

## PATENT ASSIGNMENT

Electronic Version v1.1  
 Stylesheet Version v1.1

SUBMISSION TYPE:	NEW ASSIGNMENT														
NATURE OF CONVEYANCE:	ASSIGNMENT														
CONVEYING PARTY DATA															
<table border="1"> <thead> <tr> <th>Name</th> <th>Execution Date</th> </tr> </thead> <tbody> <tr> <td>KIJUN LEE</td> <td>01/03/2013</td> </tr> <tr> <td>DONG-MIN SHIN</td> <td>01/04/2013</td> </tr> <tr> <td>KYEONGCHEOL YANG</td> <td>12/26/2012</td> </tr> <tr> <td>SEUNG-CHAN LIM</td> <td>12/26/2012</td> </tr> <tr> <td>JUNJIN KONG</td> <td>01/02/2013</td> </tr> <tr> <td>MYUNGKYU LEE</td> <td>01/02/2013</td> </tr> </tbody> </table>		Name	Execution Date	KIJUN LEE	01/03/2013	DONG-MIN SHIN	01/04/2013	KYEONGCHEOL YANG	12/26/2012	SEUNG-CHAN LIM	12/26/2012	JUNJIN KONG	01/02/2013	MYUNGKYU LEE	01/02/2013
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<table border="1"> <tr> <td>Name:</td> <td>SAMSUNG ELECTRONICS CO., LTD.</td> </tr> <tr> <td>Street Address:</td> <td>129, SAMSUNG-RO, YEONGTONG-GU,</td> </tr> <tr> <td>City:</td> <td>SUWON-SI, GYEONGGI-DO</td> </tr> <tr> <td>State/Country:</td> <td>KOREA, REPUBLIC OF</td> </tr> <tr> <td>Postal Code:</td> <td>443-742</td> </tr> </table>		Name:	SAMSUNG ELECTRONICS CO., LTD.	Street Address:	129, SAMSUNG-RO, YEONGTONG-GU,	City:	SUWON-SI, GYEONGGI-DO	State/Country:	KOREA, REPUBLIC OF	Postal Code:	443-742				
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PROPERTY NUMBERS Total: 1															
<table border="1"> <thead> <tr> <th>Property Type</th> <th>Number</th> </tr> </thead> <tbody> <tr> <td>Application Number:</td> <td>13801297</td> </tr> </tbody> </table>		Property Type	Number	Application Number:	13801297										
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CORRESPONDENCE DATA															
Fax Number:	5166928889														
<i>Correspondence will be sent via US Mail when the fax attempt is unsuccessful.</i>															
Phone:	516-692-8888														
Email:	mail@chauiplaw.com														

OP \$40.00 13801297

Correspondent Name: F. CHAU & ASSOCIATES, LLC  
Address Line 1: 130 WOODBURY ROAD  
Address Line 4: WOODBURY, NEW YORK 11797

ATTORNEY DOCKET NUMBER: 8836-852 (ID-211979-US)

NAME OF SUBMITTER: RICHARD J. PACIULAN

This document serves as an Oath/Declaration (37 CFR 1.63).

**Total Attachments: 10**

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SAMSUNG ELECTRONICS CO., LTD.

**COMBINED DECLARATION (37 CFR §1.63) FOR UTILITY PATENT APPLICATION AND  
ASSIGNMENT FORM<sup>1</sup>**

The undersigned acknowledges that this document is being used both as an assignment of the invention and as the declaration (37 CFR 1.63) for a Utility or Design Application.

WHEREAS, the undersigned, hereinafter referred to collectively as Assignor, has invented:

Title: **OPERATING METHOD OF CONTROLLER CONTROLLING NONVOLATILE MEMORY  
DEVICE AND MAPPING PATTERN SELECTING METHOD OF SELECTING MAPPING  
PATTERN MAPPING POLAR CODED CODE WORD WITH MULTI BIT DATA OF  
NONVOLATILE MEMORY DEVICE**

---

for which Assignor is about to make or has made United States or International application for patent.

WHEREAS, as a below named inventor(s), I/(we) hereby declare that:

**Section I. Declaration**

This declaration is directed to:

- The attached U.S. non-provisional patent application, or
- U.S. non-provisional patent application number \_\_\_\_\_, filed on \_\_\_\_\_, or
- PCT international patent application number \_\_\_\_\_, filed on \_\_\_\_\_.

The above-identified application was made or authorized to be made by me (us).

I (we) believe that I am (we are) the original inventor (original joint inventors) of a claimed invention in the above-identified application.

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<sup>1</sup> This form requires the use of an Application Data Sheet.

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SEC Ref No.     ID-201110-537-1-US0     Attorney Ref No.     8836-852 (ID-211979-US)

SAMSUNG ELECTRONICS CO., LTD.

I (we) hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

I hereby state that I have reviewed and understand the contents of the above identified application, including the claims.

I acknowledge that I am aware of the duty to disclose information which is material to patentability as defined in 37 CFR § 1.56.

**Section II. Assignment**

In consideration of the sum of One Dollar (\$1.00) and other good and valuable consideration paid to each of the undersigned, the undersigned hereby sell(s) and assign(s) to

SAMSUNG ELECTRONICS CO., LTD.

&

POSTECH ACADEMY-INDUSTRY FOUNDATION

having an address at 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do 443-742, Republic of Korea and Pohang Univ. of Science, San 31, Hyoja-dong, Nam-gu, Pohang-si, Gyeongsangbuk-do, Republic of Korea (hereinafter designated as the Assignees), the entire (100%) right, title and interest for the United States as defined in 35 USC §100, in the invention described in the application identified in Section I of this document.

Assignor hereby confirms any prior assignment to Assignee, and to the extent that Assignor has not already done so, agrees to assign, and hereby does, sell, assign and transfer unto Assignee and its successors in interest, the full and exclusive right, title and interest in the United States of America and throughout the world, including the right to claim priority under the laws of the United States, the Paris Convention, and any foreign countries, to the inventions as described in the aforesaid application, to the aforesaid application itself, and all divisions, continuations, continuations-in-part, or other applications claiming priority directly or indirectly from the aforesaid application, and any United States or foreign Letters Patent, utility model, or other similar rights which may be granted thereon, including reissues, reexaminations and extensions thereof, and all copyright rights throughout the world in the aforesaid application and the subject matter disclosed therein, these rights, title and interest to be held and enjoyed by Assignee to the full end of the term for which the Letters Patent, utility model, or other similar rights, are granted and any extensions thereof as fully and entirely as the same would have been held by Assignor had this assignment and sale not been made, and the right to sue for, and recover for past

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SEC Ref No.           ID-201110-537-1-US0          

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SAMSUNG ELECTRONICS CO., LTD.

infringements of, or liabilities for, any of the rights relating to any of the applications, patents, utility models, or other similar rights, resulting therefrom, and the copyright rights;

Assignor hereby covenants and agrees to execute all instruments or documents required or requested for the making and prosecution of any applications of any type for patent, utility model, or other similar rights, and for copyright, in the United States and in all foreign countries including, but not limited to, any provisional, continuation, continuation-in-part, divisional, renewal or substitute thereof, and as to letters patent any reissue, re-examination, or extension thereof, and for litigation regarding, or for the purpose of protecting title and to the said invention, the United States application for patent, or Letters Patent therefor, and to testify in support thereof, for the benefit of Assignee without further or other compensation than that above set forth;

Assignor hereby covenants that no assignment, sale, license, agreement or encumbrance has been or will be entered into which would conflict with this Assignment; and

Assignor hereby requests the United States Patent and Trademark Office to issue the Letters Patent of the United States of America to Assignee, and requests that any official of any country or countries foreign to the United States, whose duty it is to issue or grant patents and applications as aforesaid, to issue the Letters Patent, Utility Model Registration or other similar right to Assignee.

The undersigned hereby grant(s) the law firm of F. Chau & Associates, LLC the power to insert on this Declaration and Assignment any further identification which may be necessary or desirable in order to comply with the rules of the U.S. Patent and Trademark Office for recordation of this document.

**Section III. Inventor(s)/Assignor(s) Signature(s)**

LEGAL NAME OF FIRST INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	LEE	KIJUN	
SIGNATURE <u><i>Lee Kijun</i></u> DATE <u>2013. 1. 3</u>			

SEC Ref No. ID-201110-537-1-US0 Attorney Ref No. 8836-852 (ID-211979-US)

COMBINED DECLARATION (37 CFR 1.63) FOR UTILITY PATENT APPLICATION AND ASSIGNMENT FORM



LEGAL NAME OF SECOND INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	SHIN	DONG-MIN	
SIGNATURE <u>Shindongmin</u> DATE <u>2013-1-4</u>			

LEGAL NAME OF THIRD INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	YANG	KYEONGCHEOL	
SIGNATURE _____ DATE _____			

LEGAL NAME OF FOURTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	LIM	SEUNG-CHAN	
SIGNATURE _____ DATE _____			

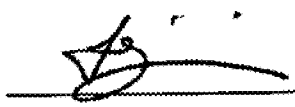
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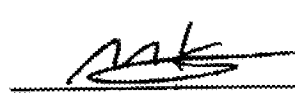


SAMSUNG ELECTRONICS CO., LTD.

LEGAL NAME OF FIFTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	KONG	JUNJIN	

SIGNATURE  DATE 2013. 1. 2.

LEGAL NAME OF SIXTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	LEE	MYUNGKYU	

SIGNATURE  DATE 2013. 1. 2.

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- U.S. non-provisional patent application number \_\_\_\_\_, filed on \_\_\_\_\_, or
- PCT international patent application number \_\_\_\_\_, filed on \_\_\_\_\_.

The above-identified application was made or authorized to be made by me (us).

I (we) believe that I am (we are) the original inventor (original joint inventors) of a claimed invention in the above-identified application.

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<sup>1</sup> This form requires the use of an Application Data Sheet.

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POSTECH ACADEMY-INDUSTRY FOUNDATION

having an address at 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do 443-742, Republic of Korea and Pohang Univ. of Science, San 31, Hyoja-dong, Nam-gu, Pohang-si, Gyeongsangbuk-do, Republic of Korea (hereinafter designated as the Assignees), the entire (100%) right, title and interest for the United States as defined in 35 USC §100, in the invention described in the application identified in Section I of this document.

Assignor hereby confirms any prior assignment to Assignee, and to the extent that Assignor has not already done so, agrees to assign, and hereby does, sell, assign and transfer unto Assignee and its successors in interest, the full and exclusive right, title and interest in the United States of America and throughout the world, including the right to claim priority under the laws of the United States, the Paris Convention, and any foreign countries, to the inventions as described in the aforesaid application, to the aforesaid application itself, and all divisions, continuations, continuations-in-part, or other applications claiming priority directly or indirectly from the aforesaid application, and any United States or foreign Letters Patent, utility model, or other similar rights which may be granted thereon, including reissues, reexaminations and extensions thereof, and all copyright rights throughout the world in the aforesaid application and the subject matter disclosed therein, these rights, title and interest to be held and enjoyed by Assignee to the full end of the term for which the Letters Patent, utility model, or other similar rights, are granted and any extensions thereof as fully and entirely as the same would have been held by Assignor had this assignment and sale not been made, and the right to sue for, and recover for past

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infringements of, or liabilities for, any of the rights relating to any of the applications, patents, utility models, or other similar rights, resulting therefrom, and the copyright rights;

Assignor hereby covenants and agrees to execute all instruments or documents required or requested for the making and prosecution of any applications of any type for patent, utility model, or other similar rights, and for copyright, in the United States and in all foreign countries including, but not limited to, any provisional, continuation, continuation-in-part, divisional, renewal or substitute thereof, and as to letters patent any reissue, re-examination, or extension thereof, and for litigation regarding, or for the purpose of protecting title and to the said invention, the United States application for patent, or Letters Patent therefor, and to testify in support thereof, for the benefit of Assignee without further or other compensation than that above set forth;

Assignor hereby covenants that no assignment, sale, license, agreement or encumbrance has been or will be entered into which would conflict with this Assignment; and

Assignor hereby requests the United States Patent and Trademark Office to issue the Letters Patent of the United States of America to Assignee, and requests that any official of any country or countries foreign to the United States, whose duty it is to issue or grant patents and applications as aforesaid, to issue the Letters Patent, Utility Model Registration or other similar right to Assignee.

The undersigned hereby grant(s) the law firm of **F. Chau & Associates, LLC** the power to insert on this Declaration and Assignment any further identification which may be necessary or desirable in order to comply with the rules of the U.S. Patent and Trademark Office for recordation of this document.

**Section III. Inventor(s)/Assignor(s) Signature(s)**

LEGAL NAME OF FIRST INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	LEE	KIJUN	
SIGNATURE _____		DATE _____	

SEC Ref No.           ID-201110-537-1-US0           Attorney Ref No.           8836-852 (ID-211979-US)

LEGAL NAME OF SECOND INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	SHIN	DONG-MIN	
SIGNATURE _____		DATE _____	

LEGAL NAME OF THIRD INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	YANG	KYEONGCHEOL	
SIGNATURE <u>Kyeongcheol Yang</u>		DATE <u>December 26, 2012</u>	

LEGAL NAME OF FOURTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	LIM	SEUNG-CHAN	
SIGNATURE <u>Seung-Chan Lim</u>		DATE <u>December 26, 2012</u>	

SEC Ref No. ID-201110-537-1-US0 Attorney Ref No. 8836-852 (ID-211979-US)

LEGAL NAME OF FIFTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	<b>KONG</b>	<b>JUNJIN</b>	
SIGNATURE .....		DATE .....	

LEGAL NAME OF SIXTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	<b>LEE</b>	<b>MYUNGKYU</b>	
SIGNATURE .....		DATE .....	

SEC Ref No. **ID-201110-537-1-US0** Attorney Ref No. **8836-852 (ID-211979-US)**