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

**Form 8-K**

**CURRENT REPORT**

**Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934**

**Date of Report (Date of earliest event reported): 02/04/2010**

**KLA-TENCOR CORPORATION**

(Exact name of registrant as specified in its charter)

**Commission File Number: 000-09992**

**Delaware**  
(State or other jurisdiction of  
incorporation)

**04-2564110**  
(IRS Employer  
Identification No.)

**One Technology Drive, Milpitas, California 95035**  
(Address of principal executive offices, including zip code)

**(408) 875-3000**  
(Registrant's telephone number, including area code)

**N/A**  
(Former name or former address, if changed since last report)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
  - Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
  - Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
  - Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))
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**Item 8.01. Other Events**

On February 4, 2010, KLA Tencor Corporation (the "Company") issued a press release announcing that the Company's Board of Directors had declared a cash dividend of \$0.15 per share on the Company's Common Stock. Such dividend shall be payable on March 1, 2010 to the Company's stockholders of record as of the close of business on February 16, 2010.

In the press release, the Company further announced that it is resuming its stock repurchase program, under which 9.8 million shares are available for repurchase pursuant to a previous authorization by the Company's Board of Directors. Under the Board's authorization, repurchases may be made both in open market transactions and through private transactions. The timing and actual number of shares repurchased will depend on a variety of factors, including market conditions and applicable legal requirements.

A copy of the press release is attached hereto as Exhibit 99.1.

**Item 9.01. Financial Statements and Exhibits**

(d) Exhibits

The following exhibit is filed herewith:

Exhibit No.	Description
99.1	Text of press release issued by KLA-Tencor Corporation dated February 4, 2010

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**SIGNATURES**

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

KLA-TENCOR CORPORATION

Date: February 04, 2010

By: /s/ Brian M. Martin

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Brian M. Martin  
Senior Vice President and General Counsel

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**EXHIBIT INDEX**

<b><u>Exhibit No.</u></b>	<b><u>Description</u></b>
EX-99.1	Text of press release issued by KLA-Tencor Corporation dated February 4, 2010

**FOR IMMEDIATE RELEASE**

**Investor Relations:**

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**Media Relations:**

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**KLA-TENCOR DECLARES REGULAR CASH DIVIDEND FOR THIRD  
QUARTER OF FISCAL YEAR 2010**

***Company Resumes Stock Repurchase Program***

MILPITAS, Calif.-February 4, 2010 (PR Newswire) - KLA-Tencor Corporation (NASDAQ: KLAC) today announced that its Board of Directors has declared a quarterly cash dividend of \$0.15 per share on its common stock payable on March 1, 2010 to KLA-Tencor stockholders of record as of the close of business on February 16, 2010.

KLA-Tencor further announced that it is resuming its stock repurchase program, under which 9.8 million shares are available for repurchase pursuant to a previous authorization by the company's Board of Directors. Under the Board's authorization, repurchases may be made both in open market transactions and through private transactions. The timing and actual number of shares repurchased will depend on a variety of factors, including market conditions and applicable legal requirements.

**Forward-Looking Statements:** Statements in this press release other than historical facts, such as statements regarding KLA-Tencor's repurchases of its own common stock, including the execution and form of such repurchases, are forward-looking statements, and are subject to the Safe Harbor provisions created by the Private Securities Litigation Reform Act of 1995. These forward-looking statements are based on current information and expectations, and involve a number of risks and uncertainties. Actual results may differ materially from those projected in such statements due to various factors, including but not limited to: the condition of the global capital markets, and in particular the market for KLA-Tencor's common stock; the financial condition of KLA-Tencor; and changes in the applicable regulatory and legal environments. For other factors that may cause actual results to differ materially from those projected and anticipated in forward-looking statements in this release, please refer to KLA-Tencor's Annual Report on Form 10-K for the year ended June 30, 2009 and other subsequent filings with the Securities and Exchange Commission (including, but not limited to, the risk factors described therein). KLA-Tencor assumes no obligation to, and does not currently intend to, update these forward-looking statements.

**About KLA-Tencor:** KLA-Tencor Corporation, a leading provider of process control and yield management solutions, partners with customers around the world to develop state-of-the-art inspection and metrology technologies. These technologies serve the semiconductor, data storage, compound semiconductor, photovoltaic, and other related nanoelectronics industries. With a portfolio of industry-standard products and a team of world-class engineers and scientists, the company has created superior solutions for its customers for over 30 years. Headquartered in Milpitas, California, KLA-Tencor has dedicated customer operations and service centers around the world. Additional information may be found at [www.kla-tencor.com](http://www.kla-tencor.com). (KLAC-F)

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