

## PATENT ASSIGNMENT COVER SHEET

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<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
CHWEN YU	01/18/2013
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY, LTD.
<b>Street Address:</b>	NO. 8, LI-HSIN ROAD 6
<b>Internal Address:</b>	SCIENCE-BASED INDUSTRIAL PARK
<b>City:</b>	HSIN-CHU
<b>State/Country:</b>	TAIWAN
<b>Postal Code:</b>	300-77
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
Application Number:	14968591
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<b>ATTORNEY DOCKET NUMBER:</b>	20120560US01/24061.2267US
<b>NAME OF SUBMITTER:</b>	BRIAN D. GRAHAM
<b>SIGNATURE:</b>	/Brian D. Graham/
<b>DATE SIGNED:</b>	12/14/2015
<b>Total Attachments: 2</b>	
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Docket No.: 2012.0560 /24061.2267  
 Customer No.: 000042717

**ASSIGNMENT**

WHEREAS, I,

Chwen Yu of 4F., No. 1-5, Aly. 23, Lane 154  
 Sec. 2, Zhongcheng Road, Shilin District  
 Taipei City 111, Taiwan (R.O.C.)

have invented certain improvements in

**MAGNETIC TUNNEL JUNCTION MEMORY DEVICE**

for which I have executed an application for Letters Patent of the United States of America, on December 3, 2012; and assigned U.S. Serial No. 13/692,493; and

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

AND I HEREBY further covenant and agree that I 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.

Docket No.: 2012.0560 /24061.2267  
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Inventor Name: Chwen Yu

Residence Address: 4F., No. 1-5, Aly. 23, Lane 154, Sec. 2, Zhongcheng Road  
Shilin District, Taipei City 111, Taiwan (R.O.C.)

Dated: 2013/01/18

Chwen Yu  
Inventor Signature

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