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| Atty Docket No:<br>SAM-287  |  | U.S. Department of Commerce<br>Patent and Trademark Office<br>Attorney Docket No.                             |                                |
| To the Director of the U.S. Patent and Trademark Office:<br>Please record the attached original documents or copy thereof.                            |  | Mail Stop Assignment/Recordation Services   |                                |
| 1. Name of conveying party(ies):<br>1. Jun Bae Kim<br>2. Chang-Hyun Bae<br>3. Jung-Bae Lee  |  | 2. Name and address of receiving party:<br>Name: Samsung Electronics Co., Ltd.                                |                                |
| Additional name(s) of conveying parties attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No                                 |  | Internal Address:   |                                |
| 3. Nature of conveyance:  |  | Street Address: 416, Maetan-dong, Yeongtong-gu  |                                |
| <input checked="" type="checkbox"/> Assignment  | <input type="checkbox"/> Merger  | City: Suwon-si  |                                |
| <input type="checkbox"/> Security Agreement   | <input type="checkbox"/> Change of Name  | State: Gyeonggi-do  | Country: South Korea           |
| <input type="checkbox"/> Joint Research Agreement   | <input type="checkbox"/> Government Interest Assignment                                  | Additional name(s) & Address(es) attached?  |                                |
| <input type="checkbox"/> Executive Order 9498, Confirmatory License   | <input type="checkbox"/> Other:  | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No   |                                |
| Execution Date(s): March 26, 2010   |  |   |                                |
| 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: |  |   |                                |
| A. Patent Application Number: 12/718,373  |  | B. Patent Number(s):  |                                |
| Additional numbers attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No  |  |   |                                |
| 5. Name and address of party to whom correspondence concerning document should be mailed:   |  | 6. Total number of applications and patents involved: 1   |                                |
| Name: Patrick D. Muir   | (tel): 703-757-7880<br>(fax): 703-767-7447<br>(e-mail): patrick@mulrpatentconsulting.com | 7. Total fee (37 CFR 1.21(h) and 3.41): \$ 40   |                                |
| Internal Address: Muir Patent Consulting, PLLC  |  | <input type="checkbox"/> Enclosed (Please charge deficiency or credit overpayment to deposit account 50-4574) |                                |
| Street Address: 758 Walker Road, Suite C  |  | <input checked="" type="checkbox"/> Authorized to be charged to deposit account                               |                                |
| City: Great Falls   |  | <input type="checkbox"/> None required (government interest not affecting title)                              |                                |
| State: VA   | Zip: 22066   | 8. Deposit Account No.: 50-4574   |                                |
| 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.  |  |   |                                |
| Signed:   | <i>Bradley Edelman</i>   | 3/31/2010   |                                |
|   | Bradley Edelman, Reg. No. 57,848   | 04/02/2010 LME  | ELLER 00000005 504574 12716373 |
| Total number of pages including cover sheet, attachments and documents:   |  | 01 FC:8021  | 40.00 DA                       |

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SAM-287  
ID200810-013-1-USO

**ASSIGNMENT**

We, Jun Bae Kim, Chang-Hyun Bae, and Jung-Bae Lee, ("Assignors"), have an interest in the invention entitled:

**EAST DELAY LOCKING METHOD, DELAY-LOCKED LOOP, AND SEMICONDUCTOR MEMORY DEVICE INCLUDING THE SAME**

which is the subject of a United States or International application for patent entitled above and naming the undersigned inventors

- in a Provisional Patent Application No. \_\_\_\_\_;
- in a Non-Provisional Application along with a Declaration signed today with this assignment;
- in a Non-Provisional Application where the Declaration was signed on \_\_\_\_\_;
- in a Non-Provisional Application filed on March 3, 2010, and assigned Serial No. 127718373 or PCT International Application No. \_\_\_\_\_;
- in U.S. Patent No. \_\_\_\_\_ issued \_\_\_\_\_.

Samsung Electronics Co. LTD., 415, Maetan-dong, Yeongtong-gu, Suwon-si, Gyeonggi-do, Republic of Korea, ("Assignee"), is desirous of acquiring Assignors' interest in the invention.

Assignors acknowledge receipt and adequacy of good and valuable consideration in exchange for this Assignment, and assign to Assignee and its successors in interest, the full and exclusive right, title and interest to any and all inventions, developments and improvements disclosed or described in the patent application listed above ("the invention"), in the United States of America and all foreign countries, including the right to claim priority under the laws of the United States, the Paris Convention, and any foreign countries, for the full term of the patent, including extensions of time, the same as if said by Assignor had this Assignment not been made. This Assignment includes the assignment of the right to recover for past infringements of, or liabilities for, any of the rights related to the invention.

Assignors covenant and agree to cooperate with Assignee and execute all instruments or documents requested for the making and prosecution of any applications of any type for patent in the United States and in all foreign countries including, but not limited to the following: provisional, continuation, continuation-in-part, divisional, renewal, or substitute, reissue, re-examination, and extension. Assignors covenant and agree to cooperate with Assignee in any litigation regarding the invention, patents or applications regarding the invention, and render all necessary assistance deemed essential to Assignee's full protection and title in and to the invention hereby transferred without further or other compensation than that provided in this Assignment; the undersigned agree that the attorneys of record in said application shall hereafter act on behalf of said Assignee.

Assignors covenant that no assignment, sale or agreement or encumbrance has been or will be entered into which would conflict with this Assignment.

Assignors request the Commissioner of Patents and Trademarks to issue said Letters Patent of the United States of America to Assignee, and request that any official of any country or countries foreign to the United States, whose duty it is to issue or grant patents and applications, issue said Letters Patent, Utility Model Registration or Inventor's Certificate to Assignee.

Assignors hereby grant the firm of MUIR PATENT CONSULTING, PLLC the power to insert on this assignment any further identification that may be necessary or desirable in order to comply with the rules of any issuing authority, including the United States Patent and Trademark Office, for recordation of this document.

Jun Bae Kim (signature)  
Assignor 1: Jun Bae Kim

2010 / 3 / 26  
Date

(Assignment) 1 of 2

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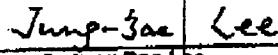
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ID200810-013-1-US0

  
\_\_\_\_\_  
Assignor 2: Chang-Hyun Bae (signature)

03/26/2010  
Date

  
\_\_\_\_\_  
Assignor 3: Jung-Bae Lee (signature)

03/26/2010  
Date

(Assignment) 2 of 2

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PAGE 3/3 \* RCVD AT 3/31/2010 2:10:44 PM [Eastern Daylight Time] \* SVR:USPTO-EFXRF-6/7 \* DNS:2738300 \* CSID:7036841409 \* DURATION (mm-ss):01-12