

AS FILED WITH THE SECURITIES AND EXCHANGE COMMISSION ON AUGUST 20, 1999

REGISTRATION NO. 333-80375

SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

POST-EFFECTIVE AMENDMENT NO. 1
ON

FORM S-3

TO

FORM S-4
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

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

DELAWARE
(STATE OR OTHER JURISDICTION OF
INCORPORATION OR ORGANIZATION)

3661
(PRIMARY STANDARD INDUSTRIAL
CLASSIFICATION CODE NUMBER)

23-2725311
(I.R.S. EMPLOYER
IDENTIFICATION NUMBER)

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

MICHAEL O. MCCARTHY

VICE PRESIDENT, GENERAL COUNSEL AND SECRETARY

1201 WINTERSON ROAD
LINTHICUM, MD 21090
(410) 865-8500
(NAME, ADDRESS, INCLUDING ZIP CODE, AND TELEPHONE NUMBER,
INCLUDING AREA CODE, OF AGENT FOR SERVICE)

Copies to:

MICHAEL J. SILVER
AMY BOWERMAN FREED
HOGAN & HARTSON L.L.P.
111 SOUTH CALVERT STREET
BALTIMORE, MD 21202
(410) 659-2700

APPROXIMATE DATE OF COMMENCEMENT OF PROPOSED SALE TO THE PUBLIC: As soon as practicable.

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, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box. [X]

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act of 1933, please check the following box and list the Securities Act of 1933 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 of 1933, check the following box and list the Securities Act of 1933 registration statement number of the earlier effective registration statement for the same offering. []

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

PROSPECTUS

CIENA CORPORATION

13,166,284 Shares of Common Stock

We have prepared this prospectus to allow some of our stockholders to sell up to 13,166,284 shares of our common stock.

Our common stock trades on the Nasdaq Stock Market under the symbol "CIEN." On August 19, 1999, the last reported sale price of our common stock on Nasdaq was \$33.94 per share.

INVESTING IN OUR COMMON STOCK INVOLVES A HIGH DEGREE OF RISK. SEE "RISK FACTORS" BEGINNING ON PAGE 4.

NEITHER THE SECURITIES AND EXCHANGE COMMISSION NOR ANY STATE SECURITIES COMMISSION HAS APPROVED OR DISAPPROVED OF THE COMMON STOCK, OR DETERMINED IF THIS PROSPECTUS IS TRUTHFUL OR COMPLETE. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

The date of this Prospectus is _____, 1999.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and special reports, proxy statements and other information with the SEC. Our SEC filings are available to the public over the Internet at the SEC's web site at <http://www.sec.gov>. You may also read and copy any document we file at the SEC's public reference rooms at 450 Fifth Street, N.W., Washington, D.C., and in New York, New York and Chicago, Illinois. Please call the SEC at 1-800-732-0330 for further information on the public reference rooms.

The SEC allows us to "incorporate by reference" the information we file with them, which means that we can disclose important information to you by referring you to these documents. The information incorporated by reference is an important part of this prospectus, and information that we file later with the SEC will automatically update and supersede this information. We incorporate by reference the documents listed below and any future filings made with the SEC under the Securities Exchange Act of 1934:

- Our Annual Report on Form 10-K for the year ended October 31, 1998 (and amended on April 5, 1999);
- Our Quarterly Reports on Form 10-Q for the quarters ended January 31, 1999, April 30, 1999 and July 31, 1999;
- Our Current Reports on Form 8-K filed April 1, 1999 (and amended on April 5, 1999), April 5, 1999 and July 21, 1999; and
- Our description of our common stock in our Form 8-A filed on January 13, 1997, as amended.

If a statement in a subsequently filed document that this prospectus incorporates by reference differs from a statement in this prospectus, you should rely upon the different statement contained in the subsequently filed document, to the extent it is different. To obtain a copy of these filings at no cost, you may write or telephone us at the following address:

Director, Investor Relations
 CIENA CORPORATION
 1201 Winterson Road
 Linthicum, Maryland 21090
 (410) 865-8500

You should rely only on the information incorporated by reference or provided in this prospectus or any prospectus supplement. Neither we nor the selling stockholders have authorized anyone else to provide you with different information. Neither we nor the selling stockholders are making an offer of these securities in any state where the state does not permit an offer. You should not assume that the information in this prospectus is accurate as of any date other than the date on the front of the prospectus.

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 under the heading "Risk Factors" and throughout this prospectus.

RISK FACTORS

You should carefully consider the following risk factors before deciding to invest in CIENA's common stock. You should also consider the other information in this prospectus and the additional information in CIENA's other reports on file with the SEC and in the other documents incorporated by reference in this prospectus. See "Where You Can Find More Information" on page 2.

OUR RESULTS CAN BE UNPREDICTABLE

Our near term results may be break-even or may involve losses. In general, sequential revenue and operating results over the next 12 months are likely to fluctuate and may continue to fluctuate in the future due to factors including:

- timing and size of orders

- the introduction of new products

- satisfaction of contractual customer acceptance criteria

- manufacturing and shipment delays and deferrals

We budget expense levels partially on our expectations of long-term future revenue. These levels reflect our substantial investment in 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. As a result, we may continue to experience increased inventory levels, operating expenses and general overhead.

Additionally, our Core Switching Division (formerly Lightera Networks, Inc.) and Access Switching Division (formerly Omnia Communications, Inc.) have ongoing development and operating expenses but are not expected to contribute materially to revenues until calendar 2000.

DELAYS IN THE DEPLOYMENT OF NEW PRODUCTS COULD HURT OUR NEAR TERM PROSPECTS

If we fail to deploy new and improved products in a timely manner, our competitive position and financial condition would be materially and adversely affected. The complexity of the technology involved with several of our new products such as the Multiwave CoreDirector and the Multiwave CoreStream products using 10 gigabit per second transmission capability could result in unanticipated delays in development and manufacturing. Such delays could adversely affect our competitive and financial condition.

The certification process for new telecommunications equipment used in RBOC networks, which is a process traditionally conducted by Telcordia Technologies, 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.

In order to meet our delivery commitments for our newest products, we will need to finalize component sourcing, which we have not yet completed. Any delays in component availability could result in delays in deployment of these products and in recognizing revenues. Such delays could adversely affect our customer relationships.

WE FACE INTENSE COMPETITION WHICH COULD HURT OUR SALES AND PROFITABILITY

A small number of very large companies have historically dominated our industry including Lucent, Alcatel, Nortel, NEC, Pirelli, Siemens, Ericsson, Fujitsu, and Hitachi. These companies have substantial financial, marketing and intellectual property resources. We sell systems which compete directly with product offerings of these companies and in some cases displace their legacy equipment. As such, we represent a significant threat to these companies. The expansion of our product offerings as a result of our acquisitions of Lightera and Omnia likely will increase this perceived threat. We expect continued aggressive tactics from many of these competitors such as:

- Substantial price discounting
- Early announcements of competing products
- "One-stop shopping" appeals
- Customer financing assistance
- Intellectual property disputes

These tactics can be particularly effective in a highly concentrated customer base such as ours.

Sprint, a significant customer of ours, has long indicated that it intends to establish a second vendor for DWDM products. In addition, other customers that in the past have purchased DWDM equipment from CIENA, may select a second vendor for DWDM products. We do not know when or if these customers will select a second vendor or what impact the selection might have on purchases from us. These customers could reduce their purchases from us, which could in turn have a material adverse effect on us.

New competitors may also emerge to compete with our existing products as well as our future products. In particular, a number of companies, including several start-ups, have announced products that compete with our MultiWave CoreStream, MultiWave CoreDirector and EdgeDirector products.

SMALLER CUSTOMERS MAY INCREASE FLUCTUATION IN OUR RESULTS

We have recently shifted our sales focus to smaller emerging carriers. Timing and volume of purchasing from these smaller 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 capital budget constraints. This increases the unpredictability of our financial results because even smaller carriers purchase our products in multi-million dollar increments.

Unanticipated changes in customer purchasing plans also create unpredictability in our results. Most 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 involve extended payment terms or other financing assistance. Our ability to recognize revenue from financed sales to

these carriers will be impacted by their financial condition at the time of product acceptance. Further, we will need to evaluate the collectibility of receivables from these carriers if their financial condition deteriorates in the future.

Additionally, purchasing delays or changes in the amount of purchases by any of these customers, could have a material adverse effect on us.

WE MAY EXPERIENCE DELAYS FROM OUR SUPPLIERS AND FOR SOME ITEMS WE DO NOT HAVE SUBSTITUTE SUPPLIERS

We depend on a small number of suppliers for key components of our products, as well as equipment used to manufacture our products. Our highest capacity product currently being shipped, the MultiWave CoreStream which is capable of 96-channel configurations at 2.5 gigabits per second transmission speeds, includes several higher performance components for which reliable, high volume suppliers are particularly limited. On occasion, we have experienced delays in receipt of key components. Any future difficulty in obtaining sufficient and timely delivery of them could result in delays or reductions in product shipments which, in turn, could have a material adverse effect on our business, financial condition and results of operations. Delayed deliveries of key components from these sources could have a material adverse effect on CIENA's near-term results of operations.

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 Lightera and Omnia have received a substantial number of CIENA shares and vested options that can be sold at substantial gains. In many cases, these individuals could become financially independent through these sales, before CIENA's future products have matured into commercially deliverable products. Under the circumstances, we face a difficult and significant task of retaining and motivating these key personnel. As CIENA has grown and matured, competitors' efforts to entice our employees to leave have intensified, particularly among competitive startups and other early stage companies seeking to replicate CIENA's experience. CIENA and its employees are parties to agreements that limit the employee's ability to work for a competitor following termination of employment. We expect our competitors will respect these agreements and not interfere with them. However, we can make no assurances of that, or that we will be able to retain all of our key contributors or attract new personnel to add to or replace them. The loss of key personnel would likely have a material adverse effect on our business, financial condition and results of operations.

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

Lightera's product, the MultiWave CoreDirector is in the laboratory-testing phase and has not matured into commercially manufacturable units suitable for field deployment. We expect that field deployable units of the Multiwave CoreDirector will be available in the end of the first calendar quarter 2000. We expect that Omnia's product, the MultiWave EdgeDirector 500, will be commercially available in the third calendar quarter of 1999.

The maturing process from laboratory prototype to commercial acceptance involves a number of steps, including:

- successful completion of product development

- the qualification and multiple sourcing of critical components, including application-specific integrated circuits ("ASIC's") which are not yet finalized

- validation of manufacturing methods

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

- software validation

- establishment of systems integration and burn in 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 materially and adversely affect the speed and scope of product introduction and marketplace acceptance of the products. Specialized ASIC's, in particular, are key to the timely introduction of Lightera's products, and schedule delays are common in the final testing and manufacture of such components. 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. Commercial acceptance of the products is also not established and there is no assurance that the substantial sales and marketing efforts necessary to achieve commercial acceptance in traditionally long sales cycles will be successful.

PRODUCT PERFORMANCE PROBLEMS COULD LIMIT OUR SALES PROSPECTS

The production of new fiberoptic products and systems with high technology content involves occasional problems as the technology and manufacturing methods mature. We are aware of instances domestically and internationally of delayed installation and activation of some of our products due to faulty components. If significant reliability, quality or network monitoring problems develop, a number of material adverse effects could result, including:

- manufacturing rework costs

- high service and warranty 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 and the addition of channels, particularly because we do not control all aspects of

the installation and activation activities. If we experience significant interruptions or delays that we can not promptly resolve, confidence in our products could be undermined, which could have a material adverse effect on us.

OUR PROSPECTS DEPEND ON DEMAND FOR BANDWIDTH WHICH WE CANNOT PREDICT OR CONTROL

We may not anticipate changes in direction or magnitude of demand for bandwidth. Unanticipated reductions in bandwidth demand would adversely affect us.

Our products enable high capacity transmission over long distance, and certain short-haul portions, of optical communications networks. Our Multiwave CoreDirector product is targeted to high capacity applications and our Multiwave EdgeDirector product is targeted to providers of integrated fiberoptic access and transport networks. Customers, however, determine:

- the quantity of bandwidth needed
- the timing of its deployment, and
- the equipment configurations and network architectures they want.

Customer determinations are subject to abrupt change in response to their own competitive pressures, pressures to raise capital and financial performance expectations.

INVESTMENT IN NEW COMPANIES AND CHANGES IN TECHNOLOGY COULD RESULT IN MORE COMPETITION

We may not be able to successfully anticipate changes in technology, industry standards, customer requirements and product offerings, yet our ability to develop and introduce new and enhanced products will impact our position as a leader in the deployment of high-capacity solutions. The accelerating pace of deregulation in the telecommunications industry will likely intensify the competition for improved technology. Many of our competitors have substantially greater financial, technical and marketing resources and manufacturing capacity with which to develop or acquire new technologies. There has been an increase in the funding of new companies intending to develop new products for the rapidly evolving telecom industry. These companies have time-to-market advantages due to the narrow and exclusive focus of their efforts. New companies may provide additional competition for our existing product lines as well as potential future products. The introduction of new products embodying new technologies or the emergence of new industry standards could render our existing products uncompetitive from a pricing standpoint, obsolete or unmarketable. Any of these outcomes would have a material adverse effect on our business, financial condition and results of operations.

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 we may make. This occurred

in 1998. We attempt to address this possible divergence through our public announcements and reports; however, the degree of specificity we can offer in

such announcements, and the likelihood that any forward-looking statements we make will prove correct in actual results, can and will vary. This is due primarily to:

- the uncertainties associated with our dependence on a small number of existing and potential customers
- the impact of changes in the customer mix
- the actions of competitors
- long and unpredictable sales cycles and customer purchasing programs
- the absence of unconditional minimum purchase commitments from any customer
- a lack of visibility into our customers' deployment plans over the course of the capital equipment procurement year, and
- the lack of reliable data on which to anticipate core demand for high bandwidth transmission capacity

Divergence 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 relatively few customers, and particularly when a substantial majority of their purchases consist of newly-introduced products such as the MultiWave CoreStream, MultiWave Edge Director and MultiWave Metro, there is substantial risk of widely varying quarterly results.

LEGAL PROCEEDINGS COULD HAVE AN ADVERSE EFFECT ON OUR BUSINESS

In August 1998, shareholder class action lawsuits were filed against us and certain of our officers and directors. These lawsuits, which were consolidated into one complaint, were dismissed by the United States District Court on July 19, 1999 with leave to amend until August 20, 1999. We believe the allegations in the complaint are without merit and intend to defend vigorously against them should an amended complaint be filed. However, a consolidated amended complaint has not yet been filed, and it is not possible to predict the outcome at this time. If an amended complaint is filed and it is decided adversely to CIENA, it could have a material adverse effect on our financial condition 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 certain key components from:

- Lucent

- Alcatel

- Nortel

- NEC, and

- Siemens

Each of these companies offers optical communications systems and equipment which are competitive with our products. Also, Lucent is the sole source of two components and is one of two suppliers of two others. 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 materially and adversely affect our business, financial condition and results of operations.

WE EXPECT THAT OUR ACQUISITIONS OF LIGHTERA AND OMNIA WILL MAKE OUR STOCK PRICE MORE VOLATILE

Both Lightera and Omnia are still completing their respective development stages, and we do not expect either of them to generate any revenue or earnings for at least several months. Under these circumstances, we can expect significant volatility over the next several quarters as investors make judgments as to our relative progress in:

- bringing the Lightera and Omnia products to market
- integrating the two companies
- managing retention issues, and
- generally executing on the strategic vision.

Additionally, the shares held by former Lightera and Omnia shareholders, together account for approximately 25% of the outstanding shares of CIENA. If a large portion of these shares are sold within short periods of time, the stock price may experience further volatility and may decline.

THE COMPANY

CIENA designs, makes and sells open architecture, dense wavelength division multiplexing systems for fiberoptic communications networks, including long-distance and local exchange carriers. Our systems enable these carriers to carry greater volumes of communications traffic over existing fiber, by using multiple optical signals, or wavelengths, where prior equipment used only a single optical signal. CIENA also provides a range of engineering, furnishing and installation services for our customers.

We designed all of our MultiWave systems with open architecture that allows them to work with our customers' existing fiber optic transmission systems that have a broad range of transmission speeds and signal formats. We target our research and development efforts to broaden the product applications of our technology and to integrate the technology as part of a more comprehensive approach to optical communications solutions.

In March 1999, we acquired Lightera Networks, Inc., which is developing optical core switches for fiberoptic communications networks. In July 1999, we acquired Omnia Communications, Inc., a telecommunications equipment supplier.

USE OF PROCEEDS

We will not receive any proceeds from the sale of the common stock by the selling stockholders.

SELLING STOCKHOLDERS

This Prospectus relates to the offering by the selling stockholders for resale of up to 13,166,284 shares of common stock. Throughout this prospectus, we may refer to these stockholders and their pledgees, donees, transferees or other successors in interest who receive shares after the date of this prospectus from a selling stockholder as a gift, pledge, partnership distribution or other non-sale related transfer, as the "selling stockholders." If they sell all of these shares in this offering, the selling stockholders will beneficially own no shares of CIENA common stock. The selling stockholders acquired their common stock on July 1, 1999 from us in exchange for their shares of Omnia Communications, Inc.

The following table sets forth the following information with respect to each selling stockholder as of August 20, 1999: (i) name and nature of any position or other relationship with CIENA within the past three years; (ii) the number and percentage of total outstanding shares of CIENA common stock each selling stockholder beneficially owns before this offering; (iii) the number of shares of common stock the selling stockholder is offering; and (iv) the number and percentage of total outstanding shares of CIENA common stock that the selling stockholder will own after the selling stockholder sells all of the shares in this offering. The number of shares beneficially owned by each selling stockholder includes shares held in escrow until July 1, 2000 to allow the settlement

of contingencies in connection with the merger of Omnia into CIENA. The total number of shares held in escrow on behalf of all of the selling stockholders is 1,207,120 shares.

	NUMBER OF SHARES BENEFICIALLY OWNED BEFORE THE OFFERING	PERCENTAGE OF TOTAL CIENA OUTSTANDING SHARES BENEFICIALLY OWNED BEFORE THE OFFERING	NUMBER OF SHARES OFFERED	NUMBER AND PERCENTAGE OF SHARES BENEFICIALLY OWNED AFTER OFFERING
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Bessemer Venture Partners IV, L.P..... 1400 Old Country Road Suite 407 Westbury, NY 11590	949,181	0.69%	949,181	0
BVP IV Special Situations L.P..... 1400 Old Country Road Suite 407 Westbury, NY 11590	115,962	0.08	115,962	0
Bessemer Venture Investors L.P..... 1400 Old Country Road Suite 407 Westbury, NY 11590	280,141	0.20	280,141	0
Bessec Ventures IV L.P..... 1400 Old Country Road Suite 407 Westbury, NY 11590	949,184	0.69	949,184	0
Robi L. Soni(1)..... c/o Bessemer Venture Partners 83 Walnut Street Wellesley, MA 02481	2,320,247	1.69	2,320,247	0
Charles River Partnership VIII, L.P..... Bay Colony Corporate Center 1000 Winter Street Suite 3300 Waltham, MA 02154	2,788,618	2.03	2,788,618	0
Charles River VIII-A LLC..... Bay Colony Corporate Center 1000 Winter Street Suite 3300 Waltham, MA 02154	12,824	0.01	12,824	0
Richard Burnes(2)..... c/o Charles River Partners Bay Colony Corporate Center 1000 Winter Street Suite 3300 Waltham, MA 02154	2,801,422	2.04	2,801,422	0
Atlas Venture Fund III, L.P.... 222 Berkeley Street Boston, MA 02116	1,832,722	1.33	1,832,722	0
Atlas Venture Entrepreneurs' Fund III, L.P..... 222 Berkeley Street Boston, MA 02116	39,847	0.03	39,847	0

	NUMBER OF SHARES BENEFICIALLY OWNED BEFORE THE OFFERING	PERCENTAGE OF TOTAL CIENA OUTSTANDING SHARES BENEFICIALLY OWNED BEFORE THE OFFERING	NUMBER OF SHARES OFFERED	NUMBER AND PERCENTAGE OF SHARES BENEFICIALLY OWNED AFTER OFFERING
Barry Fidelman(3)..... c/o Atlas Ventures 222 Berkeley Street Boston, MA 02116	1,872,569	1.36	1,872,569	0
SVM STAR Ventures Management... Possartstrasse 9 D-81679 Munich, Germany	141,667	.10	141,667	0
SVE Star Ventures Enterprises No. V..... Possartstrasse 9 D-81679 Munich, Germany	797,775	0.58	797,775	0
SVM Star Ventures Management GmbH No. 3..... Possartstrasse 9 D-81679 Munich, Germany	154,068	0.11	154,068	0
SVE Star Ventures Enterprises No. VII..... Possartstrasse 9 D-81679 Munich, Germany	370,578	0.27	370,578	0
Michael A. Champa.....	1,021,792	*	1,021,792	0
Jeffrey Weiss.....	929,086	*	929,086	0
Jeffrey Black.....	920,021	*	920,021	0
James M. Dow.....	391,555	*	391,555	0
Walter Dray.....	343,619	*	343,619	0
William Regan.....	343,619	*	343,619	0
Lawrence M. Harding.....	166,249	*	166,249	0
James O'Bray.....	110,833	*	110,833	0
Other selling stockholders as a group(4).....	481,164	*	481,164	0

* Less than 1%.

(1) Mr. Soni, a member of Deer IV & Co. LLC, the general partner of Bessemer Venture Partners IV, L.P., Bessec IV L.P., BVP IV Special Situations L.P. and Bessemer Venture Investors L.P., is a former director of Omnia. Mr. Soni shares voting power with respect to the shares listed and investment power with respect to the shares held by the foregoing limited partnerships. Mr. Soni owns directly 25,779 shares of CIENA common stock. Mr. Soni disclaims beneficial ownership of all other shares listed except to the extent of his pecuniary interest in the shares held by the foregoing limited partnerships.

(2) Mr. Burnes, a general partner of Charles River VIII GP Limited Partnership, the general partner of Charles River Partnership VIII, a Limited Partnership, an officer of Charles River Friends VII, Inc., the manager of Charles River VIII-A LLC and a general partner of Charles River Partnership VIII, is a former director of Omnia. Mr. Burnes shares voting and investment power with respect to the shares listed. Mr. Burnes does not own any shares of CIENA in his individual capacity and disclaims beneficial ownership of the shares listed except to the extent of his pecuniary interest therein.

- (3) Mr. Fidelman, a member manager of Atlas Venture Associates III, LLC, the general partner of Atlas Venture Fund III, L.P. and Atlas Venture Entrepreneurs' Fund III, L.P., is a former director of Omnia. Mr. Fidelman shares voting and investment power with respect to the shares listed. Mr. Fidelman does not own any shares of CIENA in his individual capacity and disclaims beneficial ownership of the shares listed except to the extent of his pecuniary interest therein.
- (4) Includes members, employees and former employees, or family partnerships of those persons, of the limited partner or general partner of Bessemer Venture Partners IV L.P., Bessec Ventures IV, L.P., BVP IV Special Situations L.P. and Bessemer Venture Investors L.P.

PLAN OF DISTRIBUTION

The common stock being offered by the selling stockholders may be sold in transactions on the Nasdaq Stock Market, on another market on which the common stock may be trading, or in privately-negotiated transactions. The sale price to the public may be the market price prevailing at the time of sale, a price related to the prevailing market price or any other price the selling stockholders may determine. The common stock may also be sold under SEC Rule 145 and not under this prospectus. The selling stockholders have the discretion not to accept any purchase offer or make any sale of common stock if they deem the purchase price to be unsatisfactory at any particular time, or for any reason.

The selling stockholders may also sell the common stock directly to broker-dealers acting as principals and/or to broker-dealers acting as agents for themselves or their customers. Brokers acting as agents for the selling stockholders will receive usual and customary commissions for brokerage transactions, and broker-dealers acting as principals will do so for their own account at negotiated prices and at their own risk. It is possible that the selling stockholders will sell shares of common stock to broker-dealers or other purchasers at a price per share which may be below the then market price. In addition, the selling stockholders may enter into hedging transactions with broker-dealers who may engage in short sales of common stock in the course of hedging the positions they assume with a selling stockholder. The selling stockholders also may sell shares short and deliver the shares to close out their positions, and may loan or pledge their shares to a broker-dealer who may have the right to sell the loaned or pledged shares on default or otherwise. The selling stockholders and any brokers, dealers or agents, upon effecting the sale of any of the common stock offered hereby, may be deemed "underwriters" as that term is defined under the Securities Act or the Exchange Act, or the rules and regulations thereunder.

The selling stockholders and any other persons participating in the sale or distribution of the common stock will be subject to applicable provisions of the Exchange Act and its rules and regulations, which may limit the timing of purchases and sales of any of the common stock by the selling stockholders or other distribution participants. Furthermore, under Regulation M, persons engaged in a distribution of securities are prohibited from simultaneously engaging in market making and other activities with respect to such securities for a specified period of time before the commencement of distributions subject to specified exceptions or exemptions. This may affect the marketability of the common stock.

LEGAL MATTERS

The legal validity of the CIENA common stock offered by this prospectus was passed upon for CIENA by Hogan & Hartson L.L.P., counsel to CIENA.

EXPERTS

The consolidated financial statements incorporated in this Prospectus by reference to the Annual Report on Form 10-K of CIENA Corporation for the year ended October 31, 1998, the Current Report on Form 8-K of CIENA Corporation filed on April 1, 1999 and amended on April 5, 1999 and the Current Report on Form 8-K of CIENA Corporation filed on July 21, 1999, have been so incorporated in reliance on the report of PricewaterhouseCoopers LLP, independent accountants, given on the authority of said firm as experts in auditing and accounting.

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CIENA Corporation

13,166,284 Shares

Common Stock

PROSPECTUS

August , 1999

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. None of these expenses are being borne by the selling stockholders.

SEC registration fee.....	\$140,183(1)
Accounting fees and expenses.....	15,000
Legal fees and expenses.....	25,000
Blue Sky fees and expenses (including counsel fees).....	1,000
Printing and engraving expenses.....	20,000
Transfer agent's and registrar's fees and expenses.....	15,000
Miscellaneous expenses, including Listing Fees.....	53,817

Total.....	\$270,000
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(1) Filing fee previously paid with filing of preliminary proxy materials on April 7, 1999 (File No. 0-21969).

ITEM 15. INDEMNIFICATION OF DIRECTORS AND OFFICERS.

Section 145 of the Delaware General Corporation Law ("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 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.

ITEM 16. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES.

(a) Exhibits:

EXHIBIT NUMBER -----	DESCRIPTION -----
4.1(1)	Specimen Stock Certificate
4.2(2)	Rights Agreement dated December 29, 1997
4.3(3)	Amendment to Rights Agreement dated October 14, 1998
5.1(4)	Hogan & Hartson L.L.P. Opinion
23.1	Consent of Independent Accountants
23.2(4)	Consent of Hogan & Hartson L.L.P. (included in Exhibit 5.1)
24.1(4)	Power of Attorney

(1) Incorporated by reference to CIENA's Registration Statement on Form S-1 (SEC File No. 333-17729).

(2) Incorporated by reference to CIENA's Form 8-K dated December 29, 1997.

(3) Incorporated by reference to CIENA's Form 8-K dated October 14, 1998.

(4) Previously filed as an exhibit to this Registration Statement.

(b) Financial Statement Schedules.

CIENA acquired Lightera on March 31, 1999, in a transaction accounted for as a pooling-of-interests. Accordingly, all financial statements and pro forma financial information prescribed by Rule 3-05 of Regulation S-X and Article 11 of Regulation S-X, respectively, are incorporated herein by reference to CIENA's Current Reports on Form 8-K as filed on April 1, 1999 and amended on April 5, 1999, and filed on July 21, 1999.

ITEM 17. UNDERTAKINGS.

(a) The undersigned Registrant hereby undertakes:

(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:

(i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933.

(ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment to the registration statement) which, individually or when viewed together, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20% change

in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement.

(iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to the information in the registration statement.

provided, however, that paragraphs (a)(1)(i) and (a)(1)(ii) do not apply if the registration statement is on Form S-3, Form S-8 or Form F-3, and the information required to be included in a post-effective amendment by those paragraphs is contained in periodic reports filed with or furnished to the Commission by the registrant pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in the registration statement.

(2) That, for the purpose of determining any liability under the Securities Act, each of these post-effective amendments shall be deemed to be a new registration statement relating to the securities being offered, and the offering of those securities at that time shall be deemed to be the initial bona fide offering thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

(b) 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 of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities being offered, and the offering of those securities at that time shall be deemed to be the initial bona fide offering thereof.

(h) 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 Securities and Exchange Commission, such indemnification is against public policy as expressed in the 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 whether such indemnification by it is against public policy as expressed in the 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 August 20, 1999.

CIENA CORPORATION

By: /s/ PATRICK H. NETTLES, PH.D.

Patrick H. Nettles, Ph.D.

President and Chief Executive
Officer

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.

Date: August 20, 1999 /s/ PATRICK H. NETTLES, PH.D.

Patrick H. Nettles, Ph.D.
President and Chief Executive Officer

Date: August 20, 1999 /s/ JOSEPH R. CHINNICI*

Joseph R. Chinnici
Sr. Vice President, Chief Financial Officer
Principal Financial Officer

Date: August 20, 1999 /s/ ANDREW C. PETRIK*

Andrew C. Petrik
Vice President, Controller and Treasurer
Principal Accounting Officer

Date: August 20, 1999 /s/ HARVEY B. CASH*

Harvey B. Cash
Director

Date: August 20, 1999 /s/ BILLY B. OLIVER*

Billy B. Oliver
Director

Date: August 20, 1999 /s/ MICHAEL J. ZAK*

Michael J. Zak
Director

Date: August 20, 1999 /s/ STEPHEN P. BRADLEY*

Stephen P. Bradley
Director

*By: PATRICK H. NETTLES, PH.D.

Pursuant to Power of Attorney

CONSENT OF INDEPENDENT ACCOUNTANTS

We hereby consent to the incorporation by reference in this Registration Statement on Form S-3 of CIENA Corporation of our report dated November 25, 1998 relating to the consolidated financial statements appearing in CIENA Corporation's Annual Report on Form 10-K for the year ended October 31, 1998. We also consent to the incorporation by reference of our report dated November 25, 1998, except as to Note 2 "Lightera" and "Omnia" which are as of July 20, 1999 which appears in the Current Report on Form 8-K of CIENA Corporation dated July 21, 1999. We also consent to the reference to us under heading "Experts" in such Registration Statement.

PricewaterhouseCoopers LLP
McLean, Virginia
August 19, 1999