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HEET

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(1) Ching-Shan LU  
Additional name(s) of conveying party(ies) attached?  Yes  No

9-4-03

2. Name and address of receiving party(ies)  
Name: Taiwan Semiconductor Manufacturing Co., Ltd.  
Street Address: No. 8, Li-Hsin Rd. 6, Science-Based Industrial Park Hsin-Chu, Taiwan 300-77 R.O.C.  
Additional name(s) & address(es) attached?  Yes  No

3. Nature of conveyance:  
 Assignment  Merger  
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 Other:

Execution Date: September 3, 2003

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: September 3, 2003

A. Patent application No.(s)

B. Patent No.(s)

10654760

Additional numbers attached?  Yes  No

5. Name and address of party to whom correspondence concerning document should be mailed:

Daniel R. McClure  
Thomas, Kayden, Horstemeyer & Risley, L.L.P.  
100 Galleria Parkway, Suite 1750  
Atlanta, Georgia 30339-5948

6. Total number of applications/patents involved: [ 1 ]

7. Total fee (37 CFR 3.41) \$ 40.00

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Daniel R. McClure

Typed Name

*Daniel R. McClure*  
Signature

Sept 4, 2003  
Date

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22386 U.S. PTD  
10/654760

09/04/03

ASSIGNMENT

WHEREAS, Ching-Shan LU hereafter referred to as ASSIGNOR, has/have invented certain new and useful improvements as described and set forth in the below identified application for United States Letters Patent:

Title: SYSTEM AND METHOD FOR EQUIPMENT MALFUNCTION DETECTION AND DIAGNOSIS  
Filed: \_\_\_\_\_ Serial No. \_\_\_\_\_  
Executed on: September 3, 2003

WHEREAS, Taiwan Semiconductor Manufacturing Co., Ltd. of No. 8, Li-Hsin Rd. 6, Science-Based Industrial Park, Hsin-Chu, Taiwan 300-77, R.O.C. hereinafter referred to as ASSIGNEE, is desirous of acquiring ASSIGNOR'S interest in the said invention and application and in any U.S. Letters Patent which may be granted on the same:

NOW, THEREFORE, TO ALL WHOM IT MAY CONCERN: Be it known that, for good and valuable consideration, receipt of which is hereby acknowledged by Assignor, Assignor has/have sold, assigned and transferred, and by these presents does/do sell, assign and transfer unto the said Assignee, and Assignee's successors and assigns, all his/her/their rights, title and interest in and to the said invention and application and all future improvements thereon, and in and to any Letters Patent which may hereafter be granted on the same in the United States, the said interest to be held and enjoyed by said Assignee as fully and exclusively as it would have been held and enjoyed by said Assignor had this Assignment and transfer not been made, to the full end and term of any Letters Patent which may be granted thereon, or of any division, renewal, continuation in whole or in part, substitution, conversion, reissue, prolongation or extension thereof.

Assignor further agrees/agree that he/she/they will, without charge to said Assignee, but at Assignee's expense, cooperate with Assignee in the prosecution of said application and/or applications, execute, verify, acknowledge and deliver all such further papers, including applications for Letters Patent and for the reissue thereof, and instruments of assignment and transfer thereof, and will perform such other acts as Assignee lawfully may request, to obtain or maintain Letters Patent for said invention and improvement, and to vest title thereto in said Assignee, or Assignee's successors and assigns.

IN TESTIMONY WHEREOF, Assignor has/have signed his/her/their name(s) on the date(s) indicated.

Ching-Shan Lu  
Ching-Shan LU

2003 / 9 / 3  
Date: