

Mail Stop 6010

March 30, 2007

Syed B. Ali  
President and Chief Executive Officer  
Cavium Networks, Inc.  
805 East Middlefield Road  
Mountain View, CA 94043

**Re: Cavium Networks, Inc.  
Amendment No. 1 to Registration Statement on Form S-1  
Filed March 16, 2007  
Registration No. 333-140660**

Dear Mr. Ali:

We have reviewed your filing and have the following comments. Where indicated, we think you should revise your document 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 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 filing. We look forward to working with you in these respects. We welcome any questions you may have about our comments or any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

Prospectus Summary, page 1

1. We note from the Linley Group report that the 37% market share indicated in your response to prior comment 2 from our letter dated March 12, 2007 appears to refer to your share of the market for standalone security processors. We also note from Figure 3 of the Linley Group report that it appears that your share of the total addressable market for highly integrated processors with integrated encryption is not as predominant as your share of the standalone security processor market. If you elect to retain your disclosure that you are "a leading provider of highly integrated semiconductor processors," please revise your disclosure to clarify how you have defined that leadership position. Also

ensure that your disclosure is balanced with disclosure of your position in other relevant markets.

Fluctuations in the mix of products..., page 10

2. Please expand your response to prior comment 7 to tell us whether the product families and lines mentioned on page 47 generate the same margins, are at the same point in their lifecycles, are affected by the same trends, and contribute to your operating results equally. It remains unclear why Regulation S-K Item 101(c)(1)(i) would not require revenue to be presented by these categories and how investors can evaluate the magnitude of this risk factor without this information.

Management's Discussion and Analysis..., page 29

3. We note your response to prior comment 15. In an appropriate location in your prospectus, please also disclose the substance of the second and third bullet points of your response.
4. Please tell us about the trends causing the downward revisions mentioned in the penultimate paragraph of your response to prior comment 30. Also tell us where you have disclosed these trends.

Consolidated Financial Statements

Note 6. Intangible Assets, page F-17

5. We reference prior comments 27, 28, and 33 in our letter dated March 12, 2007. We see that you are capitalizing license fees for internal use software and other technology rights and recognizing expenses on a straight-line basis over the useful life of the related technology. Please tell us how you applied the guidance in paragraph 32 of SOP 98-1 in determining the accounting for the software licensing arrangements. Please demonstrate that your accounting is appropriate given the terms of the licensing arrangements.

Note 9. Mandatorily redeemable Convertible Preferred Stock and Shareholders' Deficit, page F-18

Stock Options and Unvested Stock, page F-21

6. We reference the disclosure added in response to prior comment 31 in our letter dated March 12, 2007. We see that you refer to using the quarterly valuation performed by an independent third party when determining fair value of your common stock. Please revise the filing to name the independent valuation expert here and in the "Experts"

section, and file its consent as an exhibit. Refer to Rule 436 and Item 601(b)(23) of Regulation S-K.

7. As a related matter, please revise to disclose the methodology that was used to determine the fair value of common stock, similar to your response to prior comment 30 in our letter dated March 12, 2007. Additionally, please clarify how your valuation was done on a contemporaneous basis at the time of the stock option grant.

Other Expenses, page II-1

8. We note your response to prior comment 34. Please tell us the authority on which you rely to conclude that disclosure is required only if you can separate out the expense for the coverage for the offering and sale of your securities.

Exhibits

9. Please tell us where you have filed the licenses mentioned in response 33.

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As appropriate, please amend your registration statement in response to these comments. You may wish to provide us with marked copies of the amendment to expedite our review. Please furnish a cover letter with your amendment that keys your responses to our comments and provides any requested information. Detailed cover letters greatly facilitate our review. Please understand that we may have additional comments after reviewing your amendment and responses to our comments.

We direct your attention to Rules 460 and 461 regarding requesting acceleration of a registration statement. Please allow adequate time after the filing of any registration statement for further review before submitting a request for acceleration. Please provide this request at least two business days in advance of the requested effective date.

Syed B. Ali  
Cavium Networks, Inc.  
March 30, 2007  
Page 4

You may contact Kristin Lochhead at (202) 551-3664 or Brian Cascio at (202) 551-3676 if you have questions regarding comments on the financial statements and related matters. Please contact Tim Buchmiller at (202) 551-3635 or me at (202) 551-3617 with any other questions.

Sincerely,

Russell Mancuso  
Branch Chief

cc (via fax): Vincent P. Pangrazio, Esq.