

PATENT ASSIGNMENT

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SUBMISSION TYPE:	NEW ASSIGNMENT												
NATURE OF CONVEYANCE:	ASSIGNMENT												
CONVEYING PARTY DATA													
<table border="1"> <thead> <tr> <th>Name</th> <th>Execution Date</th> </tr> </thead> <tbody> <tr> <td>Harry-Hak-Lay Chuang</td> <td>03/12/2013</td> </tr> <tr> <td>Bao-Ru Young</td> <td>03/12/2013</td> </tr> <tr> <td>Wei Cheng Wu</td> <td>03/12/2013</td> </tr> <tr> <td>Yi-Ren Chen</td> <td>03/12/2013</td> </tr> <tr> <td>Ming Zhu</td> <td>03/12/2013</td> </tr> </tbody> </table>		Name	Execution Date	Harry-Hak-Lay Chuang	03/12/2013	Bao-Ru Young	03/12/2013	Wei Cheng Wu	03/12/2013	Yi-Ren Chen	03/12/2013	Ming Zhu	03/12/2013
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Bao-Ru Young	03/12/2013												
Wei Cheng Wu	03/12/2013												
Yi-Ren Chen	03/12/2013												
Ming Zhu	03/12/2013												
RECEIVING PARTY DATA													
Name:	Taiwan Semiconductor Manufacturing Company, Ltd.												
Street Address:	No. 8, Li-Hsin Rd. 6												
Internal Address:	Science-Based Industrial Park												
City:	Hsin-Chu												
State/Country:	TAIWAN												
Postal Code:	300-77												
PROPERTY NUMBERS Total: 1													
<table border="1"> <thead> <tr> <th>Property Type</th> <th>Number</th> </tr> </thead> <tbody> <tr> <td>Application Number:</td> <td>13792152</td> </tr> </tbody> </table>		Property Type	Number	Application Number:	13792152								
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CORRESPONDENCE DATA													
Fax Number:													
<i>Correspondence will be sent via US Mail when the fax attempt is unsuccessful.</i>													
Phone:	214-651-5000												
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ATTORNEY DOCKET NUMBER:	2012-0973/24061.2322												
NAME OF SUBMITTER:	Scott Matthews												

OP \$40.00 13792152

Signature:	/sm82918/
Date:	05/31/2013
Total Attachments: 3 source=13792152Assign#page1.tif source=13792152Assign#page2.tif source=13792152Assign#page3.tif	

ASSIGNMENT

WHEREAS, we,

- | | | | |
|-----|----------------------|----|---|
| (1) | Harry Hak-Lay Chuang | of | 51 Paya Lebar Crescent
Singapore 536176 |
| (2) | Bao-Ru Young | of | No. 7, Lane 1, Liujiia 2nd Street, Zhubei City
Hsinchu County 302, Taiwan R.O.C. |
| (3) | Wei Cheng Wu | of | 10F., No. 196, Sec. 1, Shengli 7th Street
Zhubei City, Hsinchu County 302
Taiwan R.O.C. |
| (4) | Yi-Ren Chen | of | No. 47, Xinle Street, Guishan Township
Taoyuan County 333, Taiwan R.O.C. |
| (5) | Ming Zhu | of | Block 688F, #13-74, Woodlands Drive 75
Singapore 736688 |

have invented certain improvements in

**STRUCTURE AND METHOD FOR STATIC RANDOM ACCESS MEMORY DEVICE OF
VERTICAL TUNNELING FIELD EFFECT TRANSISTOR**

for which we have executed an application for Letters Patent of the United States of America,

 of even date filed herewith; and
 X filed on 3/10/2013 and assigned application number 13/792,152; and

WHEREAS, we authorize the attorney of record to update this document to include Patent Office information as deemed necessary (i.e., filing date, serial number, etc.);

WHEREAS, Taiwan Semiconductor Manufacturing Company, Ltd., ("TSMC"), No. 8, Li-Hsin Rd. 6, Science-Based Industrial Park Hsin-Chu, Taiwan 300-77, Republic of China, is desirous of obtaining the entire right, title, and interest in, to and under the said invention and the said application in the United States of America and in any and all countries foreign thereto;

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, and other good and valuable consideration, we have sold, assigned, transferred and set over, and by these presents do hereby sell, assign, transfer and set over, unto the said TSMC, its successors, legal representatives, and assigns, the entire right, title, and interest in, to and under the said invention, and the said application, and all divisional, renewal, substitutional, and continuing applications thereof, and all Letters Patent of the United States of America which may be granted thereon and all reissues and extensions thereof, and all applications for Letters Patent which may be filed for said invention in any country or countries foreign to the United States of America, and all extensions, renewals, and reissues thereof, and all prior patents and patent applications from which a filing priority of the above-described patent application may be obtained, including the right to collect past damages; and we hereby authorize and request the Commissioner of Patents of the United States of America, and any official of any

country or countries foreign to the United States of America, whose duty it is to issue patents on applications as aforesaid, to issue all Letters Patent for said invention to the said TSMC, its successors, legal representatives and assigns, in accordance with the terms of this instrument.

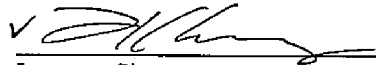
AND WE HEREBY covenant that we have full right to convey the entire interest herein assigned, and that we have not executed, and will not execute, any agreement in conflict herewith.

AND WE HEREBY further covenant and agree that we will communicate to said TSMC, its successors, legal representatives and assigns, any facts known to us respecting said invention, and testify in any legal proceedings, sign all lawful papers, execute all divisional, renewal, substitutional, continuing, and reissue applications, make all rightful declarations and/or oaths and generally do everything possible to aid the said TSMC, its successors, legal representatives and assigns, to obtain and enforce proper patent protection for said invention in all countries.

Inventor Name: Harry Hak-Lay Chuang

Residence Address: 51 Paya Lebar Crescent Singapore 536176

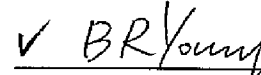
Dated: 2013/3/12


Inventor Signature

Inventor Name: Bao-Ru Young

Residence Address: No.7, Lane 1, Liujia 2nd Street, Zhubei City
Hsinchu County 302, Taiwan R.O.C.


Dated: 2013/3/12


Inventor Signature

Inventor Name: Wei Cheng Wu

Residence Address: 10F., No. 196, Sec. 1, Shengli 7th Street, Zhubei City
Hsinchu County 302, Taiwan R.O.C.

Dated: 2013/3/12


Inventor Signature

Docket No.: 2012-0973 / 234061.2322
Customer No.: 000042717

Inventor Name: Yi-Ren Chen

Residence Address: No. 47, Xinle Street, Guishan Township, Taoyuan County 333
Taiwan R.O.C.

✓
Dated: 2013/03/12

✓ Yi Ren Chen
Inventor Signature

Inventor Name: Ming Zhu

Residence Address: Block 688F, #13-74, Woodlands Drive 75
Singapore 736688

✓
Dated: 2013/03/12

✓ Ming Zhu
Inventor Signature