

# FORM 4

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

| OMB APPROVAL                                   |           |
|--|-----------|
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## STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP OF SECURITIES

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934 or Section 30(h) of the Investment Company Act of 1940

Check this box if no longer subject to Section 16. Form 4 or Form 5 obligations may continue. See Instruction 1(b).

(Print or Type Responses)

|  |         |          |   |  |  |  |  |  |
|--|---------|----------|---|--|--|--|--|--|
| 1. Name and Address of Reporting Person*<br><b>WALLACE RICHARD P</b> |         |          | 2. Issuer Name and Ticker or Trading Symbol<br><b>KLA TENCOR CORP [KLAC]</b>            |  |  | 5. Relationship of Reporting Person(s) to Issuer<br>(Check all applicable)<br><input checked="" type="checkbox"/> Director <input type="checkbox"/> 10% Owner<br><input checked="" type="checkbox"/> Officer (give title below) <input type="checkbox"/> Other (specify below)<br><b>President and CEO</b> |  |  |
| (Last)   | (First) | (Middle) | 3. Date of Earliest Transaction (Month/Day/Year)<br><b>02/17/2011</b>                   |  |  |  |  |  |
| C/O KLA-TENCOR CORPORATION, ONE TECHNOLOGY DRIVE                     |         |          |   |  |  |  |  |  |
| (Street)   |         |          | 4. If Amendment, Date Original Filed(Month/Day/Year)                                    |  |  | 6. Individual or Joint/Group Filing (Check Applicable Line)<br><input checked="" type="checkbox"/> Form filed by One Reporting Person<br><input type="checkbox"/> Form filed by More than One Reporting Person   |  |  |
| MILPITAS, CA 95035   |         |          |   |  |  |  |  |  |
| (City)   | (State) | (Zip)    | <b>Table I - Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned</b> |  |  |  |  |  |

| 1. Title of Security (Instr. 3)                      | 2. Transaction Date (Month/Day/Year) | 2A. Deemed Execution Date, if any (Month/Day/Year) | 3. Transaction Code (Instr. 8) |   | 4. Securities Acquired (A) or Disposed of (D) (Instr. 3, 4 and 5) |            |          | 5. Amount of Securities Beneficially Owned Following Reported Transaction(s) (Instr. 3 and 4) | 6. Ownership Form: Direct (D) or Indirect (I) (Instr. 4) | 7. Nature of Indirect Beneficial Ownership (Instr. 4) |
|--|--------------------------------------|--|--------------------------------|---|---|------------|----------|---|--|---|
|  |                                      |  | Code                           | V | Amount  | (A) or (D) | Price    |   |  |   |
| Common Stock   | 02/17/2011                           |  | M                              |   | 16,500  | A          | \$ 45.25 | 72,234  | D  |   |
| Common Stock   | 02/17/2011                           |  | S <sup>(1)</sup>               |   | 30,643  | D          | \$ 49.75 | 41,591  | D  |   |
| Common Stock   | 02/17/2011                           |  | A                              |   | 37,500  | A          | 2        | 79,091  | D  |   |
| Common Stock   | 02/17/2011                           |  | F                              |   | 16,330  | D          | \$ 49.53 | 62,761  | D  |   |
| Common Stock - Restricted Stock Units <sup>(4)</sup> |                                      |  |                                |   |   |            |          | 280,445 <sup>(5)</sup>  | D  |   |

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly.

**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.** SEC 1474 (9-02)

**Table II - Derivative Securities Acquired, Disposed of, or Beneficially Owned (e.g., puts, calls, warrants, options, convertible securities)**

| 1. Title of Derivative Security (Instr. 3) | 2. Conversion or Exercise Price of Derivative Security | 3. Transaction Date (Month/Day/Year) | 3A. Deemed Execution Date, if any (Month/Day/Year) | 4. Transaction Code (Instr. 8) |   | 5. Number of Derivative Securities Acquired (A) or Disposed of (D) (Instr. 3, 4, and 5) | 6. Date Exercisable and Expiration Date (Month/Day/Year) |                 | 7. Title and Amount of Underlying Securities (Instr. 3 and 4) | 8. Price of Derivative Security (Instr. 5) | 9. Number of Derivative Securities Beneficially Owned Following Reported Transaction(s) (Instr. 4) | 10. Ownership Form of Derivative Security: Direct (D) or Indirect (I) (Instr. 4) | 11. Nature of Indirect Beneficial Ownership (Instr. 4) |       |
|--|--|--------------------------------------|--|--------------------------------|---|---|--|-----------------|---|--|--|--|--|-------|
|  |  |                                      |  | Code                           | V |   | Date Exercisable   | Expiration Date |   |  |  |  |  | Title |
| Non-Qualified Stock Option (Right to Buy)  | \$ 45.25   | 02/17/2011                           |  | M                              |   | 16,500  | 10/02/2011   | 6               | Common Stock  | 16,500                                     | \$ 0   | 0  | D  |       |

## Reporting Owners

| Reporting Owner Name / Address  | Relationships |           |                   |       |
|---|---------------|-----------|-------------------|-------|
|   | Director      | 10% Owner | Officer           | Other |
| WALLACE RICHARD P<br>C/O KLA-TENCOR CORPORATION<br>ONE TECHNOLOGY DRIVE<br>MILPITAS, CA 95035 | X             |           | President and CEO |       |

# Signatures

|  |  |                     |
|--|--|---------------------|
| Brian M. Martin as Attorney-in-Fact for Richard P. Wallace |  | 02/18/2011          |
| <small>**Signature of Reporting Person</small>             |  | <small>Date</small> |

## Explanation of Responses:

\* If the form is filed by more than one reporting person, *see* Instruction 4(b)(v).

\*\* Intentional misstatements or omissions of facts constitute Federal Criminal Violations. *See* 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).

(1) These sales were effected pursuant to a Rule 10b5-1 trading plan adopted by the Reporting Person on December 15, 2009, as modified on December 14, 2010.

(2) On February 17, 2006, Mr. Wallace received a grant of restricted stock units ("RSUs") covering 75,000 shares of KLA-Tencor common stock. On February 17, 2011, Mr. Wallace vested in fifty percent (50%) of such RSUs.

Pursuant to the terms of the February 17, 2006 RSU grant, 16,330 shares of KLA-Tencor common stock were automatically withheld at vesting to cover required tax withholding. The fair market value of KLA-Tencor common stock used for purposes of calculating the number of shares to be withheld was the closing price of KLA-Tencor common stock as reported on the NASDAQ Stock Market on such vesting date.

(4) Each RSU represents a contingent right to receive one share of KLA-Tencor common stock.

(5) Does not include performance-based RSUs, if any, held by the Reporting Person for which an assessment has not yet been made regarding the achievement of the applicable performance goals. Any such holdings will be reported on Form 4 within two business days of the date such assessment is made.

(6) Represents a stock option granted on October 2, 2001, granting the Reporting Person the right to purchase up to 16,500 shares of KLA-Tencor common stock. One forty-eighth (1/48) of the 16,500 shares subject to this stock option vested on the 13-month anniversary of the grant date and each monthly anniversary thereafter until October 2, 2006.

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, *see* Instruction 6 for procedure.

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