KLA TENCOR CORP

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subject to

Form 4

October 13, 2010

FORM 4

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

STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP OF

SECURITIES

OMB

OMB APPROVAL

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Section 16. Form 4 or Form 5 obligations may continue.

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

1(b).

(Print or Type Responses)

See Instruction

1. Name and Ac WALLACE	•	_	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			
C/O KLA-TENCOR CORPORATION, ONE TECHNOLOGY DRIVE		Ξ	(Month/Day/Year) 10/11/2010	_X Director 10% Owner _X Officer (give title Other (specify below) President and CEO		
	(Street)		4. If Amendment, Date Original	6. Individual or Joint/Group Filing(Check		
MILPITAS, CA 95035			Filed(Month/Day/Year)	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 Ac	quired, Disposed of, or Beneficially Owne		

(City)	(State)	(Zip) Tabl	e I - Non-I	Derivative	Secu	rities Acquir	ed, Disposed of,	or Beneficiall	y Owned
1.Title of Security (Instr. 3)	2. Transaction Date (Month/Day/Year)	2A. Deemed Execution Date, if any (Month/Day/Year)	3. Transactic Code (Instr. 8)	4. Securi corr Dispo (Instr. 3,	sed of 4 and (A) or		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)
Common Stock	10/11/2010		M	3,791	A	\$ 26.25	129,548	D	
Common Stock	10/11/2010		M	3,209	A	\$ 32.88	132,757	D	
Common Stock	10/11/2010		S	7,000	D	\$ 34.6154 (1)	125,757	D	
Common Stock - Restricted							317,945 (3)	D	

Stock Units

(2)

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. Transactic 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 Underlying Securitie (Instr. 3 and 4)	
				Code V	(A) (D)	Date Exercisable	Expiration Date	Title	Amour or Number of Shares
Non-Qualified Stock Option (Right to Buy)	\$ 26.25	10/11/2010		M	3,791	<u>(4)</u>	11/10/2010	Common Stock	3,79
Non-Qualified Stock Option (Right to Buy)	\$ 32.88	10/11/2010		M	3,209	<u>(5)</u>	11/10/2010	Common Stock	3,20

Reporting Owners

Reporting Owner Name / Address	Relationships							
Reporting Owner Name / Marces	Director	10% Owner	Officer	Other				
WALLACE RICHARD P C/O KLA-TENCOR CORPORATION ONE TECHNOLOGY DRIVE MILPITAS, CA 95035	X		President and CEO					
Signatures								
Brian M. Martin as Attorney-in-Fact for Wallace	Richard	P.	10/13/2010					
**Signature of Reporting Person		Date						

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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).
- This transaction was executed in multiple trades at prices ranging from \$34.22 to \$35.12. The price reported above reflects the weighted average purchase price. The Reporting Person hereby undertakes to provide upon request to the SEC staff, the issuer or a security holder of the issuer full information regarding the number of shares and prices at which the transaction was effected.
- (2) Each 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
- (3) 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 the remaining unexercised portion of a stock option granted on November 10, 2000, granting the Reporting Person the right to (4) purchase up to 14,291 shares of KLA-Tencor common stock. 3,500 shares subject to this stock option vested on the one-year anniversary of the grant date, and 1/48 of the remaining 10,791 shares vested on each monthly anniversary thereafter until November 10, 2005.
 - Represents a stock option granted on November 10, 2000, granting the Reporting Person the right to purchase up to 3,209 shares of
- (5) KLA-Tencor common stock. 1/48 of the total number of shares subject to this stock option vested on the 13-month anniversary of the grant date and on each monthly anniversary thereafter until November 10, 2005.

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.