

PATENT ASSIGNMENT COVER SHEET

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| NATURE OF CONVEYANCE: | ASSIGNMENT | | | | | | | | | | | | | | | | | | |
| CONVEYING PARTY DATA | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>Name</th> <th>Execution Date</th> </tr> </thead> <tbody> <tr> <td>CHIN-MIN HUANG</td> <td>08/06/2013</td> </tr> <tr> <td>BO-HAN CHEN</td> <td>08/06/2013</td> </tr> <tr> <td>LUN-WEN YEH</td> <td>08/06/2013</td> </tr> <tr> <td>SHUN-SHING YANG</td> <td>08/06/2013</td> </tr> <tr> <td>CHIA-CHENG CHANG</td> <td>08/06/2013</td> </tr> <tr> <td>CHERNG-SHYAN TSAY</td> <td>08/06/2013</td> </tr> <tr> <td>LAI CHIEN WEN</td> <td>08/06/2013</td> </tr> <tr> <td>HUA-TAI LIN</td> <td>08/06/2013</td> </tr> </tbody> </table> | | Name | Execution Date | CHIN-MIN HUANG | 08/06/2013 | BO-HAN CHEN | 08/06/2013 | LUN-WEN YEH | 08/06/2013 | SHUN-SHING YANG | 08/06/2013 | CHIA-CHENG CHANG | 08/06/2013 | CHERNG-SHYAN TSAY | 08/06/2013 | LAI CHIEN WEN | 08/06/2013 | HUA-TAI LIN | 08/06/2013 |
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| 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. 6</td> </tr> <tr> <td>Internal Address:</td> <td>SCIENCE BASED INDUSTRIAL PARK</td> </tr> <tr> <td>City:</td> <td>HSIN-CHU</td> </tr> <tr> <td>State/Country:</td> <td>TAIWAN</td> </tr> <tr> <td>Postal Code:</td> <td>300-77</td> </tr> </table> | | 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 | | | | | | |
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| 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>13956962</td> </tr> </tbody> </table> | | Property Type | Number | Application Number: | 13956962 | | | | | | | | | | | | | | |
| Property Type | Number | | | | | | | | | | | | | | | | | | |
| Application Number: | 13956962 | | | | | | | | | | | | | | | | | | |
| CORRESPONDENCE DATA | | | | | | | | | | | | | | | | | | | |
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| | |
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| ATTORNEY DOCKET NUMBER: | 24061.2548 |
| NAME OF SUBMITTER: | DAVID M. O'DELL |
| Signature: | /David M. O'Dell/ |
| Date: | 10/24/2013 |
| Total Attachments: 4 source=24061-2548_Assignment#page1.tif source=24061-2548_Assignment#page2.tif source=24061-2548_Assignment#page3.tif source=24061-2548_Assignment#page4.tif | |

Docket No.: 2013-0389/ 24061.2548
Customer No.: 000042717

ASSIGNMENT

WHEREAS, we,

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|-----|-------------------|----|---|
| (1) | Chin-Min Huang | of | No. 21, Shuitou Lane, Jiahou Road Waipu District Taichung City 438, Taiwan R.O.C. |
| (2) | Bo-Han Chen | of | 13F.-1, No. 8, Ln. 175, Wuling Road North District Hsinchu City 300, Taiwan R.O.C. |
| (3) | Lun-Wen Yeh | of | No. 3, Aly. 40, Ln. 189, Jichang 1st St. Ji-an Township Hualien County 973, Taiwan R.O.C. |
| (4) | Shun-Shing Yang | of | No. 15, Ln. 118, Yong 2nd Street Yongkang District Tainan City 710, Taiwan R.O.C. |
| (5) | Chia-Cheng Chang | of | No. 40, Ln. 72, Aidisheng Road Baoshan Township Hsinchu County 308, Taiwan R.O.C. |
| (6) | Cherng-Shyan Tsay | of | No. 42, Guanghua N. Rd. Toufen Township Miaoli County 351, Taiwan R.O.C. |
| (7) | Chien Wen Lai | of | 6F.-5, No. 247, Nioupu E. Road Hsinchu City 300, Taiwan R.O.C. |
| (8) | Hua-Tai Lin | of | No. 26, Aly. 10, Ln. 194, Gaofeng Road Hsinchu City 300, Taiwan R.O.C. |

have invented certain improvements in

METHOD AND APPARATUS FOR INTEGRATED CIRCUIT MASK PATTERNING

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

_____ of even date filed herewith; and
 X filed on August 1, 2013, and assigned application number 13/956,962; 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;

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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.

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Dated: 08/06/2013

Chin-Min Huang
Inventor Signature

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Dated: 08/06/2013

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Dated: 2013.08.06

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Dated: 2013.08.06

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Dated: 2013/08/06

Chien Wen Lai
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