

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>Ming-Chieh HUANG</td> <td>10/25/2011</td> </tr> <tr> <td>Jing Jing CHEN</td> <td>11/02/2011</td> </tr> <tr> <td>Chan-Hong CHERN</td> <td>10/25/2011</td> </tr> <tr> <td>Tao Wen CHUNG</td> <td>10/25/2011</td> </tr> <tr> <td>Chih Chang LIN</td> <td>10/25/2011</td> </tr> <tr> <td>Yuwen SWEI</td> <td>10/25/2011</td> </tr> </tbody> </table>		Name	Execution Date	Ming-Chieh HUANG	10/25/2011	Jing Jing CHEN	11/02/2011	Chan-Hong CHERN	10/25/2011	Tao Wen CHUNG	10/25/2011	Chih Chang LIN	10/25/2011	Yuwen SWEI	10/25/2011
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RECEIVING PARTY DATA															
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>13293513</td> </tr> </tbody> </table>		Property Type	Number	Application Number:	13293513										
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Application Number:	13293513														
CORRESPONDENCE DATA															
Fax Number:	(703)518-5499														
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Email:	tsmc@ipfirm.com														
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ATTORNEY DOCKET NUMBER:	T5057-B583														

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**PATENT
 REEL: 027207 FRAME: 0937**

NAME OF SUBMITTER:

Randy A. Noranbrock

Total Attachments: 3

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Docket No. T5057-B583

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) Ming-Chieh HUANG | 4) Tai Wen CHUNG |
| 2) Jing Jing CHEN | 5) Chih-Chang LIN |
| 3) Chan-Hong CHERN | 6) Yuwen SWEI |

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

DECISION FEEDBACK EQUALIZER HAVING PROGRAMMABLE TAPS

- (a) for which an application for United States Letters Patent was filed on 11-10-2011, and identified by United States Patent Application No. 13/293,513; 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) Ming C. Huang
Name: Ming-Chieh HUANG

10/25/2011
Date:

2) _____
Name: Jing Jing CHEN

Date:

3) Chan-Hong Chern
Name: Chan-Hong CHERN

10/25/2011
Date:

4) Tao Wen CHUNG
Name: Tao Wen CHUNG

10-25-2011
Date:

5) Chih Chang LIN
Name: Chih Chang LIN

10-25-2011
Date:

6) Yurwen SWEI
Name: Yurwen SWEI

10-25-2011
Date:

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SIGNED on the date indicated aside my signature:

1) _____
Name: Ming-Chieh HUANG

Date:

2) 
Name: Jing Jing CHEN

November 2, 2011
Date:

3) _____
Name: Chan-Hong CHERN

Date: