



DIVISION OF
CORPORATION FINANCE

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

July 22, 2010

Steven Nasiri
President, Chief Executive Officer
and Chairman
InvenSense, Inc.
1197 Borregas Avenue
Sunnyvale, CA 94089

**Re: InvenSense, Inc.
Registration Statement on Form S-1
Filed June 28, 2010
File No. 333-167843**

Dear Mr. Nasiri:

We have reviewed your registration statement and have the following comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter by amending your registration statement and providing the requested information. If you do not believe our comments apply to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing any amendment to your registration statement and the information you provide in response to these comments, we may have additional comments.

General

1. Please confirm that any preliminary prospectus you circulate will include all share related information not permitted to be omitted pursuant to Rule 430A. This includes the price range and related information based on a *bona fide* estimate of the public offering price within that range, as well as the volume of securities to be offered. We may have further comments after you file this disclosure and the remaining exhibits.

Prospectus Summary, page 1

2. Please provide independent support for the statements in the first sentence under the caption “InvenSense” on page 1 and for the statements regarding the competitive advantages of your product in the bullet-points on page 2.
3. Please revise to include net earnings and loss measures to accompany your statements of revenue in the first paragraph of this section.
4. Please revise your summary to disclose the extent of your dependence on Nintendo and that your sales to Nintendo derive from the incorporation of your products into an accessory for the Wii video game console. Also, consistent with your disclosure in your first risk factor, please indicate that sales of the Wii console have declined in each of the past three years. If known, also indicate the sales trends of the Wii MotionPlus accessory. Please also give a brief indication of what sales accounted for the remaining 15% of your revenues.
5. We note your disclosure on page 58 that as of the date of your prospectus you have shipped over 60 million units of your products. We also note your disclosure on page 60 that iSuppli estimates the number of MEMS accelerometers, gyroscopes and pressure sensors that are employed in mobile and other consumer electronics devices to be approximately 733 million as of 2009. Given that your total shipments to date appear to be less than 10% of the market, please tell us the basis for your disclosure that you are a “global market leader.” Similarly, if some of your competitors have a larger market share in your industry, please tell us the basis for your disclosure that you are “the pioneer” in intelligent motion processing solutions.
6. You disclose that you currently target consumer electronics applications such as console and portable video gaming devices, handset and tablet devices, digital still and video cameras, digital television and set-top box remote controls, 3-D mice and portable navigation devices. Please briefly indicate whether or not you have had material sales in each of those product categories. We also note in the graphics that appear after your prospectus cover page that your products are used in image stabilization, digital tv remotes and handsets and tablets. If you have not generated a material amount of your revenues from those product categories, please revise your graphics as appropriate.
7. We note your reference to the Apple iPhone and your disclosure that since its introduction in 2007 it has included motion sensing accelerometer components. Please indicate whether those components were components that you designed and developed.

Prospectus Summary – The Offering, page 5

8. Please indicate in your second to last bullet point on this page that the number of shares reserved for future issuance under your 2010 Stock Incentive Plan does not include

shares which will be reserved under that plan pursuant to the automatic increase provisions of the plan.

Risk Factors

We currently depend on Nintendo..., page 10

9. We note your disclosure that your historical sales have been dependent upon the sales of accessories for the Wii console and that the Wii console is in year 4 of its 5 year product cycle. If known, please disclose in an appropriate location in your prospectus whether your products will be incorporated in the next generation of the Wii console accessories or if you are uncertain in this regard and expand your risk factor as appropriate.

We rely on a limited number of third parties..., page 15

10. Please revise to clarify whether you still use the third party manufacturer referenced in the third sentence of the last paragraph on page 15.

The dual class structure of our common stock..., page 26

11. Please revise here and in the description of capital stock starting on page 106 to specify the “certain other matters” for which the Class B holders will have ten votes per share. In this regard, we note that your outstanding preferred shares will immediately convert upon completion of your offering into shares of Class B common stock, and that if the holders of the Class B common stock desire to sell such shares they will be required to convert their Class B shares into Class A shares. If the “certain other matters” includes the right to ten votes per share in connection with the election of directors, please advise us as to whether it would be appropriate to include a risk factor indicating that you may become a “controlled company” if your 5% or more stockholders, other than Mr. Nasiri, sell a sufficient number of securities such that Mr. Nasiri would have a sufficient number of votes to control the outcome of your director elections.

Special Note Regarding Forward-Looking Statements, page 31

12. For all industry and market information cited in the prospectus, please furnish marked copies of the reports and/or data upon which the disclosure is based. Also, please tell us:
 - whether all of the information is publicly available;
 - whether you paid for the compilation of any of the data;
 - whether any information was prepared for your use in the registration statement; and
 - whether the authors of the information consented to your use of such data in the registration statement.

To the extent that you were affiliated with the preparation of any of the data, please ensure that your disclosure clearly indicates the nature of all such affiliations.

Use of Proceeds, page 33

13. We note the last two sentences of the second paragraph. Please revise to clarify the status of any negotiations for repayments or acquisitions. Please also clarify what repayments could be made.
14. We note your disclosure in the third paragraph regarding potentially using the proceeds from this offering for other purposes. Please provide the information required by Instruction 7 to Item 504 of Regulation S-K.

Capitalization, page 33

15. “Cash and cash equivalents, short-term investments and long-term investments” are not a component of capitalization. Please revise to remove those captions from your capitalization disclosures.

Dilution, page 36

16. Please disclose how the numbers and percentages in the table on page 36 would change assuming the exercise of all outstanding warrants and options and the exercise by the underwriters of the over-allotment option.

Management’s Discussion and Analysis

Comparison of Fiscal Years 2008, 2009 and 2010, page 43

17. We note that in each subsection of your comparison analysis you only provide the primary reason for the increases in your revenues and costs. In each instance, please also disclose and quantify all other material factors that affected your increases in revenues and costs.

Net Revenue, page 43

18. Please disclose the effect of average unit selling prices on your net revenues for fiscal year 2009.

Liquidity and Capital Resources, page 48

19. Please identify any known trends or uncertainties that are reasonably likely to materially increase or decrease your liquidity. We note, for example, the risk factor on page 10 and the first risk factor on page 11. Refer to Item 303(a)(1) of Regulation S-K.

Historical Stock-Based Compensation Expense, page 55

20. We see you have provided a discussion of the options issued to employees, consultants, directors or others providing services to you and also included a discussion of how you determined the fair value of your common stock. Since this filing does not disclose the offering price per share it is unclear to us whether you have properly accounted for all possible compensation issues related to these types of transactions. Please provide us with an updated analysis of all issuances of equity instruments from April 1, 2010 through the date of your response to this comment showing: exercise price, number of shares issued or options granted, management's fair value per share estimate, the amount of any compensation expense recorded, any restrictions or vesting terms, and the identity of the recipient and their relationship to you. For option grants, explain in reasonable detail how the fair market value of the underlying common shares was determined at each grant date, identifying all material positive and negative events occurring during the period which could reasonably contribute to variances in fair value. Disclose the basis for any recorded compensation expense. We may have further comments after reviewing your response.

Business, page 58

21. Provide the information required by Item 101(d) of Regulation S-K in an appropriate section.

Industry Background, page 58

22. We note your references to Apple's iPhone, iPod touch and iPad in this section and your reference to Google's Android on page 61. Please disclose the extent to which these products have incorporated the components you design and develop.

Products, page 70

23. Please add a column to your table on page 72 that indicates whether you have had material sales into the target end markets indicated in the last column of that table. For example, for your motion processing units, please indicate whether you have had material sales of your components into each of the smartphone, tablet computer and other portable handheld device categories.

MotionProcessing Library (MPL)..., page 70

24. In an appropriate location in your prospectus, please clarify which solutions you currently sell contain the MotionCommand™, BlurFree™, TouchAnywhere™ and AirSign™ applications and which end-products utilize those applications. If you do not currently sell products that contain those solutions or if the end-products do not utilize those

applications, please make that clear and revise your graphics that appear after your prospectus cover page and on page 63 as appropriate.

Intellectual Property Rights, page 75

25. Please disclose when your patents expire and clarify the effect of your granted patents on your competitive position.

Management, page 78

26. Please revise the biographical information of the non-employee directors to indicate whether any of the entities affiliated with a director and named in this section competes with you.

Voting Arrangement, page 81

27. We note your disclosure that the provisions of the voting agreement will terminate upon the completion of your offering. Please clarify whether this agreement will be terminated in its entirety or whether there will be any surviving provisions.

Description of Capital Stock

Anti-Takeover Provisions, page 110

28. Please revise this section to discuss the impact of the dual-class structure of your common stock on a potential change of control. Please enhance your last two risk factors on page 26 to make clear to investors that “corporate matters” could include potential changes of control that could offer a premium over the market value of your company.

Shares Eligible for Future Sale

Rule 701, page 113

29. Please revise your description of the resale provisions of Rule 701 to reflect the current version of the rule.

Consolidated Financial Statements, page F-1

30. 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 also be included with any amendment to the filing.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes the information the Securities Act of 1933 and

Steven Nasiri
InvenSense, Inc.
July 22, 2010
Page 7

all applicable Securities Act rules require. 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 you request acceleration of the effective date of the pending registration statement please provide a written statement from the company 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.

Please refer to Rules 460 and 461 regarding requests for acceleration. We will consider a written request for acceleration of the effective date of the registration statement as 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. Please allow adequate time for us to review any amendment prior to the requested effective date of the registration statement.

You may contact Dennis Hult at (202) 551-3618 or Jay Webb, Senior Accountant, at (202) 551-3603 if you have any questions regarding comments on the financial statements and related matters. Please contact Louis Rambo at (202) 551-3289 or Tim Buchmiller, Senior Attorney, at (202) 551-3635 with any other questions.

Sincerely,

Russell Mancuso
Branch Chief

cc (fax): John W. Campbell III, Esq.
Andrew D. Thorpe, Esq.
Alfredo B. D. Silva, Esq.
Morrison & Foerster LLP