

11-24-2006

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OMB No. 0651-0027 (exp. 6/30/2008)

U.S. DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office



EET

103340558

To the Director of the U.S. Patent and Trademark Office: Please record the attached documents or the new address(es) below.

1. Name of conveying party(ies)

Woo-Jin Lee  
Hyun-Dong Kim  
Seong-Jin Jang

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

2. Name and address of receiving party(ies)

Name: Samsung Electronics Co., Ltd.

Internal Address: \_\_\_\_\_

Street Address: 416, Maetan-dong,

Yeongtong-gu

City: Suwon-si, Gyeonggi-do

State: \_\_\_\_\_

Country: Republic of Korea Zip: \_\_\_\_\_

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

3. Nature of conveyance/Execution Date(s):

Execution Date(s) November 10 and 9, 2006

- Assignment  Merger
- Security Agreement  Change of Name
- Joint Research Agreement
- Government Interest Assignment
- Executive Order 9424, Confirmatory License
- Other \_\_\_\_\_

4. Application or patent number(s):

A. Patent Application No.(s)

This document is being filed together with a new application.

B. Patent No.(s)

Additional numbers attached?  Yes  No

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

Name: Steven M. Mills

Internal Address: \_\_\_\_\_

Street Address: Mills & Onello LLP

Eleven Beacon Street, Suite 605

City: Boston

State: Massachusetts Zip: 02108

Phone Number: (617) 994-4900

Fax Number: (617) 742-7774

Email Address: mail@millsonello.com

6. Total number of applications and patents involved: 1

7. Total fee (37 CFR 1.21(h) & 3.41) \$ 40.00

- Authorized to be charged by credit card
- Authorized to be charged to deposit account
- Enclosed
- None required (government interest not affecting title)

8. Payment Information

a. Credit Card Last 4 Numbers 1008

Expiration Date 05/11

b. Deposit Account Number \_\_\_\_\_

Authorized User Name 11/29/2005 YPOLITE1 00000054 11601027  
95 FC18821 40.00

9. Signature:

Steven M. Mills  
Signature

11/17/06  
Date

Steven M. Mills, Registration No. 36,610  
Name of Person Signing

Total number of pages including cover sheet, attachments, and documents:

5

Documents to be recorded (including cover sheet) should be faxed to (571) 273-0140, or mailed to:  
Mail Stop Assignment Recordation Services, Director of the USPTO, P.O.Box 1450, Alexandria, V.A. 22313-1450

11-17-06

112948 U.S. PTO  
11/601027



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**ASSIGNMENT**

We, Woo-Jin Lee, of 211-2202 Imaechon Hanshin Apt., Imae-dong, Bundang-gu, Seongnam-si, Gyeonggi-do, Republic of Korea; Hyun-Dong Kim, of 461-7 Bangbae-dong, Seocho-gu, Seoul, Republic of Korea; and Seong-Jin Jang, of 706-1101 Arcummaeul Hyosung Apt., Imae-dong, Bundang-gu, Seongnam-si, Gyeonggi-do, Republic of Korea; having invented improvements in OUTPUT CIRCUIT, SEMICONDUCTOR MEMORY DEVICE HAVING THE SAME, AND METHOD OF EXPANDING A VALID OUTPUT DATA WINDOW executed by us on even date herewith, for good and valuable consideration, receipt of which is hereby acknowledged from Samsung Electronics Co., Ltd., a Korean corporation having a place of business at 416, Maetan-dong, Yeongtong-gu, Suwon-si, Gyeonggi-do, Republic of Korea (and hereinafter called the Assignee, which term shall include its successors and assigns), do hereby sell, assign and transfer unto the Assignee our entire right, title, and interest in and throughout the United States of America (including its territories and dependencies) and all countries foreign thereto, in and to and under said application (which term shall include hereinafter where the context so admits all divisional, continuing, reissue and other patent applications based thereon) and the inventions (which term shall include each and every such invention, or part thereof) therein described, and any and all patents and like rights of exclusion (including extensions thereof) of any country which may be granted on or for said inventions or on said application;

And for the same consideration We do also hereby sell, assign, and transfer unto the Assignee, all our rights under the International Convention for the Protection of Industrial Property, the Patent Cooperation Treaty, and all other treaties of like purpose in respect of said inventions and said application, and We do hereby authorize the Assignee to apply in our name or its own name or its designee for patents and like rights of exclusion on or for said inventions in all countries, claiming (if the Assignee so desires) the priority of the filing date of said application under the provisions of said Convention, Treaty or any such other Convention or Treaty;

And for the same consideration, We do hereby agree for ourselves and for our heirs, executors, and administrators, promptly upon request of the Assignee to execute and deliver without further compensation any power of attorney, assignment, original, divisional, continuing, reissue or other application or applications for patent or patents or like rights of exclusion of any country, or other lawful documents and any further assurances that may be deemed necessary or desirable by the Assignee, fully to secure to it said right, title, and interest as aforesaid in and to said inventions, applications, and said several patents and like rights of exclusion (including extensions thereof) or any of them, all, however, at the expense of the Assignee, its successors, or assigns;

And We do hereby authorize and request the Commissioner of Patents and Trademarks of the United States of America and the corresponding Official of each country foreign thereto to issue to the Assignee, any and all patents and like rights of exclusion which may be granted in any country upon said United States application on or for said inventions;

And We do hereby covenant for ourselves and our legal representatives and agree with the Assignee, that We have granted no right or license to make, use, or sell said inventions to anyone except the Assignee, that prior to the execution of this deed our right, title, and interest in and to said inventions has not been otherwise encumbered by us, and that We have not executed and will not execute any instruments in conflict herewith.

Reference No.: SAM-1006

First or Sole Inventor:

Signature: Woojin Lee  
Woojin Lee

Date: 2006.11.10

Second Joint Inventor:

Signature: \_\_\_\_\_  
Hyeon-Dong Kim

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

Third Joint Inventor:

Signature: \_\_\_\_\_  
Kyoung-Ho Song

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

REPUBLIC OF KOREA, 2006.11.10  
KIM JONG IL

ASSIGNMENT

We, Woo-Jin Lee, of 211-2202 Imaechon Hanshin Apt., Imae-dong, Bundang-gu, Seongnam-si, Gyeonggi-do, Republic of Korea; Hyun-Dong Kim, of 461-7 Bangbae-dong, Seocho-gu, Seoul, Republic of Korea; and Seong-Jin Jang, of 706-1101 Areummaeul Hyosung Apt., Imae-dong, Bundang-gu, Seongnam-si, Gyeonggi-do, Republic of Korea; having invented improvements in OUTPUT CIRCUIT, SEMICONDUCTOR MEMORY DEVICE HAVING THE SAME, AND METHOD OF EXPANDING A VALID OUTPUT DATA WINDOW executed by us on even date herewith, for good and valuable consideration, receipt of which is hereby acknowledged from Samsung Electronics Co., Ltd., a Korean corporation having a place of business at 416, Maetan-dong, Yeongtong-gu, Suwon-si, Gyeonggi-do, Republic of Korea (and hereinafter called the Assignee, which term shall include its successors and assigns), do hereby sell, assign and transfer unto the Assignee our entire right, title, and interest in and throughout the United States of America (including its territories and dependencies) and all countries foreign thereto, in and to and under said application (which term shall include hereinafter where the context so admits all divisional, continuing, reissue and other patent applications based thereon) and the inventions (which term shall include each and every such invention, or part thereof) therein described, and any and all patents and like rights of exclusion (including extensions thereof) of any country which may be granted on or for said inventions or on said application;

And for the same consideration We do also hereby sell, assign, and transfer unto the Assignee, all our rights under the International Convention for the Protection of Industrial Property, the Patent Cooperation Treaty, and all other treaties of like purpose in respect of said inventions and said application, and We do hereby authorize the Assignee to apply in our name or its own name or its designee for patents and like rights of exclusion on or for said inventions in all countries, claiming (if the Assignee so desires) the priority of the filing date of said application under the provisions of said Convention, Treaty or any such other Convention or Treaty;

And for the same consideration, We do hereby agree for ourselves and for our heirs, executors, and administrators, promptly upon request of the Assignee to execute and deliver without further compensation any power of attorney, assignment, original, divisional, continuing, reissue or other application or applications for patent or patents or like rights of exclusion of any country, or other lawful documents and any further assurances that may be deemed necessary or desirable by the Assignee, fully to secure to it said right, title, and interest as aforesaid in and to said inventions, applications, and said several patents and like rights of exclusion (including extensions thereof) or any of them, all, however, at the expense of the Assignee, its successors, or assigns;

And We do hereby authorize and request the Commissioner of Patents and Trademarks of the United States of America and the corresponding Official of each country foreign thereto to issue to the Assignee, any and all patents and like rights of exclusion which may be granted in any country upon said United States application on or for said inventions;

And We do hereby covenant for ourselves and our legal representatives and agree with the Assignee, that We have granted no right or license to make, use, or sell said inventions to anyone except the Assignee, that prior to the execution of this deed our right, title, and interest in and to said inventions has not been otherwise encumbered by us, and that We have not executed and will not execute any instruments in conflict herewith.



Reference No.: SAM-1006

First or Sole Inventor:

Signature: Woo-Jin Lee

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

Second Joint Inventor:

Signature: *[Handwritten Signature]*  
Hyun-Dong Kim

Date: 9 Nov 2006

Third Joint Inventor:

Signature: *[Handwritten Signature]*  
Seong-Jin Jang

Date: 9 Nov 2006

REFERENCE NO.: SAM-1006  
ANAM1006/amjgsmst.rpt

