

PATENT ASSIGNMENT COVER SHEET

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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>CHIH-CHIEH CHIU</td> <td>12/06/2013</td> </tr> <tr> <td>CHIA-EN HUANG</td> <td>12/06/2013</td> </tr> <tr> <td>FU-AN WU</td> <td>12/06/2013</td> </tr> <tr> <td>I-HAN HUANG</td> <td>12/06/2013</td> </tr> <tr> <td>JUNG-PING YANG</td> <td>12/06/2013</td> </tr> </tbody> </table>		Name	Execution Date	CHIH-CHIEH CHIU	12/06/2013	CHIA-EN HUANG	12/06/2013	FU-AN WU	12/06/2013	I-HAN HUANG	12/06/2013	JUNG-PING YANG	12/06/2013
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RECEIVING PARTY DATA													
Name:	TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY, LTD.												
Street Address:	NO. 8, LI-HSIN RD. VI												
Internal Address:	HSINCHU SCIENCE PARK												
City:	HSINCHU												
State/Country:	TAIWAN												
Postal Code:	300												
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>14086153</td> </tr> </tbody> </table>		Property Type	Number	Application Number:	14086153								
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Application Number:	14086153												
CORRESPONDENCE DATA													
Fax Number:													
Phone:	7036841111												
Email:	tsmc@ipfirm.com												
<i>Correspondence will be sent via US Mail when the email attempt is unsuccessful.</i>													
Correspondent Name:	LOWE HAUPTMAN & HAM, LLP (TSMC)												
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Address Line 2:	SUITE 1400												
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ATTORNEY DOCKET NUMBER:	T5057-965												

OP \$40.00 14086153

NAME OF SUBMITTER:	RANDY A. NORANBROCK
Signature:	/Randy A. Noranbrock/
Date:	12/09/2013
Total Attachments: 1 source=EfiledAssign#page1.tif	

ASSIGNMENT

In consideration of the premises and other good and valuable consideration in hand paid, the receipt and sufficiency of which is hereby acknowledged, the undersigned,

- | | |
|--------------------|-------------------|
| 1) Chih-Chieh CHIU | 4) I-Han HUANG |
| 2) Chia-En HUANG | 5) Jung-Ping YANG |
| 3) Fu-An WU | |

who has made a certain new and useful invention, hereby sells, assigns and transfers unto TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY, LTD., having a place of business at No. 8, Li-Hsin Rd. VI, Hsinchu Science Park, Hsinchu 300, Taiwan R.O.C.

its successors and assigns (hereinafter designated "ASSIGNEE") the entire right, title and interest for the United States of America as defined in 35 U.S.C. 100 in the invention entitled

THREE-DIMENSIONAL (3-D) WRITE ASSIST SCHEME FOR MEMORY CELLS

- (a) for which an application for United States Letters Patent was filed on November 21, 2013, and identified by United States Patent Application No. 14/086,153; or
- (b) for which an application for United States Letters Patent was executed on _____,

and the undersigned hereby authorizes and requests the United States Commissioner of Patents and Trademarks to issue any and all United States Letters Patent which may be granted therefore and any and all extensions, divisions, reissues, continuations, or continuations-in-part thereof, and the right to all benefits under the International Convention for the Protection of Industrial Property to the said ASSIGNEE, for its interest as ASSIGNEE, its successors, assigns and legal representatives; the undersigned agrees that the attorneys of record in said application shall hereafter act on behalf of said ASSIGNEE;

AND the undersigned hereby agrees to transfer a like interest, and to render all necessary assistance in making application for and obtaining original, divisional, reissued or extended Letters Patent of the United States, upon request of the said ASSIGNEE, its successors, assigns and legal representatives, and without further remuneration, in and to any improvements, and applications for patent based thereon, growing out of or related to the said invention; and to execute any papers by the said ASSIGNEE, its successors, assigns and legal representatives, deemed essential to ASSIGNEE's full protection and title in and to the invention hereby transferred.

SIGNED on the date indicated aside my signature:

1) Chih-Chieh Chiu
Name: Chih-Chieh CHIU

2013/12/06
Date:

2) Chia-En Huang
Name: Chia-En HUANG

2013/12/06
Date:

3) Fu-An Wu
Name: Fu-An WU

2013/12/06
Date:

4) I-Han Huang
Name: I-Han HUANG

2013/12/06
Date:

5) Jung-Ping Yang
Name: Jung-Ping YANG

2013/12/06
Date: