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

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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

| (Print or Type Responses) | | | | | | | | | | |
|--|--|--|--------------------|----------|---|---------|---|------------------------------------|--------------------|-------------------------|
| 1. Name and Address of Reporting Person- Kirloskar Virendra A | 2. Issuer Name and Ticker or Trading Symbol KLA TENCOR CORP [KLAC] | | | | | | 5. Relationship of Reporting Person(s) to Issuer (Check all applicable) Director 10% Owner | | | |
| (Last) (First) C/O KLA-TENCOR CORPORATI TECHNOLOGY DRIVE | 3. Date of Earliest Transaction (Month/Day/Year) 05/05/2011 | | | | | | X_Officer (give title below) Other (specify below) SVP & Chief Accounting Officer | | | |
| (Street) MILPITAS, CA 95035 | 4. If Amendment, Date Original Filed(Month/Day/Year) | | | | | | 6. Individual or Joint/Group Filing(Check Applicable Line) _X_Form filed by One Reporting Person Form filed by More than One Reporting Person | | | |
| (City) (State) | (Zip) | Table I - Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned | | | | | | | | |
| Title of Security 2. Transaction Date (Month/Day/Yea) | | 2A. Deemed Execution Date, if any (Month/Day/Year) | (Instr. 8) | ion V | 4. Securi (A) or D (Instr. 3, Amount | isposed | of (D) | Transaction(s) (Instr. 3 and 4) | Ownership Form: | Beneficial Ownership |
| Common Stock | 05/05/2011 | | М | | 867 | А | \$ 39.89 | 8,106 | D | |
| Common Stock | 05/05/2011 | | S <mark>(1)</mark> | | 3,399 | D | \$ 45 | 4,707 | D | |
| Common Stock - Restricted Stock Units ⁽²⁾ | | | | | | | | 38,150 (3) | D | |

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

SEC 1474 (9-02)

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Table II - Derivative Securities Acquired, Disposed of, or Beneficially Owned

| (<i>e.g.</i> , puts, calls, warrants, options, convertible securities) | | | | | | | | | | | | | | | |
|---|------------------|------------------|------------------|----------------|----------|-----------------|--------|--------------|------------|--------------|--------|---------------------------|----------------|------------------|------------|
| | 2. Conversion | 3. Transaction | 3A. Deemed | 4. Transaat | tion | 5. Num | han | 6. Date Exer | | 7. Title and | | 8. Price of Derivative | | 10. Ownership | 11. Nature |
| | | (Month/Day/Year) | | | | Expiration Date | | 20 | | | | | Beneficial | | |
| | Price of | (Monui/Day/Tear) | (Month/Day/Year) | | | | | | | 2 | | Derivative | | | |
| · · · · · | Derivative | | (wonth/Day/Tear) | (Insu. 0) | , | | rities | | | (msu. 5 and | +) | · / | | | (Instr. 4) |
| | Security | | | | Acquired | | | | | | | | Direct (D) | (Insu: I) | |
| | | | | | | (A) | | | | | | | | or Indirect | |
| | | | | | | | osed | | | | | | Transaction(s) | (I) | |
| | | | | | | of (I |)) | | | | | | (Instr. 4) | (Instr. 4) | |
| | | | | (Instr. 3, | | | | | | | | | | | |
| | | | | 4, and 5) | | d 5) | | | | | | | | | |
| | | | | | | | | | | | Amount | | | | |
| | | | | | | | | Date | Expiration | | or | | | | |
| | | | | | | | | Exercisable | | | Number | | | | |
| | | | | | | | | Literensuore | Duite | | of | | | | |
| | | | | Code | V | (A) | (D) | | | | Shares | | | | |
| Non- | | | | | | | | | | | | | | | |
| Qualified | | | | | | | | | | | | | | | |
| Stock | | | | | | | | | | Common | | | | | |
| | \$ 39.89 | 05/05/2011 | | М | | | 867 | <u>(4)</u> | 09/16/2014 | Common | 867 | \$ 0 | 0 | D | |
| Option | | | | | | | | | | Stock | | | | | |
| (Right to | | | | | | | | | | | | | | | |
| Buy) | | | | | | | | | | | | | | | |
| Duy) | | | | | | | | | | | | | | | |

Reporting Owners

| | Relationships | | | | | | | | |
|--|---------------|--------------|--------------------------------|-------|--|--|--|--|--|
| Reporting Owner Name / Address | Director | 10% Owner | Officer | Other | | | | | |
| Kirloskar Virendra A C/O KLA-TENCOR CORPORATION ONE TECHNOLOGY DRIVE MILPITAS, CA 95035 | | | SVP & Chief Accounting Officer | | | | | | |

Signatures

| Brian M. Martin as Attorney-in-Fact for Virendra A. Kirloskar | 05/06/2011 |
|---|------------|
| -**Signature of Reporting Person | Date |

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 March 7, 2011.
- (2) Each restricted stock unit ("RSU") represents a contingent right to receive one share of KLA-Tencor common stock.
- (3) 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.
- Represents a stock option granted on September 16, 2004, granting the Reporting Person the right to purchase up to 6,500 shares of KLA-Tencor common stock. 1,300 of the shares(4) subject to this stock option vested on the two-year anniversary of the grant date, and 1/48 of the remaining 5,200 shares subject to this stock option vested on the 25-month anniversary of the grant date and each monthly anniversary thereafter until September 16, 2010.

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

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