

Registration No. 333-_____

SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM S-8
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

KLA-TENCOR CORPORATION
(Exact name of registrant as specified in its charter)

DELAWARE	04-2564110
-----	-----
(State of incorporation)	(I.R.S. Employer Identification No.)

160 Rio Robles
San Jose, CA 95134
(Address, including zip code, of principal executive offices)

RESTATED 1982 STOCK OPTION PLAN
AMENDED AND RESTATED 1997 EMPLOYEE STOCK PURCHASE PLAN
(Full Titles of the Plans)

STUART J. NICHOLS
VICE PRESIDENT, GENERAL COUNSEL
KLA-TENCOR CORPORATION
160 Rio Robles
San Jose, CA 95134
(Name and address of agent for service)

(408) 875-4200
(Telephone number, including area code, of agent for service)

Copy to:

MARK L. REINSTRA, ESQ.
BRET M. DIMARCO, ESQ.
WILSON SONSINI GOODRICH & ROSATI
Professional Corporation
650 Page Mill Road
Palo Alto, California 94304-1050
(650) 493-9300

CALCULATION OF REGISTRATION FEE

<TABLE>
<CAPTION>

Title of Securities to be Registered	Amount to be Registered(1)	Proposed Maximum Offering Price Per Share	Proposed Maximum Aggregate Offering Price	Amount of Registration Fee(4)
<S>	<C>	<C>	<C>	<C>
Common Stock, \$.001 par value, to be issued under the Restated 1982 Stock Option Plan	5,610,752	\$49.86 (2)	\$279,752,094.72	\$66,860.75
Common Stock, \$.001 par value, to be issued under the Amended and Restated 1997 Employee Stock Purchase Plan	2,000,000	\$42.38 (3)	\$84,762,000.00	\$20,258.12
Total:	7,610,752		\$364,514,094.72	\$87,118.87

</TABLE>

(1) Amount of securities to be registered computed in accordance with Rule 457(h) of the Securities Act of 1933, as amended, (the "Securities Act") as the maximum number of the Registrant's Common Stock issuable under the plans covered by this Registration Statement. Pursuant to Rule 416(a) of the Securities Act, this Registration Statement shall also cover any additional shares of the Registrant's Common Stock that become issuable under the plans covered by this Registration Statement by reason of any

stock split, stock dividend, recapitalization or other similar transaction effected without the Registrant's receipt of consideration that results in an increase in the number of the Registrant's outstanding shares of Common Stock.

- (2) Estimated in accordance with Rule 457(c) of the Securities Act solely for the purpose of calculating the registration fee based on the average of the high and low prices per share of the Common Stock as reported on The Nasdaq National Market on December 24, 2001.
- (3) Estimated in accordance with Rule 457(c) of the Securities Act solely for the purpose of calculating the registration fee based on 85% of the average of the high and low prices per share of the Common Stock as reported on The Nasdaq National Market on December 24, 2001.
- (4) Amount of registration fee was calculated pursuant to Section 6(b) of the Securities Act, which provides that the fee shall be \$239 per \$1,000,000 of the proposed maximum aggregate offering price of the securities proposed to be registered.

PART II

INFORMATION REQUIRED IN THE REGISTRATION STATEMENT

ITEM 3. INCORPORATION OF DOCUMENTS BY REFERENCE.

KLA-Tencor Corporation (the "REGISTRANT" or the "COMPANY") hereby incorporates by reference in this Registration Statement the following documents:

- (a) Registrant's Annual Report on Form 10-K for the fiscal year ended June 30, 2001 (File No. 000-09992) pursuant to Section 13(a) of the Securities Exchange Act of 1934, as amended (the "EXCHANGE ACT");
- (b) All other reports filed by the Registrant pursuant to Section 13(a) or 15(d) of the Exchange Act since the end of the fiscal year covered by the Annual Report referred to in (a) above;
- (c) The description of the Registrant's Common Stock as set forth in the Registration Statement filed by the Registrant on Form 8-A on March 29, 1989 (File No. 000-09992) pursuant to Section 12(g) of the Exchange Act and any amendments or reports thereto filed with the Securities and Exchange Commission for the purpose of updating such description including Amendment No. 1 to Form 8-A filed September 25, 1995 and Amendment No. 2 to Form 8-A filed September 24, 1996; and
- (d) All other descriptions of the Registrant's Common Stock contained in a registration statement filed under the Exchange Act, including any amendment or report filed for the purpose of updating such description.

All documents subsequently filed by the Registrant pursuant to Sections 13(a), 13(c), 14 and 15(d) of the Exchange Act, prior to the filing of a post-effective amendment to this Registration Statement which indicates that all securities offered hereby have been sold or which deregisters all securities remaining unsold, shall be deemed to be incorporated by reference in this Registration Statement and to be a part hereof from the date of filing of such documents.

ITEM 4. DESCRIPTION OF SECURITIES.

Not applicable.

ITEM 5. INTERESTS OF NAMED EXPERTS AND COUNSEL.

Not applicable.

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ITEM 6. INDEMNIFICATION OF DIRECTORS AND OFFICERS.

Section 145(a) of the Delaware General Corporation Law (the "DGCL") provides in relevant part that "[a] corporation shall have power to indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (other than an action by or in the right of the corporation) by reason of the fact that the person is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by the person in connection with

such action, suit or proceeding if the person acted in good faith and in a manner the person reasonably believed to be in or not opposed to the best interests of the corporation, and, with respect to any criminal action or proceeding, had no reasonable cause to believe the person's conduct was unlawful." With respect to derivative actions, Section 145(b) of the DGCL provides in relevant part that "[a] corporation shall have power to indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action or suit by or in the right of the corporation to procure a judgment in its favor...[by reason of the person's service in one of the capacities specified in the preceding sentence] against expenses (including attorneys' fees) actually and reasonably incurred by the person in connection with the defense or settlement of such action or suit if the person acted in good faith and in a manner reasonably believed to be in or not opposed to the best interests of the corporation and except that no indemnification shall be made in respect of any claim, issue or matter as to which such person shall have been adjudged to be liable to the corporation unless and only to the extent that the Court of Chancery or the court in which such action or suit was brought shall determine upon application that, despite the adjudication of liability but in view of all the circumstances of the case, such person is fairly and reasonably entitled to indemnity for such expenses which the Court of Chancery or such other court shall deem proper."

The Registrant's Amended and Restated Certificate of Incorporation provides that to the fullest extent permitted by the DGCL, no director of the Registrant shall be personally liable to the Registrant or its stockholders for monetary damages for breach of fiduciary duty as a director. The Amended and Restated Certificate of Incorporation also provides that no amendment or repeal of such provision shall apply to or have any effect on the right to indemnification permitted thereunder with respect to claims arising from acts or omissions occurring in whole or in part before the effective date of such amendment or repeal whether asserted before or after such amendment or repeal.

The Registrant's Bylaws provide that the Registrant shall indemnify to the fullest extent permitted by the DGCL each of its directors, officers, employees and other agents against expenses actually and reasonably incurred in connection with any proceeding arising by reason of the fact that such person is or was an agent of the Registrant.

The Registrant has entered into indemnification agreements with its directors and executive officers and intends to enter into indemnification agreements with any new directors and executive officers in the future.

ITEM 7. EXEMPTION FROM REGISTRATION CLAIMED

Inapplicable.

ITEM 8. EXHIBITS

See Exhibit Index.

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ITEM 9. UNDERTAKINGS

(a) The undersigned registrant hereby undertakes:

- (1) To file, during any period in which offers or sales are being made, a post-effective amendment to this Registration Statement:
 - (i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933;
 - (ii) To reflect in the prospectus any facts or events arising after the effective date of the Registration Statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the Registration Statement.
 - (iii) To include any material information with respect to the plan of distribution not previously disclosed in the Registration Statement or any material change to such information in the Registration Statement.

Provided, however, that paragraphs (a)(1)(i) and (a)(1)(ii) do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in periodic reports filed by the Registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act 1934 that are incorporated by reference in the Registration Statement.

(2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona

fide offering thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

(b) The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the Registration Statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(c) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Act and will be governed by the final adjudication of such issue.

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SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-8 and has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of San Jose, State of California, on December 26, 2001.

KLA-TENCOR CORPORATION

By: /s/ STUART J. NICHOLS

Stuart J. Nichols, Vice President,
General Counsel

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POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Stuart J. Nichols, their true and lawful attorney and agent, with full power of substitution, with the power to act alone, to sign and execute on behalf of the undersigned any amendment or amendments to this Registration Statement on Form S-8 and to perform any acts necessary in order to file such amendments, and each of the undersigned does hereby ratify and confirm all that said attorney and agent, or his substitute, shall do or cause to be done by virtue hereof. Pursuant to the requirements of the Securities Act of 1933, as amended, this Registration Statement has been signed by the following persons in the capacities and on the dates indicated.

<TABLE>
<CAPTION>

Signature -----	Title -----	Date ----
<S> /s/ KENNETH LEVY ----- Kenneth Levy	<C> Chairman of the Board and Director	<C> December 26, 2001
/s/ KENNETH L. SCHROEDER ----- Kenneth L. Schroeder	President, Chief Executive Officer and Director (Principal Executive Officer)	December 26, 2001
/s/ JOHN H. KISPERT -----	Chief Financial Officer (Principal Financial and	December 26, 2001

John H. Kispert Accounting Officer)

/s/ EDWARD W. BARNHOLT Director December 26, 2001

Edward W. Barnholt

/s/ H. RAYMOND BINGHAM Director December 26, 2001

H. Raymond Bingham

/s/ ROBERT T. BOND Director December 26, 2001

Robert T. Bond

/s/ RICHARD J. ELKUS, JR. Director December 26, 2001

Richard J. Elkus, Jr.

/s/ DEAN O. MORTON Director December 26, 2001

Dean O. Morton

/s/ JON D. TOMPKINS Director December 26, 2001

Jon D. Tompkins

/s/ LIDA URBANEK Director December 26, 2001

Lida Urbanek
</TABLE>

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KLA-TENCOR CORPORATION

REGISTRATION STATEMENT ON FORM S-8

INDEX TO EXHIBITS

<TABLE>
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Exhibit Number	Description
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<S>	<C>
4.1(1)	Amended and Restated Certificate of Incorporation, as amended.
4.2(2)	Certificate of Amendment of Amended and Restated Certificate of Incorporation.
4.3(3)	Bylaws of the Registrant, as amended.
4.4(4)	Amended and Restated Rights Agreement dated as of April 25, 1996, between the Registrant and First National Bank of Boston, as Rights Agent. This agreement includes the Form of Right Certificate as Exhibit A and the Summary of Terms of Rights as Exhibit B thereto.
5.1	Opinion re legality
10.1	Amended and Restated 1997 Employee Stock Purchase Plan
10.2(5)	Restated 1982 Stock Option Plan
23.1	Consent of Independent Accountants
23.2	Consent of Counsel (included in Exhibit 5.1)
24.1	Power of Attorney (see Page II-5)

</TABLE>

(1) Incorporated by reference to Exhibit 3.1 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended March 31, 1997 (Commission File No. 000-09992).

- (2) Incorporated by reference to Exhibit 3.1 to the Registrant's Quarterly Report on Form 10-Q, for the quarter ended December 31, 2000 (Commission File No. 000-09992).
- (3) Incorporated by reference to Exhibit 3.2 to the Registrant's Registration Statement on Form S-8, filed December 4, 1998 (Commission File No. 333-68415).
- (4) Incorporated by reference to Exhibit 1 of the Registrant's report on Form 8-A12G/A Amendment No. 2 to the Registration Statement on Form 8-A (filed September 24, 1996, Commission File No. 000-09992).
- (5) Incorporated by reference to Exhibit 10.74 to the Registrant's Registration Statement on Form S-8, filed March 7, 1997. (Commission File No. 333-22941).

[Letterhead]

December 26, 2001

KLA-Tencor Corporation
160 Rio Robles
San Jose, CA 95134

RE: REGISTRATION STATEMENT ON FORM S-8

Ladies and Gentlemen:

I have examined the Registration Statement on Form S-8 to be filed with the Securities and Exchange Commission on or about December 21, 2001 (the "Registration Statement"), in connection with the registration under the Securities Act of 1933, as amended, of an additional 5,610,752 shares of KLA-Tencor Common Stock reserved for issuance under the Restated 1982 Stock Option Plan, as amended (the "1982 Plan") and 2,000,000 shares of KLA-Tencor Common Stock reserved for issuance under the Amended and Restated 1997 Employee Stock Purchase Plan (the "1997 Plan"). Such shares of Common Stock are referred to herein as the "Shares." As legal counsel, I have examined the proceedings taken and proposed to be taken in connection with the issuance, sale and payment of consideration for the Shares to be issued under the 1982 Plan and 1997 Plan.

It is my opinion that, when issued and sold in compliance with applicable prospectus delivery requirements and in the manner referred to in the 1982 Plan and 1997 Plan and pursuant to the agreements which accompany the 1982 Plan and 1997 Plan, the Shares will be legally and validly issued, fully paid and non-assessable.

I consent to the use of this opinion as an exhibit to the Registration Statement and further consent to the use of my name wherever appearing in the Registration Statement and any amendments thereto.

Sincerely,

/s/ Stuart J. Nichols

Stuart J. Nichols
Vice President, General Counsel
KLA-Tencor Corporation

KLA-TENCOR CORPORATION

AMENDED AND RESTATED 1997 EMPLOYEE STOCK PURCHASE PLAN

(Amended and Restated as of November 17, 1998)

The following constitute the provisions of the 1997 Employee Stock Purchase Plan, as amended, (the "Plan") of KLA-Tencor Corporation (the "Company"). Certain definitions of terms used in the Plan are provided in Section 2 below.

1. PURPOSE

The purpose of the Plan is to provide employees of the Company and its Designated Subsidiaries with an opportunity to purchase Common Stock of the Company through accumulated payroll deductions. It is the intention of the Company to have the Plan qualify as an "Employee Stock Purchase Plan" under Section 423 of the Code. The provisions of the Plan shall, accordingly, be construed so as to extend and limit participation in a manner consistent with the requirements of that section of the Code. The Plan will also be extended to employees of foreign subsidiaries subject to adjustments, in the sole discretion of the Board of Directors, to take into account the requirements of the local laws associated with the particular subsidiary. These local requirements may not provide the same favorable tax consequences as are available to participants in the United States.

2. DEFINITIONS

- (a) "BOARD" shall mean the Board of Directors of the Company.
- (b) "CODE" shall mean the Internal Revenue Code of 1986, as amended.
- (c) "COMMON STOCK" shall mean the Common Stock, \$.001 par value, of the Company.
- (d) "COMPANY" shall mean KLA-Tencor Corporation, a Delaware corporation.

(e) "COMPENSATION" Compensation shall mean all amounts includable as "wages" subject to tax under section 3101(a) of the Code without applying the dollar limitation of Section 3121(a) of the Code. Accordingly, Compensation shall include, without limitation, salaries, commissions, bonuses and overtime. Compensation shall not include reimbursements of expenses, allowances, or any amount deemed received without the actual transfer of cash or any Company contributions or payments to any trust, fund, or plan to provide retirement, pension, profit sharing, health, welfare, death, insurance or similar benefits to or on behalf of such Participant or any other payments not specifically referenced above, except to the extent that the inclusion of any such item with respect to all Participants on a nondiscriminatory basis is specifically approved by the Board.

(f) "CONTINUOUS STATUS AS AN EMPLOYEE" shall mean the absence of any interruption or termination of service as an Employee. Continuous Status as an Employee shall not be considered interrupted in the case of a leave of absence agreed to in writing by the Company, provided that such

leave is for a period of not more than 90 days or re-employment upon the expiration of such leave is guaranteed by contract or statute.

(g) "DESIGNATED SUBSIDIARIES" shall mean the Subsidiaries which have been designated by the Board from time to time in its sole discretion as eligible to participate in the Plan.

(h) "EMPLOYEE" shall mean any person, including an officer, who is customarily employed for at least 20 hours per week and more than five months in a calendar year by the Company or one of its Designated Subsidiaries.

(i) "ENROLLMENT DATE" shall mean the first day of each Offering Period.

(j) "EXERCISE DATE" shall mean each December 31 and June 30 of each Offering Period of the Plan.

(k) "EXERCISE PERIOD" shall mean a period commencing on January 1 and terminating on the following June 30 or commencing on July 1 and terminating on the following December 31.

(l) "OFFERING PERIOD" shall mean a period of twenty-four (24) months commencing on January 1 and July 1 of each year during which an option granted pursuant to the Plan may be exercised.

(m) "PLAN" shall mean this 1997 Employee Stock Purchase Plan.

(n) "SUBSIDIARY" shall mean a corporation, domestic or foreign, of which

not less than 50% of the voting shares are held by the Company or a Subsidiary, whether or not such corporation now exists or is hereafter organized or acquired by the Company or a Subsidiary.

3. ELIGIBILITY

(a) Any Employee who shall be employed by the Company on a given Enrollment Date shall be eligible to participate in the Plan, subject to limitations imposed by Section 423(b) of the Code or other applicable local law.

(b) Any provisions of the Plan to the contrary notwithstanding, no Employee shall be granted an option under the Plan (i) if, immediately after the grant, such Employee (or any other person whose stock would be attributed to such Employee pursuant to Section 424(d) of the Code) would own stock and/or hold outstanding options to purchase stock possessing five percent or more of the total combined voting power or value of all classes of stock of the Company or of any Subsidiary, or (ii) which permits such Employee's rights to purchase stock under all employee stock purchase plans of the Company and its Subsidiaries to accrue at a rate which exceeds US\$25,000 of fair market value of such stock (determined at the time such option is granted) for each calendar year in which such option is outstanding at any time.

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4. OFFERING PERIODS

The Plan shall be implemented by consecutive Offering Periods with a new Offering Period commencing on January 1 and July 1 of each year, commencing January 1, 1998, or as otherwise determined by the Board, and continuing thereafter until terminated in accordance with Section 19 hereof. The Board shall have the power to change the duration of Offering Periods with respect to future offerings without stockholder approval if such change is announced at least 15 days prior to the scheduled beginning of the first Offering Period to be affected.

5. PARTICIPATION

(a) An eligible Employee may become a participant in the Plan by completing a subscription agreement authorizing payroll deductions on the form provided by the Company and filing it with the Company's payroll office prior to the applicable Enrollment Date, unless a later time for filing the subscription agreement is set by the Board for all eligible Employees with respect to a given Offering Period. An eligible Employee may participate in an Offering Period only if, as of the Enrollment Date of such Offering Period, such Employee is not participating in any prior Offering Period which is continuing at the time of such proposed enrollment.

(b) Payroll deductions for a participant shall commence on the first payroll date following the Enrollment Date and shall end on the last payroll date in the Offering Period to which such authorization is applicable, unless sooner terminated by the participant as provided in Section 10.

6. PAYROLL DEDUCTIONS

(a) At the time a participant files his subscription agreement, he shall elect to have payroll deductions made on each pay date during the Offering Period in an amount not exceeding 10% of the Compensation which he receives on each pay date during the Offering Period, and the aggregate of such payroll deductions during the Offering Period shall not exceed 10% of his aggregate Compensation during said Offering Period.

(b) All payroll deductions made by a participant shall be credited to his account under the Plan. A participant may not make any additional payments into such account.

(c) A participant may discontinue his participation in the Plan as provided in Section 10, may lower the rate of his payroll deductions effective immediately or may increase (but not above 10%) the rate of his payroll deductions effective as of the first date of the next Exercise Period within such Offering Period by completing or filing with the Company a new authorization for payroll deductions.

(d) Notwithstanding the foregoing, to the extent necessary to comply with section 423(b)(8) of the Code and Section 3(b) herein, a participant's payroll deductions may be decreased to zero percent at such time during any Exercise Period which is scheduled to end during the current calendar year. Payroll deductions shall recommence at the rate provided in such participant's subscription agreement at the beginning of the first Exercise Period which is scheduled to end in the following calendar year, unless terminated by the participant as provided in Section 10.

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7. GRANT OF OPTION

(a) On the Enrollment Date of each Offering Period, each eligible Employee participating in such Offering Period shall be granted an option to purchase on each Exercise Date during such Offering Period (at the per share option price) up to a number of shares of the Company's Common Stock determined by dividing such Employee's payroll deductions accumulated during such Exercise Period by 85% of the fair market value of a share of the Company's Common Stock on the Enrollment Date or on the Exercise Date, whichever is lower, provided that the number of shares subject to the option shall not exceed 200% of the number of shares determined by dividing 10% of the Employee's Compensation over the Offering Period (determined as of the Enrollment Date) by 85% of the fair market value of a share of the Company's Common Stock on the Enrollment Date, subject to the limitations set forth in Sections 3(b) and 12 hereof. Fair market value of a share of the Company's Common Stock shall be determined as provided in Section 7(b) herein.

(b) The option price per share of the shares offered in a given Offering Period shall be the lower of: (i) 85% of the fair market value of a share of the Common Stock of the Company on the Enrollment Date; or (ii) 85% of the fair market value of a share of the Common Stock of the Company on the applicable Exercise Date. The fair market value of the Company's Common Stock on a given date shall be determined by the Board in its discretion; provided, however, that where there is a public market for the Common Stock, the fair market value per share shall be the closing price of the Common Stock for such date, as reported by Nasdaq National Market. If a closing price is not available for an Enrollment Date or an Exercise Date, the fair market value of a share of the Common Stock of the Company on such date shall be the fair market value of a share of the Common Stock of the Company on the last business day prior to such date.

8. EXERCISE OF OPTION

Unless a participant withdraws from the Plan as provided in Section 10, his option for the purchase of shares will be exercised automatically on each Exercise Date of the Offering Period, and the maximum number of full shares subject to his option will be purchased for him at the applicable option price with the accumulated payroll deductions in his account. During his lifetime, a participant's option to purchase shares hereunder is exercisable only by him. Any amount remaining in the participant's account after an Exercise Date shall be held in the account until the next Exercise Date in such Offering Period, unless the Offering Period has been over-subscribed or has terminated with such Exercise Date, in which event such amount shall be refunded to the participant.

9. DELIVERY

As promptly as practicable after each Exercise Date, the Company shall arrange the delivery to each participant, as appropriate, of a certificate representing the shares purchased upon exercise of his option.

10. WITHDRAWAL; TERMINATION OF EMPLOYMENT

(a) A participant may withdraw all but not less than all of the payroll deductions credited to his account under the Plan at any time by giving written notice to the Company. All of the

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participant's payroll deductions credited to his account will be paid to him promptly after receipt of his notice of withdrawal and his participation in the Plan will be automatically terminated, and no further payroll deductions for the purchase of shares will be made. Payroll deductions will not resume on behalf of a participant who has withdrawn from the Plan unless written notice is delivered to the Company within the open enrollment period preceding the commencement of an Exercise Period directing the Company to resume payroll deductions.

(b) Upon termination of the participant's Continuous Status as an Employee prior to the Exercise Date of an Offering Period for any reason, including retirement or death, the payroll deductions credited to the participant's account will be returned to the participant or, in the case of death, to the person or persons entitled thereto under Section 14, and such participant's option will be automatically terminated.

(c) If an Employee fails to maintain Continuous Status as an Employee for at least 20 hours per week during an Offering Period in which the Employee is a participant, he will be deemed to have elected to withdraw from the Plan and the payroll deductions credited to his account will be returned to him and his option terminated.

(d) A participant's withdrawal from an Offering Period will not have any effect upon his eligibility to participate in a succeeding Offering Period or in any similar plan which may hereafter be adopted by the Company.

11. INTEREST

No interest shall accrue on the payroll deductions of a participant in the Plan.

12. STOCK

(a) Subject to adjustment as provided in Section 18, the maximum aggregate number of shares of the Company's Common Stock which shall be made available for sale under the Plan shall be 1,200,000, increased on the first day of each fiscal year of the Company beginning on and after July 1, 1999 by a number of shares of the Company's Common Stock equal to the lesser of (i) 2,000,000 shares, or (ii) the number of shares which the Company estimates (based on the previous 12-month period) it will be required to issue under the Plan during the forthcoming fiscal year. Subject to adjustment as provided in Section 18, shares issuable under the Plan shall consist of authorized but unissued or reacquired shares of the Company's Common Stock or any combination thereof. If on a given Exercise Date the number of shares with respect to which options are to be exercised exceeds the number of shares then available, the Company shall make a pro rata allocation of the shares remaining available for option grant in as uniform a manner as shall be practicable and as it shall determine to be equitable. In such event, the Company shall give written notice of such reduction of the number of shares subject to the option to each Employee affected thereby and shall similarly reduce the rate of payroll deductions, if necessary.

(b) The participant will have no interest or voting right in shares covered by his option until such option has been exercised.

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(c) Shares to be delivered to a participant under the Plan will be registered in the name of the participant or in the name of the participant and his or her spouse.

13. ADMINISTRATION

The Plan shall be administered by the Board of Directors of the Company or a committee appointed by the Board. The Board may delegate routine matters to management. The administration, interpretation or application of the Plan by the Board or its committee shall be final, conclusive and binding upon all participants. Members of the Board who are eligible Employees are permitted to participate in the Plan, provided that:

(a) Members of the Board who are eligible to participate in the Plan may not vote on any matter affecting the administration of the Plan or the grant of any option pursuant to the Plan.

(b) If a committee is established to administer the Plan, no member of the Board who is eligible to participate in the Plan may be a member of the committee.

14. DESIGNATION OF BENEFICIARY

(a) A participant may file a written designation of a beneficiary who is to receive any shares and cash, if any, from the participant's account under the Plan in the event of such participant's death subsequent to the end of the Offering Period but prior to delivery to him of such shares and cash. In addition, a participant may file a written designation of a beneficiary who is to receive any cash from the participant's account under the Plan in the event of such participant's death prior to the exercise of the option.

(b) Such designation of beneficiary may be changed by the participant at any time by written notice. In the event of the death of a participant and in the absence of a beneficiary validly designated under the Plan who is living at the time of such participant's death, the Company shall deliver such shares and/or cash to the executor or administrator of the estate of the participant, or if no such executor or administrator has been appointed (to the knowledge of the Company), the Company, in its discretion, may deliver such shares and/or cash to the spouse or to any one or more dependents or relatives of the participant, or if no spouse, dependent or relative is known to the Company, then to such other person as the Company may designate.

15. TRANSFERABILITY

Neither payroll deductions credited to a participant's account nor any rights with regard to the exercise of an option or to receive shares under the Plan may be assigned, transferred, pledged or otherwise disposed of in any way (other than by will, the laws of descent and distribution or as provided in Section 14 hereof) by the participant. Any such attempt at assignment, transfer, pledge or other disposition shall be without effect, except that the Company may treat such act as an election to withdraw funds in accordance with Section 10.

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16. USE OF FUNDS

All payroll deductions received or held by the Company under the Plan may be used by the Company for any corporate purpose, and the Company shall not be obligated to segregate such payroll deductions.

17. REPORTS

Individual accounts will be maintained for each participant in the Plan. Statements of account will be given to participating Employees semi-annually promptly following each Exercise Date, which statements will set forth the amounts of payroll deductions, the per share purchase price, the number of shares purchased and the remaining cash balance, if any.

18. ADJUSTMENTS UPON CHANGES IN CAPITALIZATION

Subject to any required action by the stockholders of the Company, the number of shares of Common Stock covered by each option under the Plan which has not yet been exercised (including the increase set forth in Section 12 hereof) and the number of shares of Common Stock which have been authorized for issuance under the Plan but have not yet been placed under option (collectively, the "Reserves"), as well as the price per share of Common Stock covered by each option under the Plan which has not yet been exercised, shall be proportionately adjusted for any increase or decrease in the number of issued shares of Common Stock resulting from a stock split or the payment of a stock dividend (but only on the Common Stock) or any other increase or decrease in the number of shares of Common Stock effected without receipt of consideration by the Company; provided, however, that conversion of any convertible securities of the Company shall not be deemed to have been "effected without receipt of consideration". Such adjustment shall be made by the Board, whose determination in that respect shall be final, binding and conclusive. Except as expressly provided herein, no issue by the Company of shares of stock of any class, or securities convertible into shares of stock of any class, shall affect, and no adjustment by reason thereof shall be made with respect to, the number or price of shares of Common Stock subject to an option.

In the event of the proposed dissolution or liquidation of the Company, the Offering Period will terminate immediately prior to the consummation of such proposed action, unless otherwise provided by the Board. In the event of a proposed sale of all or substantially all of the assets of the Company, or the merger of the Company with or into another entity, the Board, in its sole discretion, may provide that (i) each option under the Plan shall be assumed, (ii) an equivalent option shall be substituted by such successor entity or a parent or subsidiary of such successor entity, or in lieu of such assumption or substitution, that the participant shall have the right to exercise the option, including shares as to which the option would not otherwise be exercisable, or (iii) the Plan shall terminate and a shortened Exercise Period may take place or a participant's contributions returned. If the Board makes an option fully exercisable in lieu of assumption or substitution in the event of a merger or sale of assets, the Board shall notify the participant that the option shall be fully exercisable for a period of 30 days from the date of such notice, and the option will terminate upon the expiration of such period.

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The Board may, if it so determines in the exercise of its sole discretion, also make provision for adjusting the Reserves, as well as the price per share of Common Stock covered by each outstanding option, if the Company effects one or more reorganizations, recapitalizations, rights offerings or other increases or decreases of the shares of its outstanding Common Stock, and if the Company is being consolidated with or merged into any other corporation.

19. AMENDMENT OR TERMINATION

The Board of Directors of the Company may at any time terminate or amend the Plan. No such termination can affect options previously granted, nor may an amendment make any change in any option theretofore granted which adversely affects the rights of any participant, nor may an amendment be made without prior approval of the stockholders of the Company if such amendment is required by law or otherwise to be approved by the stockholders.

Amendments to the Code which impact the Plan shall be automatically implemented without further action by the Board unless such amendments require independent action by either the Board or the stockholders.

In the event the Board determines that the ongoing operation of the Plan may result in unfavorable financial accounting consequences, the Board may in any manner it determines, in its sole discretion, and, to the extent necessary or desirable, modify or amend the Plan to reduce or eliminate such accounting consequence including, but not limited to altering the Purchase Price for any Offering Period including an Offering Period underway at the time of the change in Purchase Price. Such modifications or amendments shall not require stockholder approval or the consent of any Plan participants.

20. NOTICES

All notices or other communications by a participant to the Company under or in connection with the Plan shall be deemed to have been duly given when received in the form specified by the Company at the location, or by the person, designated by the Company for the receipt thereof.

21. STOCKHOLDER APPROVAL

Continuance of the Plan shall be subject to approval by the stockholders of the Company within 12 months before or after the date the Plan is adopted. If such stockholder approval is obtained at a duly held stockholders meeting, it may be obtained by the affirmative vote of the holders of a majority of the outstanding shares of the Company present or represented and entitled to vote thereon, which approval shall be:

(a) (i) solicited substantially in accordance with Section 14(a) of the Securities Exchange Act of 1934, as amended (the "Act") and the rules and regulations promulgated thereunder, or

(ii) solicited after the Company has furnished in writing to the holders entitled to vote substantially the same information concerning the Plan as that which would be required by the

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rules and regulations in effect under Section 14(a) of the Act at the time such information is furnished; and

(b) obtained at or prior to the first annual meeting of stockholders held subsequent to the first registration of Common Stock under Section 12 of the Act.

In the case of approval by written consent, it must be obtained by the unanimous written consent of all stockholders of the Company.

22. CONDITIONS UPON ISSUANCE OF SHARES

Shares shall not be issued with respect to an option unless the exercise of such option and the issuance and delivery of such shares pursuant thereto shall comply with all applicable provisions of law, domestic or foreign, including, without limitation, the Securities Act of 1933, as amended, the Securities Exchange Act of 1934, as amended, the rules and regulations promulgated thereunder, and the requirements of any stock exchange upon which the shares may then be listed, and shall be further subject to the approval of counsel for the Company with respect to such compliance.

As a condition to the exercise of an option, the Company may require the person exercising such option to represent and warrant at the time of any such exercise that the shares are being purchased only for investment and without any present intention to sell or distribute such shares if, in the opinion of counsel for the Company, such a representation is required by any of the aforementioned applicable provisions of law.

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CONSENT OF INDEPENDENT ACCOUNTANTS

We hereby consent to the incorporation by reference in this Registration Statement on Form S-8 of our report dated July 31, 2001, relating to the financial statements of KLA-Tencor Corporation, which appears in KLA-Tencor Corporation's Annual Report on Form 10-K for the year ended June 30, 2001. We also consent to the incorporation by reference of our report dated July 31, 2001 relating to the financial statement schedule, which appears in such Annual Report on Form 10-K.

/s/ PricewaterhouseCoopers LLP

PricewaterhouseCoopers LLP
San Jose, California
December 21, 2001