

Mail Stop 6010

March 12, 2007

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

**Re: Cavium Networks, Inc.
Registration Statement on Form S-1
Filed February 13, 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.

General

1. Please confirm that any preliminary prospectus you circulate will include all non-Rule 430A information. This includes the price range and related information based on a *bona fide* estimate of the public offering price within that range. We may have further comments when you include pricing information and related disclosure.

Prospectus Summary, page 1

2. Please provide us with the basis for your belief that your company is a "leading provider" of highly integrated semiconductor processors.
3. Tell us what objective criteria you used to determine which customers to name in your summary, as well as the list of customers on page 48. Also tell us whether any other customers also satisfy those criteria.
4. We note your disclosure in the first paragraph that you generated revenue from over 100 customers in 2006. Please provide equally prominent disclosure of your reliance on a small number of customers, particularly F5 and Cisco Systems, for a significant portion of your historical revenues.
5. Please provide us with copies of the industry reports you cite in your prospectus. Clearly mark the relevant sections that support the data you have included in your prospectus and the page number of your prospectus where such data has been used. Also tell us whether the sources of the cited data have consented to your use of their names and data and whether any of the reports were commissioned by you or prepared specifically for your use.

The Offering, page 4

6. Please revise your disclosure in the third bullet point, and the similar disclosure under "Capitalization" on page 24, to indicate that the number of shares available for future issuance under your 2007 equity incentive plan does not include shares that may be available for future issuance pursuant to the automatic increase provisions relating to such plan.

Risk Factors

Fluctuations in the mix of products, page 10

7. Please tell us where you have disclosed the three-year revenue history by product class required by Regulation S-K Item 101(c)(1)(i).

Delaware law and our amended and restated certificate of incorporation..., page 21

8. Please also disclose the effects of your classified board on the risks described.

Special Note Regarding Forward-Looking Statements..., page 22

9. We note the second sentence of the third paragraph. You may not disclaim responsibility for disclosure in your prospectus. Please revise accordingly.
10. We note the last paragraph of this section. Please tell us the number of iSuppli directors and the percentage of iSuppli that Mr. Pantuso or his affiliates own. Also tell us whether all the data cited in your prospectus from iSuppli was publicly available before you filed your registration statement.

Use of Proceeds, page 23

11. We note from the last paragraph of footnote 13 to your financial statements on page F-26 that in the event of your initial public offering, you will be required to pay \$1.9 million under the described license agreement. With a view toward disclosure in an appropriate section of your document, please tell us the source of funds that you will use to make this payment, the identity of the party to which the payment will be made and the business purpose for tying a license agreement to a securities offering.

Capitalization, page 24

12. Please tell us why you believe it is appropriate to present cash and cash equivalents and capital lease and technology license obligations as part of your capitalization.

Dilution, page 25

13. We note the disclosure in the paragraph that immediately follows your second table regarding the dilutive effects if the underwriters exercise their over-allotment option. Please also describe how the numbers and percentages in the "total consideration" column in your second table would change due to the exercise of the over-allotment option.
14. We note your discussion of the further dilution to be experienced by your new investors to extent your outstanding warrants and stock options are exercised. Please also describe how the numbers and percentages in the "total consideration" and "average price per share" columns in your second table would change due to these exercises.

Management's Discussion and Analysis

Overview, page 29

15. We note your disclosure that you "primarily sell [y]our products to OEMs, either directly or through their contract manufacturers." In this regard:
- With a view toward disclosure, please tell us whether you experience materially different margins on your direct sales to OEMs and indirect sales through contract manufacturers;
 - Please clarify whether the contract manufacturers purchase your products as a result of OEMs designating your products for use or whether such sourcing decisions are made by the contract manufacturers; and
 - Please clarify whether you make any sales through contract manufacturers other than as a result of design wins with OEMs. For example, have you experienced a material amount of sales to contract manufacturers who use your products as commercial off-the-shelf products?

Revenue, page 33

16. Please revise to quantify the impact of the factors listed as contributors to the 76% increase in revenues in 2006 compared to 2005.
17. We see on page 29 that you commenced your first commercial shipment of the OCTEON family of processors and that you introduced a number of new products within all three of product family lines during 2006. Please revise to discuss the impact of the additional product offerings on your revenue during 2006, if material.

Cash Flows from Operating Activities, page 37

18. We reference your statement that the net cash used in operating activities consisted of net changes in operating assets and liabilities. Please revise to address material changes in the underlying drivers of operating cash flows (e.g., cash receipts from the sale of goods and services and cash payments for costs of goods sold). Refer to FR-72.

Foreign Currency Risk, page 42

19. Please expand your disclosure in this section to discuss the foreign currency risk associated with your expenses for wafer fabrication, assembly and test functions which we understand occur in Asia.

Business

Intellectual Property, page 49

20. We note your disclosure that you hold six United States patents. In accordance with Item 101(c)(1)(iv) of Regulation S-K, please disclose the importance, and the duration and effect, of the patents that you hold.
21. Please disclose the terms of the license mentioned in the last full risk factor on page 15.

Competition, page 50

22. Discuss your competitive position with respect to your competitors in greater detail. Please provide enough detail so that your investors will have a reasonable understanding of your relative standing in the product market segments in which you compete.

Management, page 52

23. Please indicate the month and year of the beginning and ending dates for the officer positions held by Mr. Reddy at Alliance Semiconductor. Please indicate the nature of the responsibilities undertaken by Mr. Reddy as the Vice President of Investments at Alliance Semiconductor.

Principal and Selling Stockholders, page 76

24. Please identify the natural persons with voting or investment power over the shares held by the entities affiliated with Alliance Ventures and Diamondhead Ventures.

Consolidated Financial Statements

25. Please update the financial statements as required by Rule 3-12 of Regulation S-X.

Note 1. Organization and Significant Accounting Policies, page F-7

Revenue Recognition, page F-10

26. We see from page F-17 that you have \$628,000 of deferred revenue recorded as of December 31, 2006. Please revise to disclose the terms of your revenue arrangements that resulted in the recognition of deferred revenue.

Note 5. Acquisitions, pages F-15 and F-16

27. Please revise to disclose the specific nature of the developed technology acquired and how it will be used in your operations.

Note 6. Intangible Assets, page F-17

28. Please revise the footnotes to clarify the reason for the significant increase in depreciation and amortization for fiscal 2006. In addition, tell us the nature of the prepaid technology leases and clarify the related accounting treatment for these assets. Additionally, please tell us about the \$2.9 million payment for technology license obligations and the \$3.4 million non-cash amount for capital lease and technology related obligations included in the statement of cash flows for fiscal 2006.

Note 9. Mandatorily Redeemable Convertible Preferred Stock and Stockholders' Deficit, page F-18

Stock Options and Unvested Common Stock, page F-21

29. Please note that we are deferring any final evaluation of stock compensation until the estimated offering price is specified, and we may have further comments in that regard when you file the amendment containing that information.
30. Please provide us with a schedule showing in chronological order, the date of grant, optionee, number of options granted, exercise price and the fair value of the underlying shares of common stock for the options issued within the year preceding the contemplated IPO. Please indicate the compensation recorded, if any, for each of these issuances and reconcile to the amounts recorded in the financial statements. Tell us the objective evidence and analysis which supports your determination of the fair value at each grant and stock issuance date. Discuss the nature of any events which occurred between the dates the options were granted and the date the registration statement was filed. In addition, provide details of estimated pricing information from the underwriters and indicate whether this was considered in determining estimated fair value of the stock and options issued.
31. For options granted during the twelve months prior to the date of the most recent balance sheet, please disclose the following in the notes to your financial statements:
- The method used to determine the fair value of your stock on the stock option grant dates;
 - For each grant date, the number of options granted, the exercise price, the fair value of your common stock, and the intrinsic value (if any) per option;

- If the valuation specialist was a related party, please disclose that fact; and
- Whether the valuation was contemporaneous or retrospective.

Note 12. Segment Information, page F-25

32. Please tell us why you should not present revenues from external customers for each product and service, as required by paragraph 37 of SFAS 131.

Note 13. Commitments and Contingencies, page F-25

33. Please revise to disclose the nature of the technology license obligations, including any significant terms. Please tell us the relationship, if any, between this obligation and the technology license that is capitalized as an intangible asset at December 31, 2006.

Part II of Registration Statement

Item 13. Other Expenses of Issuance and Distribution, page II-1

34. Please include as a separate item any premium paid on any policy obtained in connection with your offering which insures or indemnifies directors or officers against any liabilities they may incur in connection with the registration, offering or sale of your securities. Refer to Instruction to Item 511 of Regulation S-K.

Item 17. Undertakings, page II-4

35. Please note that due, in part, to the language of Securities Act Rule 430C(d), the undertakings included in Item 512(a)(5)(ii) and 512(a)(6) of Regulation S-K should be included in filings for initial public offerings. Please revise your filing to include those undertakings.

Exhibit 23.1

36. Please include a currently dated and signed consent from your independent auditors prior to requesting effectiveness.

* * * * *

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 urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that they have provided all information required 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.

Notwithstanding our comments, in the event the company requests acceleration of the effective date of the pending registration statement, it should furnish a letter, at the time of such request, acknowledging that:

- should the Commission or the staff, acting pursuant to delegated authority, declare the filing effective, it does not foreclose the Commission from taking any action with respect to the filing;
- the action of the Commission or the staff, acting pursuant to delegated authority, in declaring the filing effective, does not relieve the company from its full responsibility for the adequacy and accuracy of the disclosure in the filing; and
- the company may not assert staff comments and the declaration of effectiveness 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 connection with our review of your filing or in response to our comments on your filing.

We will consider a written request for acceleration of the effective date of the registration statement as a confirmation of the fact that those requesting acceleration are aware of their respective responsibilities under the Securities Act of 1933 and the Securities Exchange Act of 1934 as they relate to the proposed public offering of the securities specified in the above registration statement. We will act on the request and, pursuant to delegated authority, grant acceleration of the effective date.

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 12, 2007
Page 9

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.