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To the Honorable Cc

Date: March 26, 2003  
Attorney Docket No. 5649-1100

Please record the attached original documents or copy thereof.

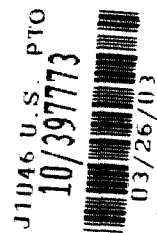
1. Name of conveying party(ies):

Jin-seok Kwak  
Seong-jin Jang

*MAD 3-26-03*

2. Name and address of receiving party(ies):

Samsung Electronics Co., Ltd.  
416 Maetan-dong, Paldal-gu  
Suwon-City, Kyungki-do  
REPUBLIC OF KOREA



Additional name(s) of conveying party(ies) attached? Yes No

3. Nature of conveyance:

- Assignment
- Merger
- Security Agreement
- Change of Name
- Other

Execution Date: March 21, 2003

Additional name(s) & address(es) attached? Yes No

4. Application Serial No. \_\_\_\_\_ Patent No. \_\_\_\_\_

If this document is being filed together with a new application, the execution date of the application is: March 21, 2003

Additional numbers attached? Yes No

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

Grant J. Scott, Esq.  
**Myers Bigel Sibley & Sajovec**  
P. O. Box 37428  
Raleigh NC 27627

6. Total number of applications and patents involved: 1

7. Total fee (37 CFR 3.41) \$ 40.00  
 Enclosed  
 Authorized to be charged to deposit account

8. Deposit account number: 50--0220

DO NOT USE THIS SPACE

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.*

Grant J. Scott #36,925  
Name of Person Signing

March 26, 2003  
Date

Total number of pages including cover sheet, attachments and document: 3

**ASSIGNMENT**

THIS ASSIGNMENT, made by us, **Jin-seok Kwak**, citizen of the Republic of Korea, residing at 915-505, Jugong Apt., Byukjeokgol, 970-3, Youngtong-dong, Paldal-gu, Suwon-city, Kyungki-do, Republic of Korea; and **Seong-jin Jang**, citizen of the Republic of Korea, residing at 104-704, Keumgang Apt., 122, Imae-dong, Bundang-gu, Sungnam-city, Kyungki-do, Republic of Korea;

WITNESSETH: That,

WHEREAS, we are the joint inventors of certain new and useful improvements in **INTEGRATED CIRCUIT DEVICES HAVING DATA INVERSION CIRCUITS THEREIN THAT REDUCE SIMULTANEOUS SWITCHING NOISE AND SUPPORT INTERLEAVING OF PARALLEL DATA** for which an application for United States Letters Patent has been filed, or is being filed concurrently, in the United States Patent and Trademark Office. We hereby authorize and request Myers Bigel Sibley & Sajovec, P.A., to insert here in parentheses (Application No. \_\_\_\_\_, filed \_\_\_\_\_) the filing date and application number of said application when known or to file this Assignment concurrently with the application, and

WHEREAS, **Samsung Electronics Co., Ltd.**, a Korean corporation having a principal place of business at 416 Maetan-dong, Paldal-gu, Suwon-City, Kyungki-do, Republic of Korea, hereinafter referred to as assignee, is desirous of acquiring the entire right, title and interest in and to said invention as described in said application, and in and to any and all Letters Patent which shall be granted therefor in the United States of America and all foreign countries;

NOW, THEREFORE, To Whom It May Concern, be it known that for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, we have sold and by these presents do hereby sell, assign, transfer and convey unto the said assignee, its successors and assigns, the entire right, title and interest in and to the said invention and application, and in and to any and all continuations, continuations-in-part, or divisions thereof, and in and to any and all Letters Patent of the United States of America and all foreign countries or reissues thereof which may be granted therefor or thereon, for the full end of the term for which said Letters Patent may be granted, together with the right to claim the priority of said application in all foreign countries in accordance with the International Convention, the same to be held and enjoyed by said assignee, its successors and assigns, as fully and entirely as the same would have been held and enjoyed by us if this assignment and sale had not been made.

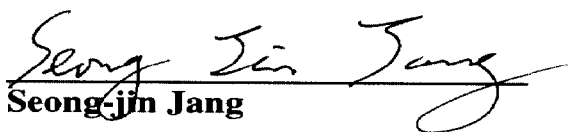
We hereby request that said Letters Patent be issued in accordance with this assignment.

We further covenant and agree that, at the time of the execution and delivery of these presents, we possess full title to the invention and application above-mentioned, and that we have the unencumbered right and authority to make this assignment.

We further covenant and agree to bind our heirs, legal representatives and assigns, promptly to communicate to said assignee or its representatives any facts known to us relating to said invention, to testify in any interference or legal proceedings involving said invention, to execute any additional papers which may be requested to confirm the right of the assignee, its representatives, successors or assigns to secure patent or similar protection for the said invention in all countries and to vest in the assignee complete title to the said invention and Letters Patent, without further compensation, but at the expense of said assignee, its successors, assigns and other legal representatives.

IN WITNESS WHEREOF, we have hereunto set our hands and seals on this 21<sup>st</sup> day of Mar., 2003.

  
Jin-seok Kwak

  
Seong-jin Jang

Witnessed by:

\_\_\_\_\_

Date: \_\_\_\_\_

\_\_\_\_\_

Date: \_\_\_\_\_