



DIVISION OF
CORPORATION FINANCE

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

Mail Stop 6010

January 31, 2008

VIA U.S. MAIL AND FAX (408) 875 - 4144

Jeffrey L. Hall
Chief Financial Officer
KLA-Tencor Corporation
One Technology Drive
Milpitas, California 95035

Re: KLA-Tencor Corporation
Form 10-K for the year ended June 30, 2007
Filed August 20, 2007
File No. 000-09992

Dear Mr. Hall:

We have reviewed your filings and have the following comments. Where indicated, we think you should revise your documents in response to these comments. If you disagree, we will consider your explanation as to why our comment is inapplicable or a revision is unnecessary. Please be as detailed as necessary in your explanation. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure. After reviewing this information, we may or may not raise additional comments.

Please understand that the purpose of our review process is to assist you in your compliance with the applicable disclosure requirements and to enhance the overall disclosure in your filings. We look forward to working with you in these respects. We welcome any questions you may have about our comments or on any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

Form 10-K for the fiscal year ended June 30, 2007

Item 7. Management Discussion and Analysis of Financial Condition and Results of Operations, page 31

Executive Summary, page 36

1. It appears from various analyst reports that a significant portion of your revenues are derived from the memory market. In your future filings, as applicable, please clarify the significance of the memory market to your business and address any known trends that have had or that you reasonably expect will have a material impact on your operating results in Management's Discussion and Analysis. Refer to Item 303(a)(3)(ii) of Regulation S-K. In your future filings, as applicable, please also expand the "Executive Summary" section of Management's Discussion and Analysis to add a balanced, executive-level discussion that identifies the most important themes or other significant matters with which management is concerned in evaluating the company's operating results and financial condition. Discuss material business opportunities, challenges and risks, such as those presented by known material trends and uncertainties, on which the company's executives are most focused, and the actions they are taking in response to them. For further guidance on the content and purpose of the "Overview," see Interpretive Release No. 33-8350 available on our website.

Provision for Income Taxes, page 41

2. We note that you reduced your income tax reserves by \$15.3 million and \$79.7 million in the fiscal years ended June 30, 2007 and June 30, 2006, respectively. Please explain the facts and the circumstances of the reduction, including why you believe your original reserve was appropriate. Revise future filings to discuss the reduction in greater detail as required by SFAS 109.

Consolidated Statements of Operations, page 50

3. We note that you separately disclose revenue from the sale of products and services. Related cost and expenses should be combined and disclosed separately as well. Refer to the guidance in Regulation S-X, Article 5-03(b)(1) and (2). Revise future filings as necessary.

Note 6 – Stock-Based Compensation, page 67

Former Chief Executive Officer Agreement and Termination, page 71

4. We note that your stock-based compensation expense for the fiscal year ended June 30, 2007 includes a \$20.3 million reversal of stock-based compensation charges related to the cancellation of stock options and restricted stock units held by your CEO. Please describe

the material terms of your agreement with Mr. Schroeder and the terms of the cancellation. Explain why the “reversal” of the stock-based compensation was appropriate under SFAS 123(R), specifically paragraphs 55 and 57.

Form 10-Q for the quarter ended September 30, 2007

Note 8 – Income Taxes, page 13

5. We note that your effective tax rate of 54.6% for the three months ended September 30, 2007, is primarily due to the immediate impact of \$46.6 million of incremental U.S. tax expense associated with the implementation of your global manufacturing strategy. Please tell us more about this strategy and how it caused the \$46.6 million increase in your U.S. tax expense. We also note that you expect the tax rate for the year ending June 30, 2008 to be approximately 37%. Please explain why you expect that your income tax rate to decrease to 37% for the year ending June 30, 2008. Refer to the guidance in SFAS 109 and FIN 48 as necessary.

Item 7. Management Discussion and Analysis of Financial Condition and Results of Operations, page 19

Liquidity and Capital Resources, page 29

6. We note that your non-current tax payable obligation of \$87.4 million is excluded from your contractual obligation table on page 30. Please tell us why excluding this obligation is appropriate. Refer to the guidance in FIN 48 and Release No. 33-8182 – *Disclosures in Management’s Discussion and Analysis about Off-Balance Sheet Arrangements and Aggregate Contractual Obligations*.

As appropriate, please respond to these comments within 10 business days or tell us when you will provide us with a response. Please furnish a cover letter that keys your responses to our comments and provides any requested supplemental information. Detailed cover letters greatly facilitate our review. Please understand that we may have additional comments after reviewing your responses to our comments.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes all information required under the Securities Exchange Act of 1934 and that they have provided all information investors require for an informed investment decision. Since the company and its management are in possession of all facts relating to a company’s disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

Jeffrey L. Hall
KLA-Tencor Corporation
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In connection with responding to our comments, please provide, in writing, a statement from the company acknowledging that

- the company is responsible for the adequacy and accuracy of the disclosure in the filings;
- staff comments or changes to disclosure in response to staff comments do not foreclose the Commission from taking any action with respect to the filing; and
- the company may not assert staff comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

In addition, please be advised that the Division of Enforcement has access to all information you provide to the staff of the Division of Corporation Finance in our review of your filing or in response to our comments on your filing.

You may contact Andri Boerman at (202) 551-3645 or me at (202) 551-3554 if you have questions regarding comments on the financial statements and related matters. Please contact Joseph McCann at (202) 551-6262 or Tim Buchmiller at (202) 551-3635 if you have questions on other comments. In this regard, do not hesitate to contact Martin James, Senior Assistant Chief Accountant, at (202) 551-3671.

Sincerely,

Angela Crane
Branch Chief