

## 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>HyunSoo Cho</td> <td>05/05/2012</td> </tr> <tr> <td>Kyoungil Bank</td> <td>05/09/2012</td> </tr> </tbody> </table>		Name	Execution Date	HyunSoo Cho	05/05/2012	Kyoungil Bank	05/09/2012
Name	Execution Date						
HyunSoo Cho	05/05/2012						
Kyoungil Bank	05/09/2012						
RECEIVING PARTY DATA							
Name:	SAMSUNG ELECTRONICS CO., LTD.						
Street Address:	129, Samsung-ro, Yeongtong-gu,						
City:	Suwon-si, Gyeonggi-do,						
State/Country:	KOREA, DEMOCRATIC PEOPLE'S REPUBLIC OF						
Postal Code:	443-742						
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>13471485</td> </tr> </tbody> </table>		Property Type	Number	Application Number:	13471485		
Property Type	Number						
Application Number:	13471485						
CORRESPONDENCE DATA							
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NAME OF SUBMITTER:	ADAM C. VOLENTINE						
Total Attachments: 2 source=Assignment#page1.tif source=Assignment#page2.tif							

CH \$40.00 13471485

# 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. HyunSoo CHO 7. \_\_\_\_\_
- 2. Kyoungil BANG 8. \_\_\_\_\_
- 3. \_\_\_\_\_ 9. \_\_\_\_\_
- 4. \_\_\_\_\_ 10. \_\_\_\_\_
- 5. \_\_\_\_\_ 11. \_\_\_\_\_
- 6. \_\_\_\_\_ 12. \_\_\_\_\_

**Insert  
Name(s) of  
Assignee(s) &  
Address(es)**

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

SAMSUNG ELECTRONICS CO., LTD.  
129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do,  
443-742, Republic of Korea

(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

**Title of  
Invention**

OPERATING METHOD OF NONVOLATILE MEMORY DEVICE AND OPERATING  
METHOD OF MEMORY SYSTEM INCLUDING NONVOLATILE MEMORY DEVICE

**Date of  
Signing of  
Application**

for which an application for patent in the United States of America has been executed by  
the undersigned on May 5, 2012 & May 9, 2012

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.

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 5th May 2012 Signature of Inventor Hyun Soo Cho  
HyunSoo CHO

Date 9th May 2012 Signature of Inventor Kyounghil Bang  
Kyounghil BANG

Date \_\_\_\_\_ Signature of Inventor \_\_\_\_\_

Date \_\_\_\_\_ Signature of Inventor \_\_\_\_\_

Date \_\_\_\_\_ Signature of Inventor \_\_\_\_\_

Date \_\_\_\_\_ Signature of Inventor \_\_\_\_\_

(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 \_\_\_\_\_

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Applicant Reference No. ID-210043-US