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PATENT ASSIGNMENT COVER SHEET

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EPAS ID: PAT2647411

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
TSUNG-HSIEN TSAI	12/12/2013

RECEIVING PARTY DATA

Name:	TAIWAN SEMICONDUCTOR MANUFACTURING CO., LTD.
Street Address:	NO. 8, LI-HSIN ROAD 6
Internal Address:	HSINCHU SCIENCE PARK
City:	HSIN-CHU
State/Country:	TAIWAN
Postal Code:	300-77

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	14105278

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ATTORNEY DOCKET NUMBER:	2013.0748/1085.01292
NAME OF SUBMITTER:	MANITA RAWAT
Signature:	/Manita Rawat/
Date:	12/13/2013

Total Attachments: 2
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CH $40.00 14105278

Serial No. 14/105,278
filed December 13, 2013

ATTORNEY DOCKET NO.: 2013.0748/1085.01292

ASSIGNMENT AND AGREEMENT

For value received, I, **Tsung-Hsien TSAI,** hereby transfers to **Taiwan Semiconductor Manufacturing Co., Ltd.,** with its principal place of business located at No. 8, Li-Hsin Road 6, Hsinchu Science Park, Hsin-Chu, Taiwan 300-77, Republic of China, and its successors, assigns and legal representatives, the entire right, title and interest, for the United States of America, in and to certain inventions related to **DIGITAL CONTROL RING OSCILLATOR AND METHOD OF ASSEMBLING SAME,** described in a non-provisional application claiming priority thereto and under any and all Letters Patent and any divisions, continuations, continuations-in-part, reexamination certificates, reissues, and extensions thereof, or claiming priority therefrom that may be granted in the United States for said inventions; and I also concurrently hereby sell, assign and transfer to Taiwan Semiconductor Manufacturing Co., Ltd., the entire right, title and interest in and to said inventions for all countries foreign to the United States, including all rights of priority arising from the application aforesaid, and all the rights and privileges under any and all forms of protection, including Letters Patent, that may be granted in said countries foreign to the United States for said inventions.

I authorize Taiwan Semiconductor Manufacturing Co., Ltd. to make application for such protection in its own name and maintain such protection in any and all countries foreign to the United States, and to invoke and claim for any application for patent or other form of protection for said inventions, without further authorization from me, any and all benefits, including the right of priority provided by any and all treaties, conventions, or agreements.

I hereby consent that a copy of this assignment shall be deemed a full legal and formal equivalent of any document which may be required in any country in proof of the right of Taiwan Semiconductor Manufacturing Co., Ltd. to apply for patent or other form of protection for said inventions and to claim the aforesaid benefit of the right of priority.

I request that any and all patents for said inventions be issued to Taiwan Semiconductor Manufacturing Co., Ltd. in the United States and in all countries foreign to the United States, or to such nominees as Taiwan Semiconductor Manufacturing Co., Ltd. may designate.

ATTORNEY DOCKET NO.: 2013.0748/1085.01292

I agree that, when requested, I shall, without charge to Taiwan Semiconductor Manufacturing Co., Ltd. but at its expense, sign all papers, and do all acts which may be necessary, desirable or convenient in connection with said applications, patents, or other forms of protection.

Inventor No. 1

Dated: 2013/12/12

Tsung-Hsien Tsai
Tsung-Hsien TSAI

Residence:

No. 7, Lane 172, Yumin Street, Gushan District, Kaohsiung City 804, Taiwan, R.O.C.