

December 29, 2011

Via EDGAR Submission and Overnight Delivery

Securities and Exchange Commission
100 F Street, N.E.
Washington, D.C. 20549

Attn: Pamela A. Long, Assistant Director

Re: Proto Labs, Inc.
Amendment No. 4 to Registration Statement on Form S-1
Filed: December 29, 2011
File No.: 333-175745

Ladies and Gentlemen:

Proto Labs, Inc., a Minnesota corporation (the "Company"), has today filed with the Securities and Exchange Commission, pursuant to the requirements of the Securities Act of 1933, as amended, an Amendment No. 4 to its Registration Statement on Form S-1 ("Amendment No. 4").

On behalf of the Company, we are writing to respond to the comments raised in the letters to the Company dated November 17, 2011 and December 13, 2011 from the staff of the Securities and Exchange Commission (the "Staff"). The Company's responses below correspond to the captions and numbers of those comments (which are reproduced below in italics). For your convenience, copies of Amendment No. 4 are enclosed, and have been marked to show changes from Amendment No. 3 to the Registration Statement on Form S-1 filed on October 26, 2011. Where applicable, we have referenced in the Company's responses the appropriate page number of Amendment No. 4. Capitalized terms used in this letter, but not otherwise defined, have the meanings assigned to them in Amendment No. 4.

1. We note your disclosure that international sales comprise 25% of your consolidated revenue. We also note the disclosure on pages 3 and 4 about your strategy to increase your international sales and expand into new geographic markets. The disclosure on page 68 indicates that this strategy also entails an expansion in your Japanese operations. Your "global business" risk factor on pages 13-14 outlines specific risks relevant to your foreign operations; however, there does not appear to be a disclosure that informs readers about the extent to which any of these risks have actually impacted your operating results. Consequently, the concerns expressed in comments 24 and 5 from our August 19, 2011 and September 15, 2011 letters, respectively, are still applicable. We understand that you added a disclosure on page 34 that your "current international operations are not profitable in all markets," a fact that was already self-evident from your disclosure on page F-19. You also added a disclosure that foreign losses were attributable to "the costs associated with adapting our U.S. marketing strategies to international markets, starting production and administering our activities." It is not clear how this disclosure can reasonably be expected to enable readers to understand the substantial disparity between your domestic and foreign profit margins given that "marketing strategies" and "administering" activities are generic functions characteristic of all businesses. Consequently, we reiterate our request that this section be expanded to specifically correlate the relevant factors identified on pages 13-14 with the disproportionately low profit margins reflected on page F-19. Other material causal factors should also be fully explained. Your explanation should be consistent with the conclusion disclosed on page F-20 that "The valuation allowances established for foreign subsidiaries are due to lack of sufficient positive evidence to realize the deferred tax assets associated with the net operating losses." Further, the circumstances which precipitated your 2010 impairment charge should be fully explained. As previously noted, the guidance in Sections 501.06 and 501.12.b.4 of the Financial Reporting Codification appear relevant to this issue.

Response: In response to the Staff's comment, the Company has revised page 14 of Amendment No. 4 to affirmatively state that many of the listed risk factors have adversely affected its international operations, page 34 of Amendment No. 4 to expand on its discussion of why its international operations are not profitable in all markets, and page 36 of Amendment No. 4 to provide additional context to its write-down of certain foreign assets in 2010.

2. The disclosure on page 40 states that your September 30, 2011 effective tax rate is less than your September 30, 2010 effective tax rate "due primarily to the qualified subsidiary election made in 2010 for our Japanese subsidiary." However, the disclosure on page 42 states that the qualified subsidiary election had the impact of decreasing your 2010 effective tax rate. Consequently, there is a concern that readers may not understand how a "non-recurring" tax strategy that favorably impacted your 2010 tax provision could have caused a further reduction in your 2011 tax provision. Please revise your disclosure to clarify this apparent inconsistency.

Response: In response to the Staff's comment, the Company has revised page 41 of Amendment No. 4 to clarify that the reason its effective tax rate in the first nine months of 2011 was less than its effective tax rate in the first nine months of 2010, despite the fact that the qualified subsidiary election decreased the effective tax rate in 2010, was because such election did not occur until the fourth quarter of 2010. Accordingly, the election's impact was not reflected in the Company's effective tax rate in the first nine months of 2010 but did affect its effective tax rate in the first nine months of 2011. The Company also revised its disclosure on page 43 of Amendment No. 4 to note that the election was made in the fourth quarter of 2010. Finally, the Company expanded its discussion of the provision for income taxes on page 36 of Amendment No. 4, including an expanded discussion of the election.

3. *Please disclose why a 2.9% 2010 fourth quarter effective tax rate is reflected on page 45 and whether this indicates that the tax provision in prior 2010 quarters was overstated. See the analogous guidance in ASC 270-10-50.*

Response: The Company respectfully advises the Staff that the qualified subsidiary election made in the fourth quarter of 2010 explains why the Company's effective tax rate was approximately 2.9% for that quarter. The qualified subsidiary election resulted in a tax deduction in the fourth quarter of 2010 and ongoing deductions in subsequent periods. The Company respectfully advises the Staff, based on the timing of this deduction and its review of ASC 270, that it believes it has met the requirements of ASC 270-10-50 and that the effective tax rates for all periods in 2010 were properly stated.

Financing Arrangements, page 49

4. *With respect to the September 2011 amended and restated credit agreement, please revise the second paragraph of your disclosure to quantify the financial thresholds you must comply with pursuant to the terms of the agreement.*

Response: In response to the Staff's comment, the Company has revised page 53 of Amendment No. 4 to quantify the financial thresholds with which it must comply pursuant to the terms of the amended credit agreement.

Report of Independent Registered Public Accounting Firm, page F-2

5. *Based on your disclosure on page 5 it appears that you will be affecting a forward stock split in connection with your offering. In accordance with ASC 505-10-S99-4, please revise your financial statements and your disclosures throughout the filing to give retroactive effect to the expected stock split. If your auditors believe that only a “draft” report can be presented, due to a pending future event such as the stock split, they must include in the filing a signed and dated preface to their “draft” report stating the reason for the “draft” report and that they expect to be in a position to issue the report in the form presented prior to effectiveness. The signed, dated, and unrestricted auditor’s report must be included in the filing prior to effectiveness. See Rule 2-02 of Regulation S-X.*

Response: The Company acknowledges the Staff’s comment and hereby confirms that it will revise its financial statements and its disclosures throughout the Registration Statement to give retroactive effect to the expected stock split in a subsequent amendment to the Registration Statement prior to effectiveness.

Note 15 – Segment and Geographic Information, page F-22

1. *We have reviewed your letter dated December 5, 2011 and are unable to conclude that your presentation of one reportable segment complies with the guidance in ASC 280. The concerns expressed in our prior comment letters remain applicable. In your next amendment, please revise your financial statements and expand MD&A to provide a substantive and informative explanation of each segment’s operating results.*

Response: In response to the Staff’s comment, the Company has revised pages 35, 39, 40, 42, 45, 47, 48, F-22, F-23 and F-24 of Amendment No. 4 to provide a substantive and informative explanation of its geographically-based reportable segments.

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Finally, the Company will furnish a letter at the time it requests acceleration of the effective date of the Registration Statement acknowledging the statements set forth in the Staff’s comment letter.

In connection with responding to your comments, we acknowledge that the Company is responsible for the adequacy and accuracy of the disclosure in the filing, that 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 that the Company may not assert Staff comments as a defense in any proceedings initiated by the Commission or any person under the federal securities laws of the United States.

We hope that the foregoing has been responsive to the Staff’s comments. Should you have any questions relating to any of the foregoing, please feel free to contact the undersigned at (612) 766-7136.

Very truly yours,

/s/ W. Morgan Burns
W. Morgan Burns

Enclosure

cc: Bradley Cleveland
Proto Labs, Inc.
Kenneth Guernsey
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