

PATENT ASSIGNMENT

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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>Sunil Shim</td> <td>06/18/2010</td> </tr> <tr> <td>Sunghoi Hur</td> <td>06/18/2010</td> </tr> <tr> <td>Kihyun Kim</td> <td>06/18/2010</td> </tr> <tr> <td>Hansoo Kim</td> <td>06/18/2010</td> </tr> <tr> <td>Jaehun Jeong</td> <td>06/18/2010</td> </tr> </tbody> </table>		Name	Execution Date	Sunil Shim	06/18/2010	Sunghoi Hur	06/18/2010	Kihyun Kim	06/18/2010	Hansoo Kim	06/18/2010	Jaehun Jeong	06/18/2010
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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												
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>12818285</td> </tr> </tbody> </table>		Property Type	Number	Application Number:	12818285								
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CORRESPONDENCE DATA													
Fax Number:	(617)742-7774												
<i>Correspondence will be sent via US Mail when the fax attempt is unsuccessful.</i>													
Phone:	617-994-4900												
Email:	mail@millsonello.com												
Correspondent Name:	MILLS & ONELLO LLP												
Address Line 1:	ELEVEN BEACON STREET												
Address Line 2:	SUITE 605												
Address Line 4:	BOSTON, MASSACHUSETTS 02108												
ATTORNEY DOCKET NUMBER:	SAM-1406												
NAME OF SUBMITTER:	Anthony P. Onello, Jr.												
Total Attachments: 2													

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**PATENT
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ASSIGNMENT

We, SHIM, SUNIL, of 104-704, Kolon Apt., Bangi 1-dong, Songpa-gu, Seoul, Republic of Korea; HUR, SUNGHOI, of 5-803, Gyeongnam Apt., Gaepo 1-dong, Gangnam-gu, Seoul, Republic of Korea; KIM, KIHYUN, of #405, Moonjang building, 856-1, Jinan-dong, Hwaseong-si, Gyeonggi-do, Republic of Korea; KIM, HANSOO, of 431-601, Samsung Raemian Apt., 100, Chengmyungro, Yeongtong-dong, Yeongtong-gu, Suwon-si, Gyeonggi-do, Republic of Korea; and JEONG, JAEHUN, of 305-1206, ShinDongTan Daewoo Purgio Apt., Banwol-dong, Hwaseong-si, Gyeonggi-do, Republic of Korea; having invented improvements in PROGRAMMING METHODS FOR THREE-DIMENSIONAL MEMORY DEVICES HAVING MULTI-BIT PROGRAMMING, AND THREE-DIMENSIONAL MEMORY DEVICES PROGRAMMED THEREBY identified as Attorney Docket No. SAM-1406, described in an application for Letters Patent of the United States, which application was filed on June 18, 2010, and assigned Serial No. 12/818,285 (in the event that the execution date, filing date and/or Serial No. are not entered above at the time we execute this document, and if such information is deemed necessary, we hereby authorize and request our attorneys at Mills & Onello, LLP, Eleven Beacon Street, Suite 605, Boston, Massachusetts 02108, USA, to insert above the execution date, filing date and/or Serial No. of said application, when known), 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 applicator (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.

First or Sole Inventor:

Signature: Sunil Shin
SHIM, SUNIL

Date: 2010/6/18

Second Joint Inventor:

Signature: S. H. Hur
HUR, SUNGHOI

Date: 2010/6/18

Third Joint Inventor:

Signature: Kihyun Kim
KIM, KIHYUN

Date: 2010. 6. 18

Fourth Joint Inventor:

Signature: H. S. Kim
KIM, HANSOO

Date: 2010. 6. 18

Fifth Joint Inventor:

Signature: Jae Hun Jeong
JEONG, JAEHUN

Date: 2010. 6. 18