

September 26, 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. 2 to Registration Statement on Form S-1
Filed September 26, 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. 2 to its Registration Statement on Form S-1 ("Amendment No. 2").

On behalf of the Company, we are writing to respond to the comments raised in the letter to the Company, dated September 15, 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 the amended Registration Statement are enclosed, and have been marked to show changes from Amendment No. 1 to the Registration Statement on Form S-1 filed on August 31, 2011. Where applicable, we have referenced in the Company's responses the appropriate page number of Amendment No. 2. Capitalized terms used in this letter, but not otherwise defined, have the meanings assigned to them in the amended Registration Statement.

Prospectus Summary

Overview, page 1

1. We note your response to comment 11 in our letter dated August 19, 2011. In an appropriate section of the filing, please revise your disclosure to incorporate your response articulating the basis of your market leadership position.

Response: In response to the Staff's comment, the Company has added disclosure on page 65 of Amendment No. 2.

2. We note your response to comment 12 in our letter dated August 19, 2011. We continue to believe that your disclosure of a "significant growth" in total revenues should be counter-balanced by quantifiable disclosure regarding the change in your operating expenses during the same time period. Such disclosure will allow investors to quickly ascertain the measure by which your business has grown. We note for example, that your disclosure in the last paragraph on page 34 does not quantify the increase in your operating expenses.

Response: In response to the Staff's comment, the Company has added disclosure on pages 34 and 57 of Amendment No. 2.

Our Industry and Market Opportunity, page 1

3. We note your response to comment 13 in our letter dated August 19, 2011. We have also reviewed the supplemental information provided in response to that comment. The disclaimer on the cover page of the Jon Peddie Research Report states that the report is made available "to a restricted number of clients" and that the "[r]eproduction or disclosure in whole or in part to parties other than the John Peddie Research client who is not the original subscriber to th[e] report is permitted only with the written and express consent of Jon Peddie Research." Please advise, or otherwise file a consent by Jon Peddie Research in accordance with Rule 436 of Regulation C and Section 7 of the Securities Act of 1933.

Response: The Company advises the Staff that, notwithstanding the language on the cover page of the Jon Peddie Research Report stating that it is made available to a "restricted number of clients," the Company obtained a copy of the report without being a client of Jon Peddie Research, and was not required to pay for the report. The Company further advises the Staff that, in light of the language on the cover page of the report requiring written and express consent from Jon Peddie Research in order to disclose the contents of the report, the Company did seek and obtain such consent with respect to its use of the information in the Registration Statement. However, again, Jon Peddie Research gave such consent without requiring the payment of any fee. Further, as noted in our prior response to comment 13 in the Staff's letter dated August 19, 2011, the Jon Peddie Research Report was not prepared specifically for, or at the request of, the

Company, and the report is publicly available or available through subscriptions that are available to the public for a nominal fee. Accordingly, the Company does not believe that Jon Peddie Research should be considered an expert within the meaning of Rule 436 and Section 7 of the Securities Act and, as a result, does not believe that it is required to file a consent from Jon Peddie Research as an exhibit to the Registration Statement.

Management's Discussion and Analysis of Financial Condition and Results of Operations, page 34

Results of Operations, page 37

4. *We have read your response to comment 22 in our letter dated August 19, 2011. You disclose on page 39 that your overall revenue growth was driven by a 62.6% increase in U.S. revenue, a 53.4% increase in international revenue, a 53.1% increase in Protomold revenue and a 87.8% increase in Firstcut revenue, in each case for the six months ended June 30, 2011 compared with the same period in 2010. However, you do not provide an analysis that explains the underlying reasons for the increase in U.S / International revenue and Protomold / Firstcut revenue. For example, if sales increased as a result of your marketing efforts that you discuss on pages 3, 40, and 61, please amend your filing to disclose marketing as a contributing factor to the increase in sales. Additionally, if you determine that market opportunities, as discussed on page 58, contributed to increased sales please amend your filing to discuss the impact on sales related to the increase in market size. This comment is also applicable to your analysis of cost of revenue and gross profit. See Section 501.04 of the Financial Reporting Codification.*

Response: In response to the Staff's comment, the Company has added disclosure on pages 39, 41 and 43 of Amendment No. 2.

5. *We have read your response to comment 24 in our letter dated August 19, 2011. Please expand MD&A to fully explain the factors which have adversely impacted the profit margins of your international operations. In this regard, we again reference your prior disclosure regarding international gross margins being less than domestic gross margins. We also note the disclosure on page 12 that the geographic distribution of sales could materially impact your operating results. The disclosure on page 13 indicates that economic conditions in foreign markets materially impact your operating results. The disclosure on page F-14 states that a 2010 impairment charge was required at your Japanese subsidiary. The disclosure on page F-19 indicates that your international operations have been unprofitable since 2009. Given the materiality of your foreign sales and assets and that you intend to expand your international operations (page 4), please disclose the specific factors that have materially impacted your foreign operations. Also, please disclose any known financial or non-financial trends that could cause an impairment in your foreign assets. See Section 501.12.b.4 of the Financial Reporting Codification.*

Response: In response to the Staff's comment, the Company has added disclosure on pages 34 and 36 of Amendment No. 2.

Gross Margin, page 39

6. We note that higher capacity utilization positively impacted your gross margins in both 2010 and 2011. Please either quantify your estimated capacity utilization or provide a disclosure that enables an investor to understand the extent to which your existing capacity is being used. Absent such disclosure, a reader cannot assess the extent to which this factor can positively impact future periods i.e. similar future benefits would not be expected if you are near 100% capacity utilization. See Section 501.12.b.3 of the Financial Reporting Codification.

Response: In response to the Staff's comment, the Company has added disclosure on pages 35 and 36 of Amendment No. 2.

Provision for income taxes, page 40

7. Please provide a disclosure explaining why your June 30 effective tax rate decreased from 38% to 32% in 2011.

Response: In response to the Staff's comment, the Company has added disclosure on page 40 of Amendment No. 2.

Liquidity and Capital Resources, page 46

8. Please disclose your estimated capital expenditures for the next year. See Item 303(a)(2) of Regulation S-K.

Response: In response to the Staff's comment, the Company has added disclosure on page 48 of Amendment No. 2.

Financing Arrangements, page 49

9. We note your response to comment 29 in our letter dated August 19, 2011. Based on your "Sources of Liquidity" disclosure where you state that you have historically financed your operations through, among other things, bank loans, and on your comprehensive "Financing Arrangements" disclosure on page 49, please provide us with a detailed analysis of your conclusion that the line of credit agreement does not constitute a material agreement to your business. Please ensure that you address in your analysis why the existence of outstanding debt plays a factor in determining whether the agreement is material to your business, considering that you may tap into the credit line at any time as long as you are in compliance with the various covenants of the agreement. Also, please further revise your disclosure to clearly specify what the "certain financial thresholds" under the agreement are.

Response: The Company respectfully advises the Staff that it continues to believe that the line of credit agreement currently described in the Registration Statement is not material, primarily due to the low maximum borrowing amount under the agreement relative to the Company's balance sheet and cash flow. However, the Company is in the process of considering a new credit facility to replace the existing facility and will reexamine the materiality of any new agreement entered into in connection therewith.

Business, page 57

Our competitive Advantages, page 60

Expand into New Geographic Markets, page 62

10. *Please revise your disclosure at the end of the paragraph to disclose the "select new geographical regions" where you plan to expand.*

Response: In response to the Staff's comment, the Company has revised the disclosure on pages 4 and 62 of Amendment No. 2 to clarify that, while it does not currently have specific plans to expand into any particular geographic market, it believes there may be growth opportunities by expanding into additional geographic markets and it expects to continue to evaluate such opportunities if and when they arise.

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

11. *As previously requested, please provide us with copies of your CODM reports for all periods presented. In order for us to complete our analysis, please furnish all reports that contained any operating results information pertaining to your business activities, and that were provided to the CODM on a periodic basis during 2010-2011. If the CODM received reports with disaggregated financial information on a geographic or subsidiary basis then those reports should also be provided. Multiple versions of the same report need not be provided if year-to date versions of that report are available. If for 2008 or 2009 similar versions of each report were provided to the CODM, then that data should also be provided.*

Response: The Company advises the Staff that the requested CODM reports for all periods presented have been included in Supplement A to the courtesy copies of this letter delivered to the Staff. The Company has requested confidential treatment of Supplement A pursuant to the SEC's Rule 83.

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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
Cooley LLP
Charles Kim
Cooley LLP

Supplement A

CODM Reports

See attached.