

October 20, 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.  
Amendment No. 2 to Form S-1  
Filed October 6, 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.

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.

Summary, page 2

1. We note your revised disclosure in response to comment 2 in our letter to you dated September 26, 2006. Your disclosure states only that the use of bare metal stents has increased, but does not state clearly that some cardiac centers have reduced the use of drug-coated stents.

Risk Factors, page 9

2. Add a separate risk factor addressing the risks to your business resulting from the fact that the Food and Drug Administration has convened a panel to examine potential risks of heart attacks or thrombosis from the use of drug coated stents.

Stock-Based Compensation, page 49

3. We note the revised disclosure on pages 49-52 provided in response to prior comment 4. With respect to the use of the linear progression model, you state that you determined there were no significant valuation milestones during the period. Further, you state that no single event during the period contributed to the increase in the fair value of your common stock, but that the combination of many individual factors during the period contributed to the increased value of your common stock. Please address the following:
  - Revise the filing to refocus the discussion on the various individual factors that contributed to the increased value of your common stock. As we note that these events did not occur in a linear fashion, explain to investors how the timing of these events impacted the value of your company's stock.
  - We note that you have completed the first phase of your clinical trials, you are currently enrolling and conducting your CUSTOM II clinical trial and you are initiating your CUSTOM III clinical trial. Tell us why you do not consider these events to be significant milestones and events that have added value to the company's common stock.
  - Otherwise, in light of your statement that there have not been any significant valuation milestones during the period, please explain to us the specific factors that have caused the estimated fair value of your common stock to increase significantly from \$.83 per share in February 2005 to \$6.16 at July 31, 2006.
4. We note your response to prior comment 7. We reissue the prior comment in its entirety.
5. Please be advised that comments on your confidential treatment request will be sent in a separate letter and should be resolved prior to requesting acceleration of effectiveness.

6. We note that certain exhibits will be filed by amendment. We may have further comments once you file these exhibits.

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.

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.