## PATENT ASSIGNMENT

Electronic Version v1.1
Stylesheet Version v1.1

### SUBMISSION TYPE:

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### NATURE OF CONVEYANCE:

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### CONVEYING PARTY DATA

<table>
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<tr>
<th>Name</th>
<th>Execution Date</th>
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<tbody>
<tr>
<td>Sung Min YOON</td>
<td>01/24/2008</td>
</tr>
<tr>
<td>Nam Yeal LEE</td>
<td>01/24/2008</td>
</tr>
<tr>
<td>Sang Ouk RYU</td>
<td>01/24/2008</td>
</tr>
<tr>
<td>Seung Yun LEE</td>
<td>01/24/2008</td>
</tr>
<tr>
<td>Young Sam PARK</td>
<td>01/24/2008</td>
</tr>
<tr>
<td>Kyu Jeong CHOI</td>
<td>01/24/2008</td>
</tr>
<tr>
<td>Byoung Gon YU</td>
<td>01/24/2008</td>
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### RECEIVING PARTY DATA

<table>
<thead>
<tr>
<th>Name</th>
<th>Electronics and Telecommunications Research Institute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Street Address</td>
<td>161 Gajeong-dong, Yusong-gu</td>
</tr>
<tr>
<td>City</td>
<td>Daejeon-city</td>
</tr>
<tr>
<td>State/Country</td>
<td>REPUBLIC OF KOREA</td>
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### PROPERTY NUMBERS Total: 1

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<tr>
<td>Application Number</td>
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</table>

### CORRESPONDENCE DATA

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### ATTORNEY DOCKET NUMBER:

| YPL-132NP |
Total Attachments: 3
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ASSIGNMENT OF APPLICATION FOR UNITED STATES LETTERS PATENT

WHEREAS YOON, Sung Min; LEE, Nam Yeal; RYU, Sang Ouk; LEE, Seung Yun; PARK, Young Sam; CHO, Kyu Joong; YU, Byoung Gon, hereinafter referred to collectively as the assignor, has invented a certain improvement relating to PHASE-CHANGE MEMORY DEVICE USING Sb-Se METAL ALLOY AND METHOD OF FABRICATING THE SAME, said application having been filed under the Patent Cooperation Treaty on 30 August 2006, Serial No. PCT/KR2006/003416, the United States of America being designated.

AND WHEREAS Electronics and Telecommunications Research Institute of 161 Gajeong-dong, Yusong-gu, Daejeon-city, Republic of Korea, hereinafter referred to as the assignee, is desirous of acquiring the entire right, title and interest in and to said application, including any and all divisions and continuations thereof, and in and to said invention and any and all patents which may be granted therefor, including any and all renewals, reissues and prolongations thereof;

NOW THIS WITNESSETH, that for and in consideration of One Dollar ($1.00), and other good and valuable consideration paid by said assignee to said assignor, the receipt of which is hereby acknowledged, said assignor hereby assigns, sells and transfers to said assignee, and said assignee's successors and assigns, the full and exclusive right, title and interest in and to said application, including any and all divisions and continuations thereof, and in and to said invention and any and all patents which may be granted therefor, including any and all renewals, reissues and prolongations thereof; said assignee, and said assignee's successors and assigns, to have, hold, exercise and enjoy the said application, including any and all divisions and continuations thereof, and the said invention and any and all patents which may be granted therefor, including any and all renewals, reissues and prolongations thereof, with all the rights, powers, privileges and advantages in anywise arising from or appertaining thereto, for and during the term or terms of any and all such patents when granted, including any and all renewals, reissues and prolongations thereof, for the use and benefit of said assignee, and said assignee's successors and assigns, in as ample and beneficial a manner as the said assignor might or could have held and enjoyed the same, if this assignment had not been made.

AND said assignor hereby agrees to perform, upon the request of said assignee, or said assignee's successors or assigns, any and all acts relating to the obtaining or to the asserting of said patents, including any and all renewals, reissues and prolongations thereof.

AND said assignor authorizes and requests the Commissioner of Patents and Trademarks to issue Letters Patent on said application, and on any and all divisions and continuations thereof, to said assignee, and said assignee's successors and assigns, in accordance herewith.

EXECUTED, this 24th day of January, 2008

WITNESSES:

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Name: CHOI, Kyu Jeong

Signature: 
Name: YU, Byoung Gon

Signature: 
Name: YU, Byoung Gon

RECORDED: 03/07/2008

PATENT
REEL: 020618 FRAME: 0554