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**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

**FORM 11-K**

**ANNUAL REPORT PURSUANT TO SECTION 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended June 30, 2007

OR

**TRANSITION REPORT PURSUANT TO SECTION 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from \_\_\_\_\_ to \_\_\_\_\_

Commission file number:

A. Full title of the plan and the address of the plan, if different from that of the issuer named below:

**KLA-Tencor 401(k) Plan**

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B. Name of issuer of the securities held pursuant to the plan and the address of its principal executive office:

KLA-Tencor Corporation  
One Technology Dr  
Milpitas, CA 95035

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**SIGNATURES**

*The Plan.* Pursuant to the requirements of the Securities Exchange Act of 1934, the trustees (or other persons who administer the KLA-Tencor 401(k) Plan) have duly caused this annual report to be signed on its behalf by the undersigned hereunto duly authorized.

KLA-TENCOR 401(k) PLAN

\_\_\_\_\_  
(Name of plan)

Date: December 21, 2007

By: /s/ Jeffrey L. Hall

\_\_\_\_\_  
(Signature)  
Title: Chief Financial Officer

\_\_\_\_\_  
**KLA-TENCOR CORPORATION ON BEHALF OF  
THE PLAN ADMINISTRATOR OF THE KLA-  
TENCOR 401(k) PLAN**

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***KLA-Tencor 401(k) Plan***  
*Financial Statements*  
*June 30, 2007 and 2006*

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## **KLA-TENCOR 401(k) PLAN**

### **Financial Statements and Supplemental Schedule June 30, 2007 and 2006**

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#### **REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM**

##### **To the Participants and Plan Administrator of the KLA-Tencor 401(k) Plan**

We have audited the financial statements of KLA-Tencor 401(k) Plan (the Plan) as of June 30, 2007 and 2006, and for the years then ended, as listed in the accompanying table of contents. These financial statements are the responsibility of the Plan's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement. We were not engaged to perform an audit of the Plan's internal control over financial reporting. Our audits included consideration over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Plan's internal control over financial reporting. Accordingly, we express no such opinion. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by the Plan's management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the net assets available for benefits of the Plan as of June 30, 2007 and 2006, and the changes in net assets available for benefits for the years then ended, in conformity with accounting principles generally accepted in the United States of America.

Our audits were performed for the purpose of forming an opinion on the basic financial statements taken as a whole. The supplemental schedule, as listed in the accompanying table of contents, is presented for the purpose of additional analysis and is not a required part of the basic financial statements but is supplementary information required by the Department of Labor's Rules and Regulations for Reporting and Disclosure under the Employee Retirement Income Security Act of 1974. The supplemental schedule is the responsibility of the Plan's management. The supplemental schedule has been subjected to the auditing procedures applied in the audits of the basic financial statements and, in our opinion, is fairly stated in all material respects in relation to the basic financial statements taken as a whole.

/s/ Mohler, Nixon & Williams

MOHLER, NIXON & WILLIAMS  
Accountancy Corporation

Campbell, California  
December 20, 2007

## KLA-TENCOR 401(k) PLAN

### STATEMENTS OF NET ASSETS AVAILABLE FOR BENEFITS

	June 30,	
	2007	2006
Assets:		
Investments, at fair value	\$ 568,747,688	\$ 471,309,767
Participant loans	5,919,978	6,211,448
Assets held for investment purposes	574,667,666	477,521,215
Non-interest bearing cash	76,973	71,052
Participants' contributions receivable	459,765	437,396
Employer contribution receivable	216,122	
Other receivable	28,918	54,007
Net assets available for benefits	<u>\$ 575,449,444</u>	<u>\$ 478,083,670</u>

See notes to financial statements.

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## KLA-TENCOR 401(k) PLAN

### STATEMENTS OF CHANGES IN NET ASSETS AVAILABLE FOR BENEFITS

	Years ended June 30,	
	2007	2006
Additions to net assets attributed to:		
Investment income:		
Dividends and interest	\$ 26,984,415	\$ 18,431,646
Net realized and unrealized appreciation in fair value of investments	65,434,300	33,013,288
	<u>92,418,715</u>	<u>51,444,934</u>
Contributions:		
Participants'	36,521,109	32,881,092
Employer's	9,661,806	3,278,698
	<u>46,182,915</u>	<u>36,159,790</u>
Total additions	<u>138,601,630</u>	<u>87,604,724</u>
Deductions from net assets attributed to:		
Withdrawals and distributions	41,178,972	26,601,172
Administrative expenses	56,884	19,601
Total deductions	<u>41,235,856</u>	<u>26,620,773</u>
Net increase in net assets	97,365,774	60,983,951
Net assets available for benefits:		
Beginning of year	478,083,670	417,099,719
End of year	<u>\$ 575,449,444</u>	<u>\$ 478,083,670</u>

See notes to financial statements.

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## KLA-TENCOR 401(k) PLAN

### NOTES TO FINANCIAL STATEMENTS JUNE 30, 2007 AND 2006

## NOTE 1 - THE PLAN AND ITS SIGNIFICANT ACCOUNTING POLICIES

**General** - The following description of the KLA-Tencor 401(k) Plan (the Plan) provides only general information. Participants should refer to the Plan document and the Summary Plan Description for the Plan for a more complete description of the Plan's provisions.

The Plan is a defined contribution plan that was established in 1982 by KLA-Tencor Corporation (the Company) to provide benefits to eligible employees, as defined in the Plan document. The Plan is currently designed to be qualified under the applicable requirements of the Internal Revenue Code of 1986 (the Code), as amended, and the provisions of the Employee Retirement Income Security Act of 1974 (ERISA), as amended.

**Administration** - The Company is the Administrator of the Plan. The Company has appointed a Plan Committee (the Committee) to manage the day-to-day operation and administration of the Plan. The Company has contracted with Fidelity Management Trust Company (Fidelity) to act as the Plan's custodian and trustee. Expenses incurred for administering the Plan are paid by the Plan, unless the Company elects to pay such expenses.

**Estimates** - - The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, and changes therein, and disclosure of contingent assets and liabilities. Actual results could differ from those estimates.

**Basis of accounting** - The financial statements of the Plan are prepared on the accrual method of accounting in accordance with accounting principles generally accepted in the United States of America.

As described in Financial Accounting Standards Board Staff Position, FSP ASG INV-1 and SOP 94-4-1, *Reporting of Fully Benefit-Responsive Investment Contracts Held by Certain Investment Companies Subject to the AICPA Investment Company Guide and Defined-Contribution Health and Welfare and Pension Plans* (the FSP), effective for the Plan year ending after December 15, 2006, applied retroactively for all periods presented, investment contracts held by a defined contribution plan are required to be reported at fair value. However, contract value is the relevant measurement attributable for that portion for the net assets available for benefits of a defined contribution plan attributable to fully benefit-responsive investment contracts because contract value is the amount participants would receive if they were to initiate permitted transactions under the terms of the Plan. The Company has considered the impact of this standard on these financial statements to be immaterial.

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**Investments** - - Investments of the Plan are held by Fidelity and invested based solely upon instructions received from participants.

The Plan's investments in mutual funds, common stock and a common/collective trust are valued at fair value as of the last day of the Plan year, as measured by quoted market prices or as reported by Fidelity. Participant loans are valued at cost, which approximates fair value.

Effective September 28, 2006, participants were prohibited from purchasing any Company common stock under the Plan until further notice. Participants were allowed to continue to sell their shares held in Company common stock under the Plan. Effective February 1, 2007, the restriction on purchasing common stock was lifted.

**Income taxes** - - The Plan is intended to be a qualified plan under Section 401(a) of the Code and related state statutes, and the trust, which is a part of the Plan, is intended to be exempt from tax under Section 501(a) of the Code. The Plan has been amended since receiving a favorable determination letter dated January 15, 2004.

**Risks and uncertainties** - The Plan provides for various investment options in any combination of investment securities, including Company common stock (currently capped at 25% of a participant's account, see Note 2 below), offered by the Plan. Investment securities are exposed to various risks, such as interest rates, market fluctuations and credit risks. Due to the risk associated with certain investment securities, it is at least reasonably possible that changes in market values, interest rates or other factors in the near term would materially affect participants' account balances and the amounts reported in the statements of net assets available for benefits and the statements of changes in net assets available for benefits.

## NOTE 2 - RELATED PARTY AND PARTY-IN-INTEREST TRANSACTIONS

Certain Plan investments in Company common stock, a common/collective trust and mutual funds are managed by Fidelity. Purchases and sales of these funds are performed in the open market at fair value and qualify as party-in-interest transactions under ERISA regulations. These transactions are permitted under the provisions of the Plan and are specifically exempt from the prohibition of party-in-interest transactions under ERISA.

The Plan permits participants to direct their investments to the common stock of the Company. The investment in Company common stock is limited to 25% of a participant's account. Aggregate investment in Company stock was as follows at June 30:

	2007	2006
Number of shares	344,700	486,529
Fair value	\$18,941,277	\$20,225,015

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## NOTE 3 - PARTICIPATION AND BENEFITS

**Participant contributions** - Participants may elect to have the Company contribute up to 25% of their eligible pre-tax compensation to the Plan. In addition, eligible participants can make catchup contributions, up to the maximum allowed under current tax regulations, and may elect to defer up to 100% of their profit sharing compensation into the Plan. Participants who elect to have the Company contribute a portion of their eligible compensation to the Plan agree to accept an equivalent reduction in taxable compensation. Contributions withheld are invested in accordance with the participant's direction.

Participants are also allowed to make rollover contributions of amounts received from other tax-qualified employer-sponsored retirement plans. Such contributions are deposited in the appropriate investment funds in accordance with the participant's direction and the Plan's provisions.

**Employer contributions** - The Company is allowed to make discretionary matching contributions as defined in the Plan and as approved by the Board of Directors. In 2007 and 2006, the Company contributed an amount equal to 50% of each eligible participant's contribution, not to exceed \$3,000 and \$1,000 per participant per Plan year, respectively.

The Plan allowed for a discretionary profit sharing contribution each calendar quarter as determined by the Board of Directors. The Company did not make any discretionary profit sharing contributions during the year ended June 30, 2006. This provision was eliminated effective July 1, 2006.

**Vesting** - Participants are immediately vested in their contributions and the Company's discretionary matching and discretionary profit sharing contributions, at all times.

**Participant accounts** - Each participant's account is credited with the participant's contribution, Plan earnings or losses and an allocation of the Company's contributions, if any. Allocation of the Company's discretionary matching and profit sharing contributions are based on eligible participant contributions or eligible compensation, as defined in the Plan.

**Payment of benefits** - Upon termination, the participants or beneficiaries may elect to leave their account balance in the Plan, or receive their total benefits in a lump sum amount. Upon termination of employment, the Plan provides for automatic lump sum distribution of account balances of \$1,000 or less. Effective July 1, 2006, the Plan's option to automatically distribute account balances greater than \$1,000 but not greater than \$5,000 as a rollover to an IRA was eliminated.

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**Loans to participants** - Participants may borrow not less than \$1,000 and up to the lesser of \$50,000 or 50% of their account balance. The loans are secured by the participant's balance, bear interest at the available market financing rates and must be repaid within a five-year period, unless the loan is used for the purchase of a principal residence in which case the maximum repayment period is 15 years. The specific terms and conditions of such loans are established by the Committee. Outstanding loans at June 30, 2007 carry interest rates ranging from 6% to 11.5% ..

**NOTE 4 - INVESTMENTS**

The following table includes the fair values of investments and investment funds that represent 5% or more of the Plan's net assets at June 30:

	2007	2006
Washington Mutual Investors Fund A	\$ 69,186,458	\$ 57,808,714
PIMCO Total Return Fund I	27,945,266	24,500,120
Growth Fund of America A	87,893,440	77,865,272
New Perspective Fund A	43,183,792	34,849,741
American Funds Income Fund of America	38,641,098	34,786,017
Fidelity Diversified International Fund	69,967,363	52,575,389
Fidelity Mid Cap Stock Fund	49,837,440	41,371,826
Fidelity Managed Income II Portfolio	41,611,523	36,656,745
Fidelity Spartan U.S. Equity Index Fund	35,631,579	30,386,273
Other funds individually less than 5% of net assets	<u>110,769,707</u>	<u>86,721,118</u>
<b>Assets held for investment purposes</b>	<b><u>\$574,667,666</u></b>	<b><u>\$477,521,215</u></b>

The Plan's investments (including gains and losses on investments bought and sold, as well as held during the year) appreciated (depreciated) in value as follows for the years ended June 30:

	2007	2006
Mutual funds	\$ 59,453,031	\$ 33,365,999
Common stock	<u>5,981,269</u>	<u>(352,711)</u>
	<b><u>\$ 65,434,300</u></b>	<b><u>\$ 33,013,288</u></b>

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**NOTE 5 - DIFFERENCES BETWEEN FINANCIAL STATEMENTS AND FORM 5500**

The following is a reconciliation of net assets available for benefits per the financial statements to the Form 5500:

	June 30,	
	2007	2006
Net assets available for benefits per the financial statements	\$ 575,449,444	\$ 478,083,670
Less:		
Participants' contributions receivable per the financial statements	(459,765)	(437,396)
Employer contribution receivable per the financial statements	(216,122)	
Adjustment to fair value relating to SOP 94-4-1	<u>(619,836)</u>	
<b>Net assets available for benefits per the Form 5500</b>	<b><u>\$ 574,153,721</u></b>	<b><u>\$ 477,646,274</u></b>

The following reconciles various differences between the changes in net assets available for benefits per the financial statements to the Form 5500:

	Years ended June 30,	
	2007	2006

Participants' contributions per the financial statements	\$ 36,521,109	\$ 32,881,092
Prior year participants' contribution receivable	437,396	1,473,032
Current year participants' contributions receivable	(459,765)	(437,396)
Contributions per the Form 5500	<u>\$ 36,498,740</u>	<u>\$ 33,916,728</u>
Employer's contributions per the financial statements	\$ 9,661,806	\$ 3,278,698
Prior year employer's contributions receivable		22,246
Current year employer's contributions receivable	(216,122)	
Employer's contributions per the Form 5500	<u>\$ 9,445,684</u>	<u>\$ 3,300,944</u>
Investment income per the financial statements	\$ 92,418,715	
Adjustment to fair value relating to SOP 94-4-1	(619,836)	
Investment income per the Form 5500	<u>\$ 91,798,879</u>	

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#### NOTE 6 - PLAN TERMINATION OR MODIFICATION

The Company intends to continue the Plan indefinitely for the benefit of its participants; however, it reserves the right to terminate or modify the Plan at any time and for any reason, subject to the provisions of ERISA.

#### NOTE 7 - SUBSEQUENT EVENT

It is the Company's intention to eliminate the Company common stock as an investment option effective during the 2008 Plan year.

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## SUPPLEMENTAL SCHEDULE

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### KLA-TENCOR 401(k) PLAN

EIN: 04-2564110  
PLAN #001

#### SCHEDULE H, LINE 4i - SCHEDULE OF ASSETS (HELD AT END OF YEAR) JUNE 30, 2007

Identity of issue, borrower, lessor or similar party	Description of investment including maturity date, rate of interest, collateral, par or maturity value	Current value
Fidelity Management Trust Company:		
Washington Mutual Investors Fund A	Mutual Fund	\$ 69,186,458
PIMCO Total Return Fund I	Mutual Fund	27,945,266
Growth Fund of America A	Mutual Fund	87,893,440
New Perspective Fund A	Mutual Fund	43,183,792
Columbia International Value Fund A	Mutual Fund	19,891,489
American Funds Income Fund of America	Mutual Fund	38,641,098
Artisan Small Cap Value Fund	Mutual Fund	11,900,050

Mgrs Fremont Institutional Micro Cap Fund	Mutual Fund	18,364,436
Rainier Sm/Mid Cap Fund	Mutual Fund	4,150,911
Artisan Mid Cap Value Fund	Mutual Fund	6,007,204
* Fidelity Diversified International Fund	Mutual Fund	69,967,363
* Fidelity Mid Cap Stock Fund	Mutual Fund	49,837,440
* Fidelity Managed Income II Portfolio	Common/Collective Trust	40,991,687
* Fidelity Spartan U.S. Equity Index Fund	Mutual Fund	35,631,579
* Fidelity Select Electronics Fund	Mutual Fund	19,333,635
* Fidelity Freedom Funds 2000	Mutual Fund	48,204
* Fidelity Freedom Funds 2010	Mutual Fund	561,119
* Fidelity Freedom Funds 2020	Mutual Fund	655,993
* Fidelity Freedom Funds 2030	Mutual Fund	1,138,646
* Fidelity Freedom Funds 2040	Mutual Fund	475,687
* Fidelity Freedom Funds 2005	Mutual Fund	273,710
* Fidelity Freedom Funds 2015	Mutual Fund	657,758
* Fidelity Freedom Funds 2025	Mutual Fund	1,388,698
* Fidelity Freedom Funds 2035	Mutual Fund	880,240
* Fidelity Freedom Funds 2045	Mutual Fund	109,235
* Fidelity Freedom Funds 2050	Mutual Fund	69,638
* KLA-Tencor Corporation Stock	Common stock	18,941,277
* Cash	Cash	1,799
* Participant loans	Interest rates ranging from 6% to 11.5%	5,919,978
	Total	<u>\$574,047,830</u>

\* Party-in-interest

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CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in the Registration Statement on Form S-8 (Nos. 999-60866, 333-49766, 333-46598) of KLA-Tencor Corporation of our report dated December 20, 2007, with respect to the statements of net assets available for benefits of the KLA-Tencor 401(k) Plan as of June 30, 2007 and 2006, the related statements of changes in net assets available for benefits for the years then ended, and the related supplemental Schedule H, Line 4i-Schedule of Assets (held at end of year) as of June 30, 2007, which report appears in the June 30, 2007 annual report on Form 11-K of the KLA-Tencor 401(k) Plan.

/s/ Mohler, Nixon & Williams

MOHLER, NIXON & WILLIAMS  
Accountancy Corporation

Campbell, California  
December 20, 2007

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