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To the Director of the U.S. Patent and Trademark Office: Please record the attached documents or the new address(es) below.

11/13/06

**1. Name of conveying party(ies)**

Atul Gupta, Joseph C. Olson, Gregg A. Norris

**2. Name and address of receiving party(ies)**

Name: Varian Semiconductor Equipment Associates, Inc.

Internal Address: GL37

Additional name(s) of conveying party(ies) attached?  Yes  No

**3. Nature of conveyance/Execution Date(s):**

Execution Date(s) 10/27/06

- Assignment  Merger
- Security Agreement  Change of Name
- Joint Research Agreement
- Government Interest Assignment
- Executive Order 9424, Confirmatory License
- Other

Street Address: 35 Dory Road

City: Gloucester

State: MA

Country: USA Zip: 01930-2297

Additional name(s) & address(es) attached?  Yes  No

**4. Application or patent number(s):**

This document is being filed together with a new application.

A. Patent Application No.(s)

11/477,335

B. Patent No.(s)

Additional numbers attached?  Yes  No

**5. Name and address to whom correspondence concerning document should be mailed:**

Name: David Hwang

Internal Address: GL37

Street Address: 35 Dory Road

City: Gloucester

State: MA Zip: 01930-2297

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Fax Number: 978-281-3152

Email Address: david.hwang@vsea.com

**6. Total number of applications and patents involved:** 1

**7. Total fee (37 CFR 1.21(h) & 3.41) \$**

- Authorized to be charged by credit card
- Authorized to be charged to deposit account
- Enclosed
- None required (government interest not affecting title)

**8. Payment Information**

a. Credit Card Last 4 Numbers \_\_\_\_\_  
Expiration Date \_\_\_\_\_

b. Deposit Account Number 50-0896

Authorized User Name David Hwang

**9. Signature:**

David Hwang  
Signature

Oct. 27, 2006  
Date

David Hwang  
Name of Person Signing

Total number of pages including cover sheet, attachments, and documents: 3

Documents to be recorded (including cover sheet) should be faxed to (571) 273-0140, or mailed to:  
Mail Stop Assignment Recordation Services, Director of the USPTO, P.O.Box 1450, Alexandria, V.A. 22313-1450

PATENT

REEL: 018572 FRAME: 0402

**PATENT ASSIGNMENT FORM**

For and in consideration of good and valuable consideration, the receipt and sufficiency thereof being hereby acknowledged, each undersigned inventor acknowledges his/her prior and ongoing obligation to sell, assign, and transfer, and agrees to sell, assign, and transfer the entire world wide right, title and interest for the United States and all foreign countries, in and to any and all inventions and improvements conceived during and within the scope of his/her employment, and further acknowledges that he/she has sold, assigned, and transferred, and hereby sells, assigns, and transfers, unto:

**VARIAN SEMICONDUCTOR EQUIPMENT ASSOCIATES, INC. ("VSEA")**  
**Gloucester, Massachusetts 01930**

a corporation of Massachusetts, and VSEA desires to acquire all right, title, and interest, in and to the certain inventions (identified below), applications, and any United States and foreign patents to be obtained therefore relating to:

Title of Invention for **METHODS AND APPARATUS FOR BEAM DENSITY MEASUREMENT IN TWO DIMENSIONS**

United States Patent

as set forth in United States Patent Application executed by each undersigned inventor on the date indicated by each inventor signature below, and further identified by **Attorney Docket Number VSEA 2006-016;**

(select one): executed concurrently herewith or  Serial No. 11/477,335 filed on June 29, 2006.

for and to said United States Patent Application including any and all divisions or continuations thereof and in and to any and all Letters Patent of the United States and foreign patents and all rights of priority to be obtained therefore which may issue on any such application or for said invention therein disclosed, including any and all reissues or extensions thereof, to be held and enjoyed by, its successors, legal representatives and assigns to the full end of the term or terms for which any and all such Letters Patent may be granted as fully and entirely as would have been held and enjoyed by the undersigned had this Assignment not been made;

Each undersigned inventor hereby authorizes and requests the Commissioner of Patents and Trademarks to issue any and all such Letters Patent to VSEA, its successors and assigns, in accordance herewith;

Each undersigned inventor warrants and covenants that he/she has the full and unencumbered right to sell and assign the interests hereby sold and assigned and that he/she has not executed and will not execute any document or instrument in conflict herewith;

Each undersigned inventor further covenants and agrees that he/she, upon the request and at the expense of the VSEA, will execute and deliver any papers, make all rightful oaths, testify in any legal proceeding relating to said inventions and improvements, communicate to the VSEA all facts known to the undersigned relating to such inventions and improvements and the history thereof; and perform all other lawful acts deemed necessary or desirable by VSEA, and its legal representatives, to secure, maintain, and enforce patent protection for such inventions and improvements and for vesting title to such inventions and improvements in the VSEA, and in particular to perfect title to said above-identified certain inventions, and applications including divisions and continuations thereof, and any and all Letters Patent which may be granted therefore or thereon, including reissues, extensions, or counterparts;

Each undersigned inventor hereby grants the VSEA and the firm of the power to insert in this Assignment any further identification which may be necessary or desirable for recordation of this Assignment.

This assignment is governed by the substantive laws of the state of Massachusetts.

Executed by Inventor 1 of 3

Signature: Atul Gupta Date: 10-27-06  
Atul Gupta

Executed by Inventor 2 of 3

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Signature: Joseph C. Olson Date: 10/27/06  
Joseph C. Olson

Executed by Inventor 3 of 3

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Signature: Gregg A. Norris Date: 10/27/06  
Gregg A. Norris