

FORM 4

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

OMB APPROVAL	
OMB Number:	3235-0287
Estimated average burden hours per response...	0.5

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 or Section 30(h) of the Investment Company Act of 1940

(Print or Type Responses)

1. Name and Address of Reporting Person * Kirkoskar 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) <input type="checkbox"/> Director <input type="checkbox"/> 10% Owner <input checked="" type="checkbox"/> Officer (give title below) <input type="checkbox"/> Other (specify below) SVP & Chief Accounting Officer	
(Last) (First) (Middle) C/O KLA-TENCOR CORPORATION, ONE TECHNOLOGY DRIVE		3. Date of Earliest Transaction (Month/Day/Year) 01/27/2011			
(Street) MILPITAS, CA 95035		4. If Amendment, Date Original Filed(Month/Day/Year)		6. Individual or Joint/Group Filing (Check Applicable Line) <input checked="" type="checkbox"/> Form filed by One Reporting Person <input type="checkbox"/> Form filed by More than One Reporting Person	
(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)
			Code	V	Amount	(A) or (D)	Price			
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 - Restricted Stock Units ⁽³⁾								38,150 ⁽⁴⁾	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	Amount or Number of Shares				
Non-Qualified Stock Option (Right to Buy)	\$ 39.89	01/27/2011		M		6,067	⁽⁵⁾	09/16/2014	Common Stock	6,067	\$ 0	0	D	
Non-Qualified Stock Option (Right to Buy)	\$ 39.89	01/27/2011		M		3,250	⁽⁶⁾	09/16/2014	Common Stock	3,250	\$ 0	867	D	

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.
- (4) 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.
- (5) 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.
- (6) 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.

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.