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To the Honorable Commissioner of Patents and Trademarks: Please record the attached original documents or copy thereof.		
1	Name of conveying party(ies): Shih-Hui Chang, Kuo-Hsien Cheng, Cheng-Kun Lin and Wen-Zen Chiu	2 Name and address of receiving party(ies): Taiwan Semiconductor Manufacturing Company, Ltd. No. 121 Park Avenue 3 Science-Based Industrial Park Hsin-Chu, Taiwan, R.O.C.
	Execution Date: November 23, 1998	Additional name(s) & address(es) attached □ Yes ⊠ No
4	Application number(s) or patent number(s):  If this document is being filed together with a new application,	the execution date of the application is:
	A. Patent Application No(s).	B. Patent No(s)  Ca 02080/(s n o o o o o o o o o o o o o o o o o o
	Additional numbers attached? □ Yes ☑ No	
5	Name and address of party to whom correspondence concerning document should be mailed:	6 Total number of applications and patents involved?
	RANDY W. TUNG Tung & Associates 838 W. Long Lake Road Suite 120 Bloomfield Hills, Michigan 48302	7 Total fee (37 CFR 3.41) \$40.00  ☑ Enclosed ☐ Authorized to be charged to deposit account  8 Deposit Account Number:  (Attach duplicate copy of this page if paying by deposit account)
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9	9 Statement and signature.  To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.  Randy W. Tung Name of Person Signing Registration No. 31,311  Total number of pages including cover sheet, attachments, and document:  3	
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> **PATENT REEL: 9869 FRAME: 0871**

## **ASSIGNMENT**

WHEREAS, we, S. H. CHANG, K. H. CHANG, C. K. LIN AND W. E. CHIU, have invented certain improvements in A METHOD OF DETECTING AND CONTROLLING IN-SITU FAULTS IN RAPID THERMAL PROCESSING SYSTEMS for which we are about to make application for Letters Patent of the United States; and

WHEREAS, TAIWAN SEMICONDUCTOR MANUFACTURING CO., LTD. of No. 121, Park Avenue 3, Science-Based Industrial Park, Hsin-Chu, Taiwan, R.O.C, is desirous of acquiring the entire right, title and interest in and to said invention;

NOW, THEREFORE, in consideration of One Dollar (\$1.00) and other good and valuable consideration, the receipt of which is hereby acknowledged, we, S. H. CHANG, K. H. CHANG, C. K. LIN AND W. E. CHIU, by these presents, do hereby sell, assign and transfer unto the said corporation and its assigns, for the territory of the United States of America and all foreign countries, the entire right, title and interest, including all priority rights under the International Convention associated with each country of the Union, in and to said invention as described in the patent application executed by us on the Add day of November 1998, preparatory to obtaining Letters Patent of the United States thereon, and in and to said application and any Letters Patent that may be granted in pursuance of said application and any divisional, continuation or continuation-in-part application thereof, and in and to any reissue of any such patent, and in and to any patent applications which may be filed on said invention in countries foreign to the United States

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PATENT REEL: 9869 FRAME: 0872 and any Letters Patent granted thereon.

We further authorize said corporation to apply for foreign patents on said invention in its own name or through its designees, including subsidiaries, related companies or assignees, under the International Convention or otherwise, and we further agree to execute all papers, including those required for the United States and foreign applications, and to perform such other proper acts as said corporation or its designees the rights herein assigned.

Shih- Dui Chang CHANG Kuo-HSien Cheng.

Chong-Kun Lin

4) on -zen Chin

**TUNG & ASSOCIATES** 838 W. Long Lake Road Suite 120 Bloomfield Hills, Michigan 48302

RECORDED: 03/30/1999

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**PATENT REEL: 9869 FRAME: 0873**