



DIVISION OF
CORPORATION FINANCE

Mail Stop 6010

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

October 24, 2006

Michael Gray
Chief Financial Officer
Mellanox Technologies, Ltd.
2900 Stender Way
Santa Clara, California 95054

**Re: Mellanox Technologies, Ltd.
Registration Statement on Form S-1
Filed September 28, 2006
Registration No. 333-137659**

Dear Mr. Gray:

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.
2. 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.

3. Please limit the use of defined abbreviations or acronyms. To the extent that you believe acronyms are necessary, define them in each discussion where you use them. Readers should not have to search through the filing to find the full name for the acronym you create. For example, you identify ASE and TSMC on page 8, but not on page 53.

Graphics

4. We note the depictions of and the end user markets indicated in the bullet points included in the graphics that appear before the outside back cover page of your prospectus. Please either confirm that you have historically received a material portion of your revenues from the end user markets depicted or indicated, or remove the references to and the depictions of those end user markets from your graphics. By way of example only, we note that you do not mention the geosciences end user market in any other location in your prospectus.

Table of Contents

5. We note that the first sentence in the paragraph appearing before your table of contents cautions investors that they "should rely only on the information contained in this prospectus." Please consider whether this statement, in its current form, is consistent with your ability to use free writing prospectuses.

Prospectus Summary, page 1

6. Please provide us with support for your disclosure that you are "the leading merchant supplier of field-proven InfiniBand semiconductor products that deliver industry-leading performance and capabilities." Please disclose in an appropriate location in your prospectus how your products deliver performance or capabilities that exceed the specifications established by the InfiniBand standard.
7. Please include reliable industry data which indicates the current market share of InfiniBand-based products and the size of the relevant markets. For example, we note your disclosure on page 44 that IDC predicts that approximately 4% of the server market will integrate InfiniBand-based products in 2006. In addition, to the extent you have reliable industry data, please disclose the share of the relevant markets that are currently occupied by competing standards such as Gigabit Ethernet, 10 Gigabit Ethernet and Fibre Channel.

8. Please state in this section that your products based on the InfiniBand standard compete against the products of other vendors that are based on other established standards such as Gigabit Ethernet, 10 Gigabit Ethernet and Fibre Channel.
9. We note your disclosure that your products are incorporated into the servers produced by the five largest server vendors. Please tell us how you have determined that your products are incorporated into the servers of those vendors.
10. Expand the disclosure at the bottom of page two to explain that substantially all of your assets, most of your officers and directors, and most of your employees are located in Israel.
11. Please state the name and address of your agent for service of process in the United States.

The Offering, page 3

12. We note your disclosure in the third full paragraph on page 79 regarding the expiration dates for your outstanding warrants. From that disclosure, it appears that some of your outstanding warrants may have expired on October 9, 2006 and that all of those warrants will expire upon the closing of your offering. In your fifth bullet point on page 3, and in each other occurrence of similar disclosure, please clarify the status of the expiration of the warrants and update your prospectus to disclose whether any currently outstanding warrants have been or will be exercised prior to the closing of your offering.

Summary Consolidated Financial Data, page 4

13. Please revise to remove the "total stock-based compensation expense" caption from the table included as a footnote to your summary consolidated financial data. Otherwise, as indicated in SAB Topic 14-F, please revise the statement to present the related stock-based compensation charges in a parenthetical note to the appropriate income statement line items. That guidance also indicates that you may present the information in the notes to the financial statements or within MD&A.

Risk Factors, page 6

We depend on a small number of customers..., page 7

14. Identify each customer that accounted for 10% or more of revenues for the periods noted. Also disclose which customer ordered fewer products in 2006, and quantify the decline in revenues as a result.

Regional instability in Israel..., page 14

15. Clarify that substantially all your assets are located in Israel.

It may be difficult..., page 16

16. Expand to disclose how many of your executive officers and directors are located in the U.S. and how many are in Israel.

Provisions of our charter documents or Israeli law..., page 20

17. Please expand your first bullet point to also disclose that your not having cumulative voting provisions may also contribute to your shareholders' inability to replace or remove your board of directors.

Dilution, page 25

18. We note your discussion of the further dilution to be experienced by your new investors to the extent your outstanding options or warrants are exercised. Please also explain how the numbers and percentages in the "shares purchased," "total consideration" and "average price per share" columns in your second table would change due to these exercises.
19. Please disclose the dilution to be experienced by your new investors if the underwriters exercise their over-allotment option in full, including the pro forma net tangible book value per share, the increase in net tangible book value per share to your existing stockholders, and the dilution to new investors per share.

Conversion of Series D Preferred Shares, page 26

20. Please confirm to us that the amount that you will use in the first blank in your second paragraph will be based on the mid-point of the pricing range you include in your preliminary prospectus.

Management's Discussion and Analysis of Financial Condition and Results of Operations, page 29

General, page 29

21. We note that you have entered into various license, royalty and research and development agreements. These agreements appear to have a material impact on your results of operations and liquidity. Management Discussion and Analysis should describe and quantify the known or expected impact the agreements will have on your financial statements. Specifically:
- Please revise MD&A to clearly disclose the significant terms of each agreement.
 - Revise to discuss the potential impact upon operating results and cash flows of the agreements, including payment of royalties, grant reimbursements or other agreement termination payments, including any contingent payments.
 - Revise to discuss the amounts recorded in the financial statements for these agreements.
 - Revise critical accounting policies to describe your accounting policy for recognizing cost reimbursements under these agreements.

Comparison of Six Months Ended June 30, 2006..., page 34

Revenues, page 34

22. Please identify the customer that represented approximately 53% of your revenues in the six months ended June 30, 2005, but 10% of your revenues in the six months ended June 30, 2006. If this customer is Cisco, please also provide management's analysis of how Cisco's acquisition of TopSpin Communications, a provider of InfiniBand-based solutions, or Cisco's other in-house capabilities to provide InfiniBand-based solutions, affected your sales for the periods compared.

Liquidity and Capital Resources, page 37

23. Please clarify whether the payments mentioned in the last sentence of the second paragraph of this section are the payments owed to Vitesse that are described under "Intellectual Property" on page 54.

Contractual Obligations, page 38

24. We note that you are required to make payments under license, royalty and research and development arrangements. Item 303(a)(5) of Regulation S-K

requires the disclosure of known contractual obligations, including other long-term liabilities reflected on your balance sheet under GAAP. Please tell us how your current presentation complies with the guidance in Item 303 of Regulation S-K and FR 67; *Disclosure in Management's Discussion and Analysis about Off-Balance Sheet Arrangements and Aggregate Contractual Obligations*.

Business, page 41

25. Please revise your "Business" section to include a more robust comparison of your products, based on the InfiniBand standard, versus the products of your competitors that are based on other existing networking standards, such as 10 Gigabit Ethernet and Fibre Channel. Include in your disclosure a more thorough comparison of these standards based on relevant metrics such as throughput, latency and fault tolerance, etc. To the extent known, please discuss any recent advances in the alternative standards that have closed the gap between those standards and InfiniBand in terms of the relevant metrics.
26. Please include a discussion of any disadvantages of products based on the InfiniBand standard versus products based on the other existing standards which compete against InfiniBand. Disclose whether there is a common certification standard for InfiniBand technology or proven interoperability among the various vendors offering InfiniBand-based products.

Overview of InfiniBand and OpenFabrics, page 44

27. We note your disclosure that "products based on the InfiniBand standard are well positioned to become the leading high-performance interconnect solution." Please provide us with independent, objective support for this disclosure.
28. We note your disclosure that IDC predicts that 4% of the server market in 2006 will integrate InfiniBand products, and that usage of InfiniBand in servers is expected to increase at a 40% compound annual growth rate. Please also disclose the predicted percentage of the server market that will integrate InfiniBand products in 2010.
29. We note the disclosure in the last sentence of the paragraph that ends at the top of page 45. Please clarify, if true, that the shipments of Fibre Channel adapters are representative of the market opportunity for InfiniBand-based storage applications only to the extent that those sales are converted into sales of products based on the InfiniBand standard. Please disclose the market share of the storage systems market currently held by products based on Fibre Channel and whether vendors of products based on 10 Gigabit Ethernet are also targeting this market.

Customers, page 51

30. We note your disclosure that Cisco accounted for approximately 44% of your net revenues for the year ended December 31, 2005 and for approximately 10% of your net revenues for the six months ended June 30, 2006. Please clarify whether Cisco's ability to provide an in-house InfiniBand-based solution, through its acquisition of Topspin Communications or otherwise, has adversely affected your sales to Cisco for periods subsequent to 2005.

Requirements Associated with OCS, page 53

31. Expand to more specifically state whether or not you are in compliance with OCS requirements. For example, does manufacturing by TSMC and ASE comply? If there is a risk that you are not in compliance or have not received the proper consents, expand to discuss how this may affect your manufacturing, operating results and financial condition.

Employees, page 54

32. Please disclose here, or in another appropriate location in your prospectus, where the executive officers and significant employees named in your "Management" section are located.

Intellectual Property, page 54

33. We note that you have not disclosed the amount of either the royalty or guaranteed minimum payments that you have agreed to make to Vitesse. Please tell us how you have determined that this information would not be material to your investors. In addition, please disclose when you will make the guaranteed minimum payment to Vitesse.

Management, page 57

34. Please disclose the business experience of Mr. Gray between July 2004 and December 2004.

Director Compensation, page 64

35. We note your disclosure in the third full paragraph that on the date of each annual meeting, each individual who continues to serve as a non-employee director on such date will receive an automatic option grant to purchase ordinary shares. Please disclose the number of shares that will be included in each such option grant.

Employee Benefit Plans and Change of Control Arrangements, page 67

36. Please include a description of the material terms and provisions of your 2006 Global Share Incentive Plan and file the plan as an exhibit to your registration statement.

Change of Control Arrangements, page 70

37. Please state which of your named executive officers located in the United States holds an option which includes an acceleration feature.

Principal Shareholders, page 76

38. Please identify the natural person(s) with voting and investment power over the shares held by Intel Atlantic, Inc. Also disclose whether this entity is affiliated with Intel Corporation.
39. Please either expand the disclosure in your table under "Executive Officers and Directors" to include the beneficial ownership of Messrs. Ashuri and Kagan or revise the number of executive officers and directors, as a group, as indicated in the parenthetical in the last row of your table.
40. Please expand your disclosure in footnote 4 to identify the natural person(s) with voting and investment power over the shares held of record by SITP VIII-Q Liquidating Trust, SITP VIII Liquidating Trust and by Sequoia 1997.
41. Please expand your disclosure in footnote 5 to identify the holder of record of the shares indicated in clause (iii) of footnote 5.
42. Please identify the natural person(s) with voting and investment power over the shares held by Yigal Arnon & Co.
43. Please clarify the natural person(s) with voting and investment power over the shares held by the record holders named in clauses (i) through (v) of footnote 10.

Description of Authorized Share Capital, page 79

44. We note the disclosure in the second paragraph that all of your issued and outstanding ordinary shares are "duly authorized, validly issued, fully paid and non-assessable." This disclosure appears to be the opinion of legal counsel. If so, please revise your disclosure to indicate on whose opinion you have relied in making this disclosure and file all required consents.

Acquisitions under Israeli Law, page 81

45. We note the disclosure in the second paragraph that Israeli law treats some acquisitions, particularly stock-for-stock swaps, less favorably than U.S. tax law. Please expand your "Risk Factor" section to include appropriate disclosure regarding these differences.

U.S. Federal Income Tax Considerations, page 89

Passive Foreign Investment Company Considerations, page 91

46. Clarify how fluctuations in the market price of your ordinary shares may affect the determination of whether you will be considered a PFIC.

Financial Statements, page F-1

47. Consideration should be given on an ongoing basis to the updating requirements of Rule 3-12 of Regulation S-X. An updated accountant's consent should be included with any amendment to the filing.

Consolidated Balance Sheets, page F-4

48. We see that the pro forma data in your filing is not complete. We will review this pro forma data once you complete the disclosures.

Note 2 – Balance Sheet Components, page F-15

Other long-term obligations, page F-17

49. Please reconcile "other long-term liabilities" as of December 31, 2005 presented on the face of your consolidated balance sheet of \$4,097,000 and the \$2,505,000 presented in this note.
50. We note that "accrued severance payable" exceeds 5% of total liabilities. Please revise to disclose separately on the face of your consolidated balance sheet. Refer to the guidance in Rule 5-02.24 to Regulation S-X.

Note 4 – Intangible Assets, page F-17

51. We note that as of December 31, 2005 and June 30, 2006, you owed approximately \$1.6 million and \$1.4 million, respectively, to a third party under an intangible asset purchase agreement. Please revise the filing to clearly disclose

where these amounts are recorded on your consolidated balance sheets. Also, revise to disclose the significant terms of the license agreement, specifically the amount of royalties due per product sold that you are required to pay.

52. In this regard, we note the disclosure on page 37, that the \$1.4 million license payment is due before December 31, 2006. Please reconcile with page F-17 which states the amounts must be paid by January 31, 2007.

Note 5 – Severance, page F-17

53. Revise to reconcile the disclosure in the note with page 54, which states “Israeli law generally requires severance pay equal to one month’s salary for each year of employment upon the retirement, death or termination without cause of an employee.”

Note 8 – Commitments and Contingencies, page F-18

Royalty Obligations, page F-19

54. We note that you are obligated to pay royalties to the Government of Israel on the sale of products from the grants received from the Office of Chief Scientist. Please tell us more about the significant terms of these grants. Explain what you mean when you state (page 17) that if you “fail to comply with any of the conditions imposed by the Office of the Chief Scientist” you may be required to refund any payments previously received together with interest and penalties. Explain over what period or periods these restrictions apply. Explain your accounting in greater detail and demonstrate whether and how it complies with SFAS 68 and SFAS 5. Discuss why you believe accounting for your government-sponsored research and development is appropriate under U.S. GAAP. Refer to paragraph 3 of SFAS 68 in your response.
55. In this regard, revise to disclose that you are prohibited from transferring the technology developed with these grants outside of Israel and there are also restrictions on manufacturing the product outside of Israel, as discussed in your business section. Revise MD&A to discuss the potential impact upon revenues, operating results and cash flows, your intent to manufacture outside of Israel on some of your grant applications, as discussed on page 53.

Note 9 – Mandatorily Redeemable Convertible Preferred Shares and Convertible Preferred Shares, page F-20

56. To help us better understand your classification and accounting for each class of preferred stock and warrants please address the following:

- Describe the material terms of all related agreements, such as registration rights agreements, details of adjustable conversion terms or details of all anti-dilution provisions. Include any circumstances that you may be required to pay penalties or can only provide registered shares.
- Describe how you have accounted for each class of convertible preferred stock and related warrants, including any embedded derivatives requiring bifurcation pursuant to SFAS 133 and EITF 00-19.

In this regard, as applicable, please refer to the guidance provided in SFAS 150, EITF 05-04, EITF 00-19 and the Division of Corporation Finance's Current Accounting and Disclosure Issues Outline at <http://www.sec.gov/divisions/corpfin/acctdis120105.pdf>.

Note 11 – Share Option Plans, page F-23

57. Provide us with an itemized chronological schedule detailing each issuance of your common shares, preferred shares, warrants and stock options since October 2005 through the date of your response. Include the following information for each issuance or grant date:

- Number of shares issued or issuable in the grant
- Purchase price or exercise price per share
- Any restriction or vesting terms
- Management's fair value per share estimate
- How management determined the fair value estimate
- Identity of the recipient and relationship to the company
- Nature and terms of any concurrent transactions with the recipient
- Amount of any recorded compensation element and accounting literature relied upon to support the accounting.

In the analysis requested above, highlight any transactions with unrelated parties believed by management to be particularly evident of an objective fair value per share determination. Please provide us with a chronological bridge of management's fair value per share determinations to the current estimated IPO

price per share. Also, indicate when discussions were initiated with your underwriter(s) about possible offering price ranges. We will delay our assessment of your response pending inclusion of the estimated IPO price in the filing.

Part II

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

58. 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-3

59. 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.

Exhibits

60. We note that you have requested confidential treatment with regard to several of your of your exhibits. We will review and provide comments on your request separately. Please resolve all comments before requesting acceleration of the effectiveness of this registration statement.

* * * * *

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.

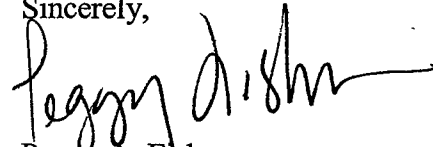
We will consider a written request for acceleration of the effective date of the registration statement as a confirmation of the fact that those requesting acceleration are aware of their respective responsibilities under the Securities Act of 1933 and the Securities Exchange Act of 1934 as they relate 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.

Michael Gray
Mellanox Technologies, Ltd.
October 24, 2006
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You may contact Kevin Kuhar at (202) 551-3662 or Angela Crane at (202) 551-3554 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) 551-3800 with any other questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Peggy A. Fisher", with a long horizontal flourish extending to the right.

Peggy A. Fisher
Assistant Director

cc (via fax): Alan C. Mendelson, Esq.
Mark V. Roeder, Esq.