UNITED STATES SECURITIES AND EXCHANGE COMMISSION WASHINGTON, DC 20549

SCHEDULE 13D

UNDER THE SECURITIES EXCHANGE ACT OF 1934

ONI Systems Corp.

(Name of Issuer)

Common Stock, \$.0001 Par Value Per Share (Title of Class of Securities)

68273F103

(CUSIP Number)

February 17, 2002

(Date of Event Which Requires Filing of This Statement)

If the filing person has previously filed a statement on Schedule 13G to report the acquisition which is the subject of this Schedule 13D, and is filing this schedule because of Rule 13d-1(b)(3) or (4), check the following box [].

The information required on the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 ("Act") or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).

SEC 1746 (12-91)

| 1 | NAME OF REPORTING PERSON S.S. OR I.R.S. IDENTIFICATION NO. OF ABO CIENA Corporation I.R.S. Identification No.: 23-2725311 | VE PERSON | | |
|-------------------------------|--|-----------|--|--|
| 2 | CHECK THE APPROPRIATE BOX IF A MEMBER OF (See Item 5 below.) | (b) [x] | | |
| 3 | SEC USE ONLY | | | |
| 4 | SOURCE OF FUNDS OO (See Item 3 below.) | | | |
| 5 | CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEMS 2(d) OR 2(e) [] | | | |
| 6 | CITIZENSHIP OR PLACE OR ORGANIZATION | | | |
| | State of Delaware | | | |
| | 7 SOLE VOTING POWER -0- | | | |
| NUMBER SHARES BENEFICIA | S 8 SHARED VOTING POWER ALLY 16,868,008 | | | |
| OWNED E EACH REPORTI | 9 SOLE DISPOSITIVE POWER | | | |
| PERSON WITH | • | | | |
| 11 | AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 16,868,008 | | | |
| 12 | CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES [] | | | |
| 13 | PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11) 11.9 % | | | |
| 14 | TYPE OF REPORTING PERSON CO | | | |
| | | | | |

CUSIP NO. 68273F103

ITEM 1. SECURITY AND ISSUER.

This Schedule 13D relates to the shares of common stock, par value \$0.0001 per share ("ONI Common Stock"), of ONI Systems Corp., a Delaware corporation ("ONI"). The principal executive offices of ONI are located at 5965 Silver Creek Valley Road, San Jose, California 95138.

ITEM 2. IDENTITY AND BACKGROUND.

(a) NAME, PLACE OF ORGANIZATION, PRINCIPAL BUSINESS:

This Schedule 13D is filed by CIENA Corporation, a corporation organized under the laws of the State of Delaware ("CIENA"). CIENA Corporation's market-leading intelligent optical networking systems form the core for the new era of networks and services worldwide. CIENA's LightWorks(TM) architecture enables next-generation optical services and changes the fundamental economics of service-provider networks by simplifying the network and reducing the cost to operate it.

- (b) ADDRESS OF PRINCIPAL BUSINESS AND PRINCIPAL OFFICE: The address of the principal business and principal executive office of CIENA is 1201 Winterson Road, Linthicum, MD 21090-2205.
- (c) INFORMATION PROVIDED PURSUANT TO INSTRUCTION C:

For information with respect to the identity and background of each director and executive officer of CIENA, see Schedule I attached hereto.

(d) NO CRIMINAL CONVICTIONS:

During the past five years, neither CIENA nor, to CIENA's knowledge, any person identified in Schedule I to this Schedule 13D, has been convicted in any criminal proceeding (excluding traffic violations or similar misdemeanors).

(e) NO CIVIL PROCEEDINGS:

During the past five years, neither CIENA nor, to CIENA's knowledge, any person identified in Schedule I to this Schedule 13D, has been a party to a civil proceeding of a judicial or administrative body of competent jurisdiction resulting in a judgment, decree or final order enjoining future violations of or prohibiting or mandating activity subject to federal or state securities laws or finding any violation with respect to such laws.

(f) CITIZENSHIP:

To the best of CIENA's knowledge, all persons identified in the attached Schedule I are citizens of the United States of America.

- ITEM 3. SOURCE AND AMOUNT OF FUNDS OR OTHER CONSIDERATION. CIENA agreed to acquire ONI by means of a merger (the "Merger") pursuant to the Agreement and Plan of Merger dated as of February 17, 2002 (the "Merger Agreement"), by and among CIENA and ONI, and subject to the conditions set forth therein. As an inducement for CIENA to enter into the Merger Agreement and in consideration thereof, each of the directors, certain affiliates thereof and certain officers of ONI named on Schedule II (collectively, the "Stockholders") entered into a Stockholder Agreement (collectively, the "Stockholder Agreements") with CIENA. Pursuant to the Stockholder Agreements, each Stockholder has agreed to vote the ONI Common Stock it owns in favor of the Merger and against competing proposals, and to grant CIENA, upon request, a proxy with respect to its ONI Common Stock. The Stockholder Agreements cover an aggregate 16,209,925 shares of ONI Common Stock owned by the Stockholders. In addition, the Stockholder Agreements cover any additional shares acquired upon exercise of options held by such Stockholders. A form of the Stockholder Agreement is filed herewith as Exhibit 99.1 and incorporated herein by reference.
- ITEM 4. PURPOSE OF TRANSACTION.

On February 17, 2002, CIENA and ONI entered into the Merger Agreement. Following the Merger, ONI will merged with and into CIENA as a result of which holders of ONI Common Stock will receive 0.7104 shares of CIENA's common stock for each share of ONI Common Stock outstanding at the time of the Merger. The Merger, which is expected to close in the second or third calendar quarter of 2002, is contingent upon the fulfillment of certain conditions in the Merger Agreement including, but not limited to, all required regulatory approvals, and the approval of the Merger by the stockholders of ONI and CIENA. The Stockholder Agreements are intended to enhance the likelihood of timely approval of the Merger by ONI's stockholders.

ITEM 5. INTEREST IN SECURITIES OF THE ISSUER.

 (a)-(b) As of February 17, 2002, the shares subject to the Stockholder Agreements consisted of 16,868,008 shares of ONI Common Stock, representing approximately 11.9% of the total number of issued and outstanding shares of ONI Common Stock on February 17, 2002. The 16,868,008 total includes options to purchase 658,083 shares of ONI Common Stock that are exercisable within sixty days from the date hereof. The 16,868,008 total excludes 1,275,917 shares subject to options held as of the date of the Stockholders Agreements that are not exercisable within sixty days of the date hereof. The percentage of 11.9% is calculated based on 141,458,654 shares

The percentage of 11.9% is calculated based on 141,458,654 shares of ONI Common Stock outstanding as of February 17, 2002, as represented by ONI in the Merger Agreement.

By virtue of the Stockholder Agreements entered into with each person identified on Schedule II, CIENA may be deemed to have the right to acquire voting power of the shares subject thereto because the Stockholder Agreements grant CIENA the right to require that the Stockholder give a proxy to CIENA upon request to vote those shares in favor of the Merger; however, CIENA is not entitled to any other rights as a stockholder of ONI with respect to the shares of ONI Common Stock covered by the Stockholder Agreements. CIENA disclaims membership in any group consisting of one or more persons listed on Schedule II and disclaims beneficial ownership of any shares beneficially owned by any such persons. The filing of this Schedule 13D shall not be deemed as an admission that CIENA is the beneficial owner of any shares owned by any persons listed on Schedule II or a member of any group consisting of such persons.

- (c) Except as described in this Schedule 13D, there have been no transactions in the shares of ONI Common Stock effected by CIENA or, to the best of CIENA's knowledge, any person identified in Schedule I of this Schedule 13D, during the last sixty days.
- (d) Not Applicable.
- (e) Not Applicable.

ITEM 6. CONTRACTS, ARRANGEMENTS, UNDERSTANDINGS OR RELATIONSHIPS WITH RESPECT TO SECURITIES OF THE ISSUER.

Except as described in this Schedule 13D and to the best of CIENA's knowledge, there are no contracts, arrangements, understandings, or relationships (legal or otherwise) among the persons named in Item 2 and between such persons and any person with respect to any securities of ONI.

ITEM 7. MATERIAL TO BE FILED AS EXHIBITS.

Exhibit 99.1 Form of Stockholder Agreement between each of the Stockholders and CIENA.

SIGNATURE

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

Date: February 20, 2002 CIENA CORPORATION

By: /s/ Russell B. Stevenson, Jr. Russell B. Stevenson, Jr. Senior Vice President, General Counsel and Secretary SCHEDULE I

A. EXECUTIVE OFFICERS AND DIRECTORS OF CIENA CORPORATION.*

| Name: | Principal Occupation or Employment: |
|--|--|
| Patrick H. Nettles, Ph.D. Gary B. Smith Stephen B. Alexander Steve W. Chaddick | Executive Chairman of the Board of Directors President, Chief Executive Officer and Director Senior Vice President, Chief Technology Officer Senior Vice President, Systems and Technology and Chief Strategy Officer |
| Joseph R. Chinnici Michael O. McCarthy III Russell B. Stevenson, Jr. Andrew C. Petrik Stephen P. Bradley, Ph.D. Harvey B. Cash John R. Dillon Lawton W. Fitt Judith M. O'Brien Gerald H. Taylor | Senior Vice President, Finance and Chief Financial Officer Senior Vice President, Worldwide Sales and Support Senior Vice President, General Counsel and Secretary Vice President, Controller and Treasurer Director Director Director Director Director Director Director |

 * Business address for each individual: c/o CIENA Corporation, 1201 Winterson Road, Linthicum, Maryland 21090.

SCHEDULE II

| Name | Number of Shares of ONI Common Stock Beneficially Owned* | Number of Options to Purchase ONI Common Stock Beneficially Owned* |
|--|--|--|
| Matthew W. Bross Revocable Trust | 192,460 | |
| - Matthew W. Bross | | 40,000 |
| William R. Cumpston | | 450,000 |
| Cumpston Family Trust | 761,779 | |
| William R. Cumpston 2000 GRAT | 10,000 | |
| The Cumpston Children's Trust | 2,000 | |
| Michael A. Dillon | 182,142 | 100,000 |
| - The Dillon Living Trust | 69,103 | |
| Robert J. Jandro | 675,350 | 100,000 |
| James F. Jordan | 1,502,581 | 40,000 |
| Kevin Compton | 533, 547 | 120,000 |
| Kleiner Perkins Caufield & Buyers VIII, L.P. | 1,262,087 | |
| KPCB VIII Founders Fund | 73,081 | |
| KPCB Information Sciences Zaibatsu Fund II | 31,416 | |
| Gregory B. Maffei | 237,050 | 40,000 |
| Hugh C. Martin | 5,849 | 550,000 |
| - HMCM Trust | 3,130,554 | |
| Wild Crest Ventures, LLC | 880,000 | |
| Cherrystone Partners, LP | 1,000,000 | |
| Hugh C. Martin 2000 GRAT | 34,836 | |
| Martin Children's Trust | 3,000 | |
| Jon Feiber | 4,593 | 120,000 |
| Feiber-Buhr Trust | 201,368 | |
| Mohr, Davidow Ventures V, L.P. | 5,083,694 | |
| George Reyes | | 24,000 |
| Rohit Sharma | 267, 894 | 350,000 |
| rohit Trust | 65,541 | |

*As represented to CIENA in the Stockholder Agreements.

STOCKHOLDER AGREEMENT

STOCKHOLDER AGREEMENT, dated as of February 17, 2002 (this "Agreement"), by the undersigned stockholder (the "Stockholder") of ONI Systems Corp., a Delaware corporation (the "Company"), for the benefit of CIENA Corporation, a Delaware corporation ("CIENA").

RECITALS

WHEREAS, CIENA and the Company are entering into an Agreement and Plan of Merger, dated as of February 17, 2002 (as the same may be amended from time to time, the "Merger Agreement"), whereby, upon the terms and subject to the conditions set forth in the Merger Agreement, each issued and outstanding share of common stock of the Company ("Company Capital Stock"), not owned directly or indirectly by CIENA or the Company, will be converted into shares of Common Stock, par value \$.01 per share, of CIENA ("CIENA Common Stock");

WHEREAS, the Stockholder owns of record, or has or shares the power to vote or dispose of, and/or holds stock options, warrants or convertible securities to acquire (whether or not vested) that number and class of shares of Company Capital Stock appearing on the signature page hereof (all outstanding shares of Company Capital Stock so owned of record or beneficially, together with any other shares of capital stock of the Company acquired by such Stockholder after the date hereof and during the term of this Agreement, being collectively referred to herein as the "Subject Shares"); and

WHEREAS, as a condition to its willingness to enter into the Merger Agreement, CIENA has required that the Stockholder agree, and in order to induce CIENA to enter into the Merger Agreement, the Stockholder has agreed, to enter into this Agreement.

NOW, THEREFORE, in consideration of the promises and the mutual covenants and agreements set forth herein, the Stockholder agrees as follows:

1. COVENANTS OF STOCKHOLDER. Until the termination of this Agreement in accordance with Section 4, Stockholder agrees as follows:

(a) At the Company Stockholders Meeting (or at any adjournment thereof) or in any other circumstances upon which a vote, consent or other approval with respect to the Merger and the Merger Agreement is sought, the Stockholder shall vote (or cause to be voted) the Subject Shares in favor of the Merger, the adoption of the Merger Agreement and the approval of the terms thereof and each of the other transactions contemplated by the Merger Agreement;

(b) At any meeting of stockholders of the Company or at any adjournment thereof or in any other circumstances upon which the Stockholder's vote, consent or other approval is sought, the Stockholder shall vote (or cause to be voted) the Subject Shares against any proposal or any amendment of the Company's Certificate of Incorporation or By-Laws, which proposal or amendment would in any manner impede, frustrate, prevent or nullify the Merger, the Merger Agreement or any of the other transactions contemplated by the Merger Agreement or change in any manner the voting rights of any class of capital stock of the Company, and the Stockholder further agrees not to vote (or cause to be voted) the Subject Shares in favor of any proposal to approve any transaction that arises from any Acquisition Proposal. The Stockholder further agrees not to commit or agree to take any action inconsistent with the foregoing;

(c) The Stockholder agrees not to (i) sell, transfer, pledge, assign or otherwise dispose of (including by gift) (collectively, "Transfer"), or enter into any contract, option or other arrangement (including any profit-sharing arrangement) with respect to the Transfer of the Subject Shares to any person or (ii) enter into any voting arrangement, whether by proxy, voting agreement or otherwise, in relation to the Subject Shares, and agrees not to commit or agree to take any of the foregoing actions; provided, however, that the Stockholder may transfer up to 100,000 shares of Company Common Stock in the aggregate (i) without consideration, by way of gift to members of the Stockholder's immediate family (or a trust for the direct or indirect benefit of the Stockholder or the Stockholders' immediate family) and to organizations qualified under Section 501(c)(3) of the Internal Revenue Code of 1986, or (ii) through a bona fide pledge of the Subject Shares by the Stockholder to a third party as collateral for a loan, so long as the transferee or pledgee of the Subject Shares agrees in writing to be bound by the terms of this Agreement. The foregoing number of shares shall be appropriately adjusted if, between the date of this Agreement and the Effective Time, the outstanding shares of Company Common Stock are changed into a different number or class of shares by reason of any stock split, stock dividend, reverse stock split, reclassification, recapitalization or other similar transaction.

(d) The Stockholder shall not, nor shall the Stockholder permit any affiliate, director, officer, employee, investment banker, attorney or other advisor or representative of the Stockholder to, (i) directly or indirectly solicit, initiate or knowingly encourage the submission of, any Acquisition Proposal or (ii) directly or indirectly participate in any discussions or negotiations regarding, or furnish to any person any information with respect to, or take any other action to facilitate any inquiries or the making of any proposal that constitutes or may reasonably be expected to lead to, any Acquisition Proposal; provided, however, that if the Stockholder is an executive officer of the Company, nothing in this Section 1(d) shall be interpreted to prohibit the Stockholder from acting in accordance with instructions given by the Board of Directors of the Company so long as such actions comply with the provisions of Section 5.4 of the Merger Agreement.

(e) At any time requested by CIENA, the Stockholder shall grant to CIENA or its designees a written proxy or proxies to vote all of the Subject Shares in favor of the Merger and against any Acquisition Proposal or any stockholder proposal intended to promote an Acquisition Proposal; and

(f) The Stockholder shall use the Stockholder's reasonable best efforts to take, or cause to be taken, all actions, and to do, or cause to be done, and to assist and cooperate with CIENA in doing, all things necessary, proper or advisable to support and to consummate and make effective, in the most expeditious manner practicable, the Merger and the other transactions contemplated by the Merger Agreement.

2. REPRESENTATIONS AND WARRANTIES. The Stockholder represents and warrants to CIENA as follows:

(a) The Stockholder is the beneficial owner of, and has good and marketable title to, the Subject Shares. The Stockholder does not own, of record or beneficially, any shares of capital stock of the Company other than the Subject Shares. The Stockholder has the sole right to vote, and the sole power of disposition with respect to, the Subject Shares, and none of the Subject Shares is subject to any voting trust, proxy or other agreement, arrangement or restriction with respect to the voting or disposition of such Subject Shares, except as contemplated by this Agreement;

(b) This Agreement has been duly executed and delivered by the Stockholder. Assuming the due authorization, execution and delivery of this Agreement by CIENA, this Agreement constitutes the valid and binding agreement of the Stockholder enforceable against the Stockholder in accordance with its terms, except as may be limited by applicable bankruptcy, insolvency, reorganization, moratorium and other similar laws of general application which may affect the enforcement of creditors' rights generally and by general equitable principles. The execution and delivery of this Agreement by the Stockholder does not and will not conflict with any agreement, order or other instrument binding upon the Stockholder, nor require the Stockholder to make or obtain any regulatory filing or approval.

3. AFFILIATE LETTER. The Stockholder is concurrently executing and delivering an Affiliate Letter in the form of EXHIBIT B to the Merger Agreement, if requested by CIENA.

4. TERMINATION. The obligations of the Stockholder hereunder shall terminate upon the earlier of the termination of the Merger Agreement pursuant to ARTICLE VII thereof or the Effective Time.

5. FURTHER ASSURANCES. The Stockholder will, from time to time, execute and deliver, or cause to be executed and delivered, such additional or further consents, documents and other instruments as CIENA may reasonably request for the purpose of effectively carrying out the transactions contemplated by this Agreement.

6. SUCCESSORS, ASSIGNS AND TRANSFEREES BOUND. Any successor, assignee or transferee (including a successor, assignee or transferee as a result of the death of the Stockholder, such as an executor or heir) shall be bound by the terms hereof, and the Stockholder shall take any and all actions necessary to obtain the written confirmation from such successor, assignee or transferee that it is bound by the terms hereof.

7. REMEDIES. The Stockholder acknowledges that money damages would be both incalculable and an insufficient remedy for any breach of this Agreement by it, and that any such breach would cause CIENA irreparable harm. Accordingly, the Stockholder agrees that in the event of any breach or threatened breach of this Agreement, CIENA, in addition to any other remedies at law or in equity it may have, shall be entitled, without the requirement of posting a bond or other security, to equitable relief, including injunctive relief and specific performance.

8. SEVERABILITY. The invalidity or unenforceability of any provision of this Agreement in any jurisdiction shall not affect the validity or enforceability of any other provision of this Agreement in such jurisdiction, or the validity or enforceability of any provision of this

Agreement in any other jurisdiction.

9. AMENDMENT. This Agreement may be amended only by means of a written instrument executed and delivered by both the Stockholder and CIENA.

10. GOVERNING LAW. This Agreement shall be governed by, and construed in accordance in accordance with, the laws of the State of Delaware, regardless of the laws that might otherwise govern under applicable principles of conflicts of laws thereof.

11. CAPITALIZED TERMS. Capitalized terms used in this Agreement that are not defined herein shall have such meanings as set forth in the Merger Agreement.

12. COUNTERPARTS. For the convenience of the parties, this Agreement may be executed in counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

13. NO LIMITATION ON ACTIONS OF THE STOCKHOLDER AS DIRECTOR. In the event the Stockholder is a director of the Company, notwithstanding anything to the contrary in this Agreement, nothing in this Agreement is intended or shall be construed to require the Stockholder to take or in any way limit any action that the Stockholder may take to discharge the Stockholder's fiduciary duties as a director of the Company.

By:

(print or type name)

Number and class of shares of Company Capital Stock owned or subject to acquisition on the date hereof: ______ _____ (including shares issuable under stock options, warrants and convertible securities)

Accepted and Agreed to as of the date set forth above:

CIENA Corporation

By: Name: Title: