### 504660562 11/28/2017

## PATENT ASSIGNMENT COVER SHEET

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 SUBMISSION TYPE:
 NEW ASSIGNMENT

 NATURE OF CONVEYANCE:
 ASSIGNMENT

#### **CONVEYING PARTY DATA**

Name	Execution Date
RAVI BABU PITTU	09/27/2017
LI-CHUNG HSU	09/19/2017
SUNG-YEN YEH	09/19/2017
CHUNG-HSING WANG	09/19/2017

#### **RECEIVING PARTY DATA**

Name:	TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY LTD.	
Street Address:	NO.8, LI-HSIN RD. 6, HSINCHU SCIENCE PARK	
City:	HSINCHU	
State/Country:	TAIWAN	

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

Property Type	Number
Application Number:	15719516

#### **CORRESPONDENCE DATA**

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NAME OF SUBMITTER:	ANTHONY KING
SIGNATURE:	/Anthony King/
DATE SIGNED:	11/28/2017

**Total Attachments: 2** 

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PATENT 504660562 REEL: 044241 FRAME: 0283

Your Ref.: P20171401US00

US ONLY

# **ASSIGNMENT**

WHEREAS, I(we), <u>PITTU</u>, <u>RAVI BABU</u>, <u>HSU</u>, <u>LI-CHUNG</u>, <u>YEH</u>, <u>SUNG-YEN</u> and <u>WANG</u>, <u>CHUNG-HSING</u> whose post office address(es) appear(s) below, hereinafter referred to as ASSIGNOR, have invented certain new and useful invention entitled

METHOD OF DETERMING A WO	RST CASE IN TIMING ANALYSIS
(hereinafter referred to as the INVENTION) for which an appired executed on even date herewith unless at least one of the ☐ United States Design Patent was	plication for United States Letters Patent /Utility Patent e following is checked:
☐ executed on:	
☐ filed on: 28 September 2017 Serion ☐ established by PCT International Patent Application United States of America ☐ issued on as U.S. Patent No.	on No.: filed: designating the
as 0.6. I atom 140.	•
WHEREAS, TAIWAN SEMICONDUCTOR MANU address is NO.8, LI-HSIN RD. 6, HSINCHU SO	CIENCE PARK, HSINCHU, TAIWAN, R.O.C.
hereinafter referred to as ASSIGNEE, is desirous of acquiri- the United States and its territorial possessions;	ng the entire right, title and interest in and to the same in
NOW, THEREFORE, for good and valuable consider ASSIGNOR, by these presents do sell, assign and transfer and to said INVENTION and application throughout the Upatent granted on any division, continuation, continuation terms for which the same may be granted, including all prints.	Inited States of America, including any and all Letters in-part and reissue of said application for the full term or
ASSIGNOR further covenants that no assignments, sa or entered into which would conflict with this Assignment	ile, agreement or encumbrance has been or will be made;
filing, prosecution and maintenance of said application of said INVENTION, including additional documents that may said INVENTION, all without further consideration. ASS ASSIGNEE'S expense, to identify and communicate to ASS concerning the INVENTION that are within ASSIGNOR'S potestimony on behalf of ASSIGNEE that lawfully may be maintenance, litigation and defense of any patent applies.	y be required to affirm the rights of ASSIGNEE in and to IGNOR also agrees, without further consideration and at IGNEE at ASSIGNEE'S request documents and information ssession or control, and to provide further assurances and a required of ASSIGNOR in respect of the prosecution.
ALSO, ASSIGNOR hereby authorizes and requests the and all Letters Patent referred to above to ASSIGNEE, as the same, for ASSIGNEE'S sole use and behoof; and for the successors, to the full end of the term for which such Lesame would have been held by ASSIGNOR had this assignment.	e use and behoof of ASSIGNEE'S legal representatives and etters Patent may be granted, as fully and entirely as the
Assignor Name PITTU, RAVI BABU	Address NO.8, LI-HSIN RD. 6, HSINCHU SCIENCE PARK, HSINCHU, TAIWAN (R.O.C.)
Signature of Assignor Law Baku	Date of Signature (X) 9/27/2017
Name of Witness (optional)	Name of Witness (optional)
Signature of Witness (optional)	Signature of Witness (Optional)

PATENT REEL: 044241 FRAME: 0284

Assignor Name HSU, LI-CHUNG	NO.8, LI-HSIN RD. 6, HSINCHU SCIENCE PARK, HSINCHU, TAIWAN (R.O.C.)
Signature of Assignor (X) (X / Juny / Hun) Name of Witness (opppnal)	Date of Signature (X) \sqrt{20/9/9/9}  Name of Witness (optional)
Signature of Witness (optional)	Signature of Witness (Optional)

Assignor Name YEH, SUNG-YEN	Address NO.50, HEPING RD., JIADONG TOWNSHIP, PINGTUNG COUNTY 931-42, TAIWAN (R.O.C.)
Signature of Assignor (X) (ch Sung Sen	Date of Signature (X) >017 / 9/19
Name of Witness (optional)	Name of Witness (optional)
Signature of Witness (optional)	Signature of Witness (Optional)

Assignor Name WANG, CHUNG-HSING  Muy-Lin, Wang Signature of Assignor	Address 4F., NO.85, SHUANGFONG RD., BAOSHAN TOWNSHIP, HSINCHU COUNTY 308, TAIWAN (R.O.C.)
Signature of Assignor (X)	Date of Signature (X) >01) / 9 / 19
Name of Witness (optional)	Name of Witness (optional)
Signature of Witness (optional)	Signature of Witness (Optional)