

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

SCHEDULE 13G

Under the Securities Exchange Act of 1934

(Amendment No.)*

KLA -Tencor Corporation
(Name of Issuer)

Common Stock
(Title of Class of Securities)

482480100
(CUSIP Number)

December 31, 2008
(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>

Page 1 of 5

1 NAMES OF REPORTING PERSONS
I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY)
The Growth Fund of America, Inc.

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

3 SEC USE ONLY (b)

4 CITIZENSHIP OR PLACE OF ORGANIZATION
Maryland

5 SOLE VOTING POWER

12,940,000

6 SHARED VOTING POWER
 NUMBER OF
 SHARES NONE
 BENEFICIA
 LLY OWNED BY
 Y OWNED BY
 7 SOLE DISPOSITIVE POWER
 EACH
 REPORTING NONE
 PERSON
 WITH:
 8 SHARED DISPOSITIVE POWER
 NONE
 9 AGGREGATE AMOUNT BENEFICIA LLY OWNED BY EACH REPORTING PERSON
 12,940,000 See Additional information in Item 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
 7.7%
 12 TYPE OF REPORTING PERSON (SEE INSTRUCTIONS)
 IV

CUSIP: 482480100
<page>

Page 2 of 5

SECURITIES AND EXCHANGE COMMISSION
Washington, DC 20549

Schedule 13G
Under the Securities Exchange Act of 1934

Amendment No.

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
United States

Item 2(a) Name of Person(s) Filing:
The Growth Fund of America, Inc.

Item 2(b) Address of Principal Business Office or, if none,
Residence:
333 South Hope Street
Los Angeles, CA 90071

Item 2(c) Citizenship: N/A

Item 2(d) Title of Class of Securities:
Common Stock

Item 2(e) CUSIP Number:
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 filing is a:
(d) Investment company registered under section 8
of the Investment Company Act of 1940 (15 U.S.C. 80a-8).

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.

- (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:

See page 2

CUSIP: 482480100

Page 3 of 5

<page>

The Growth Fund of America, Inc., an investment company registered under the Investment Company Act of 1940, which is advised by Capital Research and Management Company ("CRMC"), is the beneficial owner of 12,940,000 shares or 7.7% of the 168,859,000 shares of Common Stock believed to be outstanding. CRMC manages equity assets for various investment companies through two divisions, Capital Research Global Investors and Capital World Investors. These divisions generally function separately from each other with respect to investment research activities and they make investment decisions and proxy voting decisions for the investment companies on a separate basis.

Item 5 Ownership of Five 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 five percent of the class of securities, check the following: []

Item 6 Ownership of More than Five Percent 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. : N/A

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 acquired and are held in the ordinary course of business and 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.

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: February 9, 2009

Signature: Patrick F. Quan***
Name/Title: Patrick F. Quan - Secretary
The Growth Fund of America, Inc.

CUSIP: 482480100

Page 4 of 5

<page>

***By /s/ Walter R. Burkley
Walter R. Burkley

Attorney-in-fact

Signed pursuant to a Power of Attorney dated December 21, 2007 included as an Exhibit to Schedule 13G filed with the Securities and Exchange Commission by The Growth Fund of America, Inc on February 11, 2008 with respect to Southwest Airlines Company.