PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT5811996

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
HIROKI NOGUCHI	08/23/2019
YU-DER CHIH	09/02/2019
HSUEH-CHIH YANG	08/26/2019
RANDY OSBORNE	10/21/2019
WIN SAN KHWA	08/26/2019

RECEIVING PARTY DATA

Name:	TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY, LTD.
Street Address:	8, LI-HSIN RD.
Internal Address:	6 HSINCHU SCIENCE PARK
City:	HSINCHU
State/Country:	TAIWAN
Postal Code:	300-78

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	16535787

CORRESPONDENCE DATA

Fax Number: (612)332-9081

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: 6123325300
Email: rkrueger@merchantgould.com
Correspondent Name: MARK L. GLEASON
Address Line 1: 150 SOUTH FIFTH STREET
Address Line 2: SUITE 2200
Address Line 4: MINNEAPOLIS, MINNESOTA 55402

ATTORNEY DOCKET NUMBER:	17829.0055USU1
NAME OF SUBMITTER:	MARK L. GLEASON
SIGNATURE:	/Mark L. Gleason/
DATE SIGNED:	11/08/2019

Total Attachments: 10
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Atty. Docket No.: 17829.0055USU1P20180238US00

PATENT ASSIGNMENT

WHEREAS, I, the undersigned inventor (or one of the undersigned joint inventors), of residence as listed, having invented certain new and useful improvements as below entitled, for which application for United States Letters Patent is made; and

WHEREAS, Taiwan Semiconductor Manufacturing Company, Ltd., ("Assignee"), a corporation organized and existing under the laws of Taiwan, the Republic of China, with its principal office at 8, Li-Hsin Rd. 6 Hsinchu Science Park, Hsinchu 300-78 Taiwan, R.O.C., is desirous of acquiring my entire right, title and interest in and to said invention, and to said application and any Letters Patent that may issue thereon in the United States and all other countries throughout the world;

NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, I hereby sell and assign to said Assignee, its successors and assigns, my entire right, title and interest in and to said invention and in and to said application and all patents which may be granted therefor, and all future non-provisional applications including divisions, reissues, substitutions, continuations, and extensions thereof; and I hereby authorize and request the Commissioner for Patents to issue all patents for said invention, or patent resulting therefrom, insofar as my interest is concerned, to said Assignee, as assignee of my entire right, title and interest. I declare that I have not executed and will not execute any agreement in conflict herewith.

I also hereby sell and assign to Assignee, its successors and assigns, my foreign rights to the invention disclosed in said application, in all countries of the world, including, but not limited to, the right to file applications, and obtain patents under the terms of the International Convention for the Protection of Industrial Property, and of the European Patent Convention, and further agree to execute any and all patent applications, assignments, affidavits, and any other papers in connection therewith necessary to perfect such patent rights.

I hereby further agree that I will communicate to said Assignee, or to its successors, assigns, and legal representatives, any facts known to me respecting said invention or the file history thereof, and at the expense of said Assignee, its legal representatives, successors, or assigns, will testify in any legal proceedings, sign all lawful papers, execute all divisional, continuation, reissue and substitute applications, make all lawful oaths, and generally do everything possible to aid said Assignee, its legal representatives, successors, and assigns, to obtain and enforce proper patent protection for said invention in all countries.

IN WITNESS WHEREOF, I hereunto set my hand and seal this day and year;

TITLE OF INVENTION	**MEMORY ERROR DETECTION AND CORRECTION**	
SIGNATURE OF INVENTOR AND NAME	Hiroki Noguchi	Hiroki Noguchi
DATE	Aug. 23, 2019	
RESIDENCE	8, Li-Hsin Rd. 6 Hsinchu Science Park, Hsinchu 300-78 Taiwan, R.O.C.	

JCZP (S)

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TITLE OF INVENTION	**MEMORY ERROR DETECTION AND CORRECTION**	
SIGNATURE OF INVENTOR AND NAME	Yu-Der Chih Yu Der Chih	9/2/2019
DATE		
RESIDENCE	8, Li-Hsin Rd. 6 Hsinchu Science Park, Hsinchu 300-78 Taiwan, R.O.C.	

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TITLE OF INVENTION	**MEMORY ERROR DETECTION AND CORRECTION**	
SIGNATURE OF INVENTOR AND NAME	Hsueh-Chih Yang	HSUEH-CHIH YANG.
DATE	Aug 26, 2019	
RESIDENCE	8, Li-Hsin Rd. 6 Hsinchu Science Park, Hsinchu 300-78 Taiwan, R.O.C.	

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TITLE OF INVENTION	**MEMORY ERROR DETECTION AND CORRECTION**	
SIGNATURE OF INVENTOR AND NAME	Randy Osborne	
DATE		
RESIDENCE	8, Li-Hsin Rd. 6 Hsinchu Science Park, Hsinchu 300-78 Taiwan, R.O.C.	

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TITLE OF INVENTION	**MEMORY ERROR DETECTION AND CORRECTION**	
SIGNATURE OF INVENTOR AND NAME	Win San Khwa	Win San Khwa
DATE	Aug. 26, 2019	
RESIDENCE	8, Li-Hsin Rd. 6 Hsinchu Science Park, Hsinchu 300-78 Taiwan, R.O.C.	