

PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT
CONVEYING PARTY DATA	
Name	Execution Date
KUAN-YEN HUANG	07/31/2017
TING-YU SHEN	08/28/2017
CHIEN-MO LI	08/28/2017
RECEIVING PARTY DATA	
Name:	TAIWAN SEMICONDUCTOR MANUFACTURING CO., LTD.
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State/Country:	TAIWAN
Postal Code:	300-78
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State/Country:	TAIWAN
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PROPERTY NUMBERS Total: 1	
Property Type	Number
Application Number:	16588037
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NAME OF SUBMITTER:	KYLE HOWARD
SIGNATURE:	/Kyle Howard/
DATE SIGNED:	09/30/2019
Total Attachments: 2 source=3552US02 - Assignment#page1.tif source=3552US02 - Assignment#page2.tif	

ASSIGNMENT

WHEREAS, we,

- | | | | |
|-----|----------------|----|--|
| (1) | Kuan-Yen Huang | of | Taipei City, Taiwan, Republic of China |
| (2) | Ting-Yu Shen | of | Taipei City, Taiwan, Republic of China |
| (3) | Chien-Mo Li | of | New Taipei City, Taiwan, Republic of China |

have invented certain improvements in

DESIGN-FOR-TEST FOR ASYNCHRONOUS CIRCUIT ELEMENTS

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

_____ of even date filed herewith; and
X filed on July 26, 2017 and assigned application number 15/660,293; 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 CO., LTD.**, ("TSMC"), 8, Li-Hsin Rd. 6, Hsinchu Science Park, Hsinchu, Taiwan 300-78, Republic of China and **NATIONAL TAIWAN UNIVERSITY ("NTU")**, No. 1, Sec. 4, Roosevelt Road, Taipei, 10617 Taiwan, Republic of China are 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 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 **TSMC and NTU**, its successors, legal representatives, and assigns, our right, title, and interest in, to and under the said invention, and the said application, and all divisional, renewal, substitutional, continuing and continuation-in-part 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 **TSMC and NTU**, 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.

AND WE HEREBY further covenant and agree that we will communicate to **TSMC and NTU**, 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 TSMC and NTU, its successors, legal representatives and assigns, to obtain and enforce proper patent protection for said invention in all countries.

Inventor Name: Kuan-Yen Huang

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Dated: 2017.7.31

Kuan-Yen Huang
Inventor Signature

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Dated: 2017.8.28

Ting-Yu Shen
Inventor Signature

Inventor Name: Chien-Mo Li

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Dated: 2017.8.28

Chien-Mo Li
Inventor Signature