

PATENT ASSIGNMENT COVER SHEET

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EPAS ID: PAT2648970

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>HAE-RANG CHOI</td> <td>12/12/2013</td> </tr> <tr> <td>YONG-JU KIM</td> <td>12/12/2013</td> </tr> <tr> <td>OH-KYONG KWON</td> <td>12/12/2013</td> </tr> <tr> <td>KANG-SUB KWAK</td> <td>12/12/2013</td> </tr> <tr> <td>JUN-YONG SONG</td> <td>12/12/2013</td> </tr> <tr> <td>HYEON-CHEON SEOL</td> <td>12/12/2013</td> </tr> </tbody> </table>		Name	Execution Date	HAE-RANG CHOI	12/12/2013	YONG-JU KIM	12/12/2013	OH-KYONG KWON	12/12/2013	KANG-SUB KWAK	12/12/2013	JUN-YONG SONG	12/12/2013	HYEON-CHEON SEOL	12/12/2013
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JUN-YONG SONG	12/12/2013														
HYEON-CHEON SEOL	12/12/2013														
RECEIVING PARTY DATA															
Name:	SK HYNIX INC.														
Street Address:	2091, GYEONGCHUNG-DAERO, BUBAL-EUB, ICHEON-SI														
City:	GYEONGGI-DO														
State/Country:	KOREA, REPUBLIC OF														
Name:	INDUSTRY-UNIVERSITY COOPERATION FOUNDATION HANYANG UNIVERSITY														
Street Address:	17, HAENGDANG-DONG, SEONGDONG-GU														
City:	SEOUL														
State/Country:	KOREA, REPUBLIC OF														
Postal Code:	133-070														
PROPERTY NUMBERS Total: 1															
Property Type	Number														
Application Number:	14106817														
CORRESPONDENCE DATA															
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Correspondent Name:	IP & T GROUP LLP														

OP \$40.00 14106817

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ATTORNEY DOCKET NUMBER: P13H0194/US

NAME OF SUBMITTER: MYUNG SOO KIM

Signature: /Myung Soo KIM/

Date: 12/15/2013

This document serves as an Oath/Declaration (37 CFR 1.63).

Total Attachments: 6

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source=IVX000128797_P13H0194US#page6.tif

Attorney Docket No.: _____

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

WHEREAS CHOL Hae-Rang, hereinafter referred to collectively as the assignor and inventor, has invented a certain improvement relating to DATA RECOVERY CIRCUIT 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. and Industry-University Cooperation Foundation Hanyang University 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: Hae-rang Choi Date: December 12, 2013

Printed or Typed Name: CHOL Hae-Rang

Attorney Docket No.: _____

ASSIGNMENT OF AND DECLARATION FOR APPLICATION
FOR UNITED STATES LETTERS PATENT

WHEREAS KIM, Yong-Ju, hereinafter referred to collectively as the assignor and inventor, has invented a certain improvement relating to DATA RECOVERY CIRCUIT 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. and Industry-University Cooperation Foundation Hanyang University 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 anyway 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: KIM Yong Ju Date: December 12, 2013

Printed or Typed Name: KIM, Yong-Ju

Attorney Docket No.: _____

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

WHEREAS KWON, Oh-Kyong, hereinafter referred to collectively as the assignor and inventor, has invented a certain improvement relating to DATA RECOVERY CIRCUIT 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. and Industry-University Cooperation Foundation Hanyang University, 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: December 12, 2013

Printed or Typed Name: KWON, Oh-Kyong

Attorney Docket No.: _____

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

WHEREAS KWAK, Kang-Sub, hereinafter referred to collectively as the assignor and inventor, has invented a certain improvement relating to DATA RECOVERY CIRCUIT 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. and Industry-University Cooperation Foundation Hanyang University 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: December 12, 2013

Printed or Typed Name: KWAK, Kang-Sub

Attorney Docket No.: _____

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

WHEREAS SONG, Jun-Yong, hereinafter referred to collectively as the assignor and inventor, has invented a certain improvement relating to DATA RECOVERY 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. and Industry-University Cooperation Foundation Hanyang University 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;

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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: Jun-Yong Song Date: December 12, 2013

Printed or Typed Name: SONG, Jun-Yong

Attorney Docket No.: _____

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

WHEREAS SEOL, Hyeon-Cheon, hereinafter referred to collectively as the assignor and inventor, has invented a certain improvement relating to DATA RECOVERY 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);
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ASSIGNOR (INVENTOR):

Signature:  Date: December 12, 2013

Printed or Typed Name: SEOL, Hyeon-Cheon