

## 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>
TSUNG-HSIEN TSAI	04/23/2014
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY LIMITED
<b>Street Address:</b>	NO. 8, LI-SIN ROAD 6
<b>Internal Address:</b>	HSIN-CHU SCIENCE PARK
<b>City:</b>	HSIN-CHU
<b>State/Country:</b>	TAIWAN
<b>Postal Code:</b>	300-77
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
Application Number:	14261467
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<b>ATTORNEY DOCKET NUMBER:</b>	TSMC2014-0120
<b>NAME OF SUBMITTER:</b>	ALI ASSAR
<b>SIGNATURE:</b>	/Ali Assar/
<b>DATE SIGNED:</b>	04/28/2014
<b>Total Attachments: 2</b>	
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# ASSIGNMENT

For good and valuable consideration received of the hereinafter named assignee, receipt of which is hereby acknowledged, the undersigned

Tsung-Hsien Tsai  
Zhongli City, TW

NOW, THEREFORE, for and in consideration of our employment and the salary or wages paid to us by Taiwan Semiconductor Manufacturing Company Limited, I/we, Tsung-Hsien Tsai, by these presents do sell, assign, and transfer unto said Taiwan Semiconductor Manufacturing Company Limited, a corporation organized and existing under the laws of the Republic of China, having its principal place of business at No. 8, Li-Hsin Road 6, Hsin-Chu Science Park, Hsin-Chu, Taiwan 300-77, R.O.C., is desirous of acquiring an interest therein, its successors and assigns, the entire right, title and interest, so far as concerns the United States and the Territories and Possessions thereof and all foreign countries, in and to the inventions entitled

## **ALL-DIGITAL PHASE-LOCKED LOOP (ADPLL)**

for which application for United States Letters Patent has been filed on \_\_\_\_\_ under Serial No. \_\_\_\_\_, or was executed by the undersigned on the date below and is being filed concurrently herewith, said application for United States Letters Patent, any and all other applications for Letters Patent on said inventions in countries foreign to the United States, including all divisional, renewal, substitute, continuation and Convention applications based in whole or in part upon said inventions or upon said applications, and any and all Letters Patent and reissues and extensions of Letters Patent granted for said inventions or upon said applications, and every priority right that is or may be predicated upon or arise from said inventions, said applications and said Letters Patent; said assignee being hereby authorized to file patent applications in any or all countries on any or all said inventions in the name of the undersigned or in the name of said assignee or otherwise as said assignee may deem advisable, under the International Convention or otherwise; the Commissioner of Patents and Trademarks of the United States of America and the empowered officials of all other governments being hereby authorized to issue or transfer all said Letters Patent to said assignee in accordance herewith; this assignment being under covenant, not only that full power to make the same is had by the undersigned, but also that such assigned right is not encumbered by any grant, license, or other right heretofore given, and that the undersigned will do all acts reasonably serving to assure that said inventions, patent applications and Letters Patent shall be held and enjoyed by said assignee as fully and entirely as the same could have been held and enjoyed by the undersigned if this assignment had not been made, and particularly to execute and deliver to said assignee all lawful documents including petitions, specifications, oaths, assignments, invention disclaimers, and lawful affidavits in form and substance which may be requested by said assignee, to furnish said assignee with all facts

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relating to said inventions or the history thereof and any and all documents, photographs, models, samples or other physical exhibits which may be useful for establishing the facts of conception, disclosure and reduction to practice of said inventions, and to testify in any proceedings relating to said inventions, patent applications and Letters Patent.

<u>Tsung-Hsien Tsai</u>	<u>2014/4/23</u>
Inventor's Signature	Date
<u>Tsung-Hsien Tsai</u>	
Printed Name in English	