

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>Kwan-Su SHON</td> <td>03/15/2013</td> </tr> <tr> <td>Taek-Sang SONG</td> <td>03/15/2013</td> </tr> </tbody> </table> | | Name | Execution Date | Kwan-Su SHON | 03/15/2013 | Taek-Sang SONG | 03/15/2013 | | |
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| Kwan-Su SHON | 03/15/2013 | | | | | | | | |
| Taek-Sang SONG | 03/15/2013 | | | | | | | | |
| RECEIVING PARTY DATA | | | | | | | | | |
| <table border="1"> <tr> <td>Name:</td> <td>SK hynix Inc.</td> </tr> <tr> <td>Street Address:</td> <td>2091, Gyeongchung-daero, Bubal-eub, Icheon-si</td> </tr> <tr> <td>City:</td> <td>Gyeonggi-do</td> </tr> <tr> <td>State/Country:</td> <td>KOREA, REPUBLIC OF</td> </tr> </table> | | Name: | SK hynix Inc. | Street Address: | 2091, Gyeongchung-daero, Bubal-eub, Icheon-si | City: | Gyeonggi-do | State/Country: | KOREA, REPUBLIC OF |
| Name: | SK hynix Inc. | | | | | | | | |
| Street Address: | 2091, Gyeongchung-daero, Bubal-eub, Icheon-si | | | | | | | | |
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| State/Country: | KOREA, REPUBLIC OF | | | | | | | | |
| 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>13844861</td> </tr> </tbody> </table> | | Property Type | Number | Application Number: | 13844861 | | | | |
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| Application Number: | 13844861 | | | | | | | | |
| CORRESPONDENCE DATA | | | | | | | | | |
| <p>Fax Number: 5713275452 <i>Correspondence will be sent via US Mail when the fax attempt is unsuccessful.</i></p> <p>Phone: 571-327-5450 Email: ipntlaw@ipntlaw.com Correspondent Name: IP & T GROUP LLP Address Line 1: 8230 Leesburg Pike Address Line 2: Suite 650 Address Line 4: Vienna, VIRGINIA 22182</p> | | | | | | | | | |
| ATTORNEY DOCKET NUMBER: | P13H0018/US | | | | | | | | |
| NAME OF SUBMITTER: | Jun Jeong Park | | | | | | | | |
| | This document serves as an Oath/Declaration (37 CFR 1.63). | | | | | | | | |
| <p>Total Attachments: 2 source=P13H0018US-Assignment#page1.tif source=P13H0018US-Assignment#page2.tif</p> | | | | | | | | | |

OP \$40.00 13844861

PATENT

Attorney Docket No.: _____

**ASSIGNMENT OF AND DECLARATION FOR APPLICATION
FOR UNITED STATES LETTERS PATENT**

WHEREAS SHON, Kwan-Su, hereinafter
referred to collectively as the assignor and inventor, has invented a certain improvement relating to
SEMICONDUCTOR DEVICE AND OPERATING METHOD THEREOF

☒ said application being attached hereto;
☐ said application having been filed in the United States Patent and Trademark Office on
_____, as Application Serial No. _____, and was amended
on _____ (if applicable);
☐ the specification of which was filed under the Patent Cooperation Treaty on _____,
Serial No. _____, the United States of America being designated.

AND WHEREAS SK hynix Inc.
hereinafter referred to as the assignee or applicant, 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.

As an above-named inventor, I hereby declare that the above-identified application was made or authorized to be
made by me, and that I am the original inventor or an original joint inventor of a claimed invention in the application.

I 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.

ASSIGNOR (INVENTOR):Signature:  Date: March 15, 2013Printed or Typed Name: SHON, Kwan-Su

**ASSIGNMENT OF AND DECLARATION FOR APPLICATION
FOR UNITED STATES LETTERS PATENT**

WHEREAS SONG, Taek-Sang, hereinafter
referred to collectively as the assignor and inventor, has invented a certain improvement relating to
SEMICONDUCTOR DEVICE AND OPERATING METHOD THEREOF

☒ said application being attached hereto;
☐ said application having been filed in the United States Patent and Trademark Office on
_____, as Application Serial No. _____, and was amended
on _____ (if applicable);
☐ the specification of which was filed under the Patent Cooperation Treaty on _____,
Serial No. _____, the United States of America being designated.

AND WHEREAS SK hynix Inc
hereinafter referred to as the assignee or applicant, 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
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by fine or imprisonment of not more than five (5) years, or both.

ASSIGNOR (INVENTOR):

Signature: Taeksang SONG Date: March 15, 2013

Printed or Typed Name: SONG, Taek-Sang