

SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

SCHEDULE 13G

Under the Securities Exchange Act of 1934

(Amendment No. 6)*

KLA -Tencor Corporation

(Name of Issuer)

Common Stock

(Title of Class of Securities)

482480100

(CUSIP Number)

October 2, 2002

(Date of Event Which Requires Filing of This Statement)

Check the appropriate box to designate the rule pursuant to which this Schedule is filed:

- Rule 13d-1(b)
 Rule 13d-1(c)
 Rule 13d-1(d)

*The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter the disclosures provided in a prior cover page.

The information required in the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 ("Act") or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).

CUSIP: 482480100

Page 1 of 7

- 1 NAMES OF REPORTING PERSONS
I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY)
Capital Group International, Inc.
95-4154357
- 2 CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE
INSTRUCTIONS) (a)
(b)
- 3 SEC USE ONLY

4 CITIZENSHIP OR PLACE OF ORGANIZATION

California

5 SOLE VOTING POWER

21,121,770

NUMBER OF
SHARES 6 SHARED VOTING POWER

NONE

BENEFICIA
L Y OWNED BY

7 SOLE DISPOSITIVE POWER

EACH
REPORTING

24,024,930

PERSON
WITH:

8 SHARED DISPOSITIVE POWER

NONE

9 AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

24,024,930 Beneficial ownership disclaimed pursuant to Rule 13d-4

10 CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES
(SEE INSTRUCTIONS)

11 PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW 9

12.7%

12 TYPE OF REPORTING PERSON (SEE INSTRUCTIONS)

HC

CUSIP: 482480100

Page 2 of 7

<page>

<page>

<page>

1 NAMES OF REPORTING PERSONS
I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY)
Capital Guardian Trust Company
95-2553868

2 CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE
INSTRUCTIONS) (a)
(b)

3 SEC USE ONLY

4 CITIZENSHIP OR PLACE OF ORGANIZATION

California

5 SOLE VOTING POWER

9,523,340

NUMBER OF SHARES 6 SHARED VOTING POWER
 BENEFICIALLY OWNED BY EACH REPORTING PERSON NONE
 7 SOLE DISPOSITIVE POWER
 12,426,500
 8 SHARED DISPOSITIVE POWER
 NONE
 9 AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON
 12,426,500 Beneficial ownership disclaimed pursuant to Rule 13d-4
 10 CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES
 (SEE INSTRUCTIONS)
 11 PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW 9
 6.6%
 12 TYPE OF REPORTING PERSON (SEE INSTRUCTIONS)
 CO

CUSIP: 482480100
 <page>
 <page>
 <page>

Page 3 of 7

SECURITIES AND EXCHANGE COMMISSION
 Washington, DC 20549
 Schedule 13G
 Under the Securities Exchange Act of 1934

Amendment No. 6

Item 1(a) Name of issuer:
 KLA -Tencor Corporation
 Item 1(b) Address of issuer's principal executive offices:
 160 Rio Robles
 San Jose, CA 95134
 Item 2(a) Name of person(s) filing:
 Capital Group International, Inc. and Capital Guardian Trust
 Company
 Item 2(b) Address or principal business office or, if none,
 residence:
 11100 Santa Monica Blvd.
 Los Angeles, CA 90025
 Item 2(c) Citizenship: N/A
 Item 2(d) Title of class of securities:
 Common Stock
 Item 2(e) CUSIP No.:
 482480100

Item 3 If this statement is filed pursuant to sections 240.13d-1(b)
 or 240.13d-2(b) or (c), check whether the person filings is a:

N/A

Item 4 Ownership

Provide the following information regarding the aggregate number and percentage of the class of securities of the issuer identified in Item 1.

See pages 2 and 3

- (a) Amount beneficially owned:
- (b) Percent of class:
- (c) Number of shares as to which the person has:
 - (i) Sole power to vote or to direct the vote:
 - (ii) Shared power to vote or to direct the vote:
 - (iii) Sole power to dispose or to direct the disposition of:
 - (iv) Shared power to dispose or to direct the disposition of:

CUSIP: 482480100

Page 4 of 7

<page>
<page>
<page>

Capital Group International, Inc. is the parent holding company of a group of investment management companies that hold investment power and, in some cases, voting power over the securities reported in this Schedule 13G. The investment management companies, which include a "bank" as defined in Section 3(a)6 of the Securities Exchange Act of 1934 (the "Act") and several investment advisers registered under Section 203 of the Investment Advisers Act of 1940, provide investment advisory and management services for their respective clients which include registered investment companies and institutional accounts. Capital Group International, Inc. does not have investment power or voting power over any of the securities reported herein; however, Capital Group International, Inc. may be deemed to "beneficially own" such securities by virtue of Rule 13d-3 under the Act.

Capital Guardian Trust Company, a bank as defined in Section 3(a)6 of the Act is deemed to be the beneficial owner of 12,426,500 shares or 6.6% of the 189,114,000 shares of Common Stock believed to be outstanding as a result of its serving as the investment manager of various institutional accounts.

Item 5 Ownership of 5 percent or Less of a Class. If this statement is being filed to report the fact that as of the date hereof the reporting person has ceased to be the beneficial owner of more than 5 percent of the class of securities, check the following: []

Item 6 Ownership of More than 5% on Behalf of Another Person: N/A

Item 7 Identification and Classification of the Subsidiary Which Acquired the Security Being Reported on By the Parent Holding Company or Control Person.

1. Capital Guardian Trust Company (CGTC)
2. Capital International Limited (CIL)
3. Capital International S.A. (CISA)
4. Capital International Research and Management, Inc. dba Capital International, Inc. (CII)

Item 8 Identification and Classification of Members of the Group:
N/A

Item 9 Notice of Dissolution of Group: N/A

Item 10 Certification

By signing below I certify that, to the best of my knowledge and belief, the securities referred to above were not acquired and are not held for the purpose of or with the effect of changing or influencing the control of the issuer of the securities and were not acquired and are not held in connection with or as a participant in any transaction having that purpose or effect.

CUSIP: 482480100

Page 5 of 7

Signature

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

Date: October 10, 2002

Signature: *David I. Fisher

Name/Title: David I. Fisher, Chairman
Capital Group International, Inc.

Date: October 10, 2002

Signature: *David I. Fisher

Name/Title: David I. Fisher, Chairman
Capital Guardian Trust Company

*By /s/ Michael J. Downer

Michael J. Downer
Attorney-in-fact

Signed pursuant to a Power of Attorney dated December 19, 2000 included as an Exhibit to Schedule 13G filed with the Securities and Exchange Commission by Capital Group International, Inc. on February 9, 2001 with respect to Abitibi-Consolidated Inc.

CUSIP: 482480100

Page 6 of 7

Los Angeles, CA
October 10, 2002

Capital Group International, Inc. ("CGII") and Capital Guardian Trust Company ("CGTC") hereby agree to file a joint statement on Schedule 13G under the Securities Exchange Act of 1934 (the "Act") in connection with their beneficial ownership of Common Stock issued by KLA -Tencor Corporation.

CGII and CGTC state that they are each entitled to individually use Schedule 13G pursuant to Rule 13d-1(c) of the Act.

CGII and CGTC are each responsible for the timely filing of the statement and any amendments thereto, and for the completeness and accuracy of the information concerning each of them contained therein but are not responsible for the completeness or accuracy of the information concerning the others.

CAPITAL GROUP INTERNATIONAL, INC.

BY: *David I. Fisher
David I. Fisher, Chairman
Capital Group International,
Inc.

CAPITAL GUARDIAN TRUST COMPANY

BY: *David I. Fisher
David I. Fisher, Chairman
Capital Guardian Trust Company

*By /s/ Michael J. Downer

Michael J. Downer
Attorney-in-fact

Signed pursuant to a Power of Attorney dated December 19, 2000 included as an Exhibit to Schedule 13G filed with the Securities and Exchange Commission by Capital Group International, Inc. on February 9, 2001 with respect to Abitibi-Consolidated Inc.