

PATENT ASSIGNMENT

Electronic Version v1.1
 Stylesheet Version v1.1

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>Tien-Chun YANG</td> <td>01/22/2013</td> </tr> <tr> <td>Yue-Der CHIH</td> <td>01/28/2013</td> </tr> <tr> <td>Chan-Hong CHERN</td> <td>01/22/2013</td> </tr> <tr> <td>Tao Wen CHUNG</td> <td>01/23/2013</td> </tr> </tbody> </table>		Name	Execution Date	Tien-Chun YANG	01/22/2013	Yue-Der CHIH	01/28/2013	Chan-Hong CHERN	01/22/2013	Tao Wen CHUNG	01/23/2013
Name	Execution Date										
Tien-Chun YANG	01/22/2013										
Yue-Der CHIH	01/28/2013										
Chan-Hong CHERN	01/22/2013										
Tao Wen CHUNG	01/23/2013										
RECEIVING PARTY DATA											
<table border="1"> <tr> <td>Name:</td> <td>TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY, LTD.</td> </tr> <tr> <td>Street Address:</td> <td>No. 8, Li-Hsin Rd. VI, Hsinchu Science Park</td> </tr> <tr> <td>City:</td> <td>Hsinchu</td> </tr> <tr> <td>State/Country:</td> <td>TAIWAN</td> </tr> <tr> <td>Postal Code:</td> <td>300</td> </tr> </table>		Name:	TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY, LTD.	Street Address:	No. 8, Li-Hsin Rd. VI, Hsinchu Science Park	City:	Hsinchu	State/Country:	TAIWAN	Postal Code:	300
Name:	TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY, LTD.										
Street Address:	No. 8, Li-Hsin Rd. VI, 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>13765513</td> </tr> </tbody> </table>		Property Type	Number	Application Number:	13765513						
Property Type	Number										
Application Number:	13765513										
CORRESPONDENCE DATA											
<p>Fax Number: 7035185499 <i>Correspondence will be sent via US Mail when the fax attempt is unsuccessful.</i></p> <p>Phone: 7036841111 Email: tsmc@ipfirm.com Correspondent Name: Lowe Hauptman Ham & Berner, LLP (TSMC) Address Line 1: 2318 Mill Road Address Line 2: Suite 1400 Address Line 4: Alexandria, VIRGINIA 22314</p>											
ATTORNEY DOCKET NUMBER:	T5057-841U										
NAME OF SUBMITTER:	Randy A. Noranbrock										
<p>Total Attachments: 2 source=EfiledAssgn#page1.tif source=EfiledAssgn#page2.tif</p>											

OP \$40.00 13765513

Docket No. T5057-841
TSMC2012-1127

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) Tien-Chun YANG
- 2) Yue-Der CHIH
- 3) Chan-Hong CHERN
- 4) Tao Wen CHUNG

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

SENSING CIRCUIT, MEMORY DEVICE AND DATA DETECTING METHOD

- (a) for which an application for United States Letters Patent was filed on 2013-02-12, and identified by United States Patent Application No. 13/765,513; 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) Tien-Chun Yang Date: 1/22/2013
Name: Tien-Chun YANG
- 2) _____ Date: _____
Name: Yue-Der CHIH
- 3) Chan-Hong Chern Date: 1/22/2013
Name: Chan-Hong CHERN
- 4) Tao Wen Chung Date: 1/23/2013
Name: Tao Wen CHUNG

Docket No. T5057-841
TSMC2012-1127

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) Tien-Chun YANG
- 2) Yue-Der CHIH
- 3) Chan-Hong CHERN
- 4) Tao Wen CHUNG

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

SENSING CIRCUIT, MEMORY DEVICE AND DATA DETECTING METHOD

(a) for which an application for United States Letters Patent was filed on 2013-02-12, and identified by United States Patent Application No. 13/765,513; 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) _____
Name: Tien-Chun YANG Date: _____
- 2) Yue-Der Chih
Name: Yue-Der CHIH Date: 1/29/2013
- 3) _____
Name: Chan-Hong CHERN Date: _____
- 4) _____
Name: Tao Wen CHUNG Date: _____