## 506133178 06/30/2020

# PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT6179905

| SUBMISSION TYPE:      | NEW ASSIGNMENT |
|-----------------------|----------------|
| NATURE OF CONVEYANCE: | ASSIGNMENT     |

#### **CONVEYING PARTY DATA**

| Name            | Execution Date |
|-----------------|----------------|
| HSU-TING HUANG  | 05/23/2020     |
| CHIN-HSIANG LIN | 12/02/2019     |
| CHIH-MING LAI   | 01/02/2020     |
| JUE-CHIN YU     | 12/02/2019     |
| RU-GUN LIU      | 01/04/2020     |
| SHIH-HSIANG LO  | 01/05/2020     |
| TUNG-CHIN WU    | 12/02/2019     |

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| State/Country:  | TAIWAN  |
| Postal Code:    | 300   |

#### **PROPERTY NUMBERS Total: 1**

| Property Type       | Number   |
|---------------------|----------|
| Application Number: | 16698044 |

### **CORRESPONDENCE DATA**

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| SIGNATURE:              | /BRIAN ROBERTS/ |

PATENT 506133178 REEL: 053093 FRAME: 0251

| DATE SIGNED:                             | 06/30/2020                               |  |
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| Total Attachments: 9                     |  |  |
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PATENT REEL: 053093 FRAME: 0252



Attorney Docket No. 095714-0847 (P20183092US00)

NP- 25722-0-US-B6

## COMBINED DECLARATION AND ASSIGNMENT FOR PATENT APPLICATION

As a below named inventor, I hereby declare that:

I believe I am the original or an original joint inventor of a claimed invention in the application for which a patent is sought on the invention entitled:

## METHOD FOR MASK DATA SYNTHESIS WITH WAFER TARGET ADJUSTMENT

| which  | application is:  |
|--|--|
| $\boxtimes$  | attached, or   |
|  | United States application number or PCT international application number filed on  |
| The al   | oove-identified application was made or authorized to be made by me.   |
| time l<br>autho:<br>associ   | event that the filing date and/or application number are not entered above at the execute this document, and if such information is deemed necessary, I hereby rize and request the registered practitioners of McDermott Will & Emery LLP, ated with the Customer Number 20277, to insert above the filing date and/or ation number of the application. |
| hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years or both. |  |

### ASSIGNMENT

For good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, I hereby assign to

# TAIWAN SEMICONDUCTOR MANUFACTURING CO., LTD. No. 8, Li-Hsin Rd. 6, Science Based Industrial Park, Hsinchu, Taiwan 300

(hereinafter designated as the Assignee), the entire (100%) right, title and interest for the United States as defined in 35 USC §100, in the invention described in the application identified in this document.

I hereby confirm any prior assignment to Assignee, and to the extent that I have not already done so, agree to assign, and hereby do, sell, assign and transfer unto Assignee and its successors in interest, the full and exclusive right, title and interest in the United States of America and throughout the world, including the right to claim priority under the laws of the United States, the Paris Convention, and any foreign countries, to the inventions as described in the aforesaid application, to the aforesaid application itself, and all divisions, continuations, continuations-in-part, or other applications claiming priority directly or indirectly from the aforesaid application, and any United States or foreign Letters Patent, utility model, or other similar rights which may be granted thereon, including reissues, reexaminations and extensions thereof, and all copyright rights throughout the world in the aforesaid application and the subject matter disclosed therein, these rights, title and interest to be held and enjoyed by Assignee to the full end of the term for which the Letters Patent, utility model, or other similar rights, are granted and any extensions thereof as fully and entirely as the same would have been held by the undersigned had this assignment and sale not been made, and the right to sue for, and recover for past infringements of, or liabilities for, any of the rights relating to any of the applications, patents, utility models, or other similar rights, resulting therefrom, and the copyright rights;

I hereby covenant and agree to execute all instruments or documents required or requested for the making and prosecution of any applications of any type for patent, utility model, or other similar rights, and for copyright, in the United States and in all foreign countries including, but not limited to, any provisional, continuation, continuation-in-part, divisional, renewal or substitute thereof, and as to letters patent any reissue, re-examination, or extension thereof, and for litigation regarding, or for the purpose of protecting title and to the said invention, the United States application for patent, or Letters Patent therefor, and to testify in support thereof, for the benefit of Assignee without further or other compensation than that above set forth;

I hereby covenant that no assignment, sale, license, agreement or encumbrance has been or will be entered into which would conflict with this Assignment.

| Legal name of inventor  Hsu-Ting HUANG  Inventor's signature  Legal name of inventor  Chin-Hsiang LIN  Inventor's signature  Date  Legal name of inventor  Chih-Ming LAI  Inventor's signature  Date |                                      |
|--|--------------------------------------|
| Inventor's signature  Date  Date  2023/5/23  Legal name of inventor  Chin-Hsiang LIN  Inventor's signature  Date  Legal name of inventor  Chih-Ming LAI  |                                      |
| Legal name of inventor  Chin-Hsiang LIN Inventor's signature  Legal name of inventor  Chih-Ming LAI  | 90000000000000                       |
| Chin-Hsiang LIN Inventor's signature  Date  Legal name of inventor Chih-Ming LAI   | <b>&gt;</b>                          |
| Chin-Hsiang LIN Inventor's signature  Date  Legal name of inventor Chih-Ming LAI   |                                      |
| Legal name of inventor Chih-Ming LAI   |                                      |
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| Inventor's signature Date  |                                      |
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| Legal name of inventor<br>Jue-Chin YU  |                                      |
| Inventor's signature Date  |                                      |
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| Legal name of inventor  Ru-Gun LIU   |                                      |
| Inventor's signature Date  |                                      |
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| Legal name of inventor Shih-Hsiang LO  |                                      |
| Inventor's signature Date  |                                      |
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| Legal name of inventor Tung-Chin WU  |                                      |
| Inventor's signature Date  |                                      |



## COMBINED DECLARATION AND ASSIGNMENT FOR PATENT APPLICATION

As a below named inventor, I hereby declare that:

I believe I am the original or an original joint inventor of a claimed invention in the application for which a patent is sought on the invention entitled:

## METHOD FOR MASK DATA SYNTHESIS WITH WAFER TARGET ADJUSTMENT

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| which                  | application is:  |
| $\boxtimes$            | attached, or   |
|                        | United States application number or PCT international application number filed on  |
| The a                  | bove-identified application was made or authorized to be made by me.   |
| time<br>autho<br>assoc | e event that the filing date and/or application number are not entered above at the I execute this document, and if such information is deemed necessary, I hereby rize and request the registered practitioners of McDermott Will & Emery LLP, lated with the Customer Number 20277, to insert above the filing date and/or cation number of the application. |
|                        | eby acknowledge that any willful false statement made in this declaration is hable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years th.  |

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(hereinafter designated as the Assignee), the entire (100%) right, title and interest for the United States as defined in 35 USC §100, in the invention described in the application identified in this document.

I hereby confirm any prior assignment to Assignee, and to the extent that I have not already done so, agree to assign, and hereby do, sell, assign and transfer unto Assignee and its successors in interest, the full and exclusive right, title and interest in the United States of America and throughout the world, including the right to claim priority under the laws of the United States, the Paris Convention, and any foreign countries, to the inventions as described in the aforesaid application, to the aforesaid application itself, and all divisions, continuations, continuations-in-part, or other applications claiming priority directly or indirectly from the aforesaid application, and any United States or foreign Letters Patent, utility model, or other similar rights which may be granted thereon, including reissues, reexaminations and extensions thereof, and all copyright rights throughout the world in the aforesaid application and the subject matter disclosed therein, these rights, title and interest to be held and enjoyed by Assignee to the full end of the term for which the Letters Patent, utility model, or other similar rights, are granted and any extensions thereof as fully and entirely as the same would have been held by the undersigned had this assignment and sale not been made, and the right to sue for, and recover for past infringements of, or liabilities for, any of the rights relating to any of the applications, patents, utility models, or other similar rights, resulting therefrom, and the copyright rights;

I hereby covenant and agree to execute all instruments or documents required or requested for the making and prosecution of any applications of any type for patent, utility model, or other similar rights, and for copyright, in the United States and in all foreign countries including, but not limited to, any provisional, continuation, continuation-in-part, divisional, renewal or substitute thereof, and as to letters patent any reissue, re-examination, or extension thereof, and for litigation regarding, or for the purpose of protecting title and to the said invention, the United States application for patent, or Letters Patent therefor, and to testify in support thereof, for the benefit of Assignee without further or other compensation than that above set forth;

I hereby covenant that no assignment, sale, license, agreement or encumbrance has been or will be entered into which would conflict with this Assignment.

Page 2 of 3

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| Legal name of inventor <b>Hsu-Ting HUANG</b> |            |
| Inventor's signature                         | Date       |
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| Legal name of inventor Chin-Hsiang LIN       |            |
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| Legal name of inventor Chih-Ming LAI         |            |
| Inventor's signature                         | Date       |
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| Legal name of inventor Jue-Chin YU           |            |
| Inventor's signature                         | Date       |
| Swe-Chi Zu                                   | 2019/12/02 |
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| Legal name of inventor                       |            |
| Ru-Gun LIU                                   | Data       |
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| Legal name of inventor                       |            |
| Shih-Hsiang LO Inventor's signature          | Date       |
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| Legal name of inventor Tung-Chin WU          |            |
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| Tung-Chin Wu.                                | 7019.12.2. |
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| Legal name of inventor <b>Hau-Ting HUANG</b> Inventor's signature         | Date             |
|---|------------------|
| Legal name of inventor  Chin-Hsiang LIN Inventor's signature              | Date             |
| Legal name of inventor  Chih-Ming LAI Inventor's signature  Chih-Ming LaZ | Date 252-0.01.02 |
| Legal name of inventor Jue-Chin YU Inventor's signature                   | Date             |
| Legal name of inventor Ru-Gun LIU Inventor's signature                    | Date             |
| Legal name of inventor  Shih-Hsiang LO Inventor's signature               | Date             |
| Legal name of inventor Tung-Chin WU Inventor's signature                  | Date             |
| Page 3 o  | f 3              |

PATENT REEL: 053093 FRAME: 0259

| Legal name of inventor Hsu-Ting HUANG  |                     |
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| Inventor's signature                   | Dute                |
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| Legal name of inventor Chin-Hsiang LIN |                     |
| Inventor's signature                   | Date                |
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| Legal name of inventor Chih-Ming LAI   |                     |
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| Legal name of inventor Jue-Chin YU     |                     |
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| Legai name of inventor<br>Ru-Gun LIU   |                     |
| Inventor's signature  Qu-Gum Liy       | Date<br>4 Jan. 2020 |
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| Legal name of inventor Shih-Hsiang LO  |                     |
| Inventor's signature                   | Date                |
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| Legal name of inventor Tung-Chin WU    |                     |
| Inventor's signature                   | Date                |

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