

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
Stylesheet Version v1.2

EPAS ID: PAT3833383

<b>SUBMISSION TYPE:</b>	CORRECTIVE ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	Corrective Assignment to correct the ADDRESS OF THE SECOND ASSIGNEE previously recorded on Reel 038270 Frame 0769. Assignor(s) hereby confirms the ADDRESS OF THE SECOND ASSIGNEE.

## CONVEYING PARTY DATA

Name	Execution Date
MASAHIRO TAKAHASHI	11/12/2013
TSUNEO INABA	11/12/2013
DONG KEUN KIM	01/02/2014
JI WANG LEE	01/02/2014

## RECEIVING PARTY DATA

<b>Name:</b>	KABUSHIKI KAISHA TOSHIBA
<b>Street Address:</b>	1-1, SHIBAURA 1-CHOME
<b>Internal Address:</b>	MINATO-KU
<b>City:</b>	TOKYO
<b>State/Country:</b>	JAPAN
<b>Postal Code:</b>	105-8001
<b>Name:</b>	SK HYNIX INC.
<b>Street Address:</b>	2091, GYEONGCHUNG-DAERO
<b>Internal Address:</b>	BUDAI-EUB
<b>City:</b>	ICHEON-SI, GYEONGGI-DO
<b>State/Country:</b>	KOREA, REPUBLIC OF

## PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	14018306

## CORRESPONDENCE DATA

Fax Number:

*Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.*

Phone: 212-319-4900  
 Email: shimmelstein@hhpatent.com  
 Correspondent Name: HOLTZ HOLTZ & VOLEK  
 Address Line 1: 630 9TH AVE  
 Address Line 2: SUITE 1010  
 Address Line 4: NEW YORK, NEW YORK 10036

PATENT

<b>ATTORNEY DOCKET NUMBER:</b>	13338
<b>NAME OF SUBMITTER:</b>	STEVEN HIMMELSTEIN
<b>SIGNATURE:</b>	/Steven Himmelstein/
<b>DATE SIGNED:</b>	04/16/2016

**Total Attachments: 9**

source=DOC041616-041616#page1.tif  
source=DOC041616-041616#page2.tif  
source=DOC041616-041616#page3.tif  
source=Assignment#page1.tif  
source=Assignment#page2.tif  
source=Assignment#page3.tif  
source=Assignment#page4.tif  
source=Assignment#page5.tif  
source=Assignment#page6.tif

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT3828520

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT

## CONVEYING PARTY DATA

Name	Execution Date
MASAHIRO TAKAHASHI	11/12/2013
TSUNEO INABA	11/12/2013
DONG KEUN KIM	01/02/2014
JI WANG LEE	01/02/2014

## RECEIVING PARTY DATA

<b>Name:</b>	KABUSHIKI KAISHA TOSHIBA
<b>Street Address:</b>	1-1, SHIBAURA 1-CHOME
<b>Internal Address:</b>	MINATO-KU
<b>City:</b>	TOKYO
<b>State/Country:</b>	JAPAN
<b>Postal Code:</b>	105-8001
<b>Name:</b>	SK HYNIX INC.
<b>Street Address:</b>	2091, GYEONGCHUNG-DAERO
<b>Internal Address:</b>	BUDAI-EUB
<b>City:</b>	ICHEON-SI, GYEONGGI-DO
<b>State/Country:</b>	KOREA, DEMOCRATIC PEOPLE'S REPUBLIC OF

## PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	14018306

## CORRESPONDENCE DATA

## Fax Number:

*Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.*

Phone: 212-319-4900  
 Email: shimmelstein@hhpatent.com  
 Correspondent Name: HOLTZ HOLTZ & VOLEK  
 Address Line 1: 630 9TH AVE  
 Address Line 2: SUITE 1010  
 Address Line 4: NEW YORK, NEW YORK 10036

ASSIGNMENT

ACG065031-USA-B  
(13S0130)

In consideration of value received, I, having a residence as stated below above my name, the sole inventor (if only one name is listed below) or a joint inventor (if plural inventors are listed below) of an invention described in an application for United States patent entitled:

MEMORY DEVICE

have sold and assigned and do hereby sell and assign to

KABUSHIKI KAISHA TOSHIBA  
a Japanese corporation, having a business address at  
1-1, Shibaura 1-chome, Minato-ku, Tokyo 105-8001, Japan;

its successors, assigns or nominees, hereinafter referred to as "Assignee", my entire right, title and interest in and to said invention as disclosed, shown and described in said United States patent application:

(check one)  executed concurrently herewith  
 executed on ;  
 Application No. 14/018,306 , filed September 4, 2013;

and in and to all applications for patent and patents for invention including all divisions, reissues, continuations, substitutes and extensions thereof and all rights arising under or pursuant to any and all international agreements, treaties or laws relating to the protection of industrial property, including rights of priority, resulting from the filing of any of said applications; and I authorize and request any official whose duty is to issue patents, to issue any patent on said invention or resulting therefrom to said Assignee, and I agree that on request and without further consideration, but at the expense of said Assignee, I will communicate to said Assignee or its representatives all facts known to me respecting said invention and testify in any legal proceedings, sign all lawful papers, execute all divisional, continuing, continued prosecution, reissue, or other applications, make all rightful oaths and declarations, and generally do everything possible to aid said Assignee to obtain and enforce proper patent protection for said invention.

I hereby grant the following law firm 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 U.S. Patent and Trademark Office for recordation of this document.

Holtz, Holtz, Goodman & Chick PC, 220 Fifth Avenue - 16th Floor, New York, N.Y.  
10001-7708

ASSIGNMENT

ACG065031-USA-B  
(13S0130)

Residence Address: Seongnam-si, Gyeonggi-do, Korea  
Mailing Address: c/o Intellectual Property Division, Toshiba Corporation, 1-1, Shibaura 1-chome,  
Minato-ku, Tokyo 105-8001, Japan  
Citizenship: Japan

Masahiro Takahashi Nov. 12, 2013  
Masahiro Takahashi Date:

Residence Address: Seongnam-si, Gyeonggi-do, Korea  
Mailing Address: c/o Intellectual Property Division, Toshiba Corporation, 1-1, Shibaura 1-chome,  
Minato-ku, Tokyo 105-8001, Japan  
Citizenship: Japan

Tsuneo Inaba Nov. 12, 2013  
Tsuneo Inaba Date:

ASSIGNMENT

(13S0130)

In consideration of value received, I, having a residence as stated below above my name, the sole inventor (if only one name is listed below) or a joint inventor (if plural inventors are listed below) of an invention described in an application for United States patent entitled:

MEMORY DEVICE

have sold and assigned and do hereby sell and assign to

SK hynix Inc.  
a Korean corporation, having a business address at  
2091, Gyeongchung-daero, Bubal-eub, Icheon-si, Gyeonggi-do, Korea;

its successors, assigns or nominees, hereinafter referred to as "Assignee", my entire right, title and interest in and to said invention as disclosed, shown and described in said United States patent application:

(check one)  executed concurrently herewith  
 executed on ;  
 Application No. 14/018,306 , filed September 4, 2013;

and in and to all applications for patent and patents for invention including all divisions, reissues, continuations, substitutes and extensions thereof and all rights arising under or pursuant to any and all international agreements, treaties or laws relating to the protection of industrial property, including rights of priority, resulting from the filing of any of said applications; and I authorize and request any official whose duty is to issue patents, to issue any patent on said invention or resulting therefrom to said Assignee, and I agree that on request and without further consideration, but at the expense of said Assignee, I will communicate to said Assignee or its representatives all facts known to me respecting said invention and testify in any legal proceedings, sign all lawful papers, execute all divisional, continuing, continued prosecution, reissue, or other applications, make all rightful oaths and declarations, and generally do everything possible to aid said Assignee to obtain and enforce proper patent protection for said invention.

I hereby grant the following law firm 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 U.S. Patent and Trademark Office for recordation of this document.

Holtz, Holtz, Goodman & Chick PC, 220 Fifth Avenue - 16th Floor, New York, N.Y.  
10001-7708

ASSIGNMENT

(13S0130)

Residence Address: Icheon-si, Gyeonggi-do, Korea  
Mailing Address: c/o SK hynix Inc., 2091, Gyeongchung-daero, Bubal-eub, Icheon-si, Gyeonggi-do, Korea  
Citizenship: Republic of Korea

*Dong Keun Kim*

\_\_\_\_\_  
Dong Keun Kim

\_\_\_\_\_  
Date: January 02, 2014

Residence Address: Icheon-si, Gyeonggi-do, Korea  
Mailing Address: c/o SK hynix Inc., 2091, Gyeongchung-daero, Bubal-eub, Icheon-si, Gyeonggi-do, Korea  
Citizenship: Republic of Korea

\_\_\_\_\_  
Ji Wang Lee

\_\_\_\_\_  
Date:

2014-01-02

ASSIGNMENT

(13S0130)

In consideration of value received, I, having a residence as stated below above my name, the sole inventor (if only one name is listed below) or a joint inventor (if plural inventors are listed below) of an invention described in an application for United States patent entitled:

MEMORY DEVICE

have sold and assigned and do hereby sell and assign to

SK hynix Inc.  
a Korean corporation, having a business address at  
2091, Gyeongchung-daero, Bubal-eub, Icheon-si, Gyeonggi-do, Korea;

its successors, assigns or nominees, hereinafter referred to as "Assignee", my entire right, title and interest in and to said invention as disclosed, shown and described in said United States patent application:

(check one)  executed concurrently herewith  
 executed on  
 Application No. 14/018,306 , filed September 4, 2013;

and in and to all applications for patent and patents for invention including all divisions, reissues, continuations, substitutes and extensions thereof and all rights arising under or pursuant to any and all international agreements, treaties or laws relating to the protection of industrial property, including rights of priority, resulting from the filing of any of said applications; and I authorize and request any official whose duty is to issue patents, to issue any patent on said invention or resulting therefrom to said Assignee, and I agree that on request and without further consideration, but at the expense of said Assignee, I will communicate to said Assignee or its representatives all facts known to me respecting said invention and testify in any legal proceedings, sign all lawful papers, execute all divisional, continuing, continued prosecution, reissue, or other applications, make all rightful oaths and declarations, and generally do everything possible to aid said Assignee to obtain and enforce proper patent protection for said invention.

I hereby grant the following law firm 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 U.S. Patent and Trademark Office for recordation of this document.

Holtz, Holtz, Goodman & Chick PC, 220 Fifth Avenue - 16th Floor, New York, N.Y.  
10001-7708



ASSIGNMENT

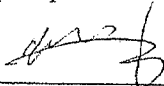
(13S0130)

Residence Address: Icheon-si, Gyeonggi-do, Korea  
Mailing Address: c/o SK hynix Inc., 2091, Gyeongchung-daero, Bubal-eub, Icheon-si, Gyeonggi-do, Korea  
Citizenship: Republic of Korea

\_\_\_\_\_  
Dong Keun Kim

\_\_\_\_\_  
Date:

Residence Address: Icheon-si, Gyeonggi-do, Korea  
Mailing Address: c/o SK hynix Inc., 2091, Gyeongchung-daero, Bubal-eub, Icheon-si, Gyeonggi-do, Korea  
Citizenship: Republic of Korea

  
\_\_\_\_\_  
Ji Wang Lee

\_\_\_\_\_  
Date: January 02, 2014

SK hynix  
28fccb1e-ab75