulations of the Commission thereunder, and did not contain an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading; provided, however, that this representation and warranty shall not apply to any statements or omissions made in reliance upon and in conformity with information furnished in writing to the Company by an Underwriter through Goldman, Sachs & Co. expressly for use therein;

(c) The documents incorporated by reference in the Prospectus, when they became effective or were filed with the Commission, as the case may be, conformed in all material respects to the requirements of the Act or the Exchange Act, as applicable, and the rules and regulations of the Commission thereunder, and none of such documents contained an untrue statement of a material fact or omitted to state a material fact required to be stated therein or necessary to make the statements therein not misleading; and any further documents so filed and incorporated by reference in the Prospectus or any further amendment or supplement thereto, when such documents become effective or are filed with the Commission, as the case may be, will conform in all material respects to the requirements of the Act or the Exchange Act, as applicable, and the rules and regulations of the Commission thereunder and will not contain an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading; provided, however, that this representation and warranty shall not apply to any statements or omissions made in reliance upon and in conformity with information furnished in writing to the Company by an Underwriter through Goldman, Sachs & Co. expressly for use therein

(d) The Registration Statement conforms, and the Prospectus and any further amendments or supplements to the Registration Statement or the Prospectus will

conform, in all material respects to the requirements of the Act and the rules and regulations of the Commission thereunder and do not and will not, as of the applicable effective date as to the Registration Statement and any amendment thereto and as of the applicable filing date as to the Prospectus and any amendment or supplement thereto, contain an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading; provided, however, that this representation and warranty shall not apply to any statements or omissions made in reliance upon and in conformity with information furnished in writing to the Company by an Underwriter through Goldman, Sachs & Co. expressly for use therein;

(e) Neither the Company nor any of its subsidiaries has sustained since the date of the latest audited financial statements included or incorporated by reference in the Prospectus any material loss or interference with its business from fire, explosion, flood or other calamity, whether or not covered by insurance, or from any labor dispute or court or governmental action, order or decree, otherwise than as set forth or contemplated in the Prospectus; and, since the respective dates as of which information is given in the Registration Statement and the Prospectus, there has not been any change in the capital stock or long-term debt of the Company or any of its subsidiaries or any material adverse change, or any development reasonably likely to result in a prospective material adverse change, in or affecting the general affairs, management, financial position, stockholders' equity or results of operations of the Company and its subsidiaries, otherwise than as set forth or contemplated in the Prospectus;

(f) The Company and its subsidiaries have good and marketable title in fee simple to all real property and good and marketable title to all personal property owned by them, in each case free and clear of all liens, encumbrances and defects except such as are described in the Prospectus or such as do not materially affect the value of such property and do not interfere with the use made and proposed to be made of such property by the Company and its subsidiaries; and any real property and buildings held under lease by the Company and its subsidiaries are held by them under valid leases with such exceptions as are not material and do not interfere with the use made and proposed to be made of such property and buildings by the Company and its subsidiaries;

(g) The Company has been duly incorporated and is validly existing as a corporation in good standing under the laws of the State of Delaware, with power and authority (corporate and other) to own its properties and conduct its business as described in the Prospectus, and has been duly qualified as a foreign corporation for the transaction of business and is in good standing under the laws of each other jurisdiction in which it owns or leases properties or conducts any business so as to require such qualification, or is subject to no material liability or disability by reason of the failure to be so qualified in any such jurisdiction; and each subsidiary of the Company has been duly incorporated and is validly existing as a corporation in good standing under the laws of its jurisdiction of incorporation;

(h) The Company has an authorized capitalization as set forth in the Prospectus, and all of the issued shares of capital stock of the Company have been duly and validly authorized and issued, are fully paid and non-assessable and conform to the description of the Stock contained in the Prospectus; and all of the issued shares of capital stock of each subsidiary of the Company have been duly and validly authorized and issued, are fully paid and non-assessable and conform to the description of the Stock contained in the Prospectus;

(i) The unissued Shares to be issued and sold by the Company to the Underwriters hereunder have been duly and validly authorized and, when issued and delivered against payment therefor as provided herein, will be duly and validly issued and fully paid and non-assessable and will conform to the description of the Stock contained in the Prospectus;

(j) The issue and sale of the Shares to be sold by the Company hereunder and the compliance by the Company with all of the provisions of this Agreement and the consummation of the transactions herein contemplated will not conflict with or result in a breach or violation of any of the terms or provisions of, or constitute a default under, any indenture, mortgage, deed of trust, loan agreement or other agreement or instrument to which the Company or any of its subsidiaries is a party or by which the Company or any of its subsidiaries is bound or to which any of the property or assets of the Company or any of its subsidiaries is subject, nor will such action result in any violation of the provisions of the Certificate of Incorporation or By-laws of the Company or any of its subsidiaries or any statute or any order, rule or regulation of any court or governmental agency or body having jurisdiction over the Company or any of its subsidiaries or any of their properties; and no consent, approval, authorization, order, registration or qualification of or with any such court or governmental agency or body is required for the issue and sale of the Shares or the consummation by the Company of the transactions contemplated by this Agreement, except the registration under the Act of the Shares and such consents, approvals, authorizations, registrations or qualifications as may be required under state or foreign securities or Blue Sky laws in connection with the purchase and distribution of the Shares by the Underwriters;

(k) Neither the Company nor any of its subsidiaries is in violation of its Certificate of Incorporation or By-laws or in default in the performance or observance of any material obligation, agreement, covenant or condition contained in any indenture, mortgage, deed of trust, loan agreement lease or other agreement or instrument to which it is a party or by which it or any of its properties may be bound;

(l) The statements set forth in the Prospectus under the caption "Description of Common Stock and Preferred Stock", insofar as they purport to constitute a summary of the terms of the Stock, are accurate and complete in all material respects.

(m) Other than as set forth or contemplated in the Prospectus, there are no legal or governmental proceedings pending to which the Company or any of its subsidiaries is a party or of which any property of the Company or any of its subsidiaries is the subject which, if determined adversely to the Company or any of its subsidiaries, would individually or in the aggregate have a material adverse effect on the current or future consolidated financial position, stockholders' equity or results of operations of the Company and its subsidiaries; and, other than as set forth or contemplated in the Prospectus, to the best of the Company's knowledge, no such proceedings are threatened or contemplated by governmental authorities or threatened by others;

(n) The Company is not and, after giving effect to the offering and sale of the Shares, will not be an "investment company" or an entity "controlled" by an "investment company", as such terms are defined in the Investment Company Act of 1940, as amended (the "Investment Company Act");

(o) PricewaterhouseCoopers LLP, who have certified certain financial statements of the Company and its subsidiaries, and Deloitte & Touche, LLP, who have certified certain financial statements of Cyras Systems, Inc., are each independent public

accountants as required by the Act and the rules and regulations of the Commission thereunder;

(p) Other than as set forth or contemplated in the Prospectus, the Company and its subsidiaries have sufficient interests or rights in all patents, patent licenses, trademarks, servicemarks, trade names, copyrights, trade secrets, information proprietary rights and processes ("Intellectual Property") necessary for their business as now conducted and, to the Company's knowledge, necessary in connection with the products and services under development and described in the Prospectus, without any conflict with or infringement of the interests or rights of others in each case, except where there would not be any material adverse effect on the results of operations or financial condition of the Company and its subsidiaries, taken as a whole; except as disclosed in the Prospectus, the Company is not aware of material outstanding options, licenses or agreements of any kind relating to the Intellectual Property, neither the Company nor any of its subsidiaries is a party to or bound by any material options, licenses or agreements with respect to the Intellectual Property of any other person or entity; none of the technology employed by the Company or any of its subsidiaries has been obtained or is being used by the Company or its subsidiaries in violation of any contractual fiduciary obligation binding on the Company of any of its subsidiaries or, to the Company's knowledge, any of its employees or otherwise in violation of the rights of any person, except where such violation would not have a material adverse effect on the results of operations or financial condition of the Company and its subsidiaries, taken as a whole; except as disclosed in the Prospectus, neither the Company nor any of its subsidiaries have received any written or, to the Company's knowledge, oral communications alleging that the Company or any of its subsidiaries has violated, infringed or conflicted with (and knows of no such violation, infringement or conflict) or, by conducting its business as proposed, would violate, infringe or conflict with (and knows of no such violation, infringement or conflict) any of the Intellectual Property of any other person or entity, except for such violations, infringements or conflicts that would not reasonably be expected to have a material adverse effect on the results of operations or financial condition of the Company and its subsidiaries, taken as a whole; and the Company and its subsidiaries have taken and will maintain reasonable measures to prevent the unauthorized dissemination or publication of their confidential information and, to the extent contractually required to do so, the confidential information of third parties in their possession;

(q) The Company maintains insurance of the types and in the amounts generally deemed adequate for its business, including, but not limited to, insurance covering real and personal property owned or leased by the Company against theft, damage, destruction, acts of vandalism and all other risks customarily insured against, all of which insurance is in full force and effect;

(r) There are no contracts, other documents or other agreements required to be described in the Registration Statement or to be filed as exhibits to the Registration Statement by the Act or by the rules and regulations thereunder which have not been described or filed as required; the contracts so described in the Prospectus are in full force and effect on the date hereof; and neither the Company nor, to the best of the Company's knowledge, any other party is in breach of or default in any material respect under any of such contracts;

(s) The Company has not been advised, and has no reason to believe, that it is not conducting business in compliance with all applicable laws, rules and regulations of the jurisdictions in which it is conducting business, including, without limitation, all applicable local, state and federal environmental laws and regulations; except where failure to be so in

compliance would not materially adversely affect the condition (financial or otherwise), business, results of operations or prospects of the Company; and

(t) The Stock has been authorized for quotation on the Nasdaq National Market System ("Nasdaq"), and the Company has received no notice of, and there is no basis for, any proceedings to delist the Stock from Nasdaq.

2. Subject to the terms and conditions herein set forth, (a) the Company agrees to issue and sell to each of the Underwriters, and each of the Underwriters agrees, severally and not jointly, to purchase from the Company, at a purchase price per share of $__.__, the number of Firm Shares set forth opposite the name of such Underwriter in Schedule I hereto and (b) in the event and to the extent that the Underwriters shall exercise the election to purchase Optional Shares as provided below, the Company agrees to issue and sell to each of the Underwriters, and each of the Underwriters agrees, severally and not jointly, to purchase from the Company, at the purchase price per share set forth in clause (a) of this Section 2, that portion of the number of Optional Shares as to which such election shall have been exercised (to be adjusted by you so as to eliminate fractional shares) determined by multiplying such number of Optional Shares by a fraction the numerator of which is the maximum number of Optional Shares which such Underwriter is entitled to purchase as set forth opposite the name of such Underwriter in Schedule I hereto and the denominator of which is the maximum number of Optional Shares that all of the Underwriters are entitled to purchase hereunder.

The Company hereby grants to the Underwriters the right to purchase at their election up to 1,200,000 Optional Shares, at the purchase price per share set forth in clause (a) of the first paragraph of this Section 2, for the sole purpose of covering over-allotments in the sale of the Firm Shares. Any such election to purchase Optional Shares may be exercised by written notice from you to the Company, given within a period of 30 calendar days after the date of this Agreement, setting forth the aggregate number of Optional Shares to be purchased and the date on which such Optional Shares are to be delivered, as determined by you but in no event earlier than the First Time of Delivery (as defined in Section 4 hereof) or, unless you and the Company otherwise agree in writing, earlier than two or later than ten business days after the date of such notice.

3. Upon the authorization by you of the release of the Firm Shares, the several Underwriters propose to offer the Firm Shares for sale upon the terms and conditions set forth in the Prospectus.

4. (a) The Shares to be purchased by each Underwriter hereunder, in definitive form, and in such authorized denominations and registered in such names as Goldman, Sachs & Co., through the facilities of Depository Trust Company ("DTC") may request upon at least forty-eight hours' prior notice to the Company shall be delivered by or on behalf of the Company to Goldman, Sachs & Co., for the account of such Underwriter, against payment by or on behalf of such Underwriter of the purchase price therefor by wire transfer of Federal (same-day) funds to the account specified by the Company to Goldman, Sachs & Co. at least forty-eight hours in advance. The Company will cause the certificates representing the Shares to be made available for checking and packaging at least twenty-four hours prior to the Time of Delivery (as defined below) with respect thereto at the office of DTC or its designated custodian (the "Designated Office"). The time and date of such delivery and payment shall be, with respect to the Firm Shares, 9:30 a.m., New York City time, on February __, 2001 or such other time and date as Goldman, Sachs & Co. and the Company may agree upon in writing, and, with respect to the Optional Shares, 9:30 a.m., New York City time, on the date specified by Goldman, Sachs &

Co. in the written notice given by Goldman, Sachs & Co. of the Underwriters' election to purchase such Optional Shares, or such other time and date as Goldman, Sachs & Co. and the Company may agree upon in writing. Such time and date for delivery of the Firm Shares is herein called the "First Time of Delivery", such time and date for delivery of the Firm Optional Shares, if not the First Time of Delivery, is herein called the "Second Time of Delivery", and each such time and date for delivery is herein called a "Time of Delivery".

(b) The documents to be delivered at each Time of Delivery by or on behalf of the parties hereto pursuant to Section 7 hereof, including the cross-receipt for the Shares and any additional documents requested by the Underwriters pursuant to Section 7(j) hereof, will be delivered at the offices of Hogan & Hartson L.L.P., 111 South Calvert Street, Baltimore, Maryland 21202 (the "Closing Location"), and the Shares will be delivered at the Designated Office, all at each Time of Delivery. A meeting will be held at the Closing Location at 4:00 p.m., New York City time, on the New York Business Day next preceding each Time of Delivery, at which meeting the final drafts of the documents to be delivered pursuant to the preceding sentence will be available for review by the parties hereto. For the purposes of this Section 4, "New York Business Day" shall mean each Monday, Tuesday, Wednesday, Thursday and Friday which is not a day on which banking institutions in New York are generally authorized or obligated by law or executive order to close.

5. The Company agrees with each of the Underwriters:

(a) To prepare the Prospectus in a form approved by you and to file such Prospectus pursuant to Rule 424(b) under the Act not later than the Commission's close of business on the second business day following the execution and delivery of this Agreement, or, if applicable, such earlier time as may be required by Rule 430A(a)(3) under the Act; to make no further amendment or any supplement to the Registration Statement or Prospectus prior to the last Time of Delivery which shall be disapproved by you promptly after reasonable notice thereof; to file promptly all reports and any definitive proxy or information statements required to be filed by the Company with the Commission pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act subsequent to the date of the Prospectus and for so long as the delivery of a prospectus is required in connection with the offering or sale of the Shares; to advise you, promptly after it receives notice thereof, of the time when any amendment to the Registration Statement has been filed or becomes effective or any supplement to the Prospectus or any amended Prospectus has been filed and to furnish you copies thereof; to advise you, promptly after it receives notice thereof, of the issuance by the Commission of any stop order or of any order preventing or suspending the use of any Preliminary Prospectus or prospectus, of the suspension of the qualification of the Shares for offering or sale in any jurisdiction, of the initiation or threatening of any proceeding for any such purpose, or of any request by the Commission for the amending or supplementing of the Registration Statement or Prospectus or for additional information; and, in the event of the issuance of any stop order or of any order preventing or suspending the use of any Preliminary Prospectus or prospectus or suspending any such qualification, promptly to use its best efforts to obtain the withdrawal of such order;

(b) Promptly from time to time to take such action as you may reasonably request to qualify the Shares for offering and sale under the securities laws of such jurisdictions as you may request and to comply with such laws so as to permit the continuance of sales and dealings therein in such jurisdictions for as long as may be necessary to complete the distribution of the Shares, provided that in connection therewith the Company shall not be

required to qualify as a foreign corporation or to file a general consent to service of process in any jurisdiction;

(c) Prior to 10:00 a.m., New York time, on the New York Business Day next succeeding the date of this Agreement and from time to time, to furnish the Underwriters with written and electronic copies of the Prospectus in New York City in such quantities as you may reasonably request, and, if the delivery of a prospectus is required at any time prior to the expiration of nine months after the time of issue of the Prospectus in connection with the offering or sale of the Shares and if at such time any event shall have occurred as a result of which the Prospectus as then amended or supplemented would include an untrue statement of a material fact or omit to state any material fact necessary in order to make the statements therein, in light of the circumstances under which they were made when such Prospectus is delivered, not misleading, or, if for any other reason it shall be necessary during such period to amend or supplement the Prospectus or to file under the Exchange Act any document incorporated by reference in the Prospectus in order to comply with the Act or the Exchange Act, to notify you and upon your request to file such document and to prepare and furnish without charge to each Underwriter and to any dealer in securities as many copies as you may from time to time reasonably request of an amended Prospectus or a supplement to the Prospectus which will correct such statement or omission or effect such compliance, and in case any Underwriter is required to deliver a prospectus in connection with sales of any of the Shares at any time nine months or more after the time of issue of the Prospectus, upon your request but at the expense of such Underwriter, to prepare and deliver to such Underwriter as many written and electronic copies as you may request of an amended or supplemented Prospectus complying with Section 10(a)(3) of the Act;

(d) To make generally available to its securityholders as soon as practicable, but in any event not later than eighteen months after the effective date of the Registration Statement (as defined in Rule 158(c) under the Act), an earnings statement of the Company and its subsidiaries (which need not be audited) complying with Section 11 (a) of the Act and the rules and regulations of the Commission thereunder (including, at the option of the Company, Rule 158);

(e) During the period beginning from the date hereof and continuing to and including the date which is 90 days after the date of the Prospectus, not to offer, sell, contract to sell or otherwise dispose of, except as provided hereunder, any securities of the Company that are substantially similar to the Shares, including but not limited to any securities that are convertible into or exchangeable for, or that represent the right to receive, Stock or any such substantially similar securities (other than (i) pursuant to employee benefit plans and similar plans or arrangements in respect of directors and consultants existing on the date of this Agreement, (ii) upon the conversion, exercise or exchange of convertible, exercisable or exchangeable securities outstanding as of, the date of this Agreement, (iii) upon conversion of the Notes, (iv) issued in connection with the Company's acquisition of Cyras Systems, Inc. or (v) issued in connection with other mergers, acquisitions or similar transactions so long as the parties to whom such securities are issued agree they will not, without your prior written consent, sell, contract to sell or otherwise dispose of such securities until the date which is 90 days after the date of the Prospectus), without your prior written consent;

(f) To furnish to its stockholders as soon as practicable after the end of each fiscal year an annual report (including a balance sheet and statements of income, stockholders' equity and cash flows of the Company and its consolidated subsidiaries certified by independent public accountants) and, as soon as practicable after the end of each of the first

three quarters of each fiscal year (beginning with the fiscal quarter ending after the effective date of the Registration Statement), consolidated summary financial information of the Company and its subsidiaries for such quarter in reasonable detail;

(g) During a period of five years from the effective date of the Registration Statement, to furnish to you copies of all reports or other communications (financial or other) furnished to stockholders, and to deliver to you (i) as soon as they are available, copies of any reports and financial statements furnished to or filed with the Commission or any national securities exchange on which any class of securities of the Company is listed; and (ii) such additional information concerning the business and financial condition of the Company as you may from time to time reasonably request (such financial statements to be on a consolidated basis to the extent the accounts of the Company and its subsidiaries are consolidated in reports furnished to its stockholders generally or to the Commission); and

(h) To use the net proceeds received by it from the sale of the Shares pursuant to this Agreement in the manner specified in the Prospectus under the caption "Use of Proceeds".

(i) To use its best efforts to list for quotation the Shares on Nasdaq;

(j) If the Company elects to rely upon Rule 462(b), the Company shall file a Rule 462(b) Registration Statement with the Commission in compliance with Rule 462(b) by 10:00 P.M., Washington, D.C. time, on the date of this Agreement, and the Company shall at the time of filing either pay to the Commission the filing fee for the Rule 462(b) Registration Statement or give irrevocable instructions for the payment of such fee pursuant to Rule 111(b) under the Act; and

(k) Upon request of any Underwriter, to furnish, or cause to be furnished, to such Underwriter an electronic version of the Company's trademarks, servicemarks and corporate logo for use on the website, if any, operated by such Underwriter for the purpose of facilitating the on-line offering of the Shares (the "License"); provided, however, that the License shall be used solely for the purpose described above, is granted without any fee and may not be assigned or transferred.

6. The Company covenants and agrees with the several Underwriters that the Company will pay or cause to be paid the following: (i) the fees, disbursements and expenses of the Company's counsel and accountants in connection with the registration of the Shares under the Act and all other expenses in connection with the preparation, printing and filing of the Registration Statement, any Preliminary Prospectus and the Prospectus and amendments and supplements thereto and the mailing and delivering of copies thereof to the Underwriters and dealers; (ii) the cost of printing or producing any Agreement among Underwriters, this Agreement, any Blue Sky and Legal Investment Memoranda, the Selling Agreements, closing documents (including any compilations thereof) and any other documents in connection with the offering, purchase, sale and delivery of the Shares; (iii) all expenses in connection with the qualification of the Shares for offering and sale under state securities laws as provided in Section 5(b) hereof, including the fees and disbursements of counsel for the Underwriters in connection with such qualification and in connection with any Blue Sky and legal investment surveys; (iv) all fees and expenses in connection with listing the Shares on Nasdaq; (v) the cost of preparing stock certificates; (vi) the cost and charges of any transfer agent or registrar; and (vii) all other costs and expenses incident to the performance of its obligations hereunder which are not otherwise specifically provided for in this Section. It is understood, however, that except as provided in this Section, and Sections 8 and 11 hereof, the Underwriters will pay all of their

own costs and expenses, including the fees of their counsel, stock transfer taxes on resale of any of the Shares by them, and any advertising expenses connected with any offers they may make.

7. The obligations of the Underwriters hereunder shall be subject, in their discretion, to the condition that all representations and warranties and other statements of the Company herein are, at and as of such Time of Delivery, true and correct, the condition that the Company shall have performed all of its obligations hereunder theretofore to be performed, and the following additional conditions:

(a) The Prospectus shall have been filed with the Commission pursuant to Rule 424(b) within the applicable time period prescribed for such filing by the rules and regulations under the Act and in accordance with Section 5(a) hereof; no stop order suspending the effectiveness of the Registration Statement or any part thereof shall have been issued and no proceeding for that purpose shall have been initiated or threatened by the Commission; and all requests for additional information on the part of the Commission shall have been complied with to your reasonable satisfaction; if the Company has elected to rely upon Rule 462(b), the Rule 462(b) Registration Statement shall have become effective by 10:00 p.m., Washington, D.C. time, on the date of this Agreement;

(b) Hale and Dorr LLP, counsel for the Underwriters, shall have furnished to you such opinion or opinions, dated such Time of Delivery, with respect to the matters covered in paragraphs (i), (ii) (but only with respect to the due authorization, valid issuance, full payment and non-assessability of the Shares), (vi), (ix) and (xiii) of subsection (c) below as well as such other related matters as you may reasonably request, and such counsel shall have received such papers and information as they may reasonably request to enable them to pass upon such matters;

(c) Hogan & Hartson L.L.P., counsel for the Company, shall have furnished to you their written opinion, dated such Time of Delivery, in form and substance satisfactory to you, to the effect that:

(i) The Company was incorporated and is validly existing as a corporation in good standing under the laws of the State of Delaware, with corporate power and corporate authority to own its properties and conduct its business as described in the Prospectus;

(ii) The Company has authorized capital stock as set forth in the Prospectus, and all of the issued shares of capital stock of the Company (including the Shares being delivered at such Time of Delivery) have been duly and validly authorized and issued and are fully paid and non-assessable; and the Shares in all material respects conform to the description of the Stock contained in the Prospectus;

(iii) The Company has been duly qualified as a foreign corporation for the transaction of business and is in good standing under the laws of the State of Maryland;

(iv) Each subsidiary of the Company has been duly incorporated and is validly existing as a corporation in good standing under the laws of its jurisdiction of incorporation; and all of the issued shares of capital stock of each such subsidiary have been duly and validly authorized and issued, are fully paid and non-assessable, and (except for directors' qualifying shares) are owned directly or indirectly by the Company, free and clear of

all liens, encumbrances, equities or claims (such counsel being entitled to rely in respect of the opinion in this clause upon opinions of local counsel and in respect of matters of fact upon certificates of officers of the Company or its subsidiaries, provided that such counsel shall state that they believe that both you and they are justified in relying upon such opinions and certificates);

(v) Nothing has come to the attention of such counsel that causes it to believe real property and buildings held under lease by the Company and its subsidiaries are not held by them under valid leases with such exceptions as are not material and do not interfere with the use made and proposed to be made of such property and buildings by the Company and its subsidiaries and each such lease identified in such opinion is enforceable against the Company (subject to normal exceptions);

(vi) This Agreement has been duly authorized, executed and delivered by the Company;

(vii) The issue and sale of the Shares being delivered at such Time of Delivery to be sold by the Company and the compliance by the Company with all of the provisions of this Agreement as of such Time of Delivery and the consummation of the transactions herein and therein contemplated do not conflict with or result in a breach or violation of any of the terms or provisions of, or constitute a default under, any agreement or instrument filed as an exhibit to the Registration Statement, nor will such action result in any violation of the provisions of the Certificate of Incorporation or By-laws of the Company or any of its subsidiaries or any statute, order, rule or regulation known to such counsel of any court or governmental agency or body having jurisdiction over the Company or any of its subsidiaries or any of their properties;

(viii) No consent, approval, authorization, order, registration or qualification of or with any such court or governmental agency or body having jurisdiction over the Company or any of its subsidiaries or any of their properties is required for the issue and sale of the Shares or the consummation by the Company of the transactions contemplated by this Agreement as of the Time of Delivery, except the registration under the Act of the Shares, and such consents, approvals, authorizations, registrations or qualifications as may be required under state or foreign securities or Blue Sky laws in connection with the purchase and distribution of the Shares by the Underwriters;

(ix) The statements set forth in the Prospectus under the caption "Description of Common Stock and Preferred Stock," insofar as they purport to constitute a summary of the terms of the Stock, are accurate in all material respects;

(x) The Company is not an "investment company" or an entity "controlled" by an "investment company," as such terms are defined in the Investment Company Act;

(xi) To the best of such counsel's knowledge, the Company has not issued any outstanding securities convertible into or exchangeable for, or outstanding options, warrants or other rights to purchase or to subscribe for any shares or other securities of the Company, except as described in the Prospectus;

(xii) No holder of outstanding shares of capital stock of the Company has (i) any statutory preemptive right under Delaware General Corporation Law or, (ii) to such

counsel's knowledge and except as has been waived, any contractual right to subscribe for any shares of capital stock of the Company (including the Shares being delivered at such Time of Delivery) or to have any common stock or other securities of the Company included in the Registration Statement or the right, as a result of the filing of the Registration Statement, to require registration of any shares of Common Stock or other securities of the Company; and

(xiii) The Registration Statement and the Prospectus and any further amendments and supplements thereto made by the Company prior to such Time of Delivery (other than the financial statements and related schedules therein, as to which such counsel need express no opinion) comply as to form in all material respects with the requirements of the Act and the rules and regulations thereunder.

(xiv) The documents incorporated by reference in the Prospectus or any further amendment or supplement thereto made by the Company prior to such Time of Delivery (other than the financial statements and other financial data and related schedules therein, as to which such counsel need express no opinion), when they became effective or were filed with the Commission, as the case may be, complied as to form in all material respects with the requirements of the Exchange Act and the rules and regulations of the Commission thereunder.

In addition to the matters set forth above, such letter shall also contain statement of such counsel to the effect that (i) to such counsel's knowledge and other than as set forth in the Prospectus, there are no legal or governmental proceedings pending to which the Company or any of its subsidiaries is a party or of which any property of the Company or any of its subsidiaries is the subject of which, if determined adversely to the Company, could reasonably be expected individually or in the aggregate to have a material adverse effect on the financial condition or results of operations of the Company and its subsidiaries, and, to such counsel's knowledge, no such proceedings are threatened by governmental authorities or threatened by others; (ii) while such counsel are not passing upon and do not assume responsibility for, the accuracy, completeness or fairness of the Registration Statement or the Prospectus, based upon the procedures referred to in such letter no facts have come to the attention of such counsel which lead them to believe that, as of its effective date, the Registration Statement or any further amendment thereto made by the Company prior to such Time of Delivery (other than the financial statements and notes thereto, financial schedules and other financial data included therein, as to which such counsel need express no opinion) contained an untrue statement of a material fact or omitted to state a material fact necessary to make the statements therein not misleading or that, as of its date and as of such Time of Delivery, the Prospectus or any further amendment or supplement thereto made by the Company (other than the financial statements and notes thereto, schedules and other financial data included therein, as to which such counsel need express no opinion) contained or contains an untrue statement of a material fact or omitted or omits to state a material fact necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading; and (iii) they do not know of any amendment to the Registration Statement required to be filed or of any contracts or other documents of a character required to be filed as an exhibit to the Registration Statement or required to be incorporated by reference into the Prospectus or required to be described in the Registration Statement or the Prospectus, which are not filed, incorporated by reference or described as required.

In rendering such opinion, such counsel may state that they express no opinion as to the laws of any jurisdiction other than the Federal laws of the United States, the laws of the

State of Maryland, the contract law of the State of New York and the General Corporation Law of the State of Delaware.

(d) The Senior Vice President and General Counsel of the Company shall have furnished to you his written opinion (a draft of such opinion is attached as Annex III hereto), dated such Time of Delivery, in form and substance satisfactory to you, to the effect that (i) neither the Company nor any of its subsidiaries is in violation of its Certificate of Incorporation or, in any material respect, its By-Laws, and (ii) to such counsel's knowledge and other than as described in the Prospectus, there are no legal or governmental proceedings pending to which the Company or any of its subsidiaries is the subject; and, to such counsel's knowledge, no such proceedings are threatened by governmental authorities or by others.

(e) On the date of the Prospectus at a time prior to the execution of this Agreement, at 9:30 a.m., New York City time, on the effective date of any post-effective amendment to the Registration Statement filed subsequent to the date of this Agreement and also at each Time of Delivery, PricewaterhouseCoopers LLP and Deloitte & Touche LLP shall each have furnished to you a letter or letters, dated the respective dates of delivery thereof, in form and substance satisfactory to you, to the effect set forth in Annexes I and II hereto respectively (the executed copies of the letters delivered prior to the execution of this Agreement are attached as Annexes I(a) and II(a) hereto and drafts of the forms of letter to be delivered on the effective date of any post-effective amendment to the Registration Statement and as of each Time of Delivery are attached as Annex I(b) and II(b) hereto;

(f) (i) Neither the Company nor any of its subsidiaries shall have sustained since the date of the latest audited financial statements included or incorporated by reference in the Prospectus any loss or interference with its business from fire, explosion, flood or other calamity, whether or not covered by insurance, or from any labor dispute or court or governmental action, order or decree, otherwise than as set forth or contemplated in the Prospectus, and (ii) since the respective dates as of which information is given in the Prospectus there shall not have been any change in the capital stock or long-term debt of the Company or any of its subsidiaries or any change, or any development reasonably likely to result in a prospective change, in or affecting the general affairs, management, financial position, stockholders' equity or results of operations of the Company, otherwise than as set forth or contemplated in the Prospectus, the effect of which, in any such case described in clause (i) or (ii), is in the judgment of the Representatives so material and adverse as to make it impracticable or inadvisable to proceed with the public offering or the delivery of the Shares being delivered at such Time of Delivery on the terms and in the manner contemplated in the Prospectus;

(g) On or after the date hereof (i) no downgrading shall have occurred in the rating accorded the Company's debt securities by any "nationally recognized statistical rating organization", as that term is defined by the Commission for purposes of Rule 436(g)(2) under the Act, and (ii) no such organization shall have publicly announced that it has under surveillance or review, with possible negative implications, its rating of any of the Company's debt securities;

(h) On or after the date hereof there shall not have occurred any of the following: (i) a suspension or material limitation in trading in securities generally on Nasdaq; (ii) a suspension or material limitation in trading in the Company's securities on Nasdaq; (iii) a general moratorium on commercial banking activities declared by either Federal, New York State or District of Columbia authorities; or (iv) the outbreak or escalation of hostilities involving

the United States or the declaration by the United States of a national emergency or war, if the effect of any such event specified in this clause (iv) in the judgment of the Representatives makes it impracticable or inadvisable to proceed with the public offering or the delivery of the Shares being delivered at such Time of Delivery on the terms and in the manner contemplated in the Prospectus;

(i) The Company shall have complied with the provisions of Section 5(c) hereof with respect to furnishing of Prospectuses on the New York Business Day next succeeding the date of this Agreement; and

(j) The Company shall have furnished or caused to be furnished to you at such Time of Delivery certificates of officers of the Company, satisfactory to you as to the accuracy of the representations and warranties of the Company herein at and as of such Time of Delivery, as to the performance by the Company of all of its respective obligations hereunder to be performed at or prior to such Time of Delivery, and as to such other matters as you may reasonably request, and the Company shall have furnished or caused to be furnished certificates as to the matters set forth in subsections (a) and (g) of this Section, and as to such other matters as you may reasonably request.

8. (a) The Company will indemnify and hold harmless each Underwriter against any losses, claims, damages or liabilities, joint or several, to which such Underwriter may become subject, under the Act or otherwise, insofar as such losses, claims, damages or liabilities (or actions in respect thereof) arise out of or are based upon an untrue statement or alleged untrue statement of a material fact contained in any Preliminary Prospectus, the Registration Statement or the Prospectus, or any amendment or supplement thereto, or arise out of or are based upon the omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading, and will reimburse each Underwriter for any legal or other expenses reasonably incurred by such Underwriter in connection with investigating or defending any such action or claim as such expenses are incurred; provided, however, that the Company shall not be liable in any such case to the extent that any such loss, claim, damage or liability arises out of or is based upon an untrue statement or alleged untrue statement or omission or alleged omission made in any Preliminary Prospectus, the Registration Statement or the Prospectus or any such amendment or supplement in reliance upon and in conformity with written information furnished to the Company by any Underwriter through Goldman, Sachs & Co. expressly for use therein.

(b) Each Underwriter will indemnify and hold harmless the Company against any losses, claims, damages or liabilities to which the Company may become subject, under the Act or otherwise, insofar as such losses, claims, damages or liabilities (or actions in respect thereof) arise out of or are based upon an untrue statement or alleged untrue statement of a material fact contained in any Preliminary Prospectus, the Registration Statement or the Prospectus, or any amendment or supplement thereto, or arise out of or are based upon the omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading, in each case to the extent, but only to the extent, that such untrue statement or alleged untrue statement or omission or alleged omission was made in any Preliminary Prospectus, the Registration Statement or the Prospectus or any such amendment or supplement in reliance upon and in conformity with written information furnished to the Company by such Underwriter through Goldman, Sachs & Co. expressly for use therein; and will reimburse the Company for any legal or other expenses reasonably incurred by the Company in connection with investigating or defending any such action or claim as such expenses are incurred.

(c) Promptly after receipt by an indemnified party under subsection (a) or (b) above of notice of the commencement of any action, such indemnified party shall, if a claim in respect thereof is to be made against an indemnifying party under such subsection, notify the indemnifying party in writing of the commencement thereof; but the omission so to notify the indemnifying party shall not relieve it from any liability which it may have to any indemnified party otherwise than under such subsection. In case any such action shall be brought against any indemnified party and it shall notify the indemnifying party of the commencement thereof, the indemnifying party shall be entitled to participate therein and, to the extent that it shall wish, jointly with any other indemnifying party similarly notified, to assume the defense thereof, with counsel satisfactory to such indemnified party (who shall not, except with the consent of the indemnified party, be counsel to the indemnifying party), and, after notice from the indemnifying party to such indemnified party of its election so to assume the defense thereof, the indemnifying party shall not be liable to such indemnified party under such subsection for any legal expenses of other counsel or any other expenses, in each case subsequently incurred by such indemnified party, in connection with the defense thereof other than reasonable costs of investigation. No indemnifying party shall, without the written consent of the indemnified party, effect the settlement or compromise of, or consent to the entry of any judgment with respect to, any pending or threatened action or claim in respect of which indemnification or contribution may be sought hereunder (whether or not the indemnified party is an actual or potential party to such action or claim) unless such settlement, compromise or judgment (i) includes an unconditional release of the indemnified party from all liability arising out of such action or claim and (ii) does not include a statement as to or an admission of fault, culpability or a failure to act, by or on behalf of any indemnified party.

(d) If the indemnification provided for in this Section 8 is unavailable to or insufficient to hold harmless an indemnified party under subsection (a) or (b) above in respect of any losses, claims, damages or liabilities (or actions in respect thereof) referred to therein, then each indemnifying party shall contribute to the amount paid or payable by such indemnified party as a result of such losses, claims, damages or liabilities (or actions in respect thereof) in such proportion as is appropriate to reflect the relative benefits received by the Company on the one hand and the Underwriters on the other from the offering of the Shares. If, however, the allocation provided by the immediately preceding sentence is not permitted by applicable law or if the indemnified party failed to give the notice required under subsection (c) above, then each indemnifying party shall contribute to such amount paid or payable by such indemnified party in such proportion as is appropriate to reflect not only such relative benefits but also the relative fault of the Company on the one hand and the Underwriters on the other in connection with the statements or omissions which resulted in such losses, claims, damages or liabilities (or actions in respect thereof), as well as any other relevant equitable considerations. The relative benefits received by the Company on the one hand and the Underwriters on the other shall be deemed to be in the same proportion as the total net proceeds from the offering of the Shares purchased under this Agreement (before deducting expenses) received by the Company bear to the total underwriting discounts and commissions received by the Underwriters with respect to the Shares purchased under this Agreement, in each case as set forth in the table on the cover page of the Prospectus. The relative fault shall be determined by reference to, among other things, whether the untrue or alleged untrue statement of a material fact or the omission or alleged omission to state a material fact relates to information supplied by the Company on the one hand or the Underwriters on the other and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such statement or omission. The Company and the Underwriters agree that it would not be just and equitable if contributions pursuant to this subsection (d) were determined by pro rata allocation (even if the Underwriters were treated as one entity for such purpose) or by any other method of allocation

which does not take account of the equitable considerations referred to above in this subsection (d). The amount paid or payable by an indemnified party as a result of the losses, claims, damages or liabilities (or actions in respect thereof) referred to above in this subsection (e) shall be deemed to include any legal or other expenses reasonably incurred by such indemnified party in connection with investigating or defending any such action or claim. Notwithstanding the provisions of this subsection (d), no Underwriter shall be required to contribute any amount in excess of the amount by which the total price at which the Shares underwritten by it and distributed to the public were offered to the public exceeds the amount of any damages which such Underwriter has otherwise been required to pay by reason of such untrue or alleged untrue statement or omission or alleged omission. No person guilty of fraudulent misrepresentation (within the meaning of Section 11 (f) of the Act) shall be entitled to contribution from any person who was not guilty of such fraudulent misrepresentation. The Underwriters' obligations in this subsection (d) to contribute are several in proportion to their respective underwriting obligations and not joint.

(e) The obligations of the Company under this Section 8 shall be in addition to any liability which the Company may otherwise have and shall extend, upon the same terms and conditions, to each person, if any, who controls any Underwriter within the meaning of the Act; and the obligations of the Underwriters under this Section 8 shall be in addition to any liability which the respective Underwriters may otherwise have and shall extend, upon the same terms and conditions, to each officer and director of the Company and to each person, if any, who controls the Company within the meaning of the Act.

9. (a) If any Underwriter shall default in its obligation to purchase the Shares which it has agreed to purchase hereunder at a Time of Delivery, you may in your discretion arrange for you or another party or other parties to purchase such Shares on the terms contained herein. If within thirty-six hours after such default by any Underwriter you do not arrange for the purchase of such Shares, then the Company shall be entitled to a further period of thirty-six hours within which to procure another party or other parties satisfactory to you to purchase such Shares on such terms. In the event that, within the respective prescribed periods, you notify the Company that you have so arranged for the purchase of such Shares, or the Company notifies you that it has so arranged for the purchase of such Shares, you or the Company shall have the right to postpone such Time of Delivery for a period of not more than seven days, in order to effect whatever changes may thereby be made necessary in the Registration Statement or the Prospectus, or in any other documents or arrangements, and the Company agrees to file promptly any amendments to the Registration Statement or the Prospectus which in your opinion may thereby be made necessary. The term "Underwriter" as used in this Agreement shall include any person substituted under this Section with like effect as if such person had originally been a party to this Agreement with respect to such Shares.

(b) If, after giving effect to any arrangements for the purchase of the Shares of a defaulting Underwriter or Underwriters by you and the Company as provided in subsection (a) above, the aggregate number of such Shares which remains unpurchased does not exceed [one-eleventh] of the aggregate number of all of the Shares to be purchased at such Time of Delivery, then the Company shall have the right to require each non-defaulting Underwriter to purchase the number of Shares which such Underwriter agreed to purchase hereunder at such Time of Delivery and, in addition, to require each non-defaulting Underwriter to purchase its pro rata share (based on the number of Shares which such Underwriter agreed to purchase hereunder) of the Shares of such defaulting Underwriter or Underwriters for which such arrangements have not been made; but nothing herein shall relieve a defaulting Underwriter from liability for its default.

(c) If, after giving effect to any arrangements for the purchase of the Shares of a defaulting Underwriter or Underwriters by you and the Company as provided in subsection (a) above, the aggregate number of such Shares which remains unpurchased exceeds one-eleventh of the aggregate number of all of the Shares to be purchased at such Time of Delivery, or if the Company shall not exercise the right described in subsection (b) above to require non-defaulting Underwriters to purchase Shares of a defaulting Underwriter or Underwriters, then this Agreement (or, with respect to the Second Time of Delivery, the obligation of the Underwriters to purchase and of the Company to sell the Optional Shares) shall thereupon terminate, without liability on the part of any non-defaulting Underwriter or the Company, except for the expenses to be borne by the Company and the Underwriters as provided in Section 6 hereof and the indemnity and contribution agreements in Section 8 hereof; but nothing herein shall relieve a defaulting Underwriter from liability for its default.

10. The respective indemnities, agreements, representations, warranties and other statements of the Company and the several Underwriters, as set forth in this Agreement or made by or on behalf of them, respectively, pursuant to this Agreement, shall remain in full force and effect, regardless of any investigation (or any statement as to the results thereof) made by or on behalf of any Underwriter or any controlling person of any Underwriter, or the Company, or any officer or director or controlling person of the Company, and shall survive delivery of and payment for the Shares.

Anything herein to the contrary notwithstanding, the indemnity agreement of the Company in subsection (a) of Section 8 hereof, the representations and warranties in subsections (b), (c) and (d) of Section 1 hereof and any representation or warranty as to the accuracy of the Registration Statement or the Prospectus contained in any certificate furnished by the Company pursuant to Section 7 hereof, insofar as they may constitute a basis for indemnification for liabilities (other than payment by the Company of expenses incurred or paid in the successful defense of any action, suit or proceeding) arising under the Act, shall not extend to the extent of any interest therein of a controlling person or partner of an Underwriter who is a director, officer or controlling person of the Company when the Registration Statement has become effective, except in each case to the extent that an interest of such character shall have been determined by a court of appropriate jurisdiction as not against public policy as expressed in the Act. Unless in the opinion of counsel for the Company the matter has been settled by controlling precedent, the Company will, if a claim for such indemnification is asserted, submit to a court of appropriate jurisdiction the question of whether such interest is against public policy as expressed in the Act and will be governed by the final adjudication of such issue.

11. If this Agreement shall be terminated pursuant to Section 9 hereof, the Company shall not then be under any liability to any Underwriter except as provided in Sections 6 and 8 hereof; but, if for any other reason any Shares are not delivered by or on behalf of the Company as provided herein, the Company will reimburse the Underwriters through you for all out-of-pocket expenses approved in writing by you, including fees and disbursements of counsel, reasonably incurred by the Underwriters in making preparations for the purchase, sale and delivery of the Shares not so delivered, but the Company shall then be under no further liability to any Underwriter in respect of the Shares not so delivered except as provided in Sections 6 and 8 hereof.

12. In all dealings hereunder, you shall act on behalf of each of the Underwriters, and the parties hereto shall be entitled to act and rely upon any statement, request, notice or

agreement on behalf of any Underwriter made or given by you jointly or by Goldman, Sachs & Co. on behalf of you as the representatives.

All statements, requests, notices and agreements hereunder shall be in writing, and if to the Underwriters shall be delivered or sent by mail, telex or facsimile transmission to you as the representatives in care of Goldman, Sachs & Co., 1 Liberty Plaza, 7th Floor, New York, New York 10006, Attention: Registration Department; and if to the Company shall be delivered or sent by mail, telex or facsimile transmission to the address of the Company set forth in the Registration Statement, Attention: Secretary; provided, however, that any notice to an Underwriter pursuant to Section 8(d) hereof shall be delivered or sent by mail, telex or facsimile transmission to such Underwriter at its address set forth in its Underwriters' Questionnaire or telex constituting such Questionnaire, which address will be supplied to the Company by you upon request. Any such statements, requests, notices or agreements shall take effect upon receipt thereof.

13. This Agreement shall be binding upon, and inure solely to the benefit of, the Underwriters and the Company and, to the extent provided in Sections 8 and 10 hereof, the officers and directors of the Company and each person who controls the Company or any Underwriter, and their respective heirs, executors, administrators, successors and assigns, and no other person shall acquire or have any right under or by virtue of this Agreement. No purchaser of any of the Shares from any Underwriter shall be deemed a successor or assign by reason merely of such purchase.

14. Time shall be of the essence of this Agreement. As used herein, the term "business day" shall mean any day when the Commission's office in Washington, D.C. is open for business.

15. This Agreement shall be governed by and construed in accordance with the laws of the State of New York.

16. This Agreement may be executed by any one or more of the parties hereto in any number of counterparts, each of which shall be deemed to be an original, but all such respective counterparts shall together constitute one and the same instrument.

If the foregoing is in accordance with your understanding, please sign and return to us one for the Company and for each of the Representatives plus one for each counsel, counterparts hereof, and upon the acceptance hereof by you, on behalf of each of the Underwriters, this letter and such acceptance hereof shall constitute a binding agreement between each of the Underwriters and the Company. It is understood that your acceptance of this letter on behalf of each of the Underwriters is pursuant to the authority set forth in a form of Agreement among Underwriters, the form of which shall be submitted to the Company for examination upon request, but without warranty on your part as to the authority of the signers thereof.

Very truly yours,

CIENA CORPORATION

By: .....
Name:
Title:

Accepted as of the date hereof:

GOLDMAN, SACHS & CO.
MORGAN STANLEY & CO. INCORPORATED
BANC OF AMERICA SECURITIES LLC
ROBERTSON STEPHENS, INC.

By: .....
(Goldman, Sachs & Co.)

On behalf of each of the Underwriters

SCHEDULE I

UNDERWRITER	TOTAL NUMBER OF FIRM SHARES TO BE PURCHASED	NUMBER OF OPTIONAL SHARES TO BE PURCHASED IF MAXIMUM OPTION EXERCISED
Goldman, Sachs & Co.		
Morgan Stanley & Co. Incorporated		
Banc of America Securities LLC		
Robertson Stephens, Inc.		
Total		

ANNEX I(a)

PRICEWATERHOUSECOOPERS COMFORT LETTER

ANNEX I(b)

PRICEWATERHOUSECOOPERS COMFORT LETTER BRING-DOWN

ANNEX II(a)

DELOITTE & TOUCHE COMFORT LETTER

ANNEX II(b)

DELOITTE & TOUCHE COMFORT LETTER BRING-DOWN

ANNEX III

OPINION OF COMPANY COUNSEL

EXHIBIT 1.2

CIENA CORPORATION

__% CONVERTIBLE NOTES DUE _____ 2008

UNDERWRITING AGREEMENT

February __, 2001

Goldman, Sachs & Co.
Morgan Stanley & Co. Incorporated
Banc of America Securities LLC
Robertson Stephens, Inc.
As representatives of the several
Underwriters named in Schedule I hereto,
c/o Goldman, Sachs & Co.,
85 Broad Street,
New York, New York 10004

Ladies and Gentlemen:

CIENA Corporation, a Delaware corporation (the "Company"), proposes, subject to the terms and conditions stated herein, to issue and sell to the Underwriters named in Schedule I hereto (the "Underwriters") an aggregate of $350,000,000 principal amount of its ___% Convertible Notes Due _____ 2008, convertible into Common Stock ("Stock") of the Company, specified above (the "Firm Securities") and, at the election of the Underwriters, up to an aggregate of $52,500,000 additional aggregate principal amount (the "Optional Securities") (the Firm Securities and the Optional Securities which the Underwriters elect to purchase pursuant to Section 2 hereof are herein collectively called the "Securities").

1. The Company represents and warrants to, and agrees with, each of the Underwriters that:

(a) A registration statement on Form S-3 (File No. 333-53922) (the "Initial Registration Statement") in respect of the Securities and shares of the Stock issuable upon conversion thereof has been filed with the Securities and Exchange Commission (the "Commission"); the Initial Registration Statement and any post-effective amendment thereto, each in the form heretofore delivered to you, and, excluding exhibits thereto but including all documents incorporated by reference in the prospectus contained therein, to you for each of the other Underwriters, have been declared effective by the Commission in such form; other than a registration statement, if any, increasing the size of the offering (a "Rule 462(b) Registration Statement"), filed pursuant to Rule 462(b) under the Securities Act of 1933, as amended (the "Act"), which became effective upon filing, no other document with respect to the Initial Registration Statement or document incorporated by reference therein has heretofore been filed with the Commission; and no stop order suspending the effectiveness of the Initial

Registration Statement, any post-effective amendment thereto or the Rule 462(b) Registration Statement, if any, has been issued and no proceeding for that purpose has been initiated or threatened by the Commission (any preliminary prospectus included in the Initial Registration Statement or filed with the Commission pursuant to Rule 424(a) of the rules and regulations of the Commission under the Act, is hereinafter called a "Preliminary Prospectus"; the various parts of the Initial Registration Statement and the Rule 462(b) Registration Statement, if any, including all exhibits thereto but excluding Form T-1 and including (i) the information contained in the form of final prospectus filed with the Commission pursuant to Rule 424(b) under the Act in accordance with Section 5(a) hereof and deemed by virtue of Rule 430A under the Act to be part of the Initial Registration Statement at the time it was declared effective and (ii) the documents incorporated by reference in the prospectus contained in the Initial Registration Statement at the time such part of the Initial Registration Statement became effective, each as amended at the time such part of the Initial Registration Statement became effective or such part of the Rule 462(b) Registration Statement, if any, became or hereafter becomes effective, are hereinafter collectively called the "Registration Statement"; and such final prospectus, in the form first filed pursuant to Rule 424(b) under the Act, is hereinafter called the "Prospectus"; and any reference herein to any Preliminary Prospectus or the Prospectus shall be deemed to refer to and include the documents incorporated by reference therein pursuant to Item 12 of Form S-3 under the Act, as of the date of such Preliminary Prospectus or Prospectus, as the case may be; and any reference to any amendment or supplement to any Preliminary Prospectus or the Prospectus shall be deemed to refer to and include any documents filed after the date of such Preliminary Prospectus or Prospectus, as the case may be, under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and incorporated by reference in such Preliminary Prospectus or Prospectus, as the case may be; and any reference to any amendment to the Registration Statement shall be deemed to refer to and include any annual report of the Company filed pursuant to Section 13(a) or 15(d) of the Exchange Act after the effective date of the Initial Registration Statement that is incorporated by reference in the Registration Statement.)

(b) No order preventing or suspending the use of any Preliminary Prospectus has been issued by the Commission, and each Preliminary Prospectus, at the time of filing thereof, conformed in all material respects to the requirements of the Act and the Trust Indenture Act of 1939, as amended (the "Trust Indenture Act"), and the rules and regulations of the Commission thereunder, and did not contain an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading; provided, however, that this representation and warranty shall not apply to any statements or omissions made in reliance upon and in conformity with information furnished in writing to the Company by an Underwriter through Goldman, Sachs & Co. expressly for use therein;

(c) The documents incorporated by reference in the Prospectus, when they became effective or were filed with the Commission, as the case may be, conformed in all material respects to the requirements of the Act or the Exchange Act, as applicable, and the rules and regulations of the Commission thereunder, and none of such documents contained an untrue statement of a material fact or omitted to state a material fact required to be stated therein or necessary to make the statements therein not misleading; and any further documents so filed and incorporated by reference in the Prospectus or any further amendment or supplement thereto, when such documents become effective or are filed with the Commission, as the case may be, will conform in all material respects to the requirements of the Act or the Exchange Act, as applicable, and the rules and regulations of the Commission thereunder and will not contain an untrue statement of a material fact or omit to state a material fact required to

be stated therein or necessary to make the statements therein not misleading; provided, however, that this representation and warranty shall not apply to any statements or omissions made in reliance upon and in conformity with information furnished in writing to the Company by an Underwriter through Goldman, Sachs & Co. expressly for use therein;

(d) The Registration Statement conforms, and the Prospectus and any further amendments or supplements to the Registration Statement or the Prospectus will conform, in all material respects to the requirements of the Act and the Trust Indenture Act and the rules and regulations of the Commission thereunder and do not and will not, as of the applicable effective date as to the Registration Statement and any amendment thereto and as of the applicable filing date as to the Prospectus and any amendment or supplement thereto, contain an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading; provided, however, that this representation and warranty shall not apply to any statements or omissions made in reliance upon and in conformity with information furnished in writing to the Company by an Underwriter through Goldman, Sachs & Co. expressly for use therein;

(e) Neither the Company nor any of its subsidiaries has sustained since the date of the latest audited financial statements included or incorporated by reference in the Prospectus any material loss or interference with its business from fire, explosion, flood or other calamity, whether or not covered by insurance, or from any labor dispute or court or governmental action, order or decree, otherwise than as set forth or contemplated in the Prospectus; and, since the respective dates as of which information is given in the Registration Statement and the Prospectus, there has not been any change in the capital stock or long-term debt of the Company or any of its subsidiaries or any material adverse change, or any development reasonably likely to result in a prospective material adverse change, in or affecting the general affairs, management, financial position, stockholders' equity or results of operations of the Company and its subsidiaries, otherwise than as set forth or contemplated in the Prospectus;

(f) The Company and its subsidiaries have good and marketable title in fee simple to all real property and good and marketable title to all personal property owned by them, in each case free and clear of all liens, encumbrances and defects except such as are described in the Prospectus or such as do not materially affect the value of such property and do not interfere with the use made and proposed to be made of such property by the Company and its subsidiaries; and any real property and buildings held under lease by the Company and its subsidiaries are held by them under valid leases with such exceptions as are not material and do not interfere with the use made and proposed to be made of such property and buildings by the Company and its subsidiaries;

(g) The Company has been duly incorporated and is validly existing as a corporation in good standing under the laws of the State of Delaware, with power and authority (corporate and other) to own its properties and conduct its business as described in the Prospectus, and has been duly qualified as a foreign corporation for the transaction of business and is in good standing under the laws of each other jurisdiction in which it owns or leases properties or conducts any business so as to require such qualification, or is subject to no material liability or disability by reason of the failure to be so qualified in any such jurisdiction; and each subsidiary of the Company has been duly incorporated and is validly existing as a corporation in good standing under the laws of its jurisdiction of incorporation;

(h) The Company has an authorized capitalization as set forth in the Prospectus, and all of the issued shares of capital stock of the Company have been duly and validly authorized and issued and are fully paid and non-assessable; the shares of Stock initially issuable upon conversion of the Securities have been duly and validly authorized and reserved for issuance and, when issued and delivered in accordance with the provisions of the Securities and the Indenture referred to below, will be duly and validly issued, fully paid and non-assessable and will conform to the description of the Stock contained in the Prospectus; and all of the issued shares of capital stock of each subsidiary of the Company have been duly and validly authorized and issued, are fully paid and non-assessable and conform to the description of the Stock contained in the Prospectus;

(i) The Securities have been duly authorized and, when issued and delivered pursuant to this Agreement, will have been duly executed, authenticated, issued and delivered and will constitute valid and legally binding obligations of the Company entitled to the benefits provided by the indenture to be dated as of February __, 2001 (the "Indenture") between the Company and....., as Trustee (the "Trustee"), under which they are to be issued, which will be substantially in the form filed as an exhibit to the Registration Statement; the Indenture has been duly authorized and duly qualified under the Trust Indenture Act and, when executed and delivered by the Company and the Trustee, will constitute a valid and legally binding instrument, enforceable in accordance with its terms, subject, as to enforcement, to bankruptcy, insolvency, reorganization and other laws of general applicability relating to or affecting creditors' rights and to general equity principles; and the Securities and the Indenture will conform to the descriptions thereof in the Prospectus;

(j) The issue and sale of the Securities and the compliance by the Company with all of the provisions of the Securities, the Indenture and this Agreement and the consummation of the transactions herein and therein contemplated will not conflict with or result in a breach or violation of any of the terms or provisions of, or constitute a default under, any indenture, mortgage, deed of trust, loan agreement or other agreement or instrument to which the Company or any of its subsidiaries is a party or by which the Company or any of its subsidiaries is bound or to which any of the property or assets of the Company or any of its subsidiaries is subject, nor will such action result in any violation of the provisions of the Certificate of Incorporation or By-laws of the Company or any of its subsidiaries or any statute or any order, rule or regulation of any court or governmental agency or body having jurisdiction over the Company or any of its subsidiaries or any of their properties; and no consent, approval, authorization, order, registration or qualification of or with any such court or governmental agency or body is required for the issue and sale of the Securities or the consummation by the Company of the transactions contemplated by this Agreement or the Indenture, except the registration under the Act of the Securities and the shares of Stock issuable upon conversion thereof, such as have been obtained under the Trust Indenture Act and such consents, approvals, authorizations, registrations or qualifications as may be required under state or foreign securities or Blue Sky laws in connection with the purchase and distribution of the Securities by the Underwriters;

(k) Neither the Company nor any of its subsidiaries is in violation of its Certificate of Incorporation or By-laws or in default in the performance or observance of any material obligation, agreement, covenant or condition contained in any indenture, mortgage, deed of trust, loan agreement, lease or other agreement or instrument to which it is a party or by which it or any of its properties may be bound;

(l) The statements set forth in the Prospectus under the caption "Description of Notes", insofar as they purport to constitute a summary of the terms of the Securities, under the caption "Description of Common Stock and Preferred Stock", insofar as they purport to constitute a summary of the terms of the Stock, and under the caption "Important United States Federal Income Tax Consequences", insofar as they purport to describe the provisions of the laws and documents referred to therein, are accurate and complete in all material respects;

(m) Other than as set forth or contemplated in the Prospectus, there are no legal or governmental proceedings pending to which the Company or any of its subsidiaries is a party or of which any property of the Company or any of its subsidiaries is the subject which, if determined adversely to the Company or any of its subsidiaries, would individually or in the aggregate have a material adverse effect on the current or future consolidated financial position, stockholders' equity or results of operations of the Company and its subsidiaries; and, other than as set forth or contemplated in the Prospectus, to the best of the Company's knowledge, no such proceedings are threatened or contemplated by governmental authorities or threatened by others;

(n) The Company is not and, after giving effect to the offering and sale of the Securities, will not be an "investment company" or an entity "controlled" by an "investment company", as such terms are defined in the Investment Company Act of 1940, as amended (the "Investment Company Act");

(o) PricewaterhouseCoopers LLP, who have certified certain financial statements of the Company and its subsidiaries, and Deloitte & Touche, LLP, who have certified certain financial statements of Cyras Systems, Inc., are each independent public accountants as required by the Act and the rules and regulations of the Commission thereunder;

(p) Other than as set forth or contemplated in the Prospectus, the Company and its subsidiaries have sufficient interests or rights in all patents, patent licenses, trademarks, servicemarks, trade names, copyrights, trade secrets, information proprietary rights and processes ("Intellectual Property") necessary for their business as now conducted and, to the Company's knowledge, necessary in connection with the products and services under development and described in the Prospectus, without any conflict with or infringement of the interests or rights of others in each case, except where there would not be any material adverse effect on the results of operations or financial condition of the Company and its subsidiaries, taken as a whole; except as disclosed in the Prospectus, the Company is not aware of material outstanding options, licenses or agreements of any kind relating to the Intellectual Property, neither the Company nor any of its subsidiaries is a party to or bound by any material options, licenses or agreements with respect to the Intellectual Property of any other person or entity; none of the technology employed by the Company or any of its subsidiaries has been obtained or is being used by the Company or its subsidiaries, in violation of any contractual fiduciary obligation binding on the Company of any of its subsidiaries or, to the Company's knowledge, any of its employees or otherwise in violation of the rights of any person, except where such violation would not have a material adverse effect on the results of operations or financial condition of the Company and its subsidiaries, taken as a whole; except as disclosed in the Prospectus, neither the Company nor any of its subsidiaries have received any written or, to the Company's knowledge, oral communications alleging that the Company or any of its subsidiaries has violated, infringed or conflicted with (and knows of no such violation, infringement or conflict) or, by conducting its business as proposed, would violate, infringe or conflict with (and knows of no such violation, infringement or conflict) any of the Intellectual Property of any other person or entity, except for such violations, infringements or conflicts that would not reasonably be expected to have a material adverse effect on the results of operations or financial condition of the Company and its subsidiaries, taken as a whole; and the Company and its subsidiaries have taken and will maintain reasonable measures to prevent the unauthorized dissemination or publication of their confidential information and, to the extent contractually required to do so, the confidential information of third parties in their possession;

(q) The Company maintains insurance of the types and in the amounts generally deemed adequate for its business, including, but not limited to, insurance covering real and personal property owned or leased by the Company against theft, damage, destruction, acts of vandalism and all other risks customarily insured against, all of which insurance is in full force and effect;

(r) There are no contracts, other documents or other agreements required to be described in the Registration Statement or to be filed as exhibits to the Registration Statement by the Act or by the rules and regulations thereunder which have not been described or filed as required; the contracts so described in the Prospectus are in full force and effect on the date hereof; and neither the Company nor, to the best of the Company's knowledge, any other party is in breach of or default in any material respect under any of such contracts;

(s) The Company has not been advised, and has no reason to believe, that it is not conducting business in compliance with all applicable laws, rules and regulations of the jurisdictions in which it is conducting business, including, without limitation, all applicable local, state and federal environmental laws and regulations; except where failure to be so in compliance would not materially adversely affect the condition (financial or otherwise), business, results of operations or prospects of the Company;

(t) The Stock has been authorized for quotation on the Nasdaq National Market System ("Nasdaq"), and the Company has received no notice of, and there is no basis for, any proceedings to delist the Stock from Nasdaq.

2. Subject to the terms and conditions herein set forth, (a) the Company agrees to issue and sell to each of the Underwriters, and each of the Underwriters agrees, severally and not jointly, to purchase from the Company, at a purchase price of .....% of the principal amount thereof, plus accrued interest, if any, from February __, 2001 to the First Time of Delivery hereunder, the principal amount of Securities set forth opposite the name of such Underwriter in Schedule I hereto, and (b) in the event and to the extent that the Underwriters shall exercise the election to purchase Optional Securities as provided below, the Company agrees to issue and sell to each of the Underwriters, and each of the Underwriters agrees, severally and not jointly, to purchase from the Company, at the same purchase price set forth in clause (a) of this Section 2, that portion of the aggregate principal amount of the Optional Securities as to which such election shall have been exercised (to be adjusted by you so as to eliminate fractions of $1,000) determined by multiplying such aggregate principal amount of Optional Securities by a fraction, the numerator of which is the maximum aggregate principal amount of Optional Securities which such Underwriter is entitled to purchase as set forth opposite the name of such Underwriter in Schedule I hereto and the denominator of which is the maximum aggregate principal amount of Optional Securities which all of the Underwriters are entitled to purchase hereunder.

The Company hereby grants to the Underwriters the right to purchase at their election up to ..... aggregate principal amount of Optional Securities, at the purchase price set forth in clause (a) of the first paragraph of this Section 2, for the sole purpose of covering sales of securities in excess of the aggregate principal amount of Firm Securities. Any such election to purchase Optional Securities may be exercised by written notice from you to the Company, given within a period of 30 calendar days after the date of this Agreement, setting forth the aggregate principal amount of Optional Securities to be purchased and the date on which such Optional Securities are to be delivered, as determined by you but in no event earlier than the First Time of Delivery (as defined in Section (4) hereof) or, unless you and the Company otherwise agree in writing, earlier than two or later than ten business days after the date of such notice.

3. Upon the authorization by you of the release of the Firm Securities, the several Underwriters propose to offer the Firm Securities for sale upon the terms and conditions set forth in the Prospectus.

4. (a) The Securities to be purchased by each Underwriter hereunder, in definitive form, and in such authorized denominations and registered in such names as Goldman, Sachs & Co. may request upon at least forty-eight hours' prior notice to the Company, shall be delivered by or on behalf of the Company to Goldman, Sachs & Co., through the facilities of The Depository Trust Company ("DTC"), for the account of such Underwriter, against payment by or on behalf of such Underwriter of the purchase price therefor by wire transfer of Federal (same-day) funds to the account specified by the Company to Goldman, Sachs & Co. at least forty-eight hours in advance. The Company will cause the certificates representing the Securities to be made available for checking and packaging at least twenty-four hours prior to the Time of Delivery (as defined below) with respect thereto at the office of DTC or its designated custodian (the "Designated Office"). The Securities to be purchased by each Underwriter hereunder will be represented by one or more definitive global Securities in book-entry form which will be deposited by or on behalf of the Company with The Depository Trust Company ("DTC") or its designated custodian. The Company will deliver the Securities to Goldman, Sachs & Co., for the account of each Underwriter, against payment by or on behalf of such Underwriter of the purchase price therefor by wire transfer of Federal (same-day) funds to the account specified by the Company to Goldman, Sachs & Co. at least forty-eight hours in advance, by causing DTC to credit the Securities to the account of Goldman, Sachs & Co. at DTC. The Company will cause a global certificate representing the Securities to be made available to Goldman, Sachs & Co. for checking at least twenty-four hours prior to the Time of Delivery (as defined below) at the Designated Office. The time and date of such delivery and payment shall be, with respect to the Firm Securities, 9:30 a.m., New York City time, on February __, 2001 or such other time and date as Goldman, Sachs & Co. and the Company may agree upon in writing, and, with respect to the Optional Securities, 9:30 a.m., New York City time, on the date specified by Goldman, Sachs & Co. in the written notice given by Goldman, Sachs & Co. of the Underwriters' election to purchase such Optional Securities, or such other time and date as Goldman, Sachs & Co. and the Company may agree upon in writing. Such time and date for delivery of the Firm Securities is herein called the "First Time of Delivery", such time and date for delivery of the Optional Securities, if not the First Time of Delivery, is herein called the "Second Time of Delivery", and each such time and date for delivery is herein called a "Time of Delivery".

(b) The documents to be delivered at the Time of Delivery by or on behalf of the parties hereto pursuant to Section 7 hereof, including the cross-receipt for the Securities and any additional documents requested by the Underwriters pursuant to Section 7(k) hereof, will be

delivered at the offices of Hogan & Hartson L.L.P., 111 South Calvert Street, Baltimore, Maryland 21202 (the "Closing Location"), and the Securities will be delivered at the Designated Office, all at each Time of Delivery. A meeting will be held at the Closing Location on or before 4:00 p.m., New York City time, on the New York Business Day next preceding the Time of Delivery, at which meeting the final drafts of the documents to be delivered pursuant to the preceding sentence will be available for review by the parties hereto. For the purposes of this Section 4, "New York Business Day" shall mean each Monday, Tuesday, Wednesday, Thursday and Friday which is not a day on which banking institutions in New York City are generally authorized or obligated by law or executive order to close.

5. The Company agrees with each of the Underwriters:

(a) To prepare the Prospectus in a form approved by you and to file such Prospectus pursuant to Rule 424(b) under the Act not later than the Commission's close of business on the second business day following the execution and delivery of this Agreement, or, if applicable, such earlier time as may be required by Rule 430A(a)(3) under the Act; to make no further amendment or any supplement to the Registration Statement or Prospectus prior to such Time of Delivery which shall be disapproved by you promptly after reasonable notice thereof; to advise you, promptly after it receives notice thereof, of the time when any amendment to the Registration Statement has been filed or becomes effective or any supplement to the Prospectus or any amended Prospectus has been filed and to furnish you with copies thereof; to file promptly all reports and any definitive proxy or information statements required to be filed by the Company with the Commission pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act subsequent to the date of the Prospectus and for so long as the delivery of a prospectus is required in connection with the offering or sale of the Securities; to advise you, promptly after it receives notice thereof, of the issuance by the Commission of any stop order or of any order preventing or suspending the use of any Preliminary Prospectus or prospectus, of the suspension of the qualification of the Securities or the shares of Stock issuable upon conversion of the Securities for offering or sale in any jurisdiction, of the initiation or threatening of any proceeding for any such purpose, or of any request by the Commission for the amending or supplementing of the Registration Statement or Prospectus or for additional information; and, in the event of the issuance of any stop order or of any order preventing or suspending the use of any Preliminary Prospectus or prospectus or suspending any such qualification, to promptly use its best efforts to obtain the withdrawal of such order;

(b) Promptly from time to time to take such action as you may reasonably request to qualify the Securities and the shares of Stock issuable upon conversion of the Securities for offering and sale under the securities laws of such jurisdictions as you may request and to comply with such laws so as to permit the continuance of sales and dealings therein in such jurisdictions for as long as may be necessary to complete the distribution of the Securities, provided that in connection therewith the Company shall not be required to qualify as a foreign corporation or to file a general consent to service of process in any jurisdiction;

(c) Prior to 10:00 a.m., New York City time, on the New York Business Day next succeeding the date of this Agreement and from time to time, to furnish the Underwriters with written and electronic copies of the Prospectus in New York City in such quantities as you may reasonably request, and, if the delivery of a prospectus is required at any time prior to the expiration of nine months after the time of issue of the Prospectus in connection with the offering or sale of the Securities and if at such time any event shall have occurred as a result of which the Prospectus as then amended or supplemented would include an untrue statement of a material fact or omit to state any material fact necessary in order to make the statements

therein, in light of the circumstances under which they were made when such Prospectus is delivered, not misleading, or, if for any other reason it shall be necessary during such period to amend or supplement the Prospectus or to file under the Exchange Act any document incorporated by reference in the Prospectus in order to comply with the Act, the Exchange Act or the Trust Indenture Act, to notify you and upon your request to file such document and to prepare and furnish without charge to each Underwriter and to any dealer in securities as many written and electronic copies as you may from time to time reasonably request of an amended Prospectus or a supplement to the Prospectus which will correct such statement or omission or effect such compliance; and in case any Underwriter is required to deliver a prospectus in connection with sales of any of the Securities and the shares of Stock issuable upon conversion of the Securities at any time nine months or more after the time of issue of the Prospectus, upon your request but at the expense of such Underwriter, to prepare and deliver to such Underwriter as many written and electronic copies as you may request of an amended or supplemented Prospectus complying with Section 10(a)(3) of the Act;

(d) To make generally available to its securityholders as soon as practicable, but in any event not later than eighteen months after the effective date of the Registration Statement (as defined in Rule 158(c) under the Act), an earnings statement of the Company and its subsidiaries (which need not be audited) complying with Section 11(a) of the Act and the rules and regulations of the Commission thereunder (including, at the option of the Company, Rule 158);

(e) During the period beginning from the date hereof and continuing to and including the date which is 90 days after the date of the Prospectus, not to offer, sell, contract to sell or otherwise dispose of, except as provided hereunder any securities of the Company that are substantially similar to the Securities or the Stock, including but not limited to any securities that are convertible into or exchangeable for, or that represent the right to receive, Stock or any such substantially similar securities (other than (i) pursuant to employee benefit plans and similar plans or arrangements in respect of directors and consultants existing on the date of this Agreement, (ii) upon the conversion, exercise or exchange of convertible, exercisable or exchangeable securities outstanding as of, the date of this Agreement (iii) upon conversion of the Notes, (iv) issued in connection with the Company's acquisition of Cyras Systems, Inc. or (v) issued in connection with other mergers, acquisitions or similar transactions so long as the parties to whom such securities are issued agree they will not, without your prior written consent, sell, contract to sell or otherwise dispose of such securities until the date which is 90 days after the date of the Prospectus), without your prior written consent;

(f) To furnish to the holders of the Securities as soon as practicable after the end of each fiscal year an annual report (including a balance sheet and statements of income, stockholders' equity and cash flows of the Company and its consolidated subsidiaries certified by independent public accountants) and, as soon as practicable after the end of each of the first three quarters of each fiscal year (beginning with the fiscal quarter ending after the effective date of the Registration Statement), consolidated summary financial information of the Company and its subsidiaries for such quarter in reasonable detail;

(g) During a period of five years from the effective date of the Registration Statement, to furnish to you copies of all reports or other communications (financial or other) furnished to stockholders, and to deliver to you (i) as soon as they are available, copies of any reports and financial statements furnished to or filed with the Commission or any national securities exchange on which the Securities or any class of securities of the Company is listed; and (ii) such additional information concerning the business and financial condition of the Company as

you may from time to time reasonably request (such financial statements to be on a consolidated basis to the extent the accounts of the Company and its subsidiaries are consolidated in reports furnished to its stockholders generally or to the Commission);

(h) To use the net proceeds received by it from the sale of the Securities pursuant to this Agreement in the manner specified in the Prospectus under the caption "Use of Proceeds";

(i) If the Company elects to rely upon Rule 462(b), the Company shall file a Rule 462(b) Registration Statement with the Commission in compliance with Rule 462(b) by 10:00 P.M., Washington, D.C. time, on the date of this Agreement, and the Company shall at the time of filing either pay to the Commission the filing fee for the Rule 462(b) Registration Statement or give irrevocable instructions for the payment of such fee pursuant to Rule 111(b) under the Act;

(j) To reserve and keep available at all times, free of preemptive rights, shares of Stock for the purpose of enabling the Company to satisfy any obligations to issue shares of its Stock upon conversion of the Securities; and

(k) To give all required notices and to use its best efforts to take all other actions necessary to list and maintain the listing of the shares of Stock issuable upon conversion of the Securities on Nasdaq.

(l) Upon request of any Underwriter, to furnish, or cause to be furnished, to such Underwriter an electronic version of the Company's trademarks, servicemarks and corporate logo for use on the website, if any, operated by such Underwriter for the purpose of facilitating the on-line offering of the Shares (the "License"); provided, however, that the License shall be used solely for the purpose described above, is granted without any fee and may not be assigned or transferred.

6. The Company covenants and agrees with the several Underwriters that the Company will pay or cause to be paid the following: (i) the fees, disbursements and expenses of the Company's counsel and accountants in connection with the registration of the Securities and the shares of Stock issuable upon conversion of the Securities under the Act and all other expenses in connection with the preparation, printing and filing of the Registration Statement, any Preliminary Prospectus and the Prospectus and amendments and supplements thereto and the mailing and delivering of copies thereof to the Underwriters and dealers; (ii) the cost of printing or producing any Agreement among Underwriters, this Agreement, the Indenture, any Blue Sky and Legal Investment Memoranda, the Selling Agreements, closing documents (including any compilations thereof) and any other documents in connection with the offering, purchase, sale and delivery of the Securities; (iii) all expenses in connection with the qualification of the Securities and the shares of Stock issuable upon conversion of the Securities for offering and sale under state securities laws as provided in Section 5(b) hereof, including the fees and disbursements of counsel for the Underwriters in connection with such qualification and in connection with any Blue Sky and legal investment surveys; (iv) any fees charged by securities rating services for rating the Securities; (v) the cost of preparing the Securities; (vi) the fees and expenses of the Trustee and any agent of the Trustee and the fees and disbursements of counsel for the Trustee in connection with the Indenture and the Securities; and (vii) all other costs and expenses incident to the performance of its obligations hereunder which are not otherwise specifically provided for in this Section. It is understood, however, that, except as provided in this Section, and Sections 8 and 11 hereof, the Underwriters will pay all of their own costs and expenses, including the fees of their counsel,

transfer taxes on resale of any of the Securities by them, and any advertising expenses connected with any offers they may make.

7. The obligations of the Underwriters hereunder shall be subject, in their discretion, to the condition that all representations and warranties and other statements of the Company herein are, at and as of such Time of Delivery, true and correct, the condition that the Company shall have performed all of its obligations hereunder theretofore to be performed, and the following additional conditions:

(a) The Prospectus shall have been filed with the Commission pursuant to Rule 424(b) within the applicable time period prescribed for such filing by the rules and regulations under the Act and in accordance with Section 5(a) hereof; if the Company has elected to rely upon Rule 462(b), the Rule 462(b) Registration Statement shall have become effective by 10:00 P.M., Washington, D.C. time, on the date of this Agreement; no stop order suspending the effectiveness of the Registration Statement or any part thereof shall have been issued and no proceeding for that purpose shall have been initiated or threatened by the Commission; and all requests for additional information on the part of the Commission shall have been complied with to your reasonable satisfaction;

(b) Hale and Dorr LLP, counsel for the Underwriters, shall have furnished to you such opinion or opinions, dated such Time of Delivery, with respect to the matters covered in paragraphs (i), (ii) (but only with respect to the due authorization, valid issuance, full payment and non-assessability of the shares of stock issued upon conversion of the Securities), (vi), (xi) and (xv) of subsection (c) below as well as such other related matters as you may reasonably request, and such counsel shall have received such papers and information as they may reasonably request to enable them to pass upon such matters;

(c) Hogan & Hartson L.L.P., counsel for the Company, shall have furnished to you their written opinion, dated such Time of Delivery, in form and substance satisfactory to you, to the effect that:

(i) The Company was incorporated and is validly existing as a corporation in good standing under the laws of the State of Delaware, with corporate power and corporate authority to own its properties and conduct its business as described in the Prospectus;

(ii) The Company has an authorized capitalization as set forth in the Prospectus, and all of the issued shares of capital stock of the Company have been duly and validly authorized and issued and are fully paid and non-assessable; and the shares of Stock initially issuable upon conversion of the Securities have been duly and validly authorized and reserved for issuance and, when issued and delivered in accordance with the provisions of the Securities and the Indenture, will be duly and validly issued and fully paid and non-assessable, and will conform to the description of the Stock contained in the Prospectus;

(iii) The Company has been duly qualified as a foreign corporation for the transaction of business and is in good standing under the laws of the State of Maryland;

(iv) Each subsidiary of the Company has been duly incorporated and is validly existing as a corporation in good standing under the laws of its jurisdiction of incorporation; and all of the issued shares of capital stock of each such subsidiary have

been duly and validly authorized and issued, are fully paid and non-assessable, and (except for directors' qualifying shares) are owned directly or indirectly by the Company, free and clear of all liens, encumbrances, equities or claims (such counsel being entitled to rely in respect of the opinion in this clause upon opinions of local counsel and in respect of matters of fact upon certificates of officers of the Company or its subsidiaries, provided that such counsel shall state that they believe that both you and they are justified in relying upon such opinions and certificates);

(v) Nothing has come to the attention of such counsel that causes it to believe real property and buildings held under lease by the Company and its subsidiaries are not held by them under valid leases with such exceptions as are not material and do not interfere with the use made and proposed to be made of such property and buildings by the Company and its subsidiaries and each such lease identified in such opinion is enforceable against the Company (subject to normal exceptions);

(vi) This Agreement has been duly authorized, executed and delivered by the Company;

(vii) The Securities have been duly authorized, executed, authenticated, issued and delivered and constitute valid and legally binding obligations of the Company entitled to the benefits provided by the Indenture, subject to bankruptcy, insolvency, reorganization and other laws of general applicability relating to or affecting creditors' rights and to general equity principles; and the Securities and the Indenture conform to the descriptions thereof in the Prospectus;

(viii) The Indenture has been duly authorized, executed and delivered by the Company and constitutes a valid and legally binding instrument, enforceable in accordance with its terms, subject to bankruptcy, insolvency, reorganization and other laws of general applicability relating to or affecting creditors' rights and to general equity principles; and the Indenture has been duly qualified under the Trust Indenture Act;

(ix) The issue and sale of the Securities being delivered at such Time of Delivery and the compliance by the Company with all of the provisions of the Securities, the Indenture and this Agreement as of such Time of Delivery and the consummation of the transactions herein and therein contemplated do not conflict with or result in a breach or violation of any of the terms or provisions of, or constitute a default under, any agreement or instrument filed as an exhibit to the Registration Statement, nor do such actions result in any violation of the provisions of the Certificate of Incorporation or By-laws of the Company or any of its subsidiaries or any statute or any order, rule or regulation known to such counsel of any court or governmental agency or body having jurisdiction over the Company or any of its subsidiaries or any of their properties;

(x) No consent, approval, authorization, order, registration or qualification of or with any such court or governmental agency or body having jurisdiction over the Company or any of its subsidiaries or any of their properties is required for the issue and sale of the Securities being issued at such Time of Delivery or the consummation by the Company of the transactions contemplated by this Agreement or the Indenture, except such as have been obtained under the Act and the Trust Indenture Act, such as may be required under the Act in connection with the shares of Stock issuable upon conversion of the Securities and such consents, approvals, authorizations, registrations or

qualifications as may be required under state or foreign securities or Blue Sky laws in connection with the purchase and distribution of the Securities by the Underwriters;

(xi) The statements set forth in the Prospectus under the caption "Description of Notes", insofar as they purport to constitute a summary of the terms of the Securities, under the caption "Description of Common Stock and Preferred Stock", insofar as they purport to constitute a summary of the terms of the Stock, and under the caption "Important United States Federal Income Tax Consequences", insofar as they purport to describe the provisions of the laws and documents referred to therein, are accurate in all material respects;

(xii) The Company is not an "investment company" or an entity "controlled" by an "investment company", as such terms are defined in the Investment Company Act;

(xiii) To the best of such counsel's knowledge, the Company has not issued any outstanding securities convertible into or exchangeable for, or outstanding options, warrants or other rights to purchase or to subscribe for any shares or other securities of the Company, except as described in the Prospectus;

(xiv) No holder of outstanding shares of capital stock of the Company has (i) any statutory preemptive right under Delaware General Corporation Law or, (ii) to such counsel's knowledge and except as has been waived, any contractual right to subscribe for any shares of capital stock of the Company (including the Shares issuable on conversion of the Securities) or to have any common stock or other securities of the Company included in the Registration Statement or the right, as a result of the filing of the Registration Statement, to require registration of any shares of Common Stock or other securities of the Company; and

(xv) The Registration Statement and the Prospectus and any further amendments and supplements thereto made by the Company prior to such Time of Delivery (other than the financial statements and related schedules therein, as to which such counsel need express no opinion) comply as to form in all material respects with the requirements of the Act and the Trust Indenture Act and the rules and regulations thereunder.

(xvi) The documents incorporated by reference in the Prospectus or any further amendment or supplement thereto made by the Company prior to such Time of Delivery (other than the financial statements and other financial data and related schedules therein, as to which such counsel need express no opinion), when they became effective or were filed with the Commission, as the case may be, complied as to form in all material respects with the requirements of the Exchange Act and the rules and regulations of the Commission thereunder.

In addition to the matters set forth above, such letter shall also contain statement of such counsel to the effect that (i) to such counsel's knowledge and other than as set forth in the Prospectus, there are no legal or governmental proceedings pending to which the Company or any of its subsidiaries is a party or of which any property of the Company or any of its subsidiaries is the subject of which, if determined adversely to the Company, could reasonably be expected individually or in the aggregate to have a material adverse effect on the financial condition or results of operations of the Company and its subsidiaries, and, to such counsel's knowledge, no such proceedings

are threatened by governmental authorities or threatened by others; (ii) while such counsel are not passing upon and do not assume responsibility for, the accuracy, completeness or fairness of the Registration Statement or the Prospectus, based upon the procedures referred to in such letter no facts have come to the attention of such counsel which lead them to believe that, as of its effective date, the Registration Statement or any further amendment thereto made by the Company prior to such Time of Delivery (other than the financial statements and notes thereto, financial schedules and other financial data included therein, as to which such counsel need express no opinion) contained an untrue statement of a material fact or omitted to state a material fact necessary to make the statements therein not misleading or that, as of its date and as of such Time of Delivery, the Prospectus or any further amendment or supplement thereto made by the Company (other than the financial statements and notes thereto, schedules and other financial data included therein, as to which such counsel need express no opinion) contained or contains an untrue statement of a material fact or omitted or omits to state a material fact necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading; and (iii) they do not know of any amendment to the Registration Statement required to be filed or of any contracts or other documents of a character required to be filed as an exhibit to the Registration Statement or required to be incorporated by reference into the Prospectus or required to be described in the Registration Statement or the Prospectus, which are not filed, incorporated by reference or described as required.

In rendering such opinion, such counsel may state that they express no opinion as to the laws of any jurisdiction other than the Federal laws of the United States, the laws of the State of Maryland, the contract law of the State of New York and the General Corporation Law of the State of Delaware.

(d) The Senior Vice President and General Counsel of the Company shall have furnished to you his written opinion (a draft of such opinion is attached as Annex III hereto), dated such Time of Delivery, in form and substance satisfactory to you, to the effect that (i) neither the Company nor any of its subsidiaries is in violation of its Certificate of Incorporation or, in any material respect, its By-Laws; and (ii) to such counsel's knowledge and other than as described in the Prospectus, there are no legal or governmental proceedings pending to which the Company or any of its subsidiaries is the subject; and, to such counsel's knowledge, no such proceedings are threatened by governmental authorities or by others.

(e) On the date of the Prospectus at a time prior to the execution of this Agreement, at 9:30 a.m., New York City time, on the effective date of any post-effective amendment to the Registration Statement filed subsequent to the date of this Agreement and also at each Time of Delivery, Pricewaterhouse Coopers LLP and Deloitte & Touche LLP shall each have furnished to you a letter or letters, dated the respective dates of delivery thereof, in form and substance satisfactory to you, to the effect set forth in Annexes I and II hereto, respectively (the executed copies of the letters delivered prior to the execution of this Agreement are attached as Annexes I(a) and II(a) hereto respectively, and drafts of the forms of letter to be delivered on the effective date of any post-effective amendment to the Registration Statement and as of each Time of Delivery are attached as Annex I(b) and II(b) hereto);

(f) (i) Neither the Company nor any of its subsidiaries shall have sustained since the date of the latest audited financial statements included or incorporated by reference in the Prospectus any loss or interference with its business from fire, explosion, flood or other calamity, whether or not covered by insurance, or from any labor dispute or court or

governmental action, order or decree, otherwise than as set forth or contemplated in the Prospectus, and (ii) since the respective dates as of which information is given in the Prospectus there shall not have been any change in the capital stock or long-term debt of the Company or any of its subsidiaries or any change, or any development reasonably likely to result in a prospective change, in or affecting the general affairs, management, financial position, stockholders' equity or results of operations of the Company, otherwise than as set forth or contemplated in the Prospectus, the effect of which, in any such case described in clause (i) or (ii), is in the judgment of the Representatives so material and adverse as to make it impracticable or inadvisable to proceed with the public offering or the delivery of the Securities being delivered at such Time of Delivery on the terms and in the manner contemplated in the Prospectus;

(g) On or after the date hereof (i) no downgrading shall have occurred in the rating accorded the Company's debt securities by any "nationally recognized statistical rating organization", as that term is defined by the Commission for purposes of Rule 436(g)(2) under the Act, and (ii) no such organization shall have publicly announced that it has under surveillance or review, with possible negative implications, its rating of any of the Company's debt securities;

(h) On or after the date hereof there shall not have occurred any of the following: (i) a suspension or material limitation in trading in securities generally on Nasdaq; (ii) a suspension or material limitation in trading in the Company's securities on Nasdaq; (iii) a general moratorium on commercial banking activities declared by either Federal, New York State or District of Columbia authorities; or (iv) the outbreak or escalation of hostilities involving the United States or the declaration by the United States of a national emergency or war, if the effect of any such event specified in this clause (iv) in the judgment of the Representatives makes it impracticable or inadvisable to proceed with the public offering or the delivery of the Securities being issued at such Time of Delivery on the terms and in the manner contemplated in the Prospectus;

(i) The Company shall have given all required notices and taken any other required actions with respect to the listing of the shares of Stock issuable upon conversion of the Securities on Nasdaq;

(j) The Company shall have complied with the provisions of Section 5(c) hereof with respect to the furnishing of Prospectuses on the New York Business Day next succeeding the date of this Agreement; and

(k) The Company shall have furnished or caused to be furnished to you at such Time of Delivery certificates of officers of the Company satisfactory to you as to the accuracy of the representations and warranties of the Company herein at and as of such Time of Delivery, as to the performance by the Company of all of its respective obligations hereunder to be performed at or prior to such Time of Delivery, and as to such other matters as you may reasonably request, and the Company shall have furnished or caused to be furnished certificates as to the matters set forth in subsections (a) and (g) of this Section, and as to such other matters as you may reasonably request.

8. (a) The Company will indemnify and hold harmless each Underwriter against any losses, claims, damages or liabilities, joint or several, to which such Underwriter may become subject, under the Act or otherwise, insofar as such losses, claims, damages or liabilities (or actions in respect thereof) arise out of or are based upon an untrue statement or alleged untrue

statement of a material fact contained in any Preliminary Prospectus, the Registration Statement or the Prospectus, or any amendment or supplement thereto, or arise out of or are based upon the omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading, and will reimburse each Underwriter for any legal or other expenses reasonably incurred by such Underwriter in connection with investigating or defending any such action or claim as such expenses are incurred; provided, however, that the Company shall not be liable in any such case to the extent that any such loss, claim, damage or liability arises out of or is based upon an untrue statement or alleged untrue statement or omission or alleged omission made in any Preliminary Prospectus, the Registration Statement or the Prospectus or any such amendment or supplement in reliance upon and in conformity with written information furnished to the Company by any Underwriter through Goldman, Sachs & Co. expressly for use therein.

(b) Each Underwriter will indemnify and hold harmless the Company against any losses, claims, damages or liabilities to which the Company may become subject, under the Act or otherwise, insofar as such losses, claims, damages or liabilities (or actions in respect thereof) arise out of or are based upon an untrue statement or alleged untrue statement of a material fact contained in any Preliminary Prospectus, the Registration Statement or the Prospectus, or any amendment or supplement thereto, or arise out of or are based upon the omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading, in each case to the extent, but only to the extent, that such untrue statement or alleged untrue statement or omission or alleged omission was made in any Preliminary Prospectus, the Registration Statement or the Prospectus or any such amendment or supplement in reliance upon and in conformity with written information furnished to the Company by such Underwriter through Goldman, Sachs & Co. expressly for use therein; and will reimburse the Company for any legal or other expenses reasonably incurred by the Company in connection with investigating or defending any such action or claim as such expenses are incurred.

(c) Promptly after receipt by an indemnified party under subsection (a) or (b) above of notice of the commencement of any action, such indemnified party shall, if a claim in respect thereof is to be made against the indemnifying party under such subsection, notify the indemnifying party in writing of the commencement thereof; but the omission so to notify the indemnifying party shall not relieve it from any liability which it may have to any indemnified party otherwise than under such subsection. In case any such action shall be brought against any indemnified party and it shall notify the indemnifying party of the commencement thereof, the indemnifying party shall be entitled to participate therein and, to the extent that it shall wish, jointly with any other indemnifying party similarly notified, to assume the defense thereof, with counsel satisfactory to such indemnified party (who shall not, except with the consent of the indemnified party, be counsel to the indemnifying party), and, after notice from the indemnifying party to such indemnified party of its election so to assume the defense thereof, the indemnifying party shall not be liable to such indemnified party under such subsection for any legal expenses of other counsel or any other expenses, in each case subsequently incurred by such indemnified party, in connection with the defense thereof other than reasonable costs of investigation. No indemnifying party shall, without the written consent of the indemnified party, effect the settlement or compromise of, or consent to the entry of any judgment with respect to, any pending or threatened action or claim in respect of which indemnification or contribution may be sought hereunder (whether or not the indemnified party is an actual or potential party to such action or claim) unless such settlement, compromise or judgment (i) includes an unconditional release of the indemnified party from all liability arising out of such action or claim

and (ii) does not include a statement as to or an admission of fault, culpability or a failure to act, by or on behalf of any indemnified party.

(d) If the indemnification provided for in this Section 8 is unavailable to or insufficient to hold harmless an indemnified party under subsection (a) or (b) above in respect of any losses, claims, damages or liabilities (or actions in respect thereof) referred to therein, then each indemnifying party shall contribute to the amount paid or payable by such indemnified party as a result of such losses, claims, damages or liabilities (or actions in respect thereof) in such proportion as is appropriate to reflect the relative benefits received by the Company on the one hand and the Underwriters on the other from the offering of the Securities. If, however, the allocation provided by the immediately preceding sentence is not permitted by applicable law or if the indemnified party failed to give the notice required under subsection (c) above, then each indemnifying party shall contribute to such amount paid or payable by such indemnified party in such proportion as is appropriate to reflect not only such relative benefits but also the relative fault of the Company on the one hand and the Underwriters on the other in connection with the statements or omissions which resulted in such losses, claims, damages or liabilities (or actions in respect thereof), as well as any other relevant equitable considerations. The relative benefits received by the Company on the one hand and the Underwriters on the other shall be deemed to be in the same proportion as the total net proceeds from the offering (before deducting expenses) received by the Company bear to the total underwriting discounts and commissions received by the Underwriters, in each case as set forth in the table on the cover page of the Prospectus. The relative fault shall be determined by reference to, among other things, whether the untrue or alleged untrue statement of a material fact or the omission or alleged omission to state a material fact relates to information supplied by the Company on the one hand or the Underwriters on the other and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such statement or omission. The Company and the Underwriters agree that it would not be just and equitable if contribution pursuant to this subsection (d) were determined by pro rata allocation (even if the Underwriters were treated as one entity for such purpose) or by any other method of allocation which does not take account of the equitable considerations referred to above in this subsection (d). The amount paid or payable by an indemnified party as a result of the losses, claims, damages or liabilities (or actions in respect thereof) referred to above in this subsection (d) shall be deemed to include any legal or other expenses reasonably incurred by such indemnified party in connection with investigating or defending any such action or claim. Notwithstanding the provisions of this subsection (d), no Underwriter shall be required to contribute any amount in excess of the amount by which the total price at which the Securities underwritten by it and distributed to the public were offered to the public exceeds the amount of any damages which such Underwriter has otherwise been required to pay by reason of such untrue or alleged untrue statement or omission or alleged omission. No person guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Act) shall be entitled to contribution from any person who was not guilty of such fraudulent misrepresentation. The Underwriters' obligations in this subsection (d) to contribute are several in proportion to their respective underwriting obligations and not joint.

(e) The obligations of the Company under this Section 8 shall be in addition to any liability which the Company may otherwise have and shall extend, upon the same terms and conditions, to each person, if any, who controls any Underwriter within the meaning of the Act; and the obligations of the Underwriters under this Section 8 shall be in addition to any liability which the respective Underwriters may otherwise have and shall extend, upon the same terms and conditions, to each officer and director of the Company and to each person, if any, who controls the Company within the meaning of the Act.

9. (a) If any Underwriter shall default in its obligation to purchase the Securities which it has agreed to purchase hereunder, you may in your discretion arrange for you or another party or other parties to purchase such Securities on the terms contained herein at a Time of Delivery. If within thirty-six hours after such default by any Underwriter you do not arrange for the purchase of such Securities, then the Company shall be entitled to a further period of thirty-six hours within which to procure another party or other parties satisfactory to you to purchase such Securities on such terms. In the event that, within the respective prescribed periods, you notify the Company that you have so arranged for the purchase of such Securities, or the Company notifies you that it has so arranged for the purchase of such Securities, you or the Company shall have the right to postpone such Time of Delivery for a period of not more than seven days, in order to effect whatever changes may thereby be made necessary in the Registration Statement or the Prospectus, or in any other documents or arrangements, and the Company agrees to file promptly any amendments to the Registration Statement or the Prospectus which in your opinion may thereby be made necessary. The term "Underwriter" as used in this Agreement shall include any person substituted under this Section with like effect as if such person had originally been a party to this Agreement with respect to such Securities.

(b) If, after giving effect to any arrangements for the purchase of the Securities of a defaulting Underwriter or Underwriters by you and the Company as provided in subsection (a) above, the aggregate principal amount of such Securities which remains unpurchased does not exceed one-eleventh of the aggregate principal amount of all the Securities to be purchased at such Time of Delivery, then the Company shall have the right to require each non-defaulting Underwriter to purchase the principal amount of Securities which such Underwriter agreed to purchase hereunder at such Time of Delivery and, in addition, to require each non-defaulting Underwriter to purchase its pro rata share (based on the principal amount of Securities which such Underwriter agreed to purchase hereunder) of the Securities of such defaulting Underwriter or Underwriters for which such arrangements have not been made; but nothing herein shall relieve a defaulting Underwriter from liability for its default.

(c) If, after giving effect to any arrangements for the purchase of the Securities of a defaulting Underwriter or Underwriters by you and the Company as provided in subsection (a) above, the aggregate principal amount of Securities which remains unpurchased exceeds one-eleventh of the aggregate principal amount of all the Securities to be purchased at such Time of Delivery, or if the Company shall not exercise the right described in subsection (b) above to require non-defaulting Underwriters to purchase Securities of a defaulting Underwriter or Underwriters, then this Agreement (or, with respect to the Second Time of Delivery, the obligation of the Underwriters to purchase and of the Company to sell the Optional Securities) shall thereupon terminate, without liability on the part of any non-defaulting Underwriter or the Company, except for the expenses to be borne by the Company and the Underwriters as provided in Section 6 hereof and the indemnity and contribution agreements in Section 8 hereof; but nothing herein shall relieve a defaulting Underwriter from liability for its default.

10. The respective indemnities, agreements, representations, warranties and other statements of the Company and the several Underwriters, as set forth in this Agreement or made by or on behalf of them, respectively, pursuant to this Agreement, shall remain in full force and effect, regardless of any investigation (or any statement as to the results thereof) made by or on behalf of any Underwriter or any controlling person of any Underwriter, or the Company, or any officer or director or controlling person of the Company, and shall survive delivery of and payment for the Securities.

Anything herein to the contrary notwithstanding, the indemnity agreement of the Company in subsection (a) of Section 8 hereof, the representations and warranties in subsections (b), (c) and (d) of Section 1 hereof and any representation or warranty as to the accuracy of the Registration Statement or the Prospectus contained in any certificate furnished by the Company pursuant to Section 7 hereof, insofar as they may constitute a basis for indemnification for liabilities (other than payment by the Company of expenses incurred or paid in the successful defense of any action, suit or proceeding) arising under the Act, shall not extend to the extent of any interest therein of a controlling person or partner of an Underwriter who is a director, officer or controlling person of the Company when the Registration Statement has become effective, except in each case to the extent that an interest of such character shall have been determined by a court of appropriate jurisdiction as not against public policy as expressed in the Act. Unless in the opinion of counsel for the Company the matter has been settled by controlling precedent, the Company will, if a claim for such indemnification is asserted, submit to a court of appropriate jurisdiction the question of whether such interest is against public policy as expressed in the Act and will be governed by the final adjudication of such issue.

11. If this Agreement shall be terminated pursuant to Section 9 hereof, the Company shall not then be under any liability to any Underwriter except as provided in Sections 6 and 8 hereof; but, if for any other reason, any Securities are not delivered by or on behalf of the Company as provided herein, the Company will reimburse the Underwriters through you for all out-of-pocket expenses approved in writing by you, including fees and disbursements of counsel, reasonably incurred by the Underwriters in making preparations for the purchase, sale and delivery of the Securities not so delivered, but the Company shall then be under no further liability to any Underwriter in respect of the Securities not so delivered except as provided in Sections 6 and 8 hereof.

12. In all dealings hereunder, you shall act on behalf of each of the Underwriters, and the parties hereto shall be entitled to act and rely upon any statement, request, notice or agreement on behalf of any Underwriter made or given by you jointly or by Goldman, Sachs & Co. on behalf of you as the representatives.

All statements, requests, notices and agreements hereunder shall be in writing, and if to the Underwriters shall be delivered or sent by mail, telex or facsimile transmission to you as the representatives in care of Goldman, Sachs & Co., 1 Liberty Plaza, 7th Floor, New York, New York 10006, Attention: Registration Department; and if to the Company shall be delivered or sent by mail, telex or facsimile transmission to the address of the Company set forth in the Registration Statement, Attention: Secretary; provided, however, that any notice to an Underwriter pursuant to Section 8(c) hereof shall be delivered or sent by mail, telex or facsimile transmission to such Underwriter at its address set forth in its Underwriters' Questionnaire, or telex constituting such Questionnaire, which address will be supplied to the Company by you upon request. Any such statements, requests, notices or agreements shall take effect upon receipt thereof.

13. This Agreement shall be binding upon, and inure solely to the benefit of, the Underwriters, the Company and, to the extent provided in Sections 8 and 10 hereof, the officers and directors of the Company and each person who controls the Company or any Underwriter, and their respective heirs, executors, administrators, successors and assigns, and no other person shall acquire or have any right under or by virtue of this Agreement. No purchaser of any of the Securities from any Underwriter shall be deemed a successor or assign by reason merely of such purchase.

14. Time shall be of the essence of this Agreement. As used herein, the term "business day" shall mean any day when the Commission's office in Washington, D.C. is open for business.

15. This Agreement shall be governed by and construed in accordance with the laws of the State of New York.

16. This Agreement may be executed by any one or more of the parties hereto in any number of counterparts, each of which shall be deemed to be an original, but all such respective counterparts shall together constitute one and the same instrument.

If the foregoing is in accordance with your understanding, please sign and return to us one for the Company and for each of the Representatives plus one for each counsel, counterparts hereof, and upon the acceptance hereof by you, on behalf of each of the Underwriters, this letter and such acceptance hereof shall constitute a binding agreement between each of the Underwriters and the Company. It is understood that your acceptance of this letter on behalf of each of the Underwriters is pursuant to the authority set forth in a form of Agreement among Underwriters, the form of which shall be submitted to the Company for examination upon request, but without warranty on your part as to the authority of the signers thereof.

Very truly yours,

CIENA CORPORATION

By: .....
Name:
Title:

Accepted as of the date hereof:

GOLDMAN, SACHS & CO.
MORGAN STANLEY & CO. INCORPORATED
BANC OF AMERICA SECURITIES LLC
ROBERTSON STEPHENS, INC.

By: .....
(Goldman, Sachs & Co.)

On behalf of each of the Underwriters

SCHEDULE I

UNDERWRITER	PRINCIPAL AMOUNT OF FIRM SECURITIES TO BE PURCHASED	PRINCIPAL AMOUNT OF OPTIONAL SECURITIES TO BE PURCHASED IF MAXIMUM OPTION EXERCISED
Goldman, Sachs & Co.	$	$
Morgan Stanley & Co. Incorporated		
Banc of America Securities LLC		
Robertson Stephens, Inc.		
Total	$	$

ANNEX I(a)

PRICEWATERHOUSECOOPERS COMFORT LETTER

ANNEX I(b)

PRICEWATERHOUSECOOPERS COMFORT LETTER BRING-DOWN

ANNEX II(a)

DELOITTE & TOUCHE COMFORT LETTER

ANNEX II(b)

DELOITTE & TOUCHE COMFORT LETTER BRING-DOWN

ANNEX III

OPINION OF COMPANY COUNSEL

EXHIBIT 4.4

CIENA CORPORATION
ISSUER

AND

[ ]
TRUSTEE

INDENTURE

DATED AS OF [ ], [ ]

SENIOR DEBT SECURITIES

CROSS-REFERENCE TABLE (1)

Section of Trust Indenture Act of 1939, as Amended	Indenture
310(a)	7.10
310(b)	7.09; 7.11
310(c)	Inapplicable
311(a)	7.14(a)
311(b)	7.14(b)
311(c)	Inapplicable
312(a)	5.02(a)
312(b)	5.02(c)
312(c)	5.02(c)
313(a)	5.04(a)
313(b)	5.04(b)
313(c)	5.04(a); 5.04(b)
313(d)	5.04(c)
314(a)	5.03; 4.06
314(b)	Inapplicable
314(c)	13.07
314(d)	Inapplicable
314(e)	13.07
314(f)	Inapplicable
315(a)	7.01(a); 7.03
315(b)	7.02
315(c)	7.01
315(d)	7.01(b); 7.01(c)
315(e)	6.07; 7.07
316(a)	6.06 8.04
316(b)	6.04
316(c)	8.01
317(a)	6.02
317(b)	4.03
318(a)	13.08

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(1) This Cross-Reference Table does not constitute part of the Indenture and shall not have any bearing on the interpretation of any of its terms or provisions.

TABLE OF CONTENTS(2)

(2) This Table of Contents does not constitute part of the Indenture and shall not have any bearing on the interpretation of any of its terms or provisions.

INDENTURE, dated as of [ ], [ ], between CIENA Corporation, a Delaware corporation (the "Company"), and [ ], as trustee (the "Trustee"):

WHEREAS, for its lawful corporate purposes, the Company has duly authorized the execution and delivery of this Indenture to provide for the issuance of unsecured debt securities (hereinafter referred to as the "Securities"), in an unlimited aggregate principal amount to be issued from time to time in one or more series as in this Indenture provided, as registered Securities without coupons, to be authenticated by the certificate of the Trustee;

WHEREAS, to provide the terms and conditions upon which the Securities are to be authenticated, issued and delivered, the Company has duly authorized the execution of this Indenture; and

WHEREAS, all things necessary to make this Indenture a valid agreement of the Company, in accordance with its terms, have been done.

NOW, THEREFORE, in consideration of the premises and the purchase of the Securities by the holders thereof, it is mutually covenanted and agreed as follows for the equal and ratable benefit of the holders of Securities or of series thereof.

ARTICLE I
DEFINITIONS

SECTION 1.01 DEFINITIONS OF TERMS.

The terms defined in this Section (except as in this Indenture otherwise expressly provided or unless the context otherwise requires) for all purposes of this Indenture and of any indenture supplemental hereto shall have the respective meanings specified in this Section and shall include the plural as well as the singular. All other terms used in this Indenture that are defined in the Trust Indenture Act of 1939, as amended, or that are by reference in said Trust Indenture Act defined in the Securities Act of 1933, as amended (except as herein otherwise expressly provided or unless the context otherwise requires), shall have the meanings assigned to such terms in said Trust Indenture Act and in said Securities Act as in force at the date of the execution of this instrument.

"AUTHENTICATING AGENT" means an authenticating agent with respect to all or any of the series of Securities appointed with respect to all or any series of the Securities by the Trustee pursuant to Section 2.10.

"BANKRUPTCY LAW" means Title 11, U.S. Code, or any similar federal or state law for the relief of debtors.

"BOARD OF DIRECTORS" means the Board of Directors of the Company or any duly authorized committee of such Board.

"BOARD RESOLUTION" means a copy of a resolution certified by the Secretary or an Assistant Secretary of the Company to have been duly adopted by the Board of Directors and to be in full force and effect on the date of such certification.

"BUSINESS DAY" means, with respect to any series of Securities, any day other than a day on which Federal or State banking institutions in the Borough of Manhattan, The City of New York, are authorized or obligated by law, executive order or regulation to close.

"CERTIFICATE" means a certificate signed by the principal executive officer, the principal financial officer or the principal accounting officer of the Company. The Certificate need not comply with the provisions of Section 13.07.

"COMPANY" means CIENA Corporation, a corporation duly organized and existing under the laws of the State of Delaware, and, subject to the provisions of Article X, shall also include its successors and assigns.

"CORPORATE TRUST OFFICE" means the office of the Trustee at which, at any particular time, its corporate trust business shall be principally administered, which office at the date hereof is located at [ ], except that whenever a provision herein refers to an office or agency of the Trustee in the Borough of Manhattan, The City of New York, such office is located, at the date hereof, at [ ].

"COVENANT DEFEASANCE" has the meaning given in Section 11.02.

"CUSTODIAN" means any receiver, trustee, assignee, liquidator or similar official under any Bankruptcy Law.

"DEFAULT" means any event, act or condition that with notice or lapse of time, or both, would constitute an Event of Default.

"DEFAULTED INTEREST" has the meaning given in Section 2.03.

"DEPOSITARY" means, with respect to Securities of any series, for which the Company shall determine that such Securities will be issued as a Global Security, The Depository Trust Company, New York, New York, another clearing agency, or any successor registered as a clearing agency under the Securities and Exchange Act of 1934, as amended (the "Exchange Act"), or other applicable statute or regulation, which, in each case, shall be designated by the Company pursuant to either Section 2.01 or 2.11.

"EVENT OF DEFAULT" means, with respect to Securities of a particular series any event specified in Section 6.01, continued for the period of time, if any, therein designated.

"EXCHANGE ACT" means the Securities Exchange Act of 1934, as amended, or any successor statute or statutes thereto.

"GLOBAL SECURITY" means, with respect to any series of Securities, a Security executed by the Company and delivered by the Trustee to the Depositary or pursuant to the Depositary's instruction, all in accordance with the Indenture, which shall be registered in the name of the Depositary or its nominee.

"GOVERNMENTAL OBLIGATIONS" means securities that are (i) direct obligations of the United States of America for the payment of which its full faith and credit is pledged or (ii) obligations of a Person controlled or supervised by and acting as an agency or instrumentality of the United States of America, the payment of which is unconditionally guaranteed as a full faith and credit obligation by the United States of America that, in either case, are not callable or redeemable at the option of the issuer thereof, and shall also include a depositary receipt issued by a bank (as defined in Section 3(a)(2) of the Securities Act of 1933, as amended) as custodian with respect to any such Governmental Obligation or a specific payment of principal of or interest on any such Governmental Obligation held by such custodian for the account of the holder of such depositary receipt; provided, however, that (except as required by law) such custodian is not authorized to make any deduction from the amount payable to the holder of such depositary receipt from any amount received by the custodian in respect of the Governmental Obligation or the specific payment of principal of or interest on the Governmental Obligation evidenced by such depositary receipt.

"HEREIN", "HEREOF" and "HEREUNDER", and other words of similar import, refer to this Indenture as a whole and not to any particular Article, Section or other subdivision.

"INDENTURE" means this instrument as originally executed or as it may from time to time be supplemented or amended by one or more indentures supplemental hereto entered into in accordance with the terms hereof, including, for all purposes of this instrument and any such supplemental indenture, the provisions of the Trust Indenture Act that are deemed to be a part of and govern this instrument and any such supplemental indenture, respectively. The term "Indenture" shall also include the terms of particular series of Securities established as contemplated by Section 2.01.

"INTEREST PAYMENT DATE", when used with respect to any installment of interest on a Security of a particular series, means the date specified in such Security or in a Board Resolution or in an indenture supplemental hereto with respect to such series as the fixed date on which an installment of interest with respect to Securities of that series is due and payable.

"LEGAL DEFEASANCE" has the meaning given in Section 11.02.

"OFFICERS' CERTIFICATE" means a certificate signed by the President or a Vice President and by the Treasurer or an Assistant Treasurer or the Controller or an Assistant Controller or the Secretary or an Assistant Secretary of the Company that is delivered to the Trustee in accordance with the terms hereof. Each such certificate shall include the statements provided for in Section 13.07, if and to the extent required by the provisions thereof.

"OPINION OF COUNSEL" means an opinion in writing of legal counsel, who may be an employee of or counsel for the Company that is delivered to the Trustee in accordance with the terms hereof. Each such opinion shall include the statements provided for in Section 13.07, if and to the extent required by the provisions thereof.

"ORIGINAL ISSUE DISCOUNT SECURITY" means any Security which provides for an amount less than the principal amount thereof to be due and payable upon a declaration of acceleration of the maturity thereof pursuant to Section 6.01.

"OUTSTANDING", when used with reference to Securities of any series, means, subject to the provisions of Section 8.04, as of any particular time, all Securities of that series theretofore authenticated and delivered by the Trustee under this Indenture, except (a) Securities theretofore canceled by the Trustee or any paying agent, or delivered to the Trustee or any paying agent for cancellation or that have previously been canceled; (b) Securities or portions thereof for the payment or redemption of which moneys or Governmental Obligations in the necessary amount shall have been deposited in trust with the Trustee or with any paying agent (other than the Company) or shall have been set aside and segregated in trust by the Company (if the Company shall act as its own paying agent); provided, however, that if such Securities or portions of such Securities are to be redeemed prior to the maturity thereof, notice of such redemption shall have been given as in Article III or provision satisfactory to the Trustee shall have been made for giving such notice; and (c) Securities in lieu of or in substitution for which other Securities shall have been authenticated and delivered pursuant to the terms of Section 2.07; provided, however, that in determining whether the holders of the requisite principal amount of the Outstanding Securities have given, made or taken any request, demand, authorization, direction, notice, consent, waiver or other action hereunder as of any date, the principal amount of an Original Issue Discount Security which shall be deemed to be Outstanding shall be the amount of the principal thereof which would be due and payable as of such date upon acceleration of the maturity thereof to such date pursuant to Section 6.01.

"PERSON" means any individual, corporation, limited liability company, partnership, joint-venture, joint-stock company, unincorporated organization or government or any agency or political subdivision thereof.

"PREDECESSOR SECURITY" of any particular Security means every previous Security evidencing all or a portion of the same debt as that evidenced by such particular Security; and, for the purposes of this definition, any Security authenticated and delivered under Section 2.07 in lieu of a lost, destroyed or stolen Security shall be deemed to evidence the same debt as the lost, destroyed or stolen Security.

"RESPONSIBLE OFFICER" when used with respect to the Trustee means the Chairman of the Board of Directors, the President, any Vice President, the Secretary, the Treasurer, any trust officer, any corporate trust officer or any other officer or assistant officer of the Trustee customarily performing functions similar to those performed by the Persons who at the time shall be such officers, respectively, or to whom any corporate trust matter is referred because of his or her knowledge of and familiarity with the particular subject.

"SECURITIES" means the debt Securities authenticated and delivered under this Indenture.

"SECURITYHOLDER", "HOLDER of SECURITIES", "REGISTERED HOLDER", or other similar term, means the Person or Persons in whose name or names a particular Security shall be registered on the books of the Company kept for that purpose in accordance with the terms of this Indenture.

"SECURITY REGISTER" has the meaning given in Section 2.05.

"SECURITY REGISTRAR" has the meaning given in Section 2.05.

"SUBSIDIARY" means, with respect to any Person, (i) any corporation at least a majority of whose outstanding Voting Stock shall at the time be owned, directly or indirectly, by such Person or by one or more of its Subsidiaries or by such Person and one or more of its Subsidiaries, (ii) any general partnership, limited liability company, joint venture or similar entity, at least a majority of whose outstanding partnership or similar interests shall at the time be owned by such Person, or by one or more of its Subsidiaries, or by such Person and one or more of its Subsidiaries and (iii) any limited partnership of which such Person or any of its Subsidiaries is a general partner.

"TRUSTEE" means [ ], and, subject to the provisions of Article VII, shall also include its successors and assigns, and, if at any time there is more than one Person acting in such capacity hereunder, "Trustee" shall mean each such Person. The term "Trustee" as used with respect to a particular series of the Securities shall mean the trustee with respect to that series.

"TRUST INDENTURE ACT" means the Trust Indenture Act of 1939, as amended, subject to the provisions of Sections 9.01, 9.02, and 10.01, as in effect at the date of execution of this instrument.

"VOTING STOCK", as applied to stock of any Person, means shares, interests, participations or other equivalents in the equity interest (however designated) in such Person having ordinary voting power for the election of a majority of the directors (or the equivalent) of such Person, other than shares, interests, participations or other equivalents having such power only by reason of the occurrence of a contingency.

ARTICLE II
ISSUE, DESCRIPTION, TERMS, EXECUTION, REGISTRATION AND EXCHANGE OF SECURITIES

SECTION 2.01 DESIGNATION AND TERMS OF SECURITIES.

The aggregate principal amount of Securities that may be authenticated and delivered under this Indenture is unlimited. The Securities may be issued in one or more series up to the aggregate principal amount of Securities of that series from time to time authorized by or pursuant to a Board Resolution or pursuant to one or more indentures supplemental hereto. Prior to the initial issuance of Securities of any series, there shall be established in or pursuant to a Board Resolution, and set forth in an Officers' Certificate, or established in one or more indentures supplemental hereto:

(1) the title of the Security of the series (which shall distinguish the Securities of the series from all other Securities);

(2) any limit upon the aggregate principal amount of the Securities of that series that may be authenticated and delivered under this Indenture (except for Securities authenticated and delivered upon registration of transfer of, or in exchange for, or in lieu of, other Securities of that series);

(3) the date or dates on which the principal of the Securities of the series is payable and the place(s) of payment;

(4) the rate or rates at which the Securities of the series shall bear interest or the manner of calculation of such rate or rates, if any;

(5) the date or dates from which such interest shall accrue, the Interest Payment Dates on which such interest will be payable or the manner of determination of such Interest Payment Dates, the place(s) of payment, and the record date or other method for the determination of holders to whom interest is payable on any such Interest Payment Dates;

(6) the right, if any, to extend the interest payment periods and the duration of such extension;

(7) the period or periods within which, the price or prices at which and the terms and conditions upon which, Securities of the series may be redeemed, in whole or in part, at the option of the Company;

(8) the obligation, if any, of the Company to redeem or purchase Securities of the series pursuant to any sinking fund or analogous provisions (including payments made in cash in satisfaction of future sinking fund obligations) or at the option of a holder thereof and the period or periods within which, the price or prices at which, and the terms and conditions upon which, Securities of the series shall be redeemed or purchased, in whole or in part, pursuant to such obligation;

(9) the form of the Securities of the series including the form of the Trustee's certificate of authentication for such series;

(10) if other than denominations of one thousand U.S. dollars ($1,000) or any integral multiple thereof, the denominations in which the Securities of the series shall be issuable;

(11) any and all other terms with respect to such series (which terms shall not be inconsistent with the terms of this Indenture, as amended by any supplemental indenture) including any terms which may be required by or advisable under United States laws or regulations or advisable in connection with the marketing of Securities of that series;

(12) whether the Securities are issuable as a Global Security and, in such case, the identity of the Depositary for such series;

(13) whether the Securities will be convertible into shares of common stock or other securities of the Company and, if so, the terms and conditions upon which such Securities will be so convertible, including the conversion price and the conversion period;

(14) if other than the principal amount thereof, the portion of the principal amount of Securities of the series which shall be payable upon declaration of acceleration of the maturity thereof pursuant to Section 6.01;

(15) any additional or different Events of Default or restrictive covenants provided for with respect to the Securities of the series;

(16) if applicable, that the Securities of the series, in whole or in specified part, shall be defeasible pursuant to Section 11.02 and, if other than by a Board Resolution, the manner in which any election by the Company to defease such Securities shall be evidenced; and

(17) if other than the currency of the United States of America, the currency, currencies or currency units in which the principal of or any premium or interest on any Securities of the series shall be payable and the manner of determining the equivalent thereof in the currency of the United States of America for any purpose, including for purposes of the definition of "Outstanding" in Section 1.01. All Securities of any one series shall be substantially identical except as to denomination and except as may otherwise be provided in or pursuant to any such Board Resolution or in any indentures supplemental hereto. If any of the terms of the series are established by action taken pursuant to a Board Resolution, a copy of an appropriate record of such action shall be certified by the Secretary or an Assistant Secretary of the Company and delivered to the Trustee at or prior to the delivery of the Officers' Certificate setting forth the terms of the series. Securities of any particular series may be issued at various times, with different dates on which the principal or any installment of principal is payable, with different rates of interest, if any, or different methods by which rates of interest may be determined, with different dates on which such interest may be payable and with different redemption dates. Notwithstanding Section 2.01(2) and unless otherwise expressly provided with respect to a series of Securities, the aggregate principal amount of a series of Securities may be increased and additional Securities of such series may be issued up to the maximum aggregate principal amount authorized with respect to such series as increased.

SECTION 2.02 FORM OF SECURITIES AND TRUSTEE'S CERTIFICATE.

The Securities of any series and the Trustee's certificate of authentication to be borne by such Securities shall be substantially of the tenor and purport as set forth in one or more indentures supplemental hereto or as provided in a Board Resolution and as set forth in an Officers' Certificate. The Securities may have such letters, numbers or other marks of identification or designation and such legends or endorsements printed, lithographed or engraved thereon as the Company may deem appropriate and as are not inconsistent with the provisions of this Indenture, or as may be required to comply with any law or with any rule or regulation made pursuant thereto or with any rule or regulation of any stock exchange on which Securities of that series may be listed, or to conform to usage.

SECTION 2.03 DENOMINATIONS: PROVISIONS FOR PAYMENT.

The Securities shall be issuable as registered Securities and in the denominations of one thousand U.S. dollars ($1,000) or any integral multiple thereof, subject to Section 2.01(10). The Securities of a particular series shall bear interest payable on the dates and at the rates specified or provided for with respect to that series. Except as contemplated by Section 2.01(17), the principal of and the interest on the Securities of any series, as well as any premium thereon in case of redemption thereof prior to maturity, shall be payable in the coin or currency of the United States of America that at the time is legal tender for public and private debt, at the office or agency of the Company maintained for that purpose in the Borough of Manhattan, the City and State of New York; provided, however, that at the option of the Company payment of interest may be made by check mailed to the address of the Person entitled thereto as such address shall appear in the Security Register. Each Security shall be dated the date of its authentication by the Trustee. Except as contemplated by Section 2.01(4), interest on the Securities shall be computed on the basis of a 360-day year composed of twelve 30-day months. Except as contemplated by Section 2.01(5), the interest installment on any Security that is payable, and is punctually paid or duly provided for, on any Interest Payment Date for Securities of that series shall be paid to the Person in whose name said Security (or one or more Predecessor Securities) is registered at the close of business on the regular record date for such interest installment. In the event that any Security of a particular series or portion thereof is called for redemption and the redemption date is subsequent to a regular record date with respect to any Interest Payment Date and prior to such Interest Payment Date, interest on such Security will be paid upon presentation and surrender of such Security as provided in Section 3.03. Any interest on any Security that is payable, but is not punctually paid or duly provided for, on any Interest Payment Date for Securities of the same series (herein called "Defaulted Interest") shall forthwith cease to be payable to the registered holder on the relevant regular record date by virtue of having been such holder; and such Defaulted Interest shall be paid by the Company, at its election, as provided in clause (1) or clause (2) below:

(1) The Company may make payment of any Defaulted Interest on Securities to the Persons in whose names such Securities (or their respective Predecessor Securities) are registered at the close of business on a special record date for the payment of such Defaulted Interest, which shall be fixed in the following manner: the Company shall notify the Trustee in writing of the amount of Defaulted Interest proposed to be paid on each such Security and the date of the proposed payment, and at the same time the Company shall deposit with the Trustee an amount of money equal to the aggregate amount proposed to be paid in respect of such Defaulted Interest or shall make arrangements satisfactory to the Trustee for such deposit prior to the date of the proposed payment, such money when deposited to be held in trust for the benefit of the Persons entitled to such Defaulted Interest as in this clause provided. Thereupon the Trustee shall fix a special record date for the payment of such

Defaulted Interest which shall not be more than 15 nor less than 10 days prior to the date of the proposed payment and not less than 10 days

after the receipt by the Trustee of the notice of the proposed payment. The Trustee shall promptly notify the Company of such special record date and, in the name and at the expense of the Company, shall cause notice of the proposed payment of such Defaulted Interest and the special record date therefor to be mailed, first class postage prepaid, to each Securityholder at his or her address as it appears in the Security Register (as hereinafter defined), not less than 10 days prior to such special record date. Notice of the proposed payment of such Defaulted Interest and the special record date therefor having been mailed as aforesaid, such Defaulted Interest shall be paid to the Persons in whose names such Securities (or their respective Predecessor Securities) are registered on such special record date.

(2) The Company may make payment of any Defaulted Interest on any Securities in any other lawful manner not inconsistent with the requirements of any securities exchange on which such Securities may be listed, and upon such notice as may be required by such exchange, if, after notice given by the Company to the Trustee of the proposed payment pursuant to this clause, such manner of payment shall be deemed practicable by the Trustee. Unless otherwise set forth in a Board Resolution or one or more indentures supplemental hereto establishing the terms of any series of Securities pursuant to Section 2.01 hereof, the term "regular record date" as used in this Section with respect to a series of Securities with respect to any Interest Payment Date for such series shall mean either the fifteenth day of the month immediately preceding the month in which an Interest Payment Date established for such series pursuant to Section 2.01 hereof shall occur, if such Interest Payment Date is the first day of a month, or the last day of the month immediately preceding the month in which an Interest Payment Date established for such series pursuant to Section 2.01 hereof shall occur, if such Interest Payment Date is the fifteenth day of a month, whether or not such date is a Business Day. Subject to the foregoing provisions of this Section, each Security of a series delivered under this Indenture upon transfer of or in exchange for or in lieu of any other Security of such series shall carry the rights to interest accrued and unpaid, and to accrue, that were carried by such other Security.

SECTION 2.04 EXECUTION AND AUTHENTICATION.

The Securities shall be signed on behalf of the Company by its President, or one of its Vice Presidents, or its Treasurer, or one of its Assistant Treasurers, under its corporate seal attested by its Secretary or one of its Assistant Secretaries. Signatures may be in the form of a manual or facsimile signature. The Company may use the facsimile signature of any Person who shall have been a President or Vice President thereof, or of any Person who shall have been the Treasurer, an Assistant Treasurer, the Secretary or an Assistant Secretary thereof, notwithstanding the fact that at the time the Securities shall be authenticated and delivered or disposed of such Person shall have ceased to be the President or a Vice President, or the Treasurer, an Assistant Treasurer, the Secretary or an Assistant Secretary, of the Company. The seal of the Company may be in the form of a facsimile of such seal and may be impressed, affixed, imprinted or otherwise reproduced on the Securities. The Securities may contain such notations, legends or endorsements required by law, stock exchange rule or usage. A Security shall not be valid until authenticated manually by an authorized signatory of the Trustee, or by an Authenticating Agent. Such signature shall be conclusive evidence that the Security so authenticated has been duly authenticated and delivered hereunder and that the holder is entitled to the benefits of this Indenture. At any time and from time to time after the execution and delivery of this Indenture, the Company may deliver Securities of any series executed by the Company to the Trustee for authentication, together with a written order of the Company for the authentication and delivery of such Securities, signed by its President or any Vice President and its Secretary or any Assistant Secretary, and the Trustee in accordance with such written order shall authenticate and deliver such Securities. In authenticating such Securities and accepting the additional responsibilities under this Indenture in relation to such Securities, the Trustee shall be entitled to receive, and (subject to Section 7.01) shall be fully protected in relying upon, an Opinion of Counsel stating that the form and terms thereof have been established in conformity with the provisions of this Indenture and that such Securities, when authenticated and delivered by the Trustee and issued by the Company in the manner and subject to any conditions specified in such Opinion of Counsel, will constitute valid and legally binding obligations of the Company enforceable in accordance with their terms, subject to any Bankruptcy Law or other insolvency, fraudulent transfer, reorganization, moratorium and similar laws of general applicability relating to or affecting creditors' rights and to general equity principles. The Trustee shall not be required to authenticate such Securities if the issue of such Securities pursuant to this Indenture will affect the Trustee's own rights, duties or immunities under the Securities and this Indenture or otherwise in a manner that is not reasonably acceptable to the Trustee.

SECTION 2.05 REGISTRATION OF TRANSFER AND EXCHANGE.

(a) Securities of any series may be exchanged upon presentation thereof at the office or agency of the Company designated for such purpose in the Borough of Manhattan, the City and State of New York, for other Securities of such series of authorized denominations, and for a like aggregate principal amount, upon payment of a sum sufficient to cover any tax or other governmental charge in relation thereto, all as provided in this Section. In respect of any Securities so surrendered for exchange, the Company shall execute, the Trustee shall authenticate and such office or agency shall deliver in exchange therefor the Security or Securities of the same series that the Securityholder making the exchange shall be entitled to receive, bearing numbers not contemporaneously

outstanding.

(b) The Company shall keep, or cause to be kept, at its office or agency designated for such purpose in the Borough of Manhattan, the City and State of New York, or such other location designated by the Company a register or registers (herein referred to as the "Security Register") in which, subject to such reasonable regulations as it may prescribe, the Company shall register the Securities and the transfers of Securities as in this Article provided and which at all reasonable times shall be open for inspection by the Trustee. The registrar for the purpose of registering Securities and transfer of Securities as herein provided shall be appointed as authorized by Board Resolution (the "Security Registrar"). Upon surrender for transfer of any Security at the office or agency of the Company designated for such purpose, the Company shall execute, the Trustee shall authenticate and such office or agency shall deliver in the name of the transferee or transferees a new Security or Securities of the same series as the Security presented for a like aggregate principal amount. All Securities presented or surrendered for exchange or registration of transfer, as provided in this Section, shall be accompanied (if so required by the Company or the Security Registrar) by a written instrument or instruments of transfer, in form satisfactory to the Company or the Security Registrar, duly executed by the registered holder or by such holder's duly authorized attorney in writing.

(c) No service charge shall be made for any exchange or registration of transfer of Securities, or issue of new Securities in case of partial redemption of any series, but the Company may require payment of a sum sufficient to cover any tax or other governmental charge in relation thereto, other than exchanges pursuant to Section 2.06, Section 3.03(b) and Section 9.04 not involving any transfer. The Company shall not be required (i) to issue, exchange or register the transfer of any Securities during a period beginning at the opening of business 15 days before the day of the mailing of a notice of redemption of less than all the Outstanding Securities of the same series and ending at the close of business on the day of such mailing, nor (ii) to register the transfer of or exchange any Securities of any series or portions thereof called for redemption. The provisions of this Section 2.05 are, with respect to any Global Security, subject to Section 2.11 hereof.

SECTION 2.06 TEMPORARY SECURITIES.

Pending the preparation of definitive Securities of any series, the Company may execute, and the Trustee shall authenticate and deliver, temporary Securities (printed, lithographed or typewritten) of any authorized denomination. Such temporary Securities shall be substantially in the form of the definitive Securities in lieu of which they are issued, but with such omissions, insertions and variations as may be appropriate for temporary Securities, all as may be determined by the Company. Every temporary Security of any series shall be executed by the Company and be authenticated by the Trustee upon the same conditions and in substantially the same manner, and with like effect, as the definitive Securities of such series. Without unnecessary delay the Company will execute and will furnish definitive Securities of such series and thereupon any or all temporary Securities of such series may be surrendered in exchange therefor (without charge to the holders), at the office or agency of the Company designated for the purpose in the Borough of Manhattan, the City and State of New York, and the Trustee shall authenticate and such office or agency shall deliver in exchange for such temporary Securities an equal aggregate principal amount of definitive Securities of such series, unless the Company advises the Trustee to the effect that definitive Securities need not be executed and furnished until further notice from the Company. Until so exchanged, the temporary Securities of such series shall be entitled to the same benefits under this Indenture as definitive Securities of such series authenticated and delivered hereunder.

SECTION 2.07 MUTILATED, DESTROYED, LOST OR STOLEN SECURITIES.

In case any temporary or definitive Security shall become mutilated or be destroyed, lost or stolen, the Company (subject to the next succeeding sentence) shall execute, and upon the Company's request the Trustee (subject as aforesaid) shall authenticate and deliver, a new Security of the same series, bearing a number not contemporaneously outstanding, in exchange and substitution for the mutilated Security, or in lieu of and in substitution for the Security so destroyed, lost or stolen. In every case the applicant for a substituted Security shall furnish to the Company and the Trustee such security or indemnity as may be required by them to save each of them harmless, and, in every case of destruction, loss or theft, the applicant shall also furnish to the Company and the Trustee evidence to their satisfaction of the destruction, loss or theft of the applicant's Security and of the ownership thereof. The Trustee may authenticate any such substituted Security and deliver the same upon the written request or authorization of any officer of the Company. Upon the issuance of any substituted Security, the Company may require the payment of a sum sufficient to cover any tax or other governmental charge that may be imposed in relation thereto and any other expenses (including the fees and expenses of the Trustee) connected therewith. In case any Security that has matured or is about to mature shall become mutilated or be destroyed, lost or stolen, the Company may, instead of issuing a substitute Security, pay or authorize the payment of the same (without surrender thereof except in the case of a mutilated Security) if the applicant for such payment shall furnish to the Company and the Trustee such security or indemnity as they may require to save them harmless, and, in case of destruction, loss or theft, evidence to the satisfaction of the Company and the Trustee of the destruction, loss or theft of such Security and of the ownership thereof. Every replacement Security issued pursuant to the provisions of this Section shall constitute an additional contractual obligation of the Company whether or not the mutilated, destroyed, lost or stolen Security shall be found at any time, or be enforceable by anyone, and shall be entitled to all the

benefits of this Indenture equally and proportionately with any and all other Securities of the same series duly issued hereunder. All Securities shall be held and owned upon the express condition that the foregoing provisions are exclusive with respect to the replacement or payment of mutilated, destroyed, lost or stolen Securities, and shall preclude (to the extent lawful) any and all other rights or remedies,

notwithstanding any law or statute existing or hereafter enacted to the contrary with respect to the replacement or payment of negotiable instruments or other securities without their surrender.

SECTION 2.08 CANCELLATION.

All Securities surrendered for the purpose of payment, redemption, exchange or registration of transfer shall, if surrendered to the Company or any paying agent, be delivered to the Trustee for cancellation, or, if surrendered to the Trustee, shall be cancelled by it, and no Securities shall be issued in lieu thereof except as expressly required or permitted by any of the provisions of this Indenture. On request of the Company at the time of such surrender, the Trustee shall deliver to the Company canceled Securities held by the Trustee. In the absence of such request the Trustee may dispose of canceled Securities in accordance with its standard procedures and deliver a certificate of disposition to the Company. If the Company shall otherwise acquire any of the Securities, however, such acquisition shall not operate as a redemption or satisfaction of the indebtedness represented by such Securities unless and until the same are delivered to the Trustee for cancellation.

SECTION 2.09 BENEFITS OF INDENTURE.

Nothing in this Indenture or in the Securities, express or implied, shall give or be construed to give to any Person, other than the parties hereto and the holders of the Securities any legal or equitable right, remedy or claim under or in respect of this Indenture, or under any covenant, condition or provision herein contained; all such covenants, conditions and provisions being for the sole benefit of the parties hereto and of the holders of the Securities.

SECTION 2.10 AUTHENTICATING AGENT.

So long as any of the Securities of any series remain Outstanding there may be an Authenticating Agent for any or all such series of Securities which the Trustee shall have the right to appoint. Said Authenticating Agent shall be authorized to act on behalf of the Trustee to authenticate Securities of such series issued upon exchange, transfer or partial redemption thereof, and Securities so authenticated shall be entitled to the benefits of this Indenture and shall be valid and obligatory for all purposes as if authenticated by the Trustee hereunder. All references in this Indenture to the authentication of Securities by the Trustee shall be deemed to include authentication by an Authenticating Agent for such series. Each Authenticating Agent shall be acceptable to the Company and shall be a corporation that has a combined capital and surplus, as most recently reported or determined by it, sufficient under the laws of any jurisdiction under which it is organized or in which it is doing business to conduct a trust business, and that is otherwise authorized under such laws to conduct such business and is subject to supervision or examination by Federal or State authorities. If at any time any Authenticating Agent shall cease to be eligible in accordance with these provisions, it shall resign immediately. Any Authenticating Agent may at any time resign by giving written notice of resignation to the Trustee and to the Company. The Trustee may at any time (and upon request by the Company shall) terminate the agency of any Authenticating Agent by giving written notice of termination to such Authenticating Agent and to the Company. Upon resignation, termination or cessation of eligibility of any Authenticating Agent, the Trustee may appoint an eligible successor Authenticating Agent acceptable to the Company. Any successor Authenticating Agent, upon acceptance of its appointment hereunder, shall become vested with all the rights, powers and duties of its predecessor hereunder as if originally named as an Authenticating Agent pursuant hereto.

Any corporation into which an Authenticating Agent may be merged or converted or with which it may be consolidated, or any corporation resulting from any merger, conversion or consolidation to which such Authenticating Agent shall be a party, or any corporation succeeding to the corporate agency or corporate trust business of an Authenticating Agent, shall continue to be an Authenticating Agent, provided that such corporation shall be otherwise eligible under this Section, without the execution or filing of any paper or any further act on the part of the Trustee or the Authenticating Agent.

SECTION 2.11 GLOBAL SECURITIES.

(a) If the Company shall establish pursuant to Section 2.01 that the Securities of a particular series are to be issued as a Global Security, then the Company shall execute and the Trustee shall, in accordance with Section 2.04, authenticate and deliver, a Global Security that

(1) shall represent, and shall be denominated in an amount equal to the aggregate principal amount of, all or a portion of the Outstanding Securities of such series,

(2) shall be registered in the name of the Depositary or its nominee,

(3) shall be delivered by the Trustee to the Depositary or pursuant to the Depositary's instruction and

(4) shall bear a legend substantially to the following effect: "Except as otherwise provided in Section 2.11 of the Indenture, this Security may be transferred, in whole but not in part, only to the Depositary, another nominee of the Depositary or to a successor Depositary or to a nominee of such successor Depositary."

(b) Notwithstanding the provisions of Section 2.05, the Global Security of a series may be transferred, in whole but not in part and in the manner provided in Section 2.05, only to the Depositary for such series, another nominee of the Depositary for such series, or to a successor Depositary for such series selected or approved by the Company or to a nominee of such successor Depositary.

(c) If at any time the Depositary for a series of the Securities notifies the Company that it is unwilling or unable to continue as Depositary for such series or if at any time the Depositary for such series shall no longer be registered or in good standing under the Exchange Act, or other applicable statute or regulation, and a successor Depositary for such series is not appointed by the Company within 90 days after the Company receives such notice or becomes aware of such condition, as the case may be, this Section 2.11 shall no longer be applicable to the Securities of such series and the Company will execute, and subject to Section 2.05, the Trustee will authenticate and deliver the Securities of such series in definitive registered form without coupons, in authorized denominations, and in an aggregate principal amount equal to the principal amount of the Global Security of such series in exchange for such Global Security. In addition, the Company may at any time determine that the Securities of any series shall no longer be represented by a Global Security and that the provisions of this Section 2.11 shall no longer apply to the Securities of such series. In such event the Company will execute and subject to Section 2.05, the Trustee, upon receipt of an Officers' Certificate evidencing such determination by the Company, will authenticate and deliver the Securities of such series in definitive registered form without coupons, in authorized denominations, and in an aggregate principal amount equal to the principal amount of the Global Security of such series in exchange for such Global Security. Upon the exchange of the Global Security for such Securities in definitive registered form without coupons, in authorized denominations, the Global Security shall be canceled by the Trustee. Such Securities in definitive registered form issued in exchange for the Global Security pursuant to this Section 2.11(c) shall be registered in such names and in such authorized denominations as the Depositary, pursuant to instructions from its direct or indirect participants or otherwise, shall instruct the Trustee. The Trustee shall deliver such Securities to the Depositary for delivery to the Persons in whose names such Securities are so registered.

ARTICLE III
REDEMPTION OF SECURITIES AND SINKING FUND PROVISIONS

SECTION 3.01 REDEMPTION.

The Company may redeem the Securities of any series issued hereunder on and after the dates and in accordance with the terms established for such series pursuant to Section 2.01 hereof.

SECTION 3.02 NOTICE OF REDEMPTION.

(a) In case the Company shall desire to exercise such right to redeem all or, as the case may be, a portion of the Securities of any series in accordance with the right reserved so to do, the Company shall, or shall cause the Trustee to, give notice of such redemption to holders of the Securities of such series to be redeemed by mailing, first class postage prepaid, a notice of such redemption not less than 30 days and not more than 90 days before the date fixed for redemption of that series to such holders at their last addresses as they shall appear upon the Security Register unless a shorter period is specified in the Securities to be redeemed. Any notice that is mailed in the manner herein provided shall be conclusively presumed to have been duly given, whether or not the registered holder receives the notice. In any case, failure duly to give such notice to the holder of any Security of any series designated for redemption in whole or in part, or any defect in the notice, shall not affect the validity of the proceedings for the redemption of any other Securities of such series or any other series. In the case of any redemption of Securities prior to the expiration of any restriction on such redemption provided in the terms of such Securities or elsewhere in this Indenture, the Company shall furnish the Trustee with an Officers' Certificate evidencing compliance with any such restriction. Each such notice of redemption shall specify the date fixed for redemption and the redemption price at which Securities of that series are to be redeemed, and shall state that payment of the redemption price of such Securities to be redeemed will be made at the office or agency of the Company in the Borough of Manhattan, the City and State of New York, upon presentation and surrender of such Securities, that interest accrued to the date fixed for redemption will be paid as specified in said notice, that from and after said date interest will cease to accrue and that the redemption is for a sinking fund, if such is the case. If less than all the Securities of a series are to be redeemed, the notice to the holders of Securities of that series to be redeemed in whole or in part shall specify the particular Securities to be so redeemed. In case any Security is to be redeemed in part only, the notice that relates to such Security shall state the portion of the principal amount thereof to be redeemed, and shall state that on and after the redemption date, upon surrender of such Security, a new Security or Securities of such series in principal amount equal to the unredeemed portion thereof will be issued.

(b) If less than all the Securities of a series are to be redeemed, the Company shall give the Trustee at least 45 days' notice in advance of the date fixed for redemption as to the aggregate principal amount of Securities of the series to be redeemed, and thereupon the Trustee shall select, by lot or in such other manner as it shall deem appropriate and fair in its discretion and that may provide for the selection of a portion or portions (equal to one thousand U.S. dollars ($1,000) or any integral multiple thereof) of the principal amount of such Securities of a denomination larger than $1,000, the Securities to be redeemed and shall thereafter promptly notify the Company in writing of the numbers of the Securities to be redeemed, in whole or in part. The Company may, if and whenever it shall so elect, by delivery of instructions signed on its behalf by its President or any Vice President, instruct the Trustee or any paying agent to call all or any part of the Securities of a particular series for redemption and to give notice of redemption in the manner set forth in this Section, such notice to be in the name of the Company or its own name as the Trustee or such paying agent as it may deem advisable. In any case in which notice of redemption is to be given by the Trustee or any such paying agent, the Company shall deliver or cause to be delivered to, or permit to remain with, the Trustee or such paying agent, as the case may be, such Security Register, transfer books or other records, or suitable copies or extracts therefrom, sufficient to enable the Trustee or such paying agent to give any notice by mail that may be required under the provisions of this Section.

SECTION 3.03 PAYMENT UPON REDEMPTION.

(a) If the giving of notice of redemption shall have been completed as above provided, the Securities or portions of Securities of the series to be redeemed specified in such notice shall become due and payable on the date and at the place stated in such notice at the applicable redemption price, together with interest accrued to the date fixed for redemption and interest on such Securities or portions of Securities shall cease to accrue on and after the date fixed for redemption, unless the Company shall default in the payment of such redemption price and accrued interest with respect to any such Security or portion thereof. On presentation and surrender of such Securities on or after the date fixed for redemption at the place of payment specified in the notice, said Securities shall be paid and redeemed at the applicable redemption price for such series, together with interest accrued thereon to the date fixed for redemption (but if the date fixed for redemption is an Interest Payment Date, the interest installment payable on such date shall be payable to the registered holder at the close of business on the applicable record date pursuant to Section 2.03).

(b) Upon presentation of any Security of such series that is to be redeemed in part only, the Company shall execute and the Trustee shall authenticate and the office or agency where the Security is presented shall deliver to the holder thereof, at the expense of the Company, a new Security of the same series of authorized denominations in principal amount equal to the unredeemed portion of the Security so presented.

SECTION 3.04 SINKING FUND.

The provisions of Sections 3.04, 3.05 and 3.06 shall be applicable to any sinking fund for the retirement of Securities of a series, except as otherwise specified as contemplated by Section 2.01 for Securities of such series. The minimum amount of any sinking fund payment provided for by the terms of Securities of any series is herein referred to as a "mandatory sinking fund payment," and any payment in excess of such minimum amount provided for by the terms of Securities of any series is herein referred to as an "optional sinking fund payment". If provided for by the terms of Securities of any series, the cash amount of any sinking fund payment may be subject to reduction as provided in Section 3.05. Each sinking fund payment shall be applied to the redemption of Securities of any series as provided for by the terms of Securities of such series.

SECTION 3.05 SATISFACTION OF SINKING FUND PAYMENTS WITH SECURITIES.

The Company,

(1) may deliver Outstanding Securities of a series (other than any Securities previously called for redemption) and

(2) may apply as a credit Securities of a series that have been redeemed either at the election of the Company pursuant to the terms of such Securities or through the application of permitted optional sinking fund payments pursuant to the terms of such Securities, in each case in satisfaction of all or any part of any sinking fund payment with respect to the Securities of such series required to be made pursuant to the terms of such Securities as provided for by the terms of such series, provided that such Securities have not been previously so credited. Such Securities shall be received and credited for such purpose by the Trustee at the redemption price specified in such Securities for redemption through operation of the sinking fund and the amount of such sinking fund payment shall be reduced accordingly.

SECTION 3.06 REDEMPTION OF SECURITIES FOR SINKING FUND.

Not less than 45 days prior to each sinking fund payment date for any series of Securities, the Company will deliver to the Trustee an Officers' Certificate specifying the amount of the next ensuing sinking fund payment for that series pursuant to the terms of the series, the portion thereof, if any, that is to be satisfied by delivering and crediting Securities of that series pursuant to Section 3.05 and the basis for such credit and will, together with such Officers' Certificate, deliver to the Trustee any Securities to be so delivered. Not less than 30 days before each such sinking fund payment date the Trustee shall select the Securities to be redeemed upon such sinking fund payment date in the manner specified in Section 3.02 and cause notice of the redemption thereof to be given in the name of and at the expense of the Company in the manner provided in Section 3.02. Such notice having been duly given, the redemption of such Securities shall be made upon the terms and in the manner stated in Section 3.03.

ARTICLE IV
COVENANTS

SECTION 4.01 PAYMENT OF PRINCIPAL, PREMIUM AND INTEREST.

The Company will duly and punctually pay or cause to be paid the principal of (and premium, if any) and interest on the Securities of each series at the time and place and in the manner provided herein and established with respect to such Securities.

SECTION 4.02 MAINTENANCE OF OFFICE OR AGENCY.

So long as any series of the Securities remain Outstanding, the Company agrees to maintain an office or agency in the Borough of Manhattan, the City and State of New York, with respect to each such series and at such other location or locations as may be designated as provided in this Section 4.02, where (i) Securities of that series may be presented for payment, (ii) Securities of that series may be presented as herein above authorized for registration of transfer and exchange, and (iii) notices and demands to or upon the Company in respect of the Securities of that series and this Indenture may be given or served, such designation to continue with respect to such office or agency until the Company shall, by written notice signed by its President or a Vice President and delivered to the Trustee, designate some other office or agency in the Borough of Manhattan, the City and State of New York for such purposes or any of them. If at any time the Company shall fail to maintain any such required office or agency or shall fail to furnish the Trustee with the address thereof, such presentations, notices and demands may be made or served at the Corporate Trust Office of the Trustee, and the Company hereby appoints the Trustee as its agent to receive all such presentations, notices and demands.

The Company may also from time to time designate one or more other offices or agencies where the Securities of one or more series may be presented or surrendered for any or all such purposes and may from time to time rescind such designations; provided, however, that no such designation or rescission shall in any manner relieve the Company of its obligation to maintain an office or agency in the Borough of Manhattan, the City and State of New York for Securities of any series for such purposes. The Company will give prompt written notice to the Trustee of any such designation or rescission and of any change in the location of any such other office or agency.

SECTION 4.03 PAYING AGENTS.

(a) If the Company shall appoint one or more paying agents for all or any series of the Securities, other than the Trustee, the Company will cause each such paying agent to execute and deliver to the Trustee an instrument in which such agent shall agree with the Trustee, subject to the provisions of this Section:

(1) that it will hold all sums held by it as such agent for the payment of the principal of (and premium, if any) or interest on the Securities of that series (whether such sums have been paid to it by the Company or by any other obligor of such Securities) in trust for the benefit of the Persons entitled thereto;

(2) that it will give the Trustee notice of any failure by the Company (or by any other obligor of such Securities) to make any payment of the principal of (and premium, if any) or interest on the Securities of that series when the same shall be due and payable;

(3) that it will, at any time during the continuance of any failure referred to in the preceding paragraph (a)(2) above, upon the written request of the Trustee, forthwith pay to the Trustee all sums so held in trust by such paying agent; and

(4) that it will perform all other duties of paying agent as set forth in this Indenture.

(b) If the Company shall act as its own paying agent with respect to any series of the Securities, it will on or before each due date of the principal of (and premium, if any) or interest on Securities of that series, set aside, segregate and hold in trust for the benefit of the Persons entitled thereto a sum sufficient to pay such principal (and premium, if any) or interest so becoming due on Securities of that series until such sums shall be paid to such Persons or otherwise disposed of as herein provided and will promptly notify the Trustee of such action, or any failure (by it or any other obligor on such Securities) to take such action. Whenever the Company shall have one or more paying agents for any series of Securities, it will, prior to each due date of the principal of (and premium, if any) or interest on any Securities of that series, deposit with the paying agent a sum sufficient to pay the principal (and premium, if any) or interest so becoming due, such sum to be held in trust for the benefit of the Persons entitled to such principal, premium or interest, and (unless such paying agent is the Trustee) the Company will promptly notify the Trustee of this action or failure so to act.

(c) Notwithstanding anything in this Section to the contrary,

(1) the agreement to hold sums in trust as provided in this Section is subject to the provisions of Section 11.05, and

(2) the Company may at any time, for the purpose of obtaining the satisfaction and discharge of this Indenture or for any other purpose, pay, or direct any paying agent to pay, to the Trustee all sums held in trust by the Company or such paying agent, such sums to be held by the Trustee upon the same terms and conditions as those upon which such sums were held by the Company or such paying agent; and, upon such payment by any paying agent to the Trustee, such paying agent shall be released from all further liability with respect to such money.

SECTION 4.04 APPOINTMENT TO FILL VACANCY IN OFFICE OF TRUSTEE.

The Company, whenever necessary to avoid or fill a vacancy in the office of Trustee, will appoint, in the manner provided in Section 7.11, a Trustee, so that there shall at all times be a Trustee hereunder.

SECTION 4.05 COMPLIANCE WITH CONSOLIDATION PROVISIONS.

The Company will not, while any of the Securities remain Outstanding, consolidate with or merge into any other Person, in either case where the Company is not the survivor of such transaction, or sell, convey, transfer or otherwise dispose of its property as an entirety or substantially as an entirety to any other Person unless the provisions of Article X hereof are complied with.

SECTION 4.06 STATEMENT BY OFFICERS AS TO DEFAULT.

The Company will deliver to the Trustee, within 120 days after the end of each fiscal year of the Company, an Officers' Certificate, stating whether or not to the best knowledge of the signer thereof the Company is in default in the performance and observance of any of the terms, provisions and conditions of this Indenture (without regard to any period of grace or requirement of notice provided hereunder) and, if the Company shall be in default, specifying all such defaults and the nature and status thereof of which such signer may have knowledge.

ARTICLE V
SECURITYHOLDERS' LISTS AND REPORTS BY THE COMPANY AND THE TRUSTEE

SECTION 5.01 COMPANY TO FURNISH TRUSTEE NAMES AND ADDRESSES OF SECURITYHOLDERS.

The Company will furnish or cause to be furnished to the Trustee

(1) not more than 15 days after each regular record date (as defined in Section 2.03) a list, in such form as the Trustee may reasonably require, of the names and addresses of the holders of each series of Securities as of such regular record date, provided that the Company shall not be obligated to furnish or cause to furnish such list at any time that the list shall not differ in any respect from the most recent list furnished to the Trustee by the Company and

(2) at such other times as the Trustee may request in writing within 30 days after the receipt by the Company of any such request, a list of similar form and content as of a date not more than 15 days prior to the time such list is furnished;

provided, however, that, in either case, no such list need be furnished for any series for which the Trustee shall be the Security Registrar.

SECTION 5.02 PRESERVATION OF INFORMATION; COMMUNICATIONS WITH SECURITYHOLDERS.

(a) The Trustee shall preserve, in as current a form as is reasonably practicable, all information as to the names and addresses of the holders of Securities contained in the most recent list furnished to it as provided in Section 5.01 and as to the names and addresses of holders of Securities received by the Trustee in its capacity as Security Registrar (if acting in such capacity).

(b) The Trustee may destroy any list furnished to it as provided in Section 5.01 upon receipt of a new list so furnished.

(c) Securityholders may communicate as provided in Section 312(b) of the Trust Indenture Act with other Securityholders with respect to their rights under this Indenture or under the Securities.

SECTION 5.03 REPORTS BY THE COMPANY.

(a) The Company covenants and agrees to file with the Trustee, within 15 days after the Company is required to file the same with the Commission, copies of the annual reports and of the information, documents and other reports (or copies of such portions of any of the foregoing as the Commission may from time to time by rules and regulations prescribe) that the Company may be required to file with the Commission pursuant to Section 13 or Section 15(d) of the Exchange Act; or, if the Company is not required to file information, documents or reports pursuant to either of such sections, then to file with the Trustee and the Commission, in accordance with the rules and regulations prescribed from time to time by the Commission, such of the supplementary and periodic information, documents and reports that may be required pursuant to Section 13 of the Exchange Act, in respect of a security listed and registered on a national securities exchange as may be prescribed from time to time in such rules and regulations.

(b) The Company covenants and agrees to file with the Trustee and the Commission, in accordance with the rules and regulations prescribed from to time by the Commission, such additional information, documents and reports with respect to compliance by the Company with the conditions and covenants provided for in this Indenture as may be required from time to time by such rules and regulations.

(c) The Company covenants and agrees to transmit by mail, first class postage prepaid, or reputable overnight delivery service that provides for evidence of receipt, to the Securityholders, as their names and addresses appear upon the Security Register, within 30 days after the filing thereof with the Trustee, such summaries of any information, documents and reports required to be filed by the Company pursuant to subsections (a) and (b) of this Section as may be required by rules and regulations prescribed from time to time by the Commission.

SECTION 5.04 REPORTS BY THE TRUSTEE.

(a) On or before [ ] in each year in which any of the Securities are Outstanding, the Trustee shall transmit by mail, first class postage prepaid, to the Securityholders, as their names and addresses appear upon the Security Register, a brief report dated as of the preceding [ ], if and to the extent required under Section 313(a) of the Trust Indenture Act.

(b) The Trustee shall comply with Section 313(b) and 313(c) of the Trust Indenture Act.

(c) A copy of each such report shall, at the time of such transmission to Securityholders, be filed by the Trustee with the Company, with each stock exchange upon which any Securities are listed (if so listed) and also with the Commission. The Company agrees to notify the Trustee when any Securities become listed on any stock exchange.

ARTICLE VI
REMEDIES OF THE TRUSTEE AND SECURITYHOLDERS ON EVENT OF DEFAULT

SECTION 6.01 EVENTS OF DEFAULT.

(a) Whenever used herein with respect to Securities of a particular series, "Event of Default" means any one or more of the following events that has occurred and is continuing (whatever the reason for such Event of Default and whether it shall be voluntary or involuntary or be effected by operation of law or pursuant to any judgment, decree or order of any court or any order, rule or regulation of any administrative or governmental body):

(1) the Company defaults in the payment of any installment of interest upon any of the Securities of that series, as and when the same shall become due and payable, and continuance of such default for a period of 90 days;

provided, however, that a valid extension of an interest payment period by the Company in accordance with the terms of any indenture supplemental hereto shall not constitute a default in the payment of interest for this purpose;

(2) the Company defaults in the payment of the principal of (or premium, if any, on) any of the Securities of that series as and when the same shall become due and payable whether at maturity, upon redemption, by declaration or otherwise, or in any payment required by any sinking or analogous fund established with respect to that series; provided, however, that a valid extension of the maturity of such Securities in accordance with the terms of any indenture supplemental hereto shall not constitute a default in the payment of principal or premium, if any;

(3) the Company fails to observe or perform any other of its covenants or agreements with respect to that series contained in this Indenture or otherwise established with respect to that series of Securities pursuant to Section 2.01 hereof (other than a covenant or agreement that has been expressly included in this Indenture solely for the benefit of one or more series of Securities other than such series) for a period of 90 days after the date on which written notice of such failure, requiring the same to be remedied and stating that such notice is a "Notice of Default" hereunder, shall have been given to the Company by the Trustee, by registered or certified mail, or to the Company and the Trustee by the holders of at least 25% in principal amount of the Securities of that series at the time Outstanding;

(4) the Company pursuant to or within the meaning of any Bankruptcy Law

(i) commences a voluntary case,

(ii) consents to the entry of an order for relief against it in an involuntary case,

(iii) consents to the appointment of a Custodian of it or for all or substantially all of its property or

(iv) makes a general assignment for the benefit of its creditors; or

(5) a court of competent jurisdiction enters an order under any Bankruptcy Law that

(i) is for relief against the Company in an involuntary case,

(ii) appoints a Custodian of the Company for all or substantially all of its property, or

(iii) orders the liquidation of the Company, and the order remains unstayed and in effect for 90 days.

(b) In each and every such case, unless the principal of all the Securities of that series shall have already become due and payable, either the Trustee or the holders of not less than 25% in aggregate principal amount of the Securities of that series then Outstanding hereunder, by notice in writing to the Company (and to the Trustee if given by such Securityholders), may declare the principal of all the Securities of that series to be due and payable immediately, and upon any such declaration the same shall become and shall be immediately due and payable, notwithstanding anything contained in this Indenture or in the Securities of that series or established with respect to that series pursuant to Section 2.01 to the contrary.

(c) At any time after the principal of the Securities of that series shall have been so declared due and payable, and before any judgment or decree for the payment of the moneys due shall have been obtained or entered as hereinafter provided, the holders of a majority in aggregate principal amount of the Securities of that series then Outstanding hereunder, by written notice to the Company and the Trustee, may rescind and annul such declaration and its consequences if:

(1) the Company has paid or deposited with the Trustee a sum sufficient to pay all matured installments of interest upon all the Securities of that series and the principal of (and premium, if any, on) any and all Securities of that series that shall have become due otherwise than by acceleration (with interest upon such principal and premium, if any, and, to the extent that such payment is enforceable under applicable law, upon overdue installments of interest, at the rate per annum expressed in the Securities of that series to the date of such payment or deposit) and the amount payable to the Trustee under Section 7.07, and

(2) any and all Events of Default under the Indenture with respect to such series, other than the nonpayment of principal on Securities of that series that shall not have become due by their terms, shall have been remedied or waived as provided in Section 6.06. No such rescission and annulment shall extend to or shall affect any subsequent default or impair any right consequent thereon.

(d) In case the Trustee shall have proceeded to enforce any right with respect to Securities of that series under this Indenture and such proceedings shall have been discontinued or abandoned because of such rescission or annulment or for any other reason or shall have been determined adversely to the Trustee, then and in every such case, subject to any determination in such proceedings, the Company, and the Trustee shall be restored respectively to their former positions and rights hereunder, and all rights, remedies and powers of the Company and the Trustee shall continue as though no such proceedings had been taken.

SECTION 6.02 COLLECTION OF INDEBTEDNESS AND SUITS FOR ENFORCEMENT BY TRUSTEE.

(a) The Company covenants that

(1) in case it shall default in the payment of any installment of interest on any of the Securities of a series, as and when the same shall have become due and payable, and such default shall have continued for a period of 90 days, or

(2) in case it shall default in the payment of the principal of (or premium, if any, on) any of the Securities of a series when the same shall have become due and payable, whether upon maturity of the Securities of a series or upon redemption or upon declaration, pursuant to any sinking or analogous fund established with respect to that series or otherwise,

then, upon demand of the Trustee, the Company will pay to the Trustee, for the benefit of the holders of the Securities of that series, the whole amount that then shall have been become due and payable on all such Securities for principal (and premium, if any) or interest, or both, as the case may be, with interest upon the overdue principal (and premium, if any) and (to the extent that payment of such interest is enforceable under applicable law) upon overdue installments of interest at the rate per annum expressed in the Securities of that series; and, in addition thereto, such further amount as shall be sufficient to cover the costs and expenses of collection, and the amount payable to the Trustee under Section 7.07.

(b) If the Company shall fail to pay such amounts forthwith upon such demand, the Trustee, in its own name and as trustee of an express trust, shall be entitled and empowered to institute any action or proceedings at law or in equity for the collection of the sums so due and unpaid, and may prosecute any such action or proceeding to judgment or final decree, and may enforce any such judgment or final decree against the Company or other obligor upon the Securities of that series and collect the moneys adjudged or decreed to be payable in the manner provided by law out of the property of the Company or other obligor upon the Securities of that series, wherever situated.

(c) In case of any receivership, insolvency, liquidation, bankruptcy, reorganization, readjustment, arrangement, composition or judicial proceedings affecting the Company, or its creditors or property, the Trustee shall have power to intervene in such proceedings and take any action therein that may be permitted by the court and shall (except as may be otherwise provided by law) be entitled to file such proofs of claim and other papers and documents as may be necessary or advisable in order to have the claims of the Trustee and of the holders of Securities of such series allowed for the entire amount due and payable by the Company under the Indenture at the date of institution of such proceedings and for any additional amount that may become due and payable by the Company after such date, and to collect and receive any moneys or other property payable or deliverable on any such claim, and to distribute the same after the deduction of the amount payable to the Trustee under Section 7.07; and any receiver, assignee or trustee in bankruptcy or reorganization is hereby authorized by each of the holders of Securities of such series to make such payments to the Trustee, and, in the event that the Trustee shall consent to the making of such payments directly to such Securityholders, to pay to the Trustee any amount due it under Section 7.07.

(d) All rights of action and of asserting claims under this Indenture, or under any of the terms established with respect to Securities of that series, may be enforced by the Trustee without the possession of any of such Securities, or the production thereof at any trial or other proceeding relative thereto, and any such suit or proceeding instituted by the Trustee shall be brought in its own name as trustee of an express trust, and any recovery of judgment shall, after provision for payment to the Trustee of any amounts due under Section 7.07, be for the ratable benefit of the holders of the Securities of such series. In case of an Event of Default hereunder, the Trustee may in its discretion proceed to protect and enforce the rights vested in it by this Indenture by such appropriate judicial proceedings as the Trustee shall deem most effectual to protect and enforce any of such rights, either at law or in equity or in bankruptcy or otherwise, whether for the specific enforcement of any covenant or agreement contained in the Indenture or in aid of the exercise of any power granted in this Indenture, or to enforce any other legal or equitable right vested in the Trustee by this Indenture or by law. Nothing contained herein shall be deemed to authorize the Trustee to authorize or consent to or accept or adopt on behalf of any Securityholder any plan of reorganization, arrangement, adjustment or composition affecting the Securities of that series or the rights of any holder thereof or to authorize the Trustee to vote in respect of the claim of any Securityholder in any such proceeding.

SECTION 6.03 APPLICATION OF MONEYS COLLECTED.

Any moneys collected by the Trustee pursuant to this Article with respect to a particular series of Securities shall be applied in the following order, at the date or dates fixed by the Trustee and, in case of the distribution of such moneys on account of principal (or premium, if any) or interest, upon presentation of the Securities of that series, and notation thereon of the payment, if only partially paid, and upon surrender thereof if fully paid:

FIRST: To the payment of costs and expenses of collection and of all amounts payable to the Trustee under Section 7.07;

SECOND: To the payment of the amounts then due and unpaid upon Securities of such series for principal (and premium, if any) and interest, in respect of which or for the benefit of which such money has been collected, ratably, without preference or priority of any kind, according to the amounts due and payable on such Securities for principal (and premium, if any) and interest, respectively.

SECTION 6.04 LIMITATION ON SUITS.

No holder of any Security of any series shall have any right by virtue or by availing of any provision of this Indenture to institute any suit, action or proceeding in equity or at law upon or under or with respect to this Indenture or for the appointment of a receiver or trustee, or for any other remedy hereunder, unless

(1) such holder previously shall have given to the Trustee written notice of an Event of Default and of the continuance thereof with respect to the Securities of such series specifying such Event of Default, as hereinbefore provided;

(2) the holders of not less than 25% in aggregate principal amount of the Securities of such series then Outstanding shall have made written request upon the Trustee to institute such action, suit or proceeding in its own name as trustee hereunder;

(3) such holder or holders shall have offered to the Trustee such reasonable indemnity as it may require against the costs, expenses and liabilities to be incurred therein or thereby; and

(4) the Trustee for 60 days after its receipt of such notice, request and offer of indemnity, shall have failed to institute any such action, suit or proceeding and

(5) during such 60 day period, the holders of a majority in principal amount of the Securities of that series do not give the Trustee a direction inconsistent with the request. Notwithstanding anything contained herein to the contrary, the right of any holder of any Security to receive payment of the principal of (and premium, if any) and interest on such Security, as therein provided, on the respective due dates expressed in such Security (or in the case of redemption, on the redemption date), or to institute suit for the enforcement of any such payment on or after such respective dates or redemption date, shall not be impaired or affected without the consent of such holder and by accepting a Security hereunder it is expressly understood, intended and covenanted by the taker and holder of every Security of such series with every other such taker and holder and the Trustee, that no one or more holders of Securities of such series shall have any right in any manner whatsoever by virtue or by availing of any provision of this Indenture to affect, disturb or prejudice the rights of the holders of any other of such Securities, or to obtain or seek to obtain priority over or preference to any other such holder, or to enforce any right under this Indenture, except in the manner herein provided and for the equal, ratable and common benefit of all holders of Securities of such series. For the protection and enforcement of the provisions of this Section, each and every Securityholder and the Trustee shall be entitled to such relief as can be given either at law or in equity.

SECTION 6.05 RIGHTS AND REMEDIES CUMULATIVE; DELAY OR OMISSION NOT WAIVER.

(a) Except as otherwise provided in Section 2.07, all powers and remedies given by this Article to the Trustee or to the Securityholders shall, to the extent permitted by law, be deemed cumulative and not exclusive of any other powers and remedies available to the Trustee or the holders of the Securities, by judicial proceedings or otherwise, to enforce the performance or observance of the covenants and agreements contained in this Indenture or otherwise established with respect to such Securities.

(b) No delay or omission of the Trustee or of any holder of any of the Securities to exercise any right or power accruing upon any Event of Default occurring and continuing as aforesaid shall impair any such right or power, or shall be construed to be a waiver of any such default or on acquiescence therein; and, subject to the provisions of Section 6.04, every power and remedy given by this Article or by law to the Trustee or the Securityholders may be exercised from time to time, and as often as shall be deemed expedient, by the Trustee or by the Securityholders.

SECTION 6.06 CONTROL BY SECURITYHOLDERS.

The holders of a majority in aggregate principal amount of the Securities of any series at the time Outstanding, determined in accordance with Section 8.01, shall have the right to direct the time, method and place of conducting any proceeding for any remedy available to the Trustee, or exercising any trust or power conferred on the Trustee with respect to such series; provided, however, that such direction shall not be in conflict with any rule of law or with this Indenture or be unduly prejudicial to the rights of holders of Securities of any other series at the time Outstanding determined in accordance with Section 8.01. Subject to the provisions of Section 7.01, the Trustee shall have the right to decline to follow any such direction if the Trustee in good faith shall, by a Responsible Officer or Officers of the Trustee, determine that the proceeding so directed would involve the Trustee in personal liability. The holders of a majority in aggregate principal amount of the Securities of any series at the time Outstanding affected thereby, determined in accordance with Section 8.01, may on behalf of the holders of all of the Securities of such series waive any past default in the performance of any of the covenants contained herein or established pursuant to Section 2.01 with respect to such series and its consequences, except a default in the payment of the principal of (or premium, if any) or interest on, any of the Securities of that series as and when the same shall become due by the terms of such Securities otherwise than by acceleration (unless such default has been cured and a sum sufficient to pay all matured installments of interest and principal and any premium has been deposited with the Trustee (in accordance with Section 6.01(c)) or in respect of a covenant or provision hereof which under Article IX cannot be modified or amended without the consent of the holder of each Outstanding Security affected. Upon any such waiver, the default covered thereby shall be deemed to be cured for all purposes of this Indenture and the Company, the Trustee and the holders of the Securities of such series shall be restored to their former positions and rights hereunder, respectively; but no such waiver shall extend to any subsequent or other default or impair any right consequent thereon.

SECTION 6.07 UNDERTAKING TO PAY COSTS.

All parties to this Indenture agree, and each holder of any Securities by such holder's acceptance thereof shall be deemed to have agreed, that any court may in its discretion require, in any suit for the enforcement of any right or remedy under this Indenture, or in any suit against the Trustee for any action taken or omitted by it as Trustee, the filing by any party litigant in such suit of an undertaking to pay the costs of such suit, and that such court may in its discretion assess reasonable costs, including reasonable attorneys' fees, against any party litigant in such suit, having due regard to the merits and good faith of the claims or defenses made by such party litigant; but the provisions of this Section shall not apply to any suit instituted by the Trustee, to any suit instituted by any Securityholder, or group of Securityholders, holding more than 10% in aggregate principal amount of the Outstanding Securities of any series, or to any suit instituted by any Securityholder for the enforcement of the payment of the principal of (or premium, if any) or interest on any Security of such series, on or after the respective due dates expressed in such Security or established pursuant to this Indenture.

ARTICLE VII
CONCERNING THE TRUSTEE

SECTION 7.01 CERTAIN DUTIES AND RESPONSIBILITIES OF TRUSTEE.

(a) The Trustee, prior to the occurrence of an Event of Default with respect to the Securities of a series and after the curing of all Events of Default with respect to the Securities of that series that may have occurred, shall undertake to perform with respect to the Securities of such series such duties and only such duties as are specifically set forth in this Indenture, and no implied covenants shall be read into this Indenture against the Trustee. In case an Event of Default with respect to the Securities of a series has occurred (that has not been cured or waived), the Trustee shall exercise with respect to Securities of that series such of the rights and powers vested in it by this Indenture, and use the same degree of care and skill in their exercise, as a prudent man would exercise or use under the circumstances in the conduct of his own affairs.

(b) No provision of this Indenture shall be construed to relieve the Trustee from liability for its own negligent action, its own negligent failure to act, or its own willful misconduct, except that:

(1) prior to the occurrence of an Event of Default with respect to the Securities of a series and after the curing or waiving of all such Events of Default with respect to that series that may have occurred: the duties and obligations of the Trustee shall with respect to the Securities of such series be determined solely by the express provisions of this Indenture, and the Trustee shall not be liable with respect to the Securities of such series except for the performance of such duties and obligations as are specifically set forth in this Indenture, and no implied covenants or obligations shall be read into this Indenture against the Trustee; and in the absence of bad faith on the part of the Trustee, the Trustee may with respect to the Securities of such series conclusively rely, as to the truth of the statements and the correctness of the opinions expressed therein, upon any certificates or opinions furnished to the Trustee and conforming to the requirements of this Indenture; but in the case of any such certificates or opinions that by any provision hereof are specifically required to be furnished

to the Trustee, the Trustee shall be under a duty to examine the same to determine whether or not they conform to the requirement of this Indenture;

(2) the Trustee shall not be liable for any error of judgment made in good faith by a Responsible Officer or Responsible Officers of the Trustee, unless it shall be proved that the Trustee, was negligent in ascertaining the pertinent facts;

(3) the Trustee shall not be liable with respect to any action taken or omitted to be taken by it in good faith in accordance with the direction of the holders of not less than a majority in principal amount of the Securities of any series at the time Outstanding relating to the time, method and place of conducting any proceeding for any remedy available to the Trustee, or exercising any trust or power conferred upon the Trustee under this Indenture with respect to the Securities of that series; and

(4) None of the provisions contained in this Indenture shall require the Trustee to expend or risk its own funds or otherwise incur personal financial liability in the performance of any of its duties or in the exercise of any of its rights or powers, if there is reasonable ground for believing that the repayment of such funds or liability is not reasonably assured to it under the terms of this Indenture or adequate indemnity against such risk is not reasonably assured to it.

SECTION 7.02 NOTICE OF DEFAULTS.

If a Default occurs hereunder with respect to Securities of any series and is known to a Responsible Officer of the Trustee, the Trustee shall give the holders of Securities of such series notice of such Default as and to the extent provided by the Trust Indenture Act; provided, however, that in the case of any Default of the character specified in clause (3) of Section 6.01(a) with respect to Securities of such series, no such notice to holders shall be given until at least 30 days after the occurrence thereof.

SECTION 7.03 CERTAIN RIGHTS OF TRUSTEE.

Except as otherwise provided in Section 7.01:

(a) The Trustee may rely and shall be protected in acting or refraining from acting upon any resolution, certificate, statement, instrument, opinion, report, notice, request, consent, order, approval, bond, security or other paper or document believed by it to be genuine and to have been signed or presented by the proper party or parties;

(b) Any request, direction, order or demand of the Company mentioned herein shall be sufficiently evidenced by a Board Resolution or an instrument signed in the name of the Company, by the President or any Vice President and by the Secretary or an Assistant Secretary or the Treasurer or an Assistant Treasurer thereof (unless other evidence in respect thereof is specifically prescribed herein);

(c) The Trustee may consult with counsel and the written advice of such counsel or any Opinion of Counsel shall be full and complete authorization and protection in respect of any action taken or suffered or omitted hereunder in good faith and in reliance thereon;

(d) The Trustee shall be under no obligation to exercise any of the rights or powers vested in it by this Indenture at the request, order or direction of any of the Securityholders, pursuant to the provisions of this Indenture, unless such Securityholders shall have offered to the Trustee reasonable security or indemnity against the costs, expenses and liabilities that may be incurred therein or thereby; nothing contained herein shall, however, relieve the Trustee of the obligation, upon the occurrence of an Event of Default with respect to a series of the Securities (that has not been cured or waived) to exercise with respect to Securities of that series such of the rights and powers vested in it by this Indenture, and to use the same degree of care and skill in their exercise, as a prudent man would exercise or use under the circumstances in the conduct of his own affairs;

(e) The Trustee shall not be liable for any action taken or omitted to be taken by it in good faith and believed by it to be authorized or within the discretion or rights or powers conferred upon it by this Indenture;

(f) The Trustee shall not be bound to make any investigation into the facts or matters stated in any resolution, certificate, statement, instrument, opinion, report, notice, request, consent, order, approval, bond, security, or other papers or documents, unless requested in writing so to do by the holders of not less than a majority in principal amount of the Outstanding Securities of the particular series affected thereby (determined as provided in Section 8.04); provided, however, that if the payment within a reasonable time to the Trustee of the costs, expenses or liabilities likely to be incurred by it in the making of such investigation is, in the opinion of the Trustee, not reasonably assured to the Trustee by the security afforded to it by the terms of this Indenture, the Trustee may require reasonable indemnity against such costs, expenses or liabilities as a condition to so proceeding. The reasonable expense of every such examination shall be paid by the Company or, if paid by the Trustee, shall be repaid by the Company upon demand; and

(g) The Trustee may execute any of the trusts or powers hereunder or perform any duties hereunder either directly or by or through agents or attorneys and the Trustee shall not be responsible for any misconduct or negligence on the part of any agent or attorney appointed with due care by it hereunder.

SECTION 7.04 TRUSTEE NOT RESPONSIBLE FOR RECITALS OR ISSUANCE OR SECURITIES.

(a) The recitals contained herein and in the Securities shall be taken as the statements of the Company, and the Trustee assumes no responsibility for the correctness of the same.

(b) The Trustee makes no representations as to the validity or sufficiency of this Indenture or of the Securities.

(c) The Trustee shall not be accountable for the use or application by the Company of any of the Securities or of the proceeds of such Securities, or for the use or application of any moneys paid over by the Trustee in accordance with any provision of this Indenture or established pursuant to Section 2.01, or for the use or application of any moneys received by any paying agent other than the Trustee.

SECTION 7.05 MAY HOLD SECURITIES.

The Trustee or any paying agent or Security Registrar, in its individual or any other capacity, may become the owner or pledgee of Securities with the same rights it would have if it were not Trustee, paying agent or Security Registrar.

SECTION 7.06 MONEYS HELD IN TRUST.

Subject to the provisions of Section 11.05, all moneys received by the Trustee shall, until used or applied as herein provided, be held in trust for the purposes for which they were received, but need not be segregated from other funds except to the extent required by law. The Trustee shall be under no liability for interest on any moneys received by it hereunder except such as it may agree with the Company to pay thereon.

SECTION 7.07 COMPENSATION AND REIMBURSEMENT.

(a) The Company covenants and agrees to pay to the Trustee, and the Trustee shall be entitled to, such reasonable compensation (which shall not be limited by any provision of law in regard to the compensation of a trustee of an express trust), as the Company, and the Trustee may from time to time agree in writing, for all services rendered by it in the execution of the trusts hereby created and in the exercise and performance of any of the powers and duties hereunder of the Trustee, and, except as otherwise expressly provided herein, the Company will pay or reimburse the Trustee upon its request for all reasonable expenses, disbursements and advances incurred or made by the Trustee in accordance with any of the provisions of this Indenture (including the reasonable compensation and the expenses and disbursements of its counsel and of all Persons not regularly in its employ) except any such expense, disbursement or advance as may arise from its negligence or bad faith. The Company also covenants to indemnify the Trustee (and its officers, agents, directors and employees) for, and to hold it harmless against, any loss, liability or expense incurred without negligence or bad faith on the part of the Trustee and arising out of or in connection with the acceptance or administration of this trust, including the costs and expenses of defending itself against any claim of liability in the premises.

(b) The obligations of the Company under this Section to compensate and indemnify the Trustee and to pay or reimburse the Trustee for expenses, disbursements and advances shall constitute additional indebtedness hereunder. Such additional indebtedness shall be secured by a lien prior to that of the Securities upon all property and funds held or collected by the Trustee as such, except funds held in trust for the benefit of the holders of particular Securities.

SECTION 7.08 RELIANCE ON OFFICERS' CERTIFICATE.

Except as otherwise provided in Section 7.01, whenever in the administration of the provisions of this Indenture the Trustee shall deem it necessary or desirable that a matter be proved or established prior to taking or suffering or omitting to take any action hereunder, such matter (unless other evidence in respect thereof be herein specifically prescribed) may, in the absence of negligence or bad faith on the part of the Trustee, be deemed to be conclusively proved and established by an Officers' Certificate delivered to the Trustee and such certificate, in the absence of negligence or bad faith on the part of the Trustee, shall be full warrant to the Trustee for any action taken, suffered or omitted to be taken by it under the provisions of this Indenture upon the faith thereof.

SECTION 7.09 DISQUALIFICATION; CONFLICTING INTERESTS.

If the Trustee has or shall acquire any "conflicting interest" within the meaning of Section 310(b) of the Trust Indenture Act, the Trustee and the Company shall in all respects comply with the provisions of Section 310(b) of the Trust Indenture Act, subject to the penultimate paragraph thereof.

SECTION 7.10 CORPORATE TRUSTEE REQUIRED; ELIGIBILITY.

There shall at all times be a Trustee with respect to the Securities issued hereunder which shall at all times be a corporation organized and doing business under the laws of the United States of America or any State or Territory thereof or of the District of Columbia, or a corporation or other Person permitted to act as trustee by the Commission, authorized under such laws to exercise corporate trust powers, having a combined capital and surplus of at least 50 million U.S. dollars ($50,000,000), and subject to supervision or examination by Federal, State, Territorial, or District of Columbia authority. If such corporation publishes reports of condition at least annually, pursuant to law or to the requirements of the aforesaid supervising or examining authority, then for the purposes of this Section, the combined capital and surplus of such corporation shall be deemed to be its combined capital and surplus as set forth in its most recent report of condition so published. The Company may not, nor may any Person directly or indirectly controlling, controlled by, or under common control with the Company, serve as Trustee. In case at any time the Trustee shall cease to be eligible in accordance with the provisions of this Section, the Trustee shall resign immediately in the manner and with the effect specified in Section 7.11.

SECTION 7.11 RESIGNATION AND REMOVAL; APPOINTMENT OF SUCCESSOR.

(a) The Trustee or any successor hereafter appointed, may at any time resign with respect to the Securities of one or more series by giving written notice thereof to the Company and by transmitting notice of resignation by mail, first class postage prepaid, to the Securityholders of such series, as their names and addresses appear upon the Security Register. Upon receiving such notice of resignation, the Company shall promptly appoint a successor trustee with respect to Securities of such series by written instrument, in duplicate, executed by order of the Board of Directors, one copy of which instrument shall be delivered to the resigning Trustee and one copy to the successor trustee. If no successor trustee shall have been so appointed and have accepted appointment within 30 days after the mailing of such notice of resignation, the resigning Trustee may petition any court of competent jurisdiction for the appointment of a successor trustee with respect to Securities of such series, or any Securityholder of that series who has been a bona fide holder of a Security or Securities for at least six months may on behalf of himself and all others similarly situated, petition any such court for the appointment of a successor trustee. Such court may thereupon after such notice, if any, as it may deem proper and prescribe, appoint a successor trustee.

(b) In case at any time any one of the following shall occur:

(1) the Trustee shall fail to comply with the provisions of Section 7.09 after written request therefor by the Company or by any Securityholder who has been a bona fide holder of a Security or Securities for at least six months; or

(2) the Trustee shall cease to be eligible in accordance with the provisions of Section 7.10 and shall fail to resign after written request therefor by the Company or by any such Securityholder; or

(3) the Trustee shall become incapable of acting, or shall be adjudged a bankrupt or insolvent, or commence a voluntary bankruptcy proceeding, or a receiver of the Trustee or of its property shall be appointed or consented to, or any public officer shall take charge or control of the Trustee or of its property or affairs for the purpose of rehabilitation, conservation or liquidation, then, in any such case, the Company may remove the Trustee with respect to all Securities and appoint a successor trustee by written instrument, in duplicate, executed by order of the Board of Directors, one copy of which instrument shall be delivered to the Trustee so removed and one copy to the successor trustee, or, unless, in the case of a failure to comply with Section 7.09, the Trustee's duty to resign is stayed as provided in the penultimate paragraph of Section 310(b) of the Trust Indenture Act, any Securityholder who has been a bona fide holder of a Security or Securities for at least six months may, on behalf of that holder and all others similarly situated, petition any court of competent jurisdiction for the removal of the Trustee and the appointment of a successor trustee. Such court may thereupon after such notice, if any, as it may deem proper and prescribe, remove the Trustee and appoint a successor trustee.

(c) The holders of a majority in aggregate principal amount of the Securities of any series at the time Outstanding may at any time remove the Trustee with respect to such series by so notifying the Trustee and the Company and may appoint a successor Trustee for such series with the consent of the Company.

(d) Any resignation or removal of the Trustee and appointment of a successor trustee with respect to the Securities of a series pursuant to any of the provisions of this Section shall become effective upon acceptance of appointment by the successor trustee as provided in Section 7.12.

(e) Any successor trustee appointed pursuant to this Section may be appointed with respect to the Securities of one or more series or all of such series, and at any time there shall be only one Trustee with respect to the Securities of any particular series.

SECTION 7.12 ACCEPTANCE OF APPOINTMENT BY SUCCESSOR.

(a) In case of the appointment hereunder of a successor trustee with respect to all Securities, every such successor trustee so appointed shall execute, acknowledge and deliver to the Company and to the retiring Trustee an instrument accepting such appointment, and thereupon the resignation or removal of the retiring Trustee shall become effective and such successor trustee, without any further act, deed or conveyance, shall become vested with all the rights, powers, trusts and duties of the retiring Trustee; but, on the request of the Company or the successor trustee, such retiring Trustee shall, upon payment of its charges, execute and deliver an instrument transferring to such successor trustee all the rights, powers, and trusts of the retiring Trustee and shall duly assign, transfer and deliver to such successor trustee all property and money held by such retiring Trustee hereunder.

(b) In case of the appointment hereunder of a successor trustee with respect to the Securities of one or more (but not all) series, the Company, the retiring Trustee and each successor trustee with respect to the Securities of one or more series shall execute and deliver an indenture supplemental hereto wherein each successor trustee shall accept such appointment and which

(1) shall contain such provisions as shall be necessary or desirable to transfer and confirm to, and to vest in, each successor trustee all the rights, powers, trusts and duties of the retiring Trustee with respect to the Securities of that or those series to which the appointment of such successor trustee relates,

(2) shall contain such provisions as shall be deemed necessary or desirable to confirm that all the rights, powers, trusts and duties of the retiring Trustee with respect to the Securities of that or those series as to which the retiring Trustee is not retiring shall continue to be vested in the retiring Trustee, and

(3) shall add to or change any of the provisions of this Indenture as shall be necessary to provide for or facilitate the administration of the trusts hereunder by more than one Trustee, it being understood that nothing herein or in such supplemental indenture shall constitute such Trustees co-trustees of the same trust, that each such Trustee shall be trustee of a trust or trusts hereunder separate and apart from any trust or trusts hereunder administered by any other such Trustee and that no Trustee shall be responsible for any act or failure to act on the part of any other Trustee hereunder; and upon the execution and delivery of such supplemental indenture the resignation or removal of the retiring Trustee shall become effective to the extent provided therein, such retiring Trustee shall with respect to the Securities of that or those series to which the appointment of such successor trustee relates have no further responsibility for the exercise of rights and powers or for the performance of the duties and obligations vested in the Trustee under this Indenture, and each such successor trustee, without any further act, deed or conveyance, shall become vested with all the rights, powers, trusts and duties of the retiring Trustee with respect to the Securities of that or those series to which the appointment of such successor trustee relates; but, on request of the Company or any successor trustee, such retiring Trustee shall duly assign, transfer and deliver to such successor trustee, to the extent contemplated by such supplemental indenture, the property and money held by such retiring Trustee hereunder with respect to the Securities of that or those series to which the appointment of such successor trustee relates.

(c) Upon request of any such successor trustee, the Company shall execute any and all instruments for more fully and certainly vesting in and confirming to such successor trustee all such rights, powers and trusts referred to in paragraph (a) or (b) of this Section, as the case may be.

(d) No successor trustee shall accept its appointment unless at the time of such acceptance such successor trustee shall be qualified and eligible under this Article.

(e) Upon acceptance of appointment by a successor trustee as provided in this Section, the Company shall transmit notice of the succession of such trustee hereunder by mail, first class postage prepaid, to the Securityholders, as their names and addresses appear upon the Security Register. If the Company fails to transmit such notice within ten days after acceptance of appointment by the successor trustee, the successor trustee shall cause such notice to be transmitted at the expense of the Company.

SECTION 7.13 MERGER, CONVERSION, CONSOLIDATION OR SUCCESSION TO BUSINESS.

Any corporation into which the Trustee may be merged or converted or with which it may be consolidated, or any corporation resulting from any merger, conversion or consolidation to which the Trustee shall be a party, or any corporation succeeding to the corporate trust business of the Trustee, shall be the successor of the Trustee hereunder, provided that such

corporation shall be qualified under the provisions of Section 7.09 and eligible under the provisions of Section 7.10, without the execution or filing of any paper or any further act on the part of any of the parties hereto, anything herein to the contrary notwithstanding. In case any Securities shall have been authenticated, but not delivered, by the Trustee then in office, any successor by merger, conversion or consolidation to such authenticating Trustee may adopt such authentication and deliver the Securities so authenticated with the same effect as if such successor Trustee had itself authenticated such Securities.

SECTION 7.14 PREFERENTIAL COLLECTION OF CLAIMS AGAINST THE COMPANY.

The Trustee shall comply with Section 311(a) of the Trust Indenture Act, excluding any creditor relationship described in Section 311(b) of the Trust Indenture Act. A Trustee who has resigned or been removed shall be subject to Section 311(a) of the Trust Indenture Act to the extent included therein.

ARTICLE VIII
CONCERNING THE SECURITYHOLDERS

SECTION 8.01 EVIDENCE OF ACTION BY SECURITYHOLDERS.

Whenever in this Indenture it is provided that the holders of a majority or specified percentage in aggregate principal amount of the Securities of a particular series may take any action (including the making of any demand or request, the giving of any notice, consent or waiver or the taking of any other action), the fact that at the time of taking any such action the holders of such majority or specified percentage of that series have joined therein may be evidenced by any instrument or any number of instruments of similar tenor executed by such holders of Securities of that series in Person or by agent or proxy appointed in writing. If the Company shall solicit from the Securityholders of any series any request, demand, authorization, direction, notice, consent, waiver or other action, the Company may, at its option, as evidenced by an Officers' Certificate, fix in advance a record date for such series for the determination of Securityholders entitled to give such request, demand, authorization, direction, notice, consent, waiver or other action, but the Company shall have no obligation to do so. If such a record date is fixed, such request, demand, authorization, direction, notice, consent, waiver or other action may be given before or after the record date, but only the Securityholders of record at the close of business on the record date shall be deemed to be Securityholders for the purposes of determining whether Securityholders of the requisite proportion of Outstanding Securities of that series have authorized or agreed or consented to such request, demand, authorization, direction, notice, consent, waiver or other action, and for that purpose the Outstanding Securities of that series shall be computed as of the record date; provided, however, that no such authorization, agreement or consent by such Securityholders on the record date shall be deemed effective unless it shall become effective pursuant to the provisions of this Indenture not later than six months after the record date.

SECTION 8.02 PROOF OF EXECUTION BY SECURITYHOLDERS.

Subject to the provisions of Section 7.01, proof of the execution of any instrument by a Securityholder (such proof will not require notarization) or his agent or proxy and proof of the holding by any Person of any of the Securities shall be sufficient if made in the following manner:

(a) The fact and date of the execution by any such Person of any instrument may be proved in any reasonable manner acceptable to the Trustee.

(b) The ownership of Securities shall be proved by the Security Register of such Securities or by a certificate of the Security Registrar thereof.

(c) The Trustee may require such additional proof of any matter referred to in this Section as it shall deem necessary.

SECTION 8.03 WHO MAY BE DEEMED OWNERS.

Prior to the due presentment for registration of transfer of any Security, the Company, the Trustee, any paying agent and any Security Registrar may deem and treat the Person in whose name such Security shall be registered upon the books of the Company as the absolute owner of such Security (whether or not such Security shall be overdue and notwithstanding any notice of ownership or writing thereon made by anyone other than the Security Registrar) for the purpose of receiving payment of or on account of the principal of (and premium, if any) and (subject to Section 2.03) interest on such Security and for all other purposes; and neither the Company nor the Trustee nor any paying agent nor any Security Registrar shall be affected by any notice to the contrary.

SECTION 8.04 CERTAIN SECURITIES OWNED BY COMPANY DISREGARDED.

In determining whether the holders of the requisite aggregate principal amount of Securities of a particular series have concurred in any direction, consent of waiver under this Indenture, the Securities of that series that are owned by the Company or any other obligor on the Securities of that series or by any Person directly or indirectly controlling or controlled by or under common control with the Company or any other obligor on the Securities of that series shall be disregarded and deemed not to be Outstanding for the purpose of any such determination, except that for the purpose of determining whether the Trustee shall be protected in relying on any such direction, consent or waiver, only Securities of such series that the Trustee actually knows are so owned shall be so disregarded. The Securities so owned that have been pledged in good faith may be regarded as Outstanding for the purposes of this Section, if the pledgee shall establish to the satisfaction of the Trustee the pledgee's right so to act with respect to such Securities and that the pledgee is not a Person directly or indirectly controlling or controlled by or under direct or indirect common control with the Company or any such other obligor. In case of a dispute as to such right, any decision by the Trustee taken upon the advice of counsel shall be full protection to the Trustee.

SECTION 8.05 ACTIONS BINDING ON FUTURE SECURITYHOLDERS.

At any time prior to (but not after) the evidencing to the Trustee, as provided in Section 8.01, of the taking of any action by the holders of the majority or percentage in aggregate principal amount of the Securities of a particular series specified in this Indenture in connection with such action, any holder of a Security of that series that is shown by the evidence to be included in the Securities the holders of which have consented to such action may, by filing written notice with the Trustee, and upon proof of holding as provided in Section 8.02, revoke such action so far as concerns such Security. Except as aforesaid any such action taken by the holder of any Security shall be conclusive and binding upon such holder and upon all future holders and owners of such Security, and of any Security issued in exchange therefor, on registration of transfer thereof or in place thereof, irrespective of whether or not any notation in regard thereto is made upon such Security. Any action taken by the holders of the majority or percentage in aggregate principal amount of the Securities of a particular series specified in this Indenture in connection with such action shall be conclusively binding upon the Company, the Trustee and the holders of all the Securities of that series.

ARTICLE IX
SUPPLEMENTAL INDENTURES

SECTION 9.01 SUPPLEMENTAL INDENTURES WITHOUT THE CONSENT OF SECURITYHOLDERS.

In addition to any supplemental indenture otherwise authorized by this Indenture, the Company and the Trustee may from time to time and at any time enter into an indenture or indentures supplemental hereto (which shall conform to the provisions of the Trust Indenture Act as then in effect), without the consent of the Securityholders, for one or more of the following purposes:

(1) to cure any ambiguity, defect, or inconsistency herein, in the Securities of any series;

(2) to comply with Article X;

(3) to provide for uncertificated Securities in addition to or in place of certificated Securities;

(4) to add to the covenants of the Company for the benefit of the holders of all or any series of Securities (and if such covenants are to be for the benefit of less than all series of Securities, stating that such covenants are expressly being included solely for the benefit of such series) or to surrender any right or power herein conferred upon the Company or to add any additional Events of Default for the benefit of the holders of all or any series of Securities (and if such additional Events of Default are to be for the benefit of less than all series of Securities, stating that such additional Events of Default are expressly being included solely for the benefit of such series);

(5) to add to, delete from, or revise the conditions, limitations, and restrictions on the authorized amount, terms, or purposes of issue, authentication, and delivery of Securities (prior to the issuance thereof), as herein set forth;

(6) to make any change that does not adversely affect the rights of any Securityholder in any material respect;

(7) to provide for the issuance of and establish the form and terms and conditions of the Securities of any series as provided in Section 2.01, to establish the form of any certifications required to be furnished pursuant to the terms of this Indenture or any series of Securities, or to add to the rights of the holders of any series of Securities; or

(8) to evidence and provide for the acceptance of appointment hereunder by a successor Trustee with respect to the Securities of one or more series and to add to or change any of the provisions of this Indenture as shall be necessary to

provide for or facilitate the administration of the trusts hereunder by more than one Trustee, pursuant to the requirements of Section 7.12.

The Trustee is hereby authorized to join with the Company in the execution of any such supplemental indenture, and to make any further appropriate agreements and stipulations that may be therein contained, but the Trustee shall not be obligated to enter into any such supplemental indenture that affects the Trustee's own rights, duties or immunities under this Indenture or otherwise.

Any supplemental indenture authorized by the provisions of this Section may be executed by the Company and the Trustee without the consent of the holders of any of the Securities at the time Outstanding, notwithstanding any of the provisions of Section 9.02.

SECTION 9.02 SUPPLEMENTAL INDENTURES WITH CONSENT OF SECURITYHOLDERS.

With the consent (evidenced as provided in Section 8.01) of the holders of not less than a majority in aggregate principal amount of the Securities of each series affected by such supplemental indenture or indentures at the time Outstanding, the Company, when authorized by a Board Resolution, and the Trustee may from time to time and at any time enter into an indenture or indentures supplemental hereto (which shall conform to the provisions of the Trust Indenture Act as then in effect) for the purpose of adding any provisions to or changing in any manner or eliminating any of the provisions of this Indenture or of any supplemental indenture or of modifying in any manner not covered by Section 9.01 the rights of the holders of the Securities of such series under this Indenture; provided, however, that no such supplemental indenture shall, without the consent of the holders of each Security then Outstanding and affected thereby:

(1) change the maturity of the principal of, or any installment of principal of or interest on, any Security, or reduce the principal amount thereof or the rate of interest thereon or any premium payable upon the redemption thereof, or reduce the amount of the principal of an Original Issue Discount Security or any other Security which would be due and payable upon a declaration of acceleration of the maturity thereof pursuant to Section 6.01 or change the coin or currency in which any Security or any premium or interest thereon is payable, or impair the right to institute suit for the enforcement of any such payment on or after the maturity thereof (or, in the case of redemption, on or after the redemption date), or

(2) reduce the percentage in principal amount of the Outstanding Securities of any series, the consent of whose holders is required for any such supplemental indenture, or the consent of whose holders is required for any waiver of certain defaults hereunder and their consequences provided for in this Indenture, or

(3) modify any of the provisions of this Section or Section 6.06 relating to waivers of default, except to increase any such percentage or to provide that certain other provisions of this Indenture cannot be modified or waived without the consent of the holder of each Outstanding Security affected thereby; provided, however, that this clause shall not be deemed to require the consent of any holder with respect to changes in the references to "the Trustee" and concomitant changes in this Section, or the deletion of this proviso, in accordance with the requirements of Sections 7.12 and 9.01(8).

A supplemental indenture which changes or eliminates any covenant or other provision of this Indenture which has expressly been included solely for the benefit of one or more particular series of Securities, or which modifies the rights of the holders of Securities of such series with respect to such covenant or other provision, shall be deemed not to affect the rights under this Indenture of the holders of Securities of any other series. It shall not be necessary for the consent of the Securityholders of any series affected thereby under this Section to approve the particular form of any proposed supplemental indenture, but it shall be sufficient if such consent shall approve the substance thereof.

SECTION 9.03 EFFECT OF SUPPLEMENTAL INDENTURES.

Upon the execution of any supplemental indenture pursuant to the provisions of this Article or of Section 10.01, this Indenture shall, with respect to such series, be and be deemed to be modified and amended in accordance therewith and the respective rights, limitations of rights, obligations, duties and immunities under this Indenture of the Trustee, the Company and the holders of Securities of the series affected thereby shall thereafter be determined, exercised and enforced hereunder subject in all respects to such modifications and amendments, and all the terms and conditions of any such supplemental indenture shall be and be deemed to be part of the terms and conditions of this Indenture for any and all purposes.

SECTION 9.04 SECURITIES AFFECTED BY SUPPLEMENTAL INDENTURES.

Securities of any series, affected by a supplemental indenture, authenticated and delivered after the execution of such supplemental indenture pursuant to the provisions of this Article or of Section 10.01, may bear a notation in form approved by the Company, provided such form meets the requirements of any exchange upon which such series may be listed, as to any

matter provided for in such supplemental indenture. If the Company shall so determine, new Securities of that series so modified as to conform, in the opinion of the Board of Directors of the Company, to any modification of this Indenture contained in any such supplemental indenture may be prepared by the Company, authenticated by the Trustee and delivered in exchange for the Securities of that series then Outstanding.

SECTION 9.05 EXECUTION OF SUPPLEMENTAL INDENTURES.

Upon the request of the Company, accompanied by its Board Resolutions authorizing the execution of any such supplemental indenture, and upon the filing with the Trustee of evidence of the consent of Securityholders required to consent thereto as aforesaid, the Trustee shall join with the Company in the execution of such supplemental indenture unless such supplemental indenture affects the Trustee's own rights, duties or immunities under this Indenture or otherwise, in which case the Trustee may in its discretion but shall not be obligated to enter into such supplemental indenture. The Trustee, subject to the provisions of Section 7.01, may receive an Opinion of Counsel as conclusive evidence that any supplemental indenture executed pursuant to this Article is authorized or permitted by, and conforms to, the terms of this Article and that it is proper for the Trustee under the provisions of this Article to join in the execution thereof; provided, however, that such Opinion of Counsel need not be provided in connection with the execution of a supplemental indenture that establishes the terms of a series of Securities pursuant to Section 2.01 hereof.

Promptly after the execution by the Company and the Trustee of any supplemental indenture pursuant to the provisions of this Section, the Trustee shall transmit by mail, first class postage prepaid, a notice, setting forth in general terms the substance of such supplemental indenture, to the Securityholders of all series affected thereby as their names and addresses appear upon the Security Register. Any failure of the Trustee to mail such notice, or any defect therein, shall not, however, in any way impair or affect the validity of any such supplemental indenture.

ARTICLE X
SUCCESSOR ENTITY

SECTION 10.01 COMPANY MAY CONSOLIDATE, ETC.

Nothing contained in this Indenture or in any of the Securities shall prevent any consolidation or merger of the Company with or into any other Person (whether or not affiliated with the Company) or successive consolidations or mergers in which the Company or its successor or successors shall be a party or parties, or shall prevent any sale, conveyance, transfer or other disposition of the property of the Company or its successor or successors as an entirety, or substantially as an entirety, to any other Person (whether or not affiliated with the Company or its successor or successors) authorized to acquire and operate the same; provided, however, the Company hereby covenants and agrees that, upon any such consolidation or merger (in each case, if the Company is not the survivor of such transaction), sale, conveyance, transfer or other disposition, the due and punctual payment of the principal of (and premium, if any) and interest on all of the Securities of all series in accordance with the terms of each series, according to their tenor and the due and punctual performance and observance of all the covenants and conditions of this Indenture or established with respect to each series of Securities pursuant to Section 2.01 to be kept or performed by the Company shall be expressly assumed, by supplemental indenture (which shall conform to the provisions of the Trust Indenture Act, as then in effect) satisfactory in form to the Trustee executed and delivered to the Trustee by the entity formed by such consolidation, or into which the Company shall have been merged, or by the entity which shall have acquired such property.

SECTION 10.02 SUCCESSOR ENTITY SUBSTITUTED.

(a) In case of any such consolidation, merger, sale, conveyance, transfer or other disposition and upon the assumption by the successor entity by supplemental indenture, executed and delivered to the Trustee and satisfactory in form to the Trustee, of the due and punctual payment of the principal of (and premium, if any) and interest on all of the Securities of all series Outstanding and the due and punctual performance of all of the covenants and conditions of this Indenture or established with respect to each series of the Securities pursuant to Section 2.01 to be performed by the Company, such successor entity shall succeed to and be substituted for the Company with the same effect as if it had been named as the Company herein, and thereupon the predecessor corporation shall be relieved of all obligations and covenants under this Indenture and the Securities.

(b) In case of any such consolidation, merger, sale, conveyance, transfer or other disposition such changes in phraseology and form (but not in substance) may be made in the Securities thereafter to be issued as may be appropriate.

(c) Nothing contained in this Article shall require any action by the Company in the case of a consolidation or merger of any Person into the Company where the Company is the survivor of such transaction, or the acquisition by the Company, by purchase or otherwise, of all or any part of the property of any other Person (whether or not affiliated with the Company).

SECTION 10.03 EVIDENCE OF CONSOLIDATION, ETC. TO TRUSTEE.

The Trustee, subject to the provisions of Section 7.01, may receive an Opinion of Counsel as conclusive evidence that any such consolidation, merger, sale, conveyance, transfer or other disposition, and any such assumption, comply with the provisions of this Article.

ARTICLE XI
SATISFACTION AND DISCHARGE; DEFEASANCE

SECTION 11.01 SATISFACTION AND DISCHARGE.

This Indenture will be discharged and will cease to be of further effect with respect to a series of Securities (except as to any surviving rights of registration of transfer or exchange of such series of Securities herein expressly provided for), and the Trustee, at the expense of the Company, shall execute proper instruments acknowledging satisfaction and discharge of this Indenture with respect to such series, when:

(1) either (A) all Securities of that series theretofore authenticated and delivered (other than (i) any Securities that shall have been destroyed, lost or stolen and that shall have been replaced or paid as provided in Section 2.07 and (ii) Securities for whose payment money or noncallable Governmental Obligations have theretofore been deposited in trust or segregated and held in trust by the Company and thereafter repaid to the Company or discharged from such trust, as provided in Section 11.05) have been delivered to the Trustee for cancellation; or (B) all Securities of such series not theretofore delivered to the Trustee for cancellation (i) have become due and payable, or (ii) will by their terms become due and payable within one year or (iii) are to be called for redemption within one year under arrangements satisfactory to the Trustee for the giving of notice of redemption, and the Company shall deposit or cause to be deposited with the Trustee as trust funds in trust for the purpose (x) moneys in an amount, or (y) noncallable Governmental Obligations the scheduled principal of and interest on which in accordance with their terms will provide, not later than the due date of any payment, money in an amount, or (z) a combination thereof, sufficient, in the case of (y) or (z), in the opinion of a nationally recognized firm of independent public accountants expressed in a written certification thereof delivered to the Trustee, to pay and discharge, at maturity or upon redemption, all Securities of that series not theretofore delivered to the Trustee for cancellation, including principal (and premium, if any) and interest due or to become due to such date of maturity or date fixed for redemption, as the case may be;

(2) the Company has paid or caused to be paid all other sums payable hereunder with respect to such series by the Company; and

(3) the Company has delivered to the Trustee an Officers' Certificate and an Opinion of Counsel, each stating that all the conditions precedent herein provided for relating to the satisfaction and discharge of this Indenture with respect to such series of Securities have been complied with. Notwithstanding the satisfaction and discharge of this Indenture with respect to a series of Securities, the obligations of the Trustee under Section 7.07 and, if money shall have been deposited with the Trustee pursuant to subclause (y) of clause (1) of this Section, the obligations of the Trustee under Sections 11.03 and 11.05 shall survive.

SECTION 11.02 DEFEASANCE.

The Company may, at its option and at any time (including notwithstanding the exercise by the Company of a Covenant Defeasance (as defined herein)), elect to have its obligations discharged with respect to a series of the Securities ("Legal Defeasance"). Such Legal Defeasance means that the Company shall be deemed to have paid and discharged the entire indebtedness represented by such series of Securities, except for (a) the rights of holders to receive payments in respect of the principal of (and premium, if any) and interest on the Securities when such payments are due solely from the trust fund described in this Section, (b) the Company's obligations with respect to such series of Securities concerning issuing temporary Securities, registration of transfer or exchange of such series of Securities, mutilated, destroyed, lost or stolen Securities of such series and the maintenance of an office or agency for payments, (c) the rights, powers, trust, duties and immunities of the Trustee and the Company's obligations in connection therewith and (d) the Legal Defeasance provisions of this Indenture. In addition, the Company may, at its option and at any time, elect to have the obligations of the Company released with respect to covenants provided with respect to such series of Securities under Section 2.01(15), 9.01(4) and 9.01(7) of this Indenture ("Covenant Defeasance") and thereafter any omission to comply with such obligations shall not constitute a Default or Event of Default with respect to such series of Securities. In the event of Covenant Defeasance, those events described under Section 6.01(a) with respect to the foregoing covenants will no longer constitute an Event of Default with respect to such series of Securities.

In order to exercise either Legal Defeasance or Covenant Defeasance:

(1) the Company must irrevocably deposit with the Trustee, in trust, for the benefit of the holders of such series, (A) moneys in an amount, or (B) noncallable Governmental Obligations the scheduled principal of and interest on which in accordance with their terms will provide, not later than the due date of any payment, money in an amount, or (C) a combination thereof, sufficient, in the case of (B) or (C), in the opinion of a nationally recognized firm of independent public accountants expressed in a written certification thereof delivered to the Trustee, to pay and discharge, at maturity or upon redemption, the principal of (and premium, if any) and interest on such series of Securities on the stated date for payment thereof or on the applicable redemption date, as the case may be;

(2) in the case of Legal Defeasance, the Company shall have delivered to the Trustee an Opinion of Counsel confirming that (A) the Company has received from, or there has been published by, the Internal Revenue Service a ruling or (B) since the date of this Indenture, there has been a change in the applicable federal income tax law, in either case to the effect that, and based thereon such Opinion of Counsel shall confirm that, the holders of such series of Securities will not recognize income, gain or loss for federal income tax purposes as a result of such Legal Defeasance and will be subject to federal income tax on the same amounts, in the same manner and at the same times as would have been the case if such Legal Defeasance had not occurred;

(3) in the case of Covenant Defeasance, the Company shall have delivered to the Trustee an Opinion of Counsel confirming that the holders of such series of Securities will not recognize income, gain or loss for federal income tax purposes as a result of such Covenant Defeasance and will be subject to federal income tax on the same amounts, in the same manner and at the same times as would have been the case if such Covenant Defeasance had not occurred;

(4) no Default or Event of Default shall have occurred and be continuing on the date of such deposit or insofar as Events of Default under clauses (4) and (5) of Section 6.01(a) with respect to the Securities of such series are concerned, at any time in the period ending on the 91st day after the date of deposit;

(5) the Company shall have delivered to the Trustee an Officers' Certificate and an Opinion of Counsel, each stating that all conditions precedent provided for or relating to the Legal Defeasance or the Covenant Defeasance, as the case may be, have been complied with; and

(6) if such series of Securities are to be redeemed prior to final maturity (other than from mandatory sinking fund payments or analogous payments), notice of such redemption shall have been duly given pursuant to this Indenture or provision therefor satisfactory to the Trustee shall have been made.

SECTION 11.03 DEPOSITED MONEYS TO BE HELD IN TRUST.

All moneys or Governmental Obligations deposited with the Trustee pursuant to Sections 11.01 or 11.02 shall be held in trust and shall be available for payment as due, either directly or through any paying agent (including the Company acting as its own paying agent), to the holders of the particular series of Securities for the payment or redemption of which such moneys or Governmental Obligations have been deposited with the Trustee.

SECTION 11.04 PAYMENT OF MONEYS HELD BY PAYING AGENTS.

In connection with the satisfaction and discharge of this Indenture all moneys or Governmental Obligations then held by any paying agent under the provisions of this Indenture shall, upon demand of the Company, be paid to the Trustee and thereupon such paying agent shall be released from all further liability with respect to such moneys or Governmental Obligations.

SECTION 11.05 REPAYMENT TO COMPANY.

Any moneys or Governmental Obligations deposited with any paying agent or the Trustee, or then held by the Company, in trust for payment of principal of (or premium, if any) or interest on the Securities of a particular series that are not applied but remain unclaimed by the holders of such Securities for at least two years after the date upon which the principal of (and premium, if any) or interest on such Securities shall have respectively become due and payable, shall be repaid to the Company on May 31 of each year or (if then held by the Company) shall be discharged from such trust; and thereupon the paying agent and the Trustee shall be released from all further liability with respect to such moneys or Governmental Obligations, and the holder of any of the Securities entitled to receive such payment shall thereafter, as an unsecured general creditor, look only to the Company for the payment thereof.

ARTICLE XII
IMMUNITY OF INCORPORATORS, STOCKHOLDERS, OFFICERS AND DIRECTORS

SECTION 12.01 NO RECOURSE.

No recourse under or upon any obligation, covenant or agreement of this Indenture, or of any Security, or for any claim based thereon or otherwise in respect thereof, shall be had against any incorporator, stockholder, officer or director, past, present or future as such, of the Company or of any predecessor or successor corporation, either directly or through the Company or any such predecessor or successor corporation, whether by virtue of any constitution, statute or rule of law, or by the enforcement of any assessment or penalty or otherwise; it being expressly understood that this Indenture and the obligations issued hereunder are solely corporate obligations, and that no such personal liability whatever shall attach to, or is or shall be incurred by, the incorporators, stockholders, officers or directors as such, of the Company or of any predecessor or successor corporation, or any of them, because of the creation of the indebtedness hereby authorized, or under or by reason of the obligations, covenants or agreements contained in this Indenture or in any of the Securities or implied therefrom; and that any and all such personal liability of every name and nature, either at common law or in equity or by constitution or statute, of, and any and all such rights and claims against, every such incorporator, stockholder, officer or director as such, because of the creation of the indebtedness hereby authorized, or under or by reason of the obligations, covenants or agreements contained in this Indenture or in any of the Securities or implied therefrom, are hereby expressly waived and released as a condition of, and as a consideration for, the execution of this Indenture and the issuance of such Securities.

ARTICLE XIII
MISCELLANEOUS PROVISIONS

SECTION 13.01 EFFECT ON SUCCESSORS AND ASSIGNS.

All the covenants, stipulations, promises and agreements in this Indenture contained by or on behalf of the Company shall bind its successors and assigns, whether so expressed or not.

SECTION 13.02 ACTIONS BY SUCCESSOR.

Any act or proceeding by any provision of this Indenture authorized or required to be done or performed by any board, committee or officer of the Company shall and may be done and performed with like force and effect by the corresponding board, committee or officer of any corporation that shall at the time be the lawful successor of the Company.

SECTION 13.03 SURRENDER OF COMPANY POWERS.

The Company by instrument in writing executed by authority of its Board of Directors and delivered to the Trustee may surrender any of the powers reserved to the Company, and thereupon such power so surrendered shall terminate both as to the Company and as to any successor corporation.

SECTION 13.04 NOTICES.

Except as otherwise expressly provided herein any notice or demand that by any provision of this Indenture is required or permitted to be given or served by the Trustee or by the holders of Securities to or on the Company may be given or served by being deposited first class postage prepaid in a post-office letterbox addressed (until another address is filed in writing by the Company with the Trustee), as follows: [_____]. Any notice, election, request or demand by the Company or any Securityholder to or upon the Trustee shall be deemed to have been sufficiently given or made, for all purposes, if given or made in writing at the Corporate Trust Office of the Trustee.

SECTION 13.05 GOVERNING LAW.

This Indenture and each Security shall be deemed to be a contract made under the internal laws of the State of New York, and for all purposes shall be construed in accordance with the laws of said State.

SECTION 13.06 TREATMENT OF SECURITIES AS DEBT.

It is intended that the Securities will be treated as indebtedness and not as equity for federal income tax purposes. The provisions of this Indenture shall be interpreted to further this intention.

SECTION 13.07 COMPLIANCE CERTIFICATES AND OPINIONS.

(a) Upon any application or demand by the Company to the Trustee to take any action under any of the provisions of this Indenture, the Company, shall furnish to the Trustee an Officers' Certificate stating that all conditions precedent provided for in this Indenture relating to the proposed action have been complied with and an Opinion of Counsel stating that in the opinion of such counsel all such conditions precedent have been complied with, except that in the case of any such application or demand as to which the furnishing of such documents is specifically required by any provision of this Indenture relating to such particular application or demand, no additional certificate or opinion need be furnished.

(b) Each certificate or opinion provided for in this Indenture and delivered to the Trustee with respect to compliance with a condition or covenant in this Indenture shall include

(1) a statement that the Person making such certificate or opinion has read such covenant or condition;

(2) a brief statement as to the nature and scope of the examination or investigation upon which the statements or opinions contained in such certificate or opinion are based;

(3) a statement that, in the opinion of such Person, he has made such examination or investigation as is necessary to enable him to express an informed opinion as to whether or not such covenant or condition has been complied with; and

(4) a statement as to whether or not, in the opinion of such Person, such condition or covenant has been complied with.

SECTION 13.08 PAYMENTS ON BUSINESS DAYS.

Except as provided pursuant to Section 2.01 pursuant to a Board Resolution, and as set forth in an Officers' Certificate, or established in one or more indentures supplemental to this Indenture, in any case where the date of maturity of interest or principal of any Security or the date of redemption of any Security shall not be a Business Day, then payment of interest or principal (and premium, if any) may be made on the next succeeding Business Day with the same force and effect as if made on the nominal date of maturity or redemption, and no interest shall accrue for the period after such nominal date.

SECTION 13.09 CONFLICT WITH TRUST INDENTURE ACT.

If and to the extent that any provision of this Indenture limits, qualifies or conflicts with the duties imposed by Sections 310 to 317, inclusive, of the Trust Indenture Act, such imposed duties shall control. If any provision of this Indenture modifies or excludes any provision of the Trust Indenture Act which may be so modified or excluded, the latter provision shall be deemed to apply to this Indenture as so modified or to be excluded, as the case may be.

SECTION 13.10 COUNTERPARTS.

This Indenture may be executed in any number of counterparts, each of which shall be an original, but such counterparts shall together constitute but one and the same instrument.

SECTION 13.11 SEPARABILITY.

In case any one or more of the provisions contained in this Indenture or in the Securities of any series shall for any reason be held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability shall not affect any other provisions of this Indenture or of such Securities, but this Indenture and such Securities shall be construed as if such invalid or illegal or unenforceable provision had never been contained herein or therein.

SECTION 13.12 ASSIGNMENT.

The Company will have the right at all times to assign any of its rights or obligations under this Indenture to a direct or indirect wholly-owned Subsidiary of the Company, provided that, in the event of any such assignment, the Company, will remain liable for all such obligations. Subject to the foregoing, the Indenture is binding upon and inures to the benefit of the parties thereto and their respective successors and assigns. This Indenture may not otherwise be assigned by the parties thereto.

IN WITNESS WHEREOF, the parties hereto have caused this Indenture to be duly executed all as of the day and year first above written.

CIENA CORPORATION

By:

Name:

Title:

----------------------------, as Trustee

By:

Name:

Title:

EXHIBIT 5.1

February 5, 2001

Board of Directors
CIENA Corporation
1201 Winterson Road
Linthicum, MD 21090

Ladies and Gentlemen:

We are acting as counsel to CIENA Corporation, a Delaware corporation (the "COMPANY"), in connection with its registration statement on Form S-3, as amended (the "REGISTRATION STATEMENT"), filed with the Securities and Exchange Commission, relating to the proposed public offering of shares of the Company's common stock, par value $.01 per share. This opinion letter is furnished to you at your request to enable you to fulfill the requirements of Item 601(b)(5) of Regulation S-K, 17 C.F.R. Section 229.601(b)(5), in connection with the Registration Statement.

For purposes of this opinion letter, we have examined copies of the following documents:

1. An executed copy of the Registration Statement.

2. The Third Restated Certificate of Incorporation of the Company, as certified by the Secretary of the State of the State of Delaware on January 29, 2001 and by the Secretary of the Company on the date hereof as then being complete, accurate, and in effect.

3. The Amended and Restated Bylaws of the Company, as certified by the Secretary of the Company on the date hereof as then being complete, accurate, and in effect.

4. Resolutions of the Board of Directors of the Company adopted by the written consent on January 14, 2001 and at a board meeting on February 4, 2001, as certified by the Secretary of the Company on the date hereof as being complete, accurate and in effect, relating to the filing by the Company of the Registration Statement and related matters, and resolutions of the 2001 Pricing Committee of the Board of Directors (the "PRICING COMMITTEE") of the Company adopted on February 1, 2001 and February 5, 2001, as certified by the Secretary of the Company on the date hereof as being complete, accurate and in effect, authorizing the issuance and sale of up to 11,500,000 shares of common stock (the "SHARES") and arrangements in connection therewith.

5. The proposed form of Underwriting Agreement among the Company and Goldman, Sachs & Co., Morgan Stanley Dean Witter, Banc of America Securities LLC and Robertson Stephens, filed as Exhibit 1.01 to the Registration Statement (the "UNDERWRITING AGREEMENT").

In our examination of the aforesaid documents, we have assumed the genuineness of all signatures, the legal capacity of all natural persons, the accuracy and completeness of all documents submitted to us, the authenticity of all original documents, and the conformity to authentic original documents of all documents submitted to us as copies (including telecopies). This opinion letter is given, and all statements herein are made, in the context of the foregoing.

This opinion letter is based as to matters of law solely on the Delaware General Corporation Law, as amended. We express no opinion herein as to any other laws, statutes, ordinances, rules, or regulations. As used herein, the term "Delaware General Corporation Law, as amended" includes the statutory provisions contained therein, all applicable provisions of the Delaware Constitution and reported judicial decisions interpreting these laws.

Based upon, subject to and limited by the foregoing, we are of the opinion that following: (i) execution and delivery by the Company of the Underwriting Agreement, (ii) effectiveness of the Registration Statement, (iii) issuance of the Shares pursuant to the terms of the Underwriting Agreement, and (iv) receipt by the Company of the consideration for the Shares as specified in the resolutions adopted by the Pricing Committee, the Shares to be issued will be validly issued, fully paid and nonassessable.

This opinion letter has been prepared for your use in connection with the Prospectus Supplement and speaks as of the date hereof. We assume no obligation to advise you of any changes in the foregoing subsequent to the delivery of this opinion letter.

We hereby consent to the filing of this opinion letter as Exhibit 5.1 to the Registration Statement and to the reference to this firm under the caption "Legal Matters" in the prospectus relating to the Shares constituting a part of the Registration Statement. In giving this consent, we do not thereby admit that we are an "expert" within the meaning of the Securities Act of 1933, as amended.

Very truly yours,

HOGAN & HARTSON L.L.P.

EXHIBIT 5.2

February 5, 2001

Board of Directors
CIENA Corporation
1201 Winterson Road
Linthicum, MD 21090

Ladies and Gentlemen:

We are acting as counsel to CIENA Corporation, a Delaware corporation (the "COMPANY"), in connection with its registration statement on Form S-3, as amended (the "Registration Statement"), filed with the Securities and Exchange Commission relating to the proposed public offering of the Company's ___% covertible notes due _____, 2008 (the "convertible debt securities") and the underlying common stock, par value $.01 per share (the "SHARES"). This opinion letter is furnished to you at your request to enable you to fulfill the requirements of Item 601(b)(5) of Regulation S-K, 17 C.F.R. Section 229.601(b)(5), in connection with the Registration Statement.

For purposes of this opinion letter, we have examined copies of the following documents:

1. The form of convertible debt securities.

2. An executed copy of the Registration Statement.

3. The Third Restated Certificate of Incorporation of the Company, as certified by the Secretary of the State of the State of Delaware on January 29, 2001 and by the Secretary of the Company on the date hereof as then being complete, accurate, and in effect.

4. The Amended and Restated Bylaws of the Company, as certified by the Secretary of the Company on the date hereof as then being complete, accurate, and in effect.

5. Resolutions of the Board of Directors of the Company adopted by the written consent on January 14, 2001 and at a board meeting on February 4, 2001, as certified by the Secretary of the Company on the date hereof as being complete, accurate and in effect, relating to the filing by the Company of the Registration Statement and related matters, and resolutions of the 2001 Pricing Committee of the Board of Directors (the "PRICING COMMITTEE") of the Company adopted on February 1, 2001 and February 5, 2001, as certified by the Secretary of the Company on the date hereof as being complete, accurate and in effect, authorizing the issuance and sale of up to $525,000,000 of the convertible debt securities as well as the underlying Shares and arrangements in connection therewith.

6. The proposed form of Indenture under which the convertible debt securities will be issued by and between First Union National Bank (the "Trustee") and the Company (the "INDENTURE").

7. The proposed form of Underwriting Agreement among the Company and Goldman, Sachs & Co., Morgan Stanley Dean Witter, Banc of America Securities LLC and Robertson Stephens, filed as Exhibit 1.02 to the Registration Statement (the "UNDERWRITING AGREEMENT").

In our examination of the aforesaid documents, we have assumed the genuineness of all signatures, the legal capacity of all natural persons, the accuracy and completeness of all documents submitted to us, the authenticity of all original documents, and the conformity to authentic original documents of all documents submitted to us as copies (including telecopies). This opinion letter is given, and all statements herein are made, in the context of the foregoing.

This opinion letter is based as to matters of law solely on the Delaware General Corporation Law, as amended. We express no opinion herein as to any other laws, statutes, ordinances, rules, or regulations. As used herein, the term "Delaware General Corporation Law, as amended" includes the statutory provisions contained therein, all applicable provisions of the Delaware Constitution and reported judicial decisions interpreting these laws.

Based upon, subject to and limited by the foregoing, we are of the opinion that following (i) execution and delivery by the Company of the Underwriting Agreement and the Indenture, (ii) effectiveness of the Registration Statement, (iii) due authentication of the convertible debt securities by the Trustee and (iv) due execution and delivery of the convertible debt securities on behalf of the Company upon receipt by the Company of the consideration for the convertible debt securities in accordance with the terms of the Underwriting Agreement, the convertible debt securities will constitute valid and binding obligations of the Company and will be enforceable against the Company in accordance with their terms.

In addition to the qualifications, exceptions and limitations elsewhere set forth in this opinion letter, our opinions expressed above are also subject to the effect of: (i) bankruptcy, insolvency, reorganization, receivership, moratorium or other laws affecting creditors' rights (including, without limitation, the effect of statutory and other law regarding fraudulent conveyances, fraudulent transfers and preferential transfers); and (ii) the exercise of judicial discretion and the application of principles of equity including, without limitation, requirements of good faith, fair dealing, reasonableness, conscionability and materiality (regardless of whether the applicable agreements are considered in a proceeding in equity or at law).

Based upon, subject to and limited by the foregoing, we are also of the opinion that following (i) execution and delivery by the Company of the Underwriting Agreement and the Indenture, (ii) effectiveness of the Registration Statement and (iii) issuance of the Shares upon conversion of the convertible debt securities, the Shares will be validly issued, fully paid and nonassessable.

This opinion letter has been prepared for your use in connection with the Registration Statement and speaks as of the date hereof. We assume no

obligation to advise you of any changes in the foregoing subsequent to the delivery of this opinion letter.

The opinions expressed above shall be understood to mean only that if there is a default in performance of an obligation, (i) if a failure to pay or other damage can be shown and (ii) if the defaulting party can be brought into a court which will hear the case and apply the governing law, then, subject to the availability of defenses, and to the exceptions elsewhere set forth in this opinion letter, the court will provide a money damage (or perhaps injunctive or specific performance) remedy.

We hereby consent to the filing of this opinion letter as Exhibit 5.2 to the Registration Statement and to the reference to this firm under the caption "Legal Matters" in the prospectus relating to the convertible debt securities constituting a part of the Registration Statement. In giving this consent, we do not thereby admit that we are an "expert" within the meaning of the Securities Act of 1933, as amended.

Very truly yours,

HOGAN & HARTSON L.L.P.

EXHIBIT 23.1

CONSENT OF INDEPENDENT ACCOUNTANTS

We hereby consent to the incorporation by reference in this Registration Statement on Form S-3 (No. 333-53922) of our reports dated December 6, 2000 relating to the consolidated financial statements and financial statement schedule, which appear in CIENA Corporation's Annual Report on Form 10-K for the year ended October 31, 2000, as amended. We also consent to the reference to us under the heading "Experts" in such Registration Statement.

/s/PricewaterhouseCoopers LLP
McLean, VA
February 5, 2001

EXHIBIT 23.3

Consent of Deloitte & Touche LLP

We consent to the incorporation by reference in this Pre-Effective Amendment No. 2 to Registration Statement No. 333-53922 of CIENA Corporation on Form S-3 of our report dated August 2, 2000 (December 18, 2000 as to Note 12) related to the financial statements of Cyras Systems, Inc. as of December 31, 1998 and 1999, and for the period from July 24, 1998 (inception) through December 31, 1998 and for the year ended December 31, 1999, appearing in the Current Report on Form 8-K of CIENA Corporation filed January 18, 2001, and to the reference to us under the heading "Experts" in the Prospectus, which is part of such Registration Statement.

/s/ Deloitte & Touche LLP

San Jose, California

February 1, 2001

EXHIBIT 25.1

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SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM T-1

STATEMENT OF ELIGIBILITY AND QUALIFICATION
UNDER THE TRUST INDENTURE ACT OF 1939, AS AMENDED,
OF A CORPORATION DESIGNATED TO ACT AS TRUSTEE

Check if an application to determine eligibility of a trustee pursuant to Section 305(b) (2)

FIRST UNION NATIONAL BANK

(Exact name of Trustee as specified in its charter)

230 SOUTH TRYON STREET, 9TH FL. CHARLOTTE, NC	28288-1179	22-1147033
(Address of principal executive office)	(Zip Code)	(I.R.S. Employer Identification No.)

Monique L. Green (804) 343-6068
800 East Main Street, Richmond, Virginia 23219

CIENA CORPORATION
(Exact name of obligor 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
(Address of principal executive offices)	(Zip Code)

% Convertible Notes due 2008

(Title of the indenture securities)

==========

1. GENERAL INFORMATION.

(a) The following are the names and addresses of each examining or supervising authority to which the Trustee is subject:

The Comptroller of the Currency, Washington, D.C.
Federal Reserve Bank of Richmond, Richmond, Virginia.
Federal Deposit Insurance Corporation, Washington, D.C.
Securities and Exchange Commission, Division of Market Regulation, Washington, D.C.

(b) The Trustee is authorized to exercise corporate trust powers.

2. AFFILIATIONS WITH OBLIGOR.

The obligor is not an affiliate of the Trustee.

3. VOTING SECURITIES OF THE TRUSTEE.

Response not required.
(See answer to Item 13)

4. TRUSTEESHIPS UNDER OTHER INDENTURES.

Response not required.
(See answer to Item 13)

5. INTERLOCKING DIRECTORATES AND SIMILAR RELATIONSHIPS WITH THE OBLIGOR OR UNDERWRITERS.

Response not required.
(See answer to Item 13)

6. VOTING SECURITIES OF THE TRUSTEE OWNED BY THE OBLIGOR OR ITS OFFICIALS.

Response not required.
(See answer to Item 13)

7. VOTING SECURITIES OF THE TRUSTEE OWNED BY UNDERWRITERS OR THEIR OFFICIALS.

Response not required.
(See answer to Item 13)

8. SECURITIES OF THE OBLIGOR OWNED OR HELD BY THE TRUSTEE.

Response not required.
(See answer to Item 13)

9. SECURITIES OF UNDERWRITERS OWNED OR HELD BY THE TRUSTEE.

Response not required.
(See answer to Item 13)

10. OWNERSHIP OR HOLDINGS BY THE TRUSTEE OF VOTING SECURITIES OF CERTAIN AFFILIATES OR SECURITY HOLDERS OF THE OBLIGOR.

Response not required.
(See answer to Item 13)

11. OWNERSHIP OR HOLDINGS BY THE TRUSTEE OF ANY SECURITIES OF A PERSON OWNING 50 PERCENT OR MORE OF THE VOTING SECURITIES OF THE OBLIGOR.

Response not required.
(See answer to Item 13)

12. INDEBTEDNESS OF THE OBLIGOR TO THE TRUSTEE.

Response not required.
(See answer to Item 13)

13. DEFAULTS BY THE OBLIGOR.

A. None
B. None

14. AFFILIATIONS WITH THE UNDERWRITERS.

Response not required.
(See answer to Item 13)

15. FOREIGN TRUSTEE.

Trustee is a national banking association organized under the laws of the United States.

16. LIST OF EXHIBITS.

(1) *Articles of Incorporation.

(2) Certificate of Authority of the Trustee to conduct business. No Certificate of Authority of the Trustee to commence business is furnished since this authority is continued in the Articles of Association of the Trustee.

(3) *Certificate of Authority of the Trustee to exercise corporate trust powers.

(4) *By-Laws.

(5) Inapplicable.

(6) Consent by the Trustee required by Section 321(b) of the Trust Indenture Act of 1939 as amended. Included at Page 5 of this Form T-1 Statement.

(7) Report of condition of Trustee. Included at Page 6 of this Form T-1 Statement

(8) Inapplicable.

(9) Inapplicable.

* Exhibits thus designated have heretofore been filed with the Securities and Exchange Commission, have not been amended since filing are incorporated herein by reference (See Exhibit T-1 Registration Number 333- 76965).

SIGNATURE

Pursuant to the requirements of the Trust Indenture Act of 1939, as amended, the Trustee, FIRST UNION NATIONAL BANK, a national banking association organized and existing under the laws of the United States of America, has duly caused this Statement of Eligibility and Qualification to be signed on its behalf by the undersigned,

thereunto duly authorized, all in the City of Richmond, and in the Commonwealth of Virginia on the 2nd day of February, 2001.

FIRST UNION NATIONAL BANK
(Trustee)

BY:

EXHIBIT T-1 (6)

CONSENT OF TRUSTEE

Under Section 321(b) of the Trust Indenture Act of 1939 and in connection with the issuance by Ciena Corporation % Convertible Notes due 2006, First Union National Bank, as the Trustee herein named, hereby consents that reports of examinations of said Trustee by Federal, State, Territorial or District authorities may be furnished by such authorities to the Securities and Exchange Commission upon requests therefor.

FIRST UNION NATIONAL BANK

BY:

Dated: February 2, 2001

R E P O R T O F C O N D I T I O N

Consolidating domestic subsidiaries of the

First Union National Bank — Charlotte
Name of Bank — City

in the state of North Carolina, at the close of business on September 30, 2000, published in response to call made by Comptroller of the Currency, under title 12, United States Code, Section 161. Charter Number 02737 Comptroller of the Currency Southeastern District

Statement of Resources and Liabilities

ASSETS

		Thousands of dollars
1	Cash and balances due from depository institutions:	
	a. Noninterest-bearing balances and currency and coin	7,814,000
	b. Interest-bearing balances	4,091,000
2	Securities:	
	a. Held-to-maturity securities	1,556,000
	b. Available-for-sale securities	48,764,000
3	Federal funds sold and securities purchased under agmts to resell:	2,165,000
4	Loans and lease financing receivables:	
	a. Loans and leases, net of unearned income	132,642,000
	b. LESS: Allowance for loan and lease losses	1,900,000
	c. LESS: Allocated transfer risk reserve	0
	d. Loans and leases, net of unearned income, allowance, and reserve	130,742,000
5	Assets held in trading accounts	12,912,000
6	Premises and fixed assets (including capitalized leases)	2,928,000
7	Other real estate owned	107,000
8	Investments in unconsolidated subsidiaries and associated companies	250,000
9	Customers' liability to this bank on acceptances outstanding	967,000
10	Intangible assets	2,889,000
11	Other assets	12,662,000
12	Total assets	227,847,000

LIABILITIES

13	Deposits:	
	a. In domestic offices	130,675,000
	(1) Noninterest-bearing	20,065,000
	(2) Interest-bearing	110,610,000
	b. In foreign offices, Edge and Agmt subsidiaries, and IBFs	12,305,000
	(1) Noninterest-bearing	39,000
	(2) Interest-bearing	12,266,000
14	Federal funds purchased and securities sold under agmts to repurchase:	23,476,000
15	a. Demand notes issued to the U.S. Treasury	2,077,000
	b.Trading liabilities	6,979,000
16	Other borrowed money:	

	a. With a remaining maturity of one year or less	16,205,000
	b. With a remaining maturity of more than one year through three years	4,039,000
	c. With a remaining maturity of more than three years	2,075,000
17	Not applicable	
18	Bank's liability on acceptances executed and outstanding	975,000
19	Subordinated notes and debentures	5,993,000
20	Other liabilities	7,567,000
21	Total liabilities	212,366,000
22	Not applicable	

EQUITY CAPITAL

23	Perpetual preferred stock and related surplus	161,000
24	Common stock	455,000
25	Surplus	13,306,000
26	a. Undivided profits and capital reserves	2,381,000
	b. Net unrealized holding gains (losses) on available-for-sale securities	(817,000)
27	Cumulative foreign currency translation adjustments	(5,000)
28	Total equity capital	15,481,000
29	Total liabilities, limited-life preferred stock, and equity capital (sum of items 21and 28)	227,847,000

We, the undersigned directors, attest to the correctness of this statement of resources and liabilities. We declare that it has been examined by us, and to the best of our knowledge and belief has been prepared in conformance with the instructions and is true and correct.

Directors

G. Kennedy Thompson

Mark C. Treanor

Robert Atwood

I, Gary R. Sessions

Name

Vice President

Title

of the above-named bank do hereby declare that this Report of Condition is true and correct to the best of my knowledge and belief.

report.condition 9/30/00