

## 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>Matt Li</td> <td>06/29/2012</td> </tr> <tr> <td>Tsung-Hsien Tsai</td> <td>06/29/2012</td> </tr> <tr> <td>Mao-Hsuan Chou</td> <td>06/29/2012</td> </tr> <tr> <td>Min-Shueh Yuan</td> <td>06/29/2012</td> </tr> <tr> <td>Chih-Hsien Chang</td> <td>06/29/2012</td> </tr> </tbody> </table>		Name	Execution Date	Matt Li	06/29/2012	Tsung-Hsien Tsai	06/29/2012	Mao-Hsuan Chou	06/29/2012	Min-Shueh Yuan	06/29/2012	Chih-Hsien Chang	06/29/2012
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<table border="1"> <tr> <td>Name:</td> <td>Taiwan Semiconductor Manufacturing Co., Ltd.</td> </tr> <tr> <td>Street Address:</td> <td>No. 8, Li-Hsin Rd. 6</td> </tr> <tr> <td>Internal Address:</td> <td>Hsin-Chu Science 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 Co., Ltd.	Street Address:	No. 8, Li-Hsin Rd. 6	Internal Address:	Hsin-Chu Science Park	City:	Hsin-Chu	State/Country:	TAIWAN	Postal Code:	300-77
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CORRESPONDENCE DATA													
<p>Fax Number: (216)502-0601          Phone: 216-502-0600          Email: Docketing@eschweilerlaw.com  <i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent via US Mail.</i></p> <p>Correspondent Name: ESCHWEILER &amp; ASSOCIATES, LLC NATIONAL CI          Address Line 1: 629 EUCLID AVE., SUITE 1000          Address Line 4: CLEVELAND, OHIO 44114</p>													
ATTORNEY DOCKET NUMBER:	TSMCP164US												

OP \$40.00 13532881

NAME OF SUBMITTER:

Thomas G. Eschweiler

Total Attachments: 7

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Filing Date:

**PATENT ASSIGNMENT**

**PARTIES TO THE ASSIGNMENT**

Assignor(s):

Matt Li  
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Assignor(s):

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Assignor(s):

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Filing Date:

Assignee:

Taiwan Semiconductor Manufacturing Company, Ltd.  
8, Li-Hsin Rd. 6,  
Hsinchi Science Park  
Hsinchu, Taiwan 300-77

**AGREEMENT**

WHEREAS, ASSIGNOR(S) (listed above) are inventor(s) of an invention entitled  
"A REAL TIME AUTOMATIC CALIBRATION AND BACKGROUND DUTY CYCLE  
CONTROL CIRCUIT" for which:

a non-provisional application for United States Letters Patent:

☐ was executed on even date preparatory to filing (each inventor should sign this  
Assignment on the same day as he/she signs the Declaration and Power of  
Attorney); or

☐ was filed on \_\_\_\_\_ and accorded U.S. Serial No. \_\_\_\_\_; or

☒ I hereby authorize and request my attorney associated with Customer No.  
29393, to insert on the designated lines below the filing date and application  
number of said application when known:

U.S. Serial No. \_\_\_\_\_,

filed on \_\_\_\_\_.

WHEREAS, ASSIGNEE (listed above), a corporation of the Republic of China is  
desirous of acquiring the entire right, title and interest in and to the invention and in and to  
any letters patent that may be granted therefore in the United States and in any and all  
foreign countries;

NOW, THEREFORE, in exchange for good and valuable consideration, the receipt of  
which is hereby acknowledged, ASSIGNOR(S) hereby sell, assign and transfer unto

Filing Date:

ASSIGNEE its successors and assigns, the entire right, title and interest in and to said invention and improvements, said application and any and all letters patent which may be granted for said invention in the United States of America and its territorial possessions and in any and all foreign countries, and in any and all divisions, reissues, re-examinations and continuations thereof, including the right to file foreign applications directly in the name of ASSIGNEE and to claim priority rights deriving from said United States application to which said foreign applications are entitled by virtue of international convention, treaty or otherwise, said invention, application and all letters patent on said invention to be held and enjoyed by ASSIGNEE and its successors and assigns for their use and benefit and of their successors and assigns as fully and entirely as the same would have been held and enjoyed by ASSIGNOR(S) had this assignment, transfer and sale not been made. ASSIGNOR(S) hereby authorize and request the Commissioner of Patents and Trademarks to issue all letters patent on said invention to ASSIGNEE. ASSIGNOR(S) agree to execute all instruments and documents required for the making and prosecution of applications for United States and foreign letters patent on said invention, for litigation regarding said letters patent, or for the purpose of protecting title to said invention or letters patent therefore.

2012/06/29  
Date

黎作木  
Name 1<sup>st</sup> Inventor Matt Li

Filing Date:

2012/6/29  
Date

Tsung Hsien Tsai  
Name 2<sup>nd</sup> Inventor Tsung-Hsien Tsai

Filing Date:

2012.6.29.

Date

周赫軒

Name <sup>3rd</sup> Inventor Mao-Hsuan Chou

U.S. Patent App. No.

Docket No.TSMCP164US

Filing Date:

6/29/2012

Date

許 敏 子

Name 4<sup>th</sup> Inventor Min-Shueh Yuan



Filing Date:

2012/6/29  
Date

Chih-Hsien Chang  
Name 5<sup>th</sup> Inventor Chih-Hsien Chang