PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT2981965

| SUBMISSION TYPE: | CORRECTIVE ASSIGNMENT | |
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| NATURE OF CONVEYANCE: | Corrective Assignment to correct the APPLICATION NUMBER FROM 13/875,689 TO 13/875,659 (DOCUMENT ID NO. 502865873) previously recorded on Reel 030337 Frame 0795. Assignor(s) hereby confirms the ASSIGNMENT. | |

CONVEYING PARTY DATA

| Name | Execution Date |
|-----------------|----------------|
| TZU-HSUAN HSU | 04/09/2008 |
| HAN-CHI LIU | 04/09/2008 |
| CHING-CHUN WANG | 04/09/2008 |

RECEIVING PARTY DATA

| Name: | TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY, LTD. | |
|---|--|--|
| Street Address: NO. 8, LI-HSIN RD. 6 | | |
| Internal Address: SCIENCE-BASED INDUSTRIAL PARK | | |
| City: | y: HSIN-CHU | |
| State/Country: TAIWAN | | |
| Postal Code: 300-77 | | |

PROPERTY NUMBERS Total: 1

| Property Type | Number |
|---------------------|----------|
| Application Number: | 13875659 |

CORRESPONDENCE DATA

Fax Number:

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

| Phone: | 214-651-5000 |
|---------------------|----------------------------------|
| Email: | ipdocketing@haynesboone.com |
| Correspondent Name: | HAYNES AND BOONE, LLP IP SECTION |
| Address Line 1: | 2323 VICTORY AVENUE |
| Address Line 2: | SUITE 700 |
| Address Line 4: | DALLAS, TEXAS 75219 |

| DATE SIGNED: | 08/14/2014 | |
|-------------------------------|------------------|--|
| SIGNATURE: /Denise M. Wilson/ | | |
| NAME OF SUBMITTER: | DENISE M. WILSON | |
| ATTORNEY DOCKET NUMBER: | 24061.2520 | |
| | | |

Total Attachments: 9

PATENT REEL: 033551 FRAME: 0186

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PATENT ASSIGNMENT

Electronic Version v1.1 Stylesheet Version v1.1

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|--|--|-------------------------------------|--------------|---------------------------------------|---|
| SUBMISSION TYPE: | | NEW ASSIGNMENT | | | |
| NATURE OF CONVE | YANCE: | ASSIGNMENT | | | |
| CONVEYING PARTY | DATA | | | | |
| [| ······································ | Name | ····· | Execution Date | |
| Tzu-Hsuan Hsu | | | | 04/09/2008 | |
| Han-Chi Liu | | <u> </u> | | 04/09/2008 | |
| Ching-Chun Wang | | | | 04/09/2008 | |
| RECEIVING PARTY [| DATA | | | | |
| Nате: | Taiwan Semi | conductor Manufacturing C | ompany, Ltd. | | |
| Street Address: | No. 8, Li-Hsin | Rd. 6 | | | |
| Internal Address: | Science-Base | d Industrial Park | | | |
| City: | Hsin-Chu | | | | |
| State/Country: | TAIWAN | | | | |
| Postal Code: | 300-77 | | | | |
| PROPERTY NUMBER | | | Number | | |
| Application Number: | | 13875689 | | | |
| CORRESPONDENCE | DATA | | | · · · · · · · · · · · · · · · · · · · | |
| Fax Number:2142000853Correspondence will be sent via US Mail when the fax attempt is unsuccessful.Phone:214-651-5000Email:ipdocketing@haynesboone.comCorrespondent Name:Haynes and Boone, LLP.Address Line 1:2323 Victory AvenueAddress Line 2:Suite 700Address Line 4:Dallas, TEXAS 75219 | | | | | |
| ATTORNEY DOCKET NUMBER: 2007-0717-D / 24061.2520 | | | | • | |
| | | 2007-0717-D / 240 | 61.2520 | | |
| NAME OF SUBMITTE | NUMBER: | 2007-0717-D / 240 Kyle L. Howard | 61.2520 | | |
| | NUMBER: | | 61.2520 | | |

Docket No.: 2007-0717CIP / 24061.993 Customer No.: 42717

ASSIGNMENT

WHEREAS, we,

| (1) | Tzu-Hsuan Hsu | of | No. 72, Gangshan Central St., Cianjhen District Kaohsiung City 806, Taiwan, R.O.C. |
|-----|-----------------|----|---|
| (2) | Han-Chi Liu | of | No. 26, Fusin Village, Dahu Shiang Miaoli County 364, Taiwan, R.O.C. |
| (3) | Ching-Chun Wang | of | 3F-1, No. 28, Lane 158, Sec. 2, Dongmen Rd. Tainan, Taiwan, R.O.C. |

have invented certain improvements in

BACKSIDE DEPLETION FOR BACKSIDE ILLUMINATED IMAGE SENSORS

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



of even date filed herewith; and filed on April 22, 2008 and assigned application number 12/107,199; 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;

NOW, THEREFORE, for One Dollar (\$1.00) and other 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.

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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.

| Inventor Name: | Tzu-Hsuan Hsu | |
|------------------------|--|---|
| Residence Address: | No. 72, Gangshan Centra Kaohsiung City 306, Taiv | l St., Cianjhen District van, R.O.C. |
| Dated: <u>Apr. 9</u> . | 1.8. | Inventor Signature |
| Inventor Name: | Han-Chi Liu | |
| Residence Address: | No. 26, Fusin Village, Da Miaoli County 364, Taiw | uhu Shiang an, R.O.C. |
| Dated: Apr. 9 | 2008 | How - Chi Liy Inventor Signature |
| Inventor Namo: | Ching-Chun Wang | |
| Residence Address: | 3F-1, No. 28, Lane 158, 5 Tainan, Taiwan, R.O.C. | Sec. 2, Dongmen Rd. |
| Dated: Apr. 9 | 2008 | Inventor Signature |
| | | |
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RECORDED: 06/25/2014