

OMB APPROVAL

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**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION**

**Washington, D.C. 20549**

**SCHEDULE 13D**

**(Rule 13d-101)**

**INFORMATION TO BE INCLUDED IN STATEMENTS FILED PURSUANT TO RULE  
13d-1(a) AND AMENDMENTS THERETO FILED PURSUANT TO RULE 13d-2(a)**

**ADE CORPORATION**

(Name of Issuer)

**COMMON STOCK  
\$0.01 PAR VALUE**

(Title of Class of Securities)

**00089C107**

(CUSIP Number)

**Stuart J. Nichols  
Vice President and General Counsel  
KLA-Tencor Corporation  
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San Jose, California 95134  
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(Name, Address and Telephone Number of Person Authorized to  
Receive Notices and Communications)

**February 22, 2006**

(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 that is the subject of this Schedule 13D, and is filing this schedule because of §§240.13d-1(e), 240.13d-1(f) or 240.13d-1(g), check the following box.

**Note:** Schedules filed in paper format shall include a signed original and five copies of the schedule, including all exhibits. See §240.13d-7 for other parties to whom copies are to be sent.

\* The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter disclosures provided in a prior cover page.

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).

**Persons who respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB control number.**

<b>1</b>	NAMES OF REPORTING PERSONS: KLA-TENCOR CORPORATION  I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY):  04-2564110	
<b>2</b>	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS):  (a) <input type="checkbox"/> (b) <input type="checkbox"/>  N/A	
<b>3</b>	SEC USE ONLY:	
<b>4</b>	SOURCE OF FUNDS (SEE INSTRUCTIONS):  N/A	
<b>5</b>	CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEMS 2(d) OR 2(e):  <input type="checkbox"/>  N/A	
<b>6</b>	CITIZENSHIP OR PLACE OF ORGANIZATION:  DELAWARE	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	<b>7</b>	SOLE VOTING POWER:  0
	<b>8</b>	SHARED VOTING POWER:  4,102,591
	<b>9</b>	SOLE DISPOSITIVE POWER:  0
	<b>10</b>	SHARED DISPOSITIVE POWER:  4,102,591
<b>11</b>	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON:  0	
<b>12</b>	CHECK IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS):  <input type="checkbox"/>	
<b>13</b>	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11):  27.9%	
<b>14</b>	TYPE OF REPORTING PERSON (SEE INSTRUCTIONS):  CO	

<sup>1</sup> An aggregate of 4,102,591 shares of ADE Corporation ("Issuer") common stock are subject to individual voting agreements dated February 22, 2006 (the "Voting Agreements") entered into by KLA-Tencor Corporation ("Buyer") and each of Chris L. Koliopoulos, Landon T. Clay, Harris Clay, H. Kimball Faulkner, Kendall Wright, Brian C. James, and David F. Basila (discussed in Items 3 and 4 below). KLA-Tencor expressly disclaims beneficial ownership of any shares of Issuer common stock covered by the Voting Agreements. Based on the number of shares of Issuer common stock outstanding as of February 21, 2006 (as represented by Issuer in the Merger Agreement discussed in Items 3 and 4), the number of shares of Issuer common stock covered by the Voting Agreements represents approximately 27.9% of the outstanding Issuer common stock.

**Item 1. Security and Issuer.**

The class of equity security to which this statement relates is the common stock, par value \$0.01 per share (the "Shares"), of ADE Corporation, a Massachusetts corporation (the "Issuer"). The principal executive offices of the Issuer are located at 80 Wilson Way, Westwood, Massachusetts 02090.

**Item 2. Identity and Background.**

The name of the person filing this statement is KLA-Tencor Corporation, a Delaware corporation ("Buyer"). The address of the principal business and the principal office of Buyer is 1600 Rio Robles, San Jose, CA 95134. Buyer is the world leader in yield management and process control solutions for semiconductor manufacturing and related industries.

The name, business address, present principal occupation or employment and citizenship of each director and executive officer of Buyer is set forth on Schedule A.

During the last five years, none of Buyer or to the best of Buyer's knowledge, any of the persons listed on Schedule A attached hereto, has been convicted in a criminal proceeding (excluding traffic violations or similar misdemeanors) or has been a party to a civil proceeding of a judicial or administrative body of competent jurisdiction and as a result of such proceeding was or is subject to a judgment, decree or final order enjoining future violations of, or prohibiting or mandating activities subject, to federal or state securities laws or finding any violation with respect to such laws.

**Item 3. Source and Amount of Funds or Other Consideration.**

On February 22, 2006, Buyer, Issuer and South Acquisition Corporation ("Merger Sub"), a Delaware corporation and wholly owned subsidiary of Buyer, entered into an Agreement and Plan of Merger (the "Merger Agreement"), pursuant to which, subject to the satisfaction or waiver of the conditions therein, Merger Sub will merge with and into Issuer (the "Merger") and Issuer will become a wholly owned subsidiary of the Buyer. Upon the consummation of the Merger, each Share will be converted into the right to receive 0.64 shares of the common stock of the Buyer ("Buyer Common Stock"), par value \$0.001 per share, and cash in lieu of fractional shares. The proposed transaction is valued at approximately \$488 million based on the closing stock price of Buyer on February 22, 2006. Buyer expects to fund the consideration payable pursuant to the Merger Agreement through the issuance of Buyer Common Stock to Issuer's shareholders.

As an inducement to enter into the Merger Agreement, and in consideration thereof, Buyer entered into individual voting agreements with each of Chris L. Koliopoulos, Landon T. Clay, Harris Clay, H. Kimball Faulkner, Kendall Wright, Brian C. James, and David F. Basila (each a "Stockholder"), each dated as of February 22, 2006 (the "Voting Agreements"). Pursuant to the Voting Agreements, each Stockholder has agreed that at any meeting of the stockholders of Issuer called to vote upon the Merger and the Merger Agreement, or at any adjournment or postponement 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, such Stockholder will vote (or cause to be voted) its beneficially held Shares in favor of the adoption by Issuer of the Merger and the approval of the Merger Agreement and the transactions contemplated thereby. Each Stockholder has irrevocably appointed the Buyer as its lawful attorney and proxy in respect of such matters.

Shared voting power with respect to the Shares owned by the Stockholders was acquired through execution of the Voting Agreements. Buyer has not expended any funds in connection with the execution of the Voting Agreements. Schedule B attached hereto contains the names and number of Shares beneficially held by each Stockholder.

The foregoing descriptions of the Merger Agreement and the Voting Agreements do not purport to be complete and are qualified in their entirety by reference to such agreements. A copy of the Merger Agreement and the form of Voting Agreement, listed as Exhibits 1 and 2, respectively, hereto, is incorporated by reference to Exhibit 2.1 to Buyer's Current Report on Form 8-K filed with the Securities and Exchange Commission on February 23, 2006.

***Item 4. Purpose of Transaction.***

As described in Item 3 above, this statement is being filed in connection with the Voting Agreements between Buyer and the Stockholders party thereto in connection with the Merger and the related Merger Agreement.

Upon the consummation of the Merger, (i) Issuer will become a wholly owned subsidiary of Buyer and (ii) each Share will be converted into the right to receive 0.64 shares of Buyer common stock and cash in lieu of fractional shares, subject to certain exceptions more fully described in the Merger Agreement. In addition, options to acquire Shares outstanding under any stock option or compensation plan, agreement or arrangement of the Issuer which remains outstanding at the effective time will, upon consummation of the Merger, be converted into options to acquire shares of Buyer common stock based on formulas contained in the Merger Agreement. Options to acquire Shares held by a non-employee director or former director of the Issuer that are outstanding at the effective time will be canceled, and Issuer will pay each holder for each such option based on formulas contained in the Merger Agreement.

From and after the effective time of the Merger and pursuant to the Merger Agreement, (i) Jeffrey Hall and Stuart J. Nichols, the directors of Merger Sub, will serve as directors of Issuer until successors are duly elected or appointed and qualified in accordance with applicable law, (ii) the officers of Issuer at the effective time will be the officers of the surviving corporation and (iii) the articles of incorporation of the Issuer and bylaws of Merger Sub in effect at the effective time of the Merger will be the certificate of incorporation and bylaws of the surviving corporation until amended in accordance with applicable law.

Following the Merger, the Shares will no longer be traded on The Nasdaq National Market and registration of the Shares under the Securities Exchange Act of 1934, as amended, will be terminated.

Except as set forth in this Statement and in connection with the Merger described above, Buyer has no plan or proposals that relate to or would result in any of the transactions described in subparagraphs (a) through (j) of Item 4 of Schedule 13D.

***Item 5. Interest in Securities of the Issuer.***

(a) and (b) Other than those Shares that may be deemed to be beneficially owned in connection with the Voting Agreements, Buyer has acquired and, for the purposes of Rule 13d-4 promulgated under the Exchange Act, beneficially owns (with sole right to vote and to dispose of) zero Shares, representing 0% of the outstanding Shares.

As a result of the Voting Agreements, Buyer may be deemed to have the power to vote up to an additional 4,102,591 Shares (234,000 of which are Shares underlying options that are currently exercisable or exercisable within 60 days to purchase such Shares) in favor of approval of the Merger Agreement, and thus, for the purpose of Rule 13d-3 promulgated under the Exchange Act, Buyer may be deemed to be the beneficial owner of an aggregate of 4,102,591 Shares. All Shares that may be deemed to be beneficially owned by Buyer constitute approximately 27.9% of the issued and outstanding Shares as of February 21, 2006 (as represented by Issuer in the Merger Agreement).

Buyer (i) is not entitled to any rights as a stockholder of Issuer as to the Shares covered by the Voting Agreement and (ii) disclaims all beneficial ownership of such Shares.

Except as set forth in this Item 5(a), none of Buyer, and, to the knowledge of Buyer, any persons named in Schedule A hereto owns beneficially any Shares.

(c) Except for the agreements described above, to the knowledge of Buyer, no transactions in the class of securities reported have been effected during the past 60 days by any person named in Schedule A or Item 5(a).

(d) To the knowledge of Buyer, no other person besides the Stockholders and those persons for whose shares the Stockholders report beneficial ownership has the right to receive or the power to direct the receipt of dividends from, or the proceeds from the sale of, the securities of Issuer reported herein.

(e) Inapplicable.

**Item 6. Contracts, Arrangements, Understandings or Relationships With Respect to Securities of the Issuer.**

Except for the agreements as described above, to the best knowledge of Buyer, there are no contracts, arrangements, understandings or relationships (legal or otherwise), including, but not limited to, transfer or voting of any of the securities, finder's fees, joint ventures, loan or option arrangements, puts or calls, guarantees of profits, division of profits or loss, or the giving or withholding of proxies, between the persons enumerated in Item 2, and any other person, with respect to any securities of the Issuer, including any securities pledged or otherwise subject to a contingency the occurrence of which would give another person voting power or investment power over such securities other than standard default and similar provisions contained in loan agreements.

**Item 7. Material to be Filed as Exhibits.**

- |           |  |
|-----------|--|
| Exhibit 1 | Agreement and Plan of Merger among KLA-Tencor Corporation, ADE Corporation and South Acquisition Corporation, dated as of February 22, 2006 (incorporated by reference to Exhibit 2.1 to KLA-Tencor Corporation's Current Report on Form 8-K filed with the Securities and Exchange Commission on February 23, 2006) |
| Exhibit 2 | Form of Voting Agreement, dated as of February 22, 2006 (incorporated by reference to Exhibit 2.1 to KLA-Tencor Corporation's Current Report on Form 8-K filed with the Securities and Exchange Commission on February 23, 2006)   |

**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.

Dated: March 6, 2006

KLA-TENCOR CORPORATION

By: /s/ Stuart J. Nichols

Name: Stuart J. Nichols

Title: Vice President and General Counsel

Page 6 of 9

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**DIRECTORS AND EXECUTIVE OFFICERS OF KLA-TENCOR**

The name, business address, title, present principal occupation or employment of each of the directors and executive officers of KLA-Tencor Corporation ("KLA-Tencor"), are set forth below. If no business address is given the director's or officer's business address is 160 Rio Robles, San Jose, CA 95134. Unless otherwise indicated, each occupation set forth opposite an individual's name refers to KLA-Tencor. Unless otherwise indicated below, all of the persons listed below are citizens of the United States of America.

Name and Business Address	Present Principal Occupation Including Name and Address of Employer
<i>Directors</i>	
Edward W. Barnholt	Retired President & Chief Executive Officer, Agilent Technologies <i>c/o KLA-Tencor Corporation</i>
Stephen P. Kaufman	Retired, Chairman and Chief Executive Officer, Arrow Electronics <i>c/o KLA-Tencor Corporation</i>
H. Raymond Bingham	Retired Executive Chairman, Cadence Design Systems Inc. <i>c/o KLA-Tencor Corporation</i>
Robert T. Bond	Retired Chief Operating Officer, Rational Software Corporation <i>c/o KLA-Tencor Corporation</i>
Michael E. Marks	Member, Kohlberg Kravis Roberts & Co. 2800 Sand Hill Road, Suite 200 Menlo Park, CA 94025
Kenneth Levy	Chairman of the Board <i>KLA-Tencor Corporation</i> One Technology Drive Milpitas, CA 95035
Jon D. Tompkins	Retired Chairman of the Board <i>KLA-Tencor Corporation</i> One Technology Drive Milpitas, CA 95035
Lida Urbaneck	Private Investor, Former Director of Tencor Instruments <i>c/o KLA-Tencor Corporation</i>
Richard P. Wallace	Chief Executive Officer
Name and Business Address	Present Principal Occupation Including Name and Address of Employer
<i>Executive Officers (Who Are Not Directors)</i>	
John H. Kispert	President and Chief Operating Officer
Jeffrey Hall	Senior Vice President and Chief Financial Officer
Avi Cohen	Group Vice President
Lance Glasser	Group Vice President and Chief Technical Officer
Stuart J. Nichols	Vice President, General Counsel





**SCHEDULE B**

The following table sets forth the name of each beneficial owner of shares of ADE Corporation entering into voting agreements with KLA-Tencor Corporation, dated as of February 22, 2006. Except as indicated below, the business address of each such person is c/o ADE Corporation, 80 Wilson Way, Westwood, Massachusetts 02090.

<b>Beneficial Owner</b>	<b>Shares Beneficially Owned</b>
Chris L. Koliopoulos (2)	838,680
Landon T. Clay (3)	1,754,608
Harris Clay (3)	885,269
H. Kimball Faulkner (3)	101,217
Kendall Wright (3)	19,156
Brian C. James (4)	160,000
David F. Basila	343,661
<b>TOTAL</b>	<b>4,102,591</b>

(1) All amounts shown in this column include shares issuable upon the exercise of stock options exercisable within 60 days.

(2) Includes 70,000 shares of common stock issuable upon the exercise of stock options exercisable within 60 days.

(3) Includes 1,500 shares of common stock issuable upon the exercise of stock options exercisable within 60 days.

(4) Includes 158,000 shares of common stock issuable upon the exercise of stock options exercisable within 60 days.