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103475566

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)**

Hoe-Ju Chung  
Jung-Bae Lee  
Joo-Sun Choi

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

Name: Samsung Electronics Co., Ltd.

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

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

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

Execution Date(s) 12/24/07 and 12/26/07

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

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

**4. Application or patent number(s):**

☒ This document is being filed together with a new application.

A. Patent Application No.(s)

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 06/11

b. Deposit Account Number 01700/2008 HMKZ11 00000005 10306766

Authorized User Name \_\_\_\_\_ 40.00 OP

**9. Signature:**

Signature

Date 1/4/08

Steven M. Mills, Registration No. 36,610

Name of Person Signing

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

3

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

PATENT  
REEL: 020384 FRAME: 0193

# ASSIGNMENT

We, Hoe-Ju Chung, of, 101-117 Hyundai Morningside 1-cha Apt., 570 Bora-ri, Giheung-cup, Yongin-si, Gyeonggi-do, Republic of Korea; Jung-Bae Lee, of 509-801 Samsung 5 cha Apt., Jinsanmaeul Pungdeokcheon-dong, Suji-gu, Yongin-si, Gyeonggi-do, Republic of Korea; and Joo-Sun Choi, of 703-602 Samsung 7-cha Apt., Pungdeokcheon 2-dong, Suji-gu, Yongin-si, Gyeonggi-do, Republic of Korea, having invented improvements in **MEMORY SYSTEM HAVING LOW POWER CONSUMPTION** described in an application for Letters Patent of the United States, 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-0825CIP

First or Sole Inventor:

Signature: Hoe-Ju Chung  
Hoe-Ju Chung

Date: Dec. 24th, 2007

Second Joint Inventor:

Signature: Jung-Bae Lee  
Jung-Bae Lee

Date: Dec. 24, 2007

Third Joint Inventor:

Signature: Joon-Sun Choi  
Joo-Sun Choi

Date: 12-26-2007

REFERENCE NO.: SAM-0825CIP  
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