

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>Sung-min Hwang</td> <td>12/04/2009</td> </tr> <tr> <td>Han-soo Kim</td> <td>12/04/2009</td> </tr> <tr> <td>Won-seok Cho</td> <td>12/04/2009</td> </tr> <tr> <td>Jae-hoon Jang</td> <td>12/04/2009</td> </tr> <tr> <td>Sun-il Shim</td> <td>12/04/2009</td> </tr> <tr> <td>Jae-hun Jeong</td> <td>12/04/2009</td> </tr> <tr> <td>Ki-hyun Kim</td> <td>12/04/2009</td> </tr> </tbody> </table>		Name	Execution Date	Sung-min Hwang	12/04/2009	Han-soo Kim	12/04/2009	Won-seok Cho	12/04/2009	Jae-hoon Jang	12/04/2009	Sun-il Shim	12/04/2009	Jae-hun Jeong	12/04/2009	Ki-hyun Kim	12/04/2009
Name	Execution Date																
Sung-min Hwang	12/04/2009																
Han-soo Kim	12/04/2009																
Won-seok Cho	12/04/2009																
Jae-hoon Jang	12/04/2009																
Sun-il Shim	12/04/2009																
Jae-hun Jeong	12/04/2009																
Ki-hyun Kim	12/04/2009																
RECEIVING PARTY DATA																	
Name:	SAMSUNG ELECTRONICS CO., LTD.																
Street Address:	416, Maetan-dong, Yeongtong-gu,																
City:	Suwon-si, Gyeonggi-do,																
State/Country:	REPUBLIC OF KOREA																
Postal Code:	442-742																
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>12636912</td> </tr> </tbody> </table>		Property Type	Number	Application Number:	12636912												
Property Type	Number																
Application Number:	12636912																
CORRESPONDENCE DATA																	
Fax Number:	(571)283-0740																
<i>Correspondence will be sent via US Mail when the fax attempt is unsuccessful.</i>																	
Phone:	5712830720																
Email:	aloomis@volentine.com																
Correspondent Name:	VOLENTINE & WHITT, PLLC																
Address Line 1:	11951 FREEDOM DRIVE, SUITE 1260																
Address Line 4:	RESTON, VIRGINIA 20190																
ATTORNEY DOCKET NUMBER:	SEC.2631																

CH \$40.00 12636912

501039862

**PATENT
 REEL: 023646 FRAME: 0977**

NAME OF SUBMITTER:

ADAM C. VOLENTINE

Total Attachments: 2

source=Assignment#page1.tif

source=Assignment#page2.tif

VOLENTINE & WHITT, P.L.L.C. (01/2007)

ATTORNEY DOCKET NO. SEC.2631

ASSIGNMENT

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

Insert

Name(s) of
Inventor(s)1. Sung-min HWANG7. Ki-hyun KIM2. Han-soo KIM

8. _____

3. Won-seok CHO

9. _____

4. Jae-hoon JANG

10. _____

5. Sun-il SHIM

11. _____

6. Jae-hun JEONG

12. _____

Insert

Name(s) of
Assignee(s) &

the undersigned hereby sell(s) and assign(s) to

SAMSUNG ELECTRONICS CO., LTD.

Address(es)

of 416, Maetan-dong, Yeongtong-gu,
Suwon-si, Gyeonggi-do, Republic of KoreaTitle of
Invention

(hereinafter designated as the Assignee) the entire right, title and interest for the United States as defined in 35 USC 100, in the invention known as

VERTICAL NON-VOLATILE MEMORY DEVICE AND METHOD OFFABRICATING THE SAMEDate of
Signing of
Applicationfor which an application for patent in the United States of America has been executed by
the undersigned on December 4, 2009

The undersigned agree(s) to execute all papers necessary in connection with this application and any continuing, divisional or reissue applications thereof and also to execute separate assignments in connection with such applications as the Assignee may deem necessary or expedient.

The undersigned agree(s) to execute all papers necessary in connection with any interference which may be declared concerning this application or continuing, division or reissue thereof and to cooperate with the Assignee in every way possible in obtaining evidence and going forward with such interference.

The undersigned agree(s) to execute all papers and documents and perform any act which may be necessary in connection with claims or provisions of the International Convention for Protection of Industrial Property or similar agreements.

The undersigned agree(s) to perform all affirmative acts which may be necessary to obtain a grant of a valid United States patent to the Assignee.

Page 1 of 2

VOLENTINE & WHITT, P.L.L.C. (01/2007)

ATTORNEY DOCKET NO. SEC.2631

The undersigned hereby grant(s) the practitioners associated with the CUSTOMER NUMBER 20987 the power to insert on this assignment any further identification which may be necessary or desirable in order to comply with the rules of the United States Patent Office for recordation of this document.

The undersigned hereby authorize(s) and request(s) the Commissioner of Patents to issue any and all Letters Patents of the United States resulting from said application or any division or divisions or continuing or reissue applications thereof to the said Assignee, as Assignee of the entire interest, and hereby covenants that he has (they have) full right to convey the entire interest herein assigned, and that he has (they have) not executed, and will not execute, any agreement in conflict herewith.

In witness whereof, executed by the undersigned on the date(s) opposite the undersigned name(s).

Date 04/12/2009 Signature of Inventor Sung-min, Huang
Sung-min HWANG

Date 04/12/2009 Signature of Inventor H.S. Kim
HAN-SOO KIM

Date 04/12/2009 Signature of Inventor Won seok. Cho
Won-seok CHO

Date 04/12/2009 Signature of Inventor Sun-il Shim
Sun-il SHIM

Date 04/12/2009 Signature of Inventor Jae Hun Jeong
Jae-hun JEONG

Date 04/12/2009 Signature of Inventor Ki-hyun Kim
Ki-hyun KIM

Date 04/12/2009 Signature of Inventor Jaehoon Jang
Jan-hoon JANG

(Note regarding Witnessing: It is recommended that the execution by the Inventor(s) be witnessed by at least two witnesses who sign here. However, the current practice of the U.S. Patent and Trademark Office is to record an Assignment even it has not been witnessed.)

Witness _____

Witness _____

Applicant Reference No. SS-34939-US