

FORM 4

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

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| OMB APPROVAL | |
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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* COHEN AVI | | | 2. Issuer Name and Ticker or Trading Symbol KLA TENCOR CORP [KLAC] | | | 5. Relationship of Reporting Person(s) to Issuer (Check all applicable) Director _____ 10% Owner _____ <input checked="" type="checkbox"/> Officer (give title below) _____ Other (specify below) _____ VP, Pattern Solutions Group | | |
| (Last) (First) (Middle) C/O KLA-TENCOR CORPORATION, 160 RIO ROBLES | | | 3. Date of Earliest Transaction (Month/Day/Year) 09/21/2004 | | | | | |
| (Street) SAN JOSE, CA 95130 | | | 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 | | | | | | | | 2,000 | 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 | (A) | (D) | Date Exercisable | Expiration Date | | | | | |
| Non-Qualified Stock Option (right to buy) | \$ 41.79 | 09/21/2004 | | A | | 75,000 | | 09/21/2005 | 09/21/2014 | Common Stock 75,000 | \$ 0 | 75,000 | D | |
| Non-Qualified Stock Option (right to buy) | \$ 10.63 | | | | | | | 08/31/1999 | 08/31/2008 | Common Stock 47,313 | | 47,313 | D | |
| Non-Qualified Stock Option (right to buy) | \$ 22.25 | | | | | | | 04/30/1998 | 04/30/2007 | Common Stock 7,500 | | 7,500 | D | |
| Non-Qualified Stock Option (right to buy) | \$ 26.25 | | | | | | | 11/10/2001 | 11/10/2010 | Common Stock 8,750 | | 8,750 | D | |

| | | | | | | | | | | | | | | | |
|---|------------|--|--|--|--|--|--|------------|------------|--------------|--------|--|--------|---|--|
| Non-Qualified Stock Option (right to buy) | \$ 29.31 | | | | | | | 10/02/2002 | 10/02/2011 | Common Stock | 22,500 | | 22,500 | D | |
| Non-Qualified Stock Option (right to buy) | \$ 32.75 | | | | | | | 04/04/2002 | 04/04/2011 | Common Stock | 8,750 | | 8,750 | D | |
| Non-Qualified Stock Option (right to buy) | \$ 33.75 | | | | | | | 10/27/2000 | 10/27/2009 | Common Stock | 24,000 | | 24,000 | D | |
| Non-Qualified Stock Option (right to buy) | \$ 34.67 | | | | | | | 11/08/2003 | 01/28/2013 | Common Stock | 12,500 | | 12,500 | D | |
| Non-Qualified Stock Option (right to buy) | \$ 37.05 | | | | | | | 11/08/2003 | 11/08/2012 | Common Stock | 6,250 | | 6,250 | D | |
| Non-Qualified Stock Option (right to buy) | \$ 40.66 | | | | | | | 10/27/2004 | 08/02/2014 | Common Stock | 6,000 | | 6,000 | D | |
| Non-Qualified Stock Option (right to buy) | \$ 44.6875 | | | | | | | 08/13/2001 | 08/13/2010 | Common Stock | 17,500 | | 17,500 | D | |
| Non-Qualified Stock Option (right to buy) | \$ 45.16 | | | | | | | 10/27/2004 | 04/26/2014 | Common Stock | 10,000 | | 10,000 | D | |
| Non-Qualified Stock Option (right to buy) | \$ 51.229 | | | | | | | 11/08/2003 | 07/30/2013 | Common Stock | 6,250 | | 6,250 | D | |
| Non-Qualified Stock Option (right to buy) | \$ 53.86 | | | | | | | 10/27/2004 | 10/27/2013 | Common Stock | 16,000 | | 16,000 | D | |
| Non-Qualified Stock Option (right to buy) | \$ 58.10 | | | | | | | 10/27/2004 | 01/27/2014 | Common Stock | 8,000 | | 8,000 | D | |

Reporting Owners

| Reporting Owner Name / Address | Relationships | | | |
|---|---------------|-----------|-----------------------------|-------|
| | Director | 10% Owner | Officer | Other |
| COHEN AVI C/O KLA-TENCOR CORPORATION 160 RIO ROBLES SAN JOSE, CA 95130 | | | VP, Pattern Solutions Group | |

Signatures

| | | |
|--|--|---------------------|
| By: Stuart J. Nichols For: Avi Cohen | | 09/23/2004 |
| <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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