

KLA TENCOR CORP
 Form 4
 September 15, 2010

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 *
 BARNHOLT EDWARD W

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)
 09/14/2010

Director 10% Owner
 Officer (give title below) Other (specify below)
 Chairman of the Board

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)			
			Code	V	Amount or (D) Price					
Common Stock	09/14/2010		M		10,000 <u>(1)</u>	A	\$ 26.25	30,289	D	
Common Stock - Restricted Stock Units <u>(2)</u>								4,721	D	

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

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displays a currently valid OMB control number.

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 Security (Instr. 3 and 4)	8. Amount or Number of Shares
Non-Qualified Stock Option (Right to Buy)	\$ 26.25	09/14/2010		M	10,000	<u>(3)</u> 11/10/2010	Common Stock	10,000

Reporting Owners

Reporting Owner Name / Address	Relationships			
	Director	10% Owner	Officer	Other
BARNHOLT EDWARD W C/O KLA-TENCOR CORPORATION ONE TECHNOLOGY DRIVE MILPITAS, CA 95035	X			Chairman of the Board

Signatures

Brian M. Martin as Attorney-in-Fact for Edward W. Barnholt
Date: 09/15/2010

__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) Shares acquired through cash exercise of stock options.
- (2) Each restricted stock unit represents a contingent right to receive one share of KLA-Tencor common stock.
- (3) The options were originally granted for 10,000 shares of KLA-Tencor common stock and were immediately exercisable for all of the underlying shares on the date of grant.

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.