

## PATENT ASSIGNMENT COVER SHEET

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<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
SHIH-LIEN LINUS LU	05/22/2020
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY LIMITED
<b>Street Address:</b>	NO. 8, LI-HSIN 6 ROAD
<b>Internal Address:</b>	HSINCHU SCIENCE PARK
<b>City:</b>	HSINCHU
<b>State/Country:</b>	TAIWAN
<b>Postal Code:</b>	30077
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	16991614
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	(202)672-5399
<i>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.</i>	
<b>Phone:</b>	202-672-5300
<b>Email:</b>	IPDocketing@foley.com
<b>Correspondent Name:</b>	FOLEY & LARDNER, LLP
<b>Address Line 1:</b>	3000 K ST. NW
<b>Address Line 2:</b>	SUITE 600
<b>Address Line 4:</b>	WASHINGTON, D.C. 20007
<b>ATTORNEY DOCKET NUMBER:</b>	123329-1035
<b>NAME OF SUBMITTER:</b>	RITA BOTT
<b>SIGNATURE:</b>	/Rita Bott/
<b>DATE SIGNED:</b>	08/12/2020
<b>Total Attachments: 3</b>	
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Atty. Dkt. No. 123329-1035

**ASSIGNMENT - WORLDWIDE**

For good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, each undersigned inventor (hereinafter referred to as "ASSIGNOR") has sold, assigned, and transferred, and by these presents hereby sells, assigns, and transfers, unto

Taiwan Semiconductor Manufacturing Company Limited  
No. 8, Li-Hsia 6 Road  
Hsinchu Science Park  
Hsinchu  
30077  
Taiwan

(hereinafter referred to as "ASSIGNEE") its successors and assigns, the full and exclusive right, title and interest for the United States, its territories and possessions, and all foreign countries in and to this invention relating to

**BUFFER CONTROL OF MULTIPLE MEMORY BANKS**

as set forth in this United States Patent Application

check one     executed concurrently herewith,  
                   executed on \_\_\_\_\_  
                   Serial No. \_\_\_\_\_ Filed \_\_\_\_\_

as well as in and to (a) all improvements and modifications of the above-identified invention or inventions, (b) the above-identified application and all other applications for Letters Patent of the United States and countries foreign thereto for above-identified invention or inventions and all improvements and modifications thereof, (c) all Letters Patent which may issue from said applications in the United States and countries foreign thereto, (d) all divisions, continuations, reissues, and extensions of said applications and Letters Patent, and (e) the right to claim for any of said applications the full benefits and priority rights under the Patent Cooperation Treaty, the Paris Convention and any other international agreement; such right, title, and interest to be held and enjoyed by ASSIGNEE, its successors and assigns, to the full end of the term or terms for which any and all such Letters Patent may be granted as fully and entirely as would have been held and enjoyed by ASSIGNOR had this Assignment not been made.

ASSIGNOR HEREBY AUTHORIZES ASSIGNEE to file patent applications in any or all countries on the above-identified invention or inventions in the name of the undersigned or in the name of ASSIGNEE or otherwise as ASSIGNEE may deem advisable under the International Convention or otherwise.

ASSIGNOR HEREBY AUTHORIZES AND REQUESTS the Commissioner of Patents and Trademarks to issue said Letters Patent to ASSIGNEE as assignee of the entire interest, for the sole use and benefit of ASSIGNEE, its successors and assigns.

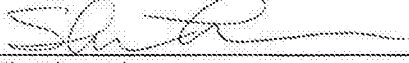
ASSIGNOR HEREBY AGREES (a) to communicate to ASSIGNEE, its successors and assigns, or their representative or agents, all facts and information known or available to ASSIGNOR respecting said invention or inventions, improvements, and modifications including evidence for interference, reexamination, reissue, opposition, revocation, extension, or infringement purposes or other legal, judicial, or administrative proceedings, whenever requested by ASSIGNEE; (b) to testify in person or by affidavit as required by ASSIGNEE, its successors and assigns, in any such proceeding in the United States or a country foreign thereto; (c) to execute and deliver, upon request by ASSIGNEE, all lawful papers including, but not limited to, original, divisional, continuation, and reissue applications, renewals, assignments, powers of attorney, oaths, affidavits, and declarations, depositions; and (d) to provide all reasonable assistance to ASSIGNEE, its successors and assigns, in obtaining and enforcing proper title in and protection for said invention or inventions, improvements, and modifications under the intellectual property laws of the United States and countries foreign thereto.

ASSIGNOR HEREBY REPRESENTS AND WARRANTS that ASSIGNOR has the full and unencumbered right to sell, assign, and transfer the interests sold, assigned, and transferred herein, and that ASSIGNOR has not executed and will not execute any document or instrument in conflict herewith.

ASSIGNOR HEREBY GRANTS to the law firm of **Foley & Lardner LLP** the power and authority to insert in this Assignment any further identification which may be necessary or desirable to comply with the rules of the U.S. Patent and Trademark Office for recordation of this Assignment.

ASSIGNOR UNDERSTANDS AND AGREES that the attorneys and agents of the law firm of **Foley & Lardner LLP** do not personally represent ASSIGNOR OR ASSIGNOR's legal interests, but instead represent the interests of ASSIGNEE; since said attorneys and agents cannot provide legal advice to ASSIGNOR with respect to this Assignment, ASSIGNOR acknowledges its right to seek its own independent legal counsel.

NAME AND SIGNATURE OF INVENTOR

SIGNATURE   
Name: Shih-Lien Linus Lu

DATE May 22, 2020

NAME AND SIGNATURE OF WITNESSES

SIGNATURE: \_\_\_\_\_  
Name: \_\_\_\_\_

DATE \_\_\_\_\_

SIGNATURE \_\_\_\_\_  
Name \_\_\_\_\_

DATE \_\_\_\_\_