

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

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

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

(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) <input checked="" type="checkbox"/> Director <input type="checkbox"/> Officer (give title below) <input type="checkbox"/> 10% Owner <input type="checkbox"/> Other (specify below)	
(Last)	(First)	(Middle)	3. Date of Earliest Transaction (Month/Day/Year) 12/10/2004		
C/O KLA-TENCOR CORPORATION, 160 RIO ROBLES			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
(Street) SAN JOSE, CA 95130					
(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	12/10/2004		M		10,000	A	\$ 23.28	10,000	D	
Common Stock	12/10/2004		S		10,000	D	\$ 46.3877	0	D	

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

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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	(A)	(D)	Date Exercisable	Expiration Date	Title	Amount or Number of Shares				
Non-Qualified Stock Option (right to buy)	\$ 23.28	12/10/2004		M		10,000		09/20/2000	09/20/2005	Common Stock	10,000	\$ 46.3877	0	D	
Non-Qualified Stock Option (right to buy)	\$ 10.63							04/25/1997	10/25/2006	Common Stock	10,000		10,000	D	
Non-Qualified Stock Option (right to buy)	\$ 11.66							09/21/1999	09/21/2008	Common Stock	5,000		5,000	D	
Non-Qualified Stock Option (right to buy)	\$ 17.59							11/17/1998	11/17/2008	Common Stock	5,832		5,832	D	

Non-Qualified Stock Option (right to buy)	\$ 26.25							11/10/2000	11/10/2010	Common Stock	10,000		10,000	D	
Non-Qualified Stock Option (right to buy)	\$ 34.94							09/19/1998	09/19/2007	Common Stock	5,000		5,000	D	
Non-Qualified Stock Option (right to buy)	\$ 37.05							11/08/2002	11/08/2012	Common Stock	10,000		10,000	D	
Non-Qualified Stock Option (right to buy)	\$ 40.68							10/18/2004	10/18/2014	Common Stock	2,500		2,500	D	
Non-Qualified Stock Option (right to buy)	\$ 46.28							11/16/1999	11/16/2009	Common Stock	10,000		10,000	D	
Non-Qualified Stock Option (right to buy)	\$ 47.23							11/09/2001	11/09/2011	Common Stock	10,000		10,000	D	
Non-Qualified Stock Option (right to buy)	\$ 59.44							11/05/2003	11/05/2013	Common Stock	10,000		10,000	D	

Reporting Owners

Reporting Owner Name / Address	Relationships			
	Director	10% Owner	Officer	Other
BARNHOLT EDWARD W C/O KLA-TENCOR CORPORATION 160 RIO ROBLES SAN JOSE, CA 95130	X			

Signatures

By: Stuart J. Nichols For: Edward W. Barnholt	12/13/2004
<small>Signature of Reporting Person</small>	<small>Date</small>

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).

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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