

Kirloskar Virendra A
 Form 4
 January 31, 2011

FORM 4

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

OMB APPROVAL

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

STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP OF SECURITIES

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934, Section 17(a) of the Public Utility Holding Company Act of 1935 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)

(Last) (First) (Middle)

3. Date of Earliest Transaction (Month/Day/Year)
 01/27/2011

___ Director ___ 10% Owner
 Officer (give title below) ___ Other (specify below)
 SVP & Chief Accounting Officer

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)
 Form filed by One Reporting Person
 ___ Form filed by More than One Reporting Person

MILPITAS, CA 95035

(City) (State) (Zip)

Table I - Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned

| 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) |
|---------------------------------|--------------------------------------|--|--------------------------------|---|---|--|---|
| | | | | (A) or (D) | Price | | |
| | | | | Code V | Amount | | |
| Common Stock | 01/27/2011 | | M | 6,067 | A \$ 39.89 | 19,114 | D |
| Common Stock | 01/27/2011 | | M | 3,250 | A \$ 39.89 | 22,364 | D |
| Common Stock | 01/27/2011 | | S ⁽¹⁾ | 12,593 | D \$ 45 | 9,771 | D |
| Common Stock | 01/28/2011 | | S ⁽²⁾ | 2,532 | D \$ 45.26 | 7,239 | D |
| Common Stock - | | | | | | 38,150 ⁽⁴⁾ | D |

Restricted
Stock Units
(3)

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

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(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) | Amount or Number of Shares |
|--|--|--------------------------------------|--|--------------------------------|---|--|---|----------------------------|
| Non-Qualified Stock Option (Right to Buy) | \$ 39.89 | 01/27/2011 | | M | 6,067 | <u>(5)</u> 09/16/2014 | Common Stock | 6,067 |
| Non-Qualified Stock Option (Right to Buy) | \$ 39.89 | 01/27/2011 | | M | 3,250 | <u>(6)</u> 09/16/2014 | Common Stock | 3,250 |

Reporting Owners

| Reporting Owner Name / Address | Relationships | | | |
|--|---------------|-----------|--------------------------------|-------|
| | 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

01/31/2011

**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) This sale was effected pursuant to a Rule 10b5-1 trading plan adopted by the Reporting Person on December 11, 2009.

(2) This sale was effected pursuant to a Rule 10b5-1 trading plan adopted by the Reporting Person on June 9, 2010.

(3) Each restricted stock unit ("RSU") represents a contingent right to receive one share of KLA-Tencor common stock.

Does not include performance-based RSUs, if any, held by the Reporting Person for which an assessment has not yet been made
(4) 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 9,967 shares of KLA-Tencor common stock. One share subject to this stock option vested on November 16, 2005, and 1/46 of the remaining 9,966 shares subject to this stock option vested on the 15-month anniversary of the grant date and each monthly anniversary thereafter until September 16, 2009.

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 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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