August 29, 2006

Mail Stop 6010

Gregory D. Casciaro
Xtent, Inc.
President, Chief Executive Officer and Director
125 Constitution Drive
Menlo Park, CA 94025-1118

Re: Xtent, Inc.
Registration Statement on Form S-1
Filed August 7, 2006
File No. 333-136371

Dear Mr. Casciaro:

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.

Form S-1

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, and other information that was left blank throughout the document. Also, note that we may have additional comments after you file this information.

Artwork

2. The print on the caution at the bottom of the page should be larger, and it should make clear that you have not received FDA approval. We note the disclosure on page 2 which states that you have not obtained clearance of an investigational device exemption, which may be inconsistent with your statement that your products are "limited by law to investigational use."

Summary, page 1

3. It would be helpful to add a caption entitled "Status of Regulatory Approval," or some similar language, prior to the last paragraph on page 1.

4. Disclose an estimate of when you anticipate receiving FDA approval.

5. We note your disclosure that the development of drug eluting stents has resulted in a "rapid shift in physician treatment of CAD." Please balance this disclosure by addressing the recent rising number of studies questioning the effectiveness and safety of drug eluting stents, and that, as a result of these studies, some cardiac centers have reduced the use of drug-coated stents and have substituted uncoated, bare-metal stents in some patients.

The EXTENT Solution, page 3

6. Expand your disclosure to address the fact that new research suggests that drug coating may be linked to an increased risk of the formation of blood clots inside a stent.

The Offering, page 6

7. Since the convertible preferred stock referred to in the sixth bullet will convert prior to the IPO, it is not clear why you exclude the shares to be issued on conversion from the total number that will be outstanding. Please revise or advise.

Risk Factors, page 9

We have limited device manufacturing and drug coating capabilities…, page 24

8. Expand your disclosure to address briefly any reasons of which you are aware why Occam would not continue to allow you to apply the drug coating to your stents in your Menlo Park facilities.

Our operations involve hazardous materials…, page 30

9. Expand your disclosure to describe any material liabilities and/or sanctions arising from the February 2006 chemical spill at your Menlo Park facility.

Dilution, page 38

10. We note you delete from the tables the 6,741,545 shares that will be issued upon conversion of your Series D preferred stock prior to the IPO. Please revise to include those shares. Also, explain how the numbers and percentages in the tables would change if you assume exercise of all outstanding options.

Management's Discussion and Analysis of Financial Condition and Results of Operations, page 42

11. Please revise to provide the selected quarterly financial data required by Item 302(A) of Regulation S-K.

Critical Accounting Policies and Estimates, page 48

Stock-Based Compensation, page 49

12. You state that the initial determination of the estimated fair value of your common stock on the dates of grant was based on several factors, which you have listed. Further, you state that in connection with the preparation of the financial statements necessary for this offering, you have reassessed the fair value of your common stock for financial accounting purposes in light of the expected completion of this offering. Please address the following:

- Revise this section to provide a discussion of the significant judgments, assumptions, estimates and complexities associated with your determination of the fair value of your common stock.
- With respect to the retrospective valuation you performed just prior to the filing of this registration statement, clearly disclose the valuation methodology used and why you selected that methodology.
- Discuss the additional factors and estimates considered in the retrospective valuation.
- Supplement your disclosure with references to the actual estimates and assumptions you used, such as discount rates and probability weighting to the different scenarios, and how your results would have differed if you had used different estimates and assumptions.

Business, page 51

13. Please tell us whether Millennium Research Group:

- makes its reports publicly available,
- received compensation from you for preparation of the statistics,
- prepared the statistics for use in the registration statement, or
- has consented to your use of their statistics in your document.

If Millennium Research Group has given its consent, please file the consent as an exhibit.

The XTENT Solution, page 55

14. Revise your disclosure to address whether any studies support your belief that the ability of your Custom NX 60 to cover a long lesion with a single stent may reduce the complications, such as thrombosis and heart attack, from overlapping stents.

15. With a view towards disclosure, tell us the basis for your belief that the permanent primer applied to your stents has an insignificant physiological response when used in the body.

Competition, page 68

16. Expand your description of Conor Medsystems' CoStar paclitaxel eluting stent to address Conor's claim that it does not leave any permanent polymer residual polymer or drug at the target site.

Intellectual Property, page 69

17. Tell us why you have not filed your license agreement with Millimed as an exhibit.

Financial Statements

General

18. Please provide a currently dated and signed consent from your independent accountants in your amendment.

19. Please revise to provide updated financial information, as required by Rule 3-12 of Regulation S-X.

Note 6. Redeemable Convertible Preferred Stock, page F-18

20. We note that you have issued redeemable convertible preferred stock. Please address the following:

- Revise the note to describe the events or circumstances that could result in the redemption of the convertible preferred stock.
- Tell us how you have applied the guidance in SFAS 133 and EITF Issue 00-19 in evaluating whether the conversion feature of the redeemable convertible preferred stock is an embedded derivative that you should separate from the host and account for at fair value under SFAS 133.

- Provide a reasonably detailed discussion of your consideration of paragraphs 60 and 61 of SFAS 133.

Part II

Item 17. Undertakings, page II-3

21. Please include the undertakings required by item 512(a)(5)(ii) and 512(a)(6) of Regulation S-K. Refer to Rule 430C(d) and Rule 424(b)(3).

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 the filing includes all information required under the Securities Act of 1933 and that they have provided all information investors require 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 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 amendment 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.

You may contact Kevin Vaughn at (202) 551-3643 or Martin James, Senior Assistant Chief Accountant, at (202) 551-3671 if you have questions regarding comments on the financial statements and related matters. Please contact Eduardo Aleman at (202) 551-3646 or me at (202) 551-3800 with any other questions.

Sincerely,

Peggy Fisher
Assistant Director

cc(via facsimile): J. Casey McGlynn, Esq.