503003515 10/02/2014

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT3050114

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
SEO HYUN LEE	07/21/2014
BYUNG SOO PARK	07/21/2014
SANG HYUN OH	07/24/2014
SUN MI PARK	07/22/2014

RECEIVING PARTY DATA

Name:	SK HYNIX INC.
Street Address:	2091, GYEONGCHUNG-DAERO, BUBAL-EUB, ICHEON-SI
City:	GYEONGGI-DO
State/Country:	KOREA, REPUBLIC OF

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	14505205

CORRESPONDENCE DATA

Fax Number: (571)327-5452

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: 571-327-5450

Email: ipntlaw@ipntlaw.com
Correspondent Name: IP & T GROUP LLP

Address Line 1: 8230 LEESBURG PIKE SUITE 650

Address Line 4: VIENNA, VIRGINIA 22182

ATTORNEY DOCKET NUMBER:	PO120052HD-D1
NAME OF SUBMITTER:	MYUNG SOO KIM
SIGNATURE:	/Myung Soo KIM/
DATE SIGNED:	10/02/2014
	This document serves as an Oath/Declaration (37 CFR 1.63).

Total Attachments: 6

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PATENT 503003515 REEL: 033887 FRAME: 0125

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> PATENT REEL: 033887 FRAME: 0126

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WHEREAS, See Hyun LEE, Byung Soe PARK, Sang Hyun OH and Sun Mi PARK

hereinafter referred to collectively as the assignor and inventor, has invented a certain improvement relating to

3-D NON-VOLATILE MEMORY DEVICE AND METHOD OF MANUFACTURING THE SAME,

[O] 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	
[] 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. of 2091, Gyeongchung-daero, Bubal-eub, Ichcon-si, G Korea, hereinafter referred to as the assignee or applicant, is desirous of acquiring the entire right said application, including any and all divisions and continuations thereof, and in and to said invertents which may be granted therefor, including any and all renewals, reissues and prolongations.	it, title and interest in and to ention and any and all
NOW THIS WITNESSETH, that for and in consideration of One Dollar (\$1.00), as consideration paid by said assignee to said assignor, the receipt of which is hereby acknowleasing, sells and transfers to said assignee, and said assignee's successors and assigns, the full interest in and to said application, including any and all divisions and continuations thereof, and any and all patents which may be granted therefor, including any and all renewals, reissues and assignee, and said assignee's successors and assigns, to have, hold, exercise and enjoy the said are all divisions and continuations thereof, and the said invention and any and all patents which including any and all renewals, reissues and prolongations thereof, with all the rights, powers, anywise arising from or appertaining thereto, for and during the term or terms of any and all including any and all renewals, reissues and prolongations thereof, for the use and benefit assignee's successors and assigns, in as ample and beneficial a manner as the said assignor menjoyed the same, if this assignment had not been made.	edged, said assignor hereby and exclusive right, title and in and to said invention and d prolongations thereof; said application, including any and the may be granted therefor, privileges and advantages in such patents when granted to f said assignee, and said
AND said assignor hereby agrees to perform, upon the request of said assignee, or sassigns, any and all acts relating to the obtaining or to the asserting of said patents, including an and prolongations thereof.	aid assignee's successors or ny and all renewals, reissues
AND said assignor authorizes and requests the Commissioner of Patents and Trademar said application, and on any and all divisions and continuations thereof, to said assignee, and sassigns, in accordance herewith.	rks to issue Letters Patent on aid assignce's successors and
As an above-named inventor, I hereby declare that the above-identified application we made by me, and that I am the original inventor or an original joint inventor of a claimed inventor.	as made or authorized to be on in the application.
I hereby acknowledge that any willful false statement made in this declaration is punis by fine or imprisonment of not more than five (5) years, or both.	shable under 18 U.S.C. 1001
ASSIGNOR (INVENTOR):	
Signature: 50 WW W Date: 25/4, 721	<u>. </u>
Printed or Typed Name: Seo Hyun LEE	

Page 1 of 2

ASSIGNOR (INVENTOR):	
Signature:	Date: <u>2//07/201</u> 9
Printed or Typed Name: Byung Soo PARK	
ASSIGNOR (INVENTOR):	
Signature:	Date:
Printed or Typed Name; Sang Hyun OH	
ASSIGNOR (INVENTOR):	
Signature:	Date:
Printed or Typed Name: Sun Mi PARK	

Page 2 of 2

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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. of 2091, Gyeongchung-daero, Bubal-cub, Icheon-si, Gyeonggi-do, Republic of Korea, 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 assigner 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:
Printed or Typed Name: Seo Hyun LEE

Page 1 of 2

ASSIGNOR (INVENTOR):	
Signature:	Date:
Printed or Typed Name: Byung Soo PARK	
ASSIGNOR (INVENTOR):	
Signature: Sang-Hyun Oh	
Printed or Typed Name: Sang Hyun OH	
ASSIGNOR (INVENTOR):	
Signature:	Date:
Printed or Typed Name: Sun Mi PARK	

Page 2 of 2

Attorney	Docket No.:	

WHEREAS, Seo Hyun LEE, Byung Soo PARK, Sang Hyun OH and Sun Mi PARK

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NOW THIS WITNESSETH, that for and in consideration of One Dollar consideration paid by said assignee to said assigner, the receipt of which is hereby assigns, sells and transfers to said assignee, and said assignee's successors and assigns interest in and to said application, including any and all divisions and continuations the any and all patents which may be granted therefor, including any and all renewals, reassignee, and said assignee's successors and assigns, to have, hold, exercise and enjoy all divisions and continuations thereof, and the said invention and any and all paincluding any and all renewals, reissues and prolongations thereof, with all the rights, anywise arising from or appertaining thereto, for and during the term or terms of an including any and all renewals, reissues and prolongations thereof, for the use an assignee's successors and assigns, in as ample and beneficial a manner as the said a enjoyed the same, if this assignment had not been made.	r acknowledges, the full and exercef, and in an exissues and prothe said applications which may powers, privilly and all such the dependent of second control of second contro	d, said exclusived to sa longation, it at longation, it ay be leges a paten said as	assign we righ wid involutions the grantee and adv ts whe signee	nor hereby t, title and ention and ereof; said ang any and d therefor, vantages in en granted, , and said
AND said assignor hereby agrees to perform, upon the request of said assigns, any and all acts relating to the obtaining or to the asserting of said patents, in and prolongations thereof.	gnee, or said a neluding any ar	assigne ad all r	e's suc enewal	cessors or ls, reissues
AND said assignor authorizes and requests the Commissioner of Patents and said application, and on any and all divisions and continuations thereof, to said assign assigns, in accordance herewith.	Trademarks to nee, and said as	issue ssignee	Letters 's succ	Patent on essors and
As an above-named inventor, I hereby declare that the above-identified app made by me, and that I am the original inventor or an original joint inventor of a claimed	lication was m ed invention in	ade or the app	author olicatio	rized to be on.
I hereby acknowledge that any willful false statement made in this declaration by fine or imprisonment of not more than five (5) years, or both.	on is punishabl	e under	r 18 U	.S.C. 1001
ASSIGNOR (INVENTOR):				
Signature: Date:				
Printed or Typed Name: Seo Hyun LEE				

Page 1 of 2

ASSIGNOR (INVENTOR):				
Signature:	Date:			
Printed or Typed Name: Byung Soo PARK				
ASSIGNOR (INVENTOR):				
Signature:	Date:			
Printed or Typed Name: Sang Hyun OH				
ASSIGNOR (INVENTOR):				
Signature: Sun Mi PARK	Date: 22th July, 2014			

Page 2 of 2

PATENT REEL: 033887 FRAME: 0132

Printed or Typed Name: Sun Mi PARK