### PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2

EPAS ID: PAT4094283

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

#### **CONVEYING PARTY DATA**

Name	Execution Date
MIN-CHANG KIM	09/20/2016
CHANG-HYUN KIM	09/22/2016
DO-YUN LEE	09/19/2016
JAE-JIN LEE	09/22/2016
HOE-KWON JUNG	09/22/2016

#### **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:	15291795

#### **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 IP & T GROUP LLP **Correspondent Name:** 

Address Line 1: 8230 LEESBURG PIKE SUITE 650

Address Line 4: VIENNA, VIRGINIA 22182

ATTORNEY DOCKET NUMBER:	P15H0185/US	
NAME OF SUBMITTER:	JUN JEONG PARK	
SIGNATURE:	/Jun Jeong PARK/	
DATE SIGNED:	10/12/2016	
	This document serves as an Oath/Declaration (37 CFR 1.63).	

**Total Attachments: 5** 

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

WHEREAS KIM Min: Charge hereinafter hereinafter
referred to collectively as the assignor and inventor, has invented a certain improvement relating to
MEMORY SYSTEM
[X] said application being attached hereto;
on(if applicable):
[ ] the specification of which was filed under the Patent Cooperation Treaty on
Serial Nathe United States of America being designated.
AND WHEREAS SK hanix Inc
herematter referred to as the assignee or applicant, is desirous of acquiring the entire right, lifte 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 assigner, the receipt of which is hereby acknowledged, said assigner hereb assigns, sells and transfers to said assignee, and said assignee's successors and assigns, the full and exclusive right, title an interest in and to said application, including any and all divisions and continuations thereof, and in and to said invention an any and all patents which may be granted therefor, including any and all renewals, reissues and prolongations thereof; sai assignee, and said assignee's successors and assigns, to have, hold, exercise and enjoy the said application, including any an 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 if 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 henefit of said assignee, and said assignee's successors and assignee's successors and assignee's necessors and assignee's necessors and assignment had not been made.  AND said assignor hereby agrees to perform, upon the request of said assignee, or said assignee's successors of assigns, any and all acts relating to the obtaining or to the asserting of said patents, including any and all renewals, reissue and prolongations thereof.  AND said assignor authorizes and requests the Commissioner of Patents and Trademarks to issue Letters Patent of said application, and on any and all divisions and continuations thereof, to said assignee, and said assignee's successors and 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 b 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. $100$ by fine or imprisonment of not more than five $(5)$ years, or both.
ASSIGNOR (INVENTOR):
Signature: Kim Mindrang Date: September 20, 2016
Printed or Typed Name: KIM Min-Charg

Attorney Docket No.;

ASSIGNMENT OF AND DECLARATION FOR APPLICATION FOR UNITED STATES LETTERS PATENT
WHEREAS KIM, Chang-Hyun hereinafter hereinafter
referred to collectively as the assignor and inventor, has invented a certain improvement relating to
MEMORY SYSTEM
[X] said application being attached hereto; [ ] said application having been filed in the United States Patent and Trademark Office 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 assigner, 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 assignce, 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: <u>KM chany Hyrm</u> . Date:
Printed or Typed Name: KIM, Chang-Hyun Page 1 of 1
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Attorney Docket No.:	
Attorney Docket No.:	

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

WHEREAS	LEE, Do-Yun		, hereina	after
referred to collectiv	ely as the assignor and inventor	r, has invented a certain improvement relating	to	
MEMORY SYSTE				
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on	3.1	_(if applicable); atent Cooperation Treaty on		
[ ] the specification	of which was filed under the P	atent Cooperation Treaty on		
Serial No.	, the United States	of America being designated.		
AND WHERE	AS SK hynix Inc.			
hereinafter referred	to as the assignce or applicant,	is desirous of acquiring the entire right, title a		
		ntinuations thereof, and in and to said invention		S-
which may be grant	ed therefor, including any and a	ill renewals, reissues and prolongations thereo	Ġ.	
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		nor, the receipts of which is hereby acknowle		
assions, sells and tr	ansfers to said assignee, and sa	id assignee's successors and assigns, the full of	md exclusive right, title	and
		ed all divisions and continuations thereof, and		
any and all patents	which may be granted therefor	, including any and all renewals, reissues and	prolongations thereof;	said
		s, to have hold exercise and enjoy the said ap		
		said invention and any and all patents which		
		ngaticate thereof, with all the rights, powers, a		
		ilongations thereof, for the use and benefit		
		Lebeneficial a manner as the said assignor mi		
	this assignment had not been n			
		form, upon the request of said assignee, or s		
assigns, any ano an and prolongations tl		r to the asserting of said patents, including ar	ly and an renewals, rea	ssues
auo promanom o	wa part,			
		is the Commissioner of Patents and Trademar		
		continuations thereof, to said assignee, and sa	id assignee's successors	and
assigns, in accordan	ce herewith.			
As an abov	ve-named inventor. I hereby de	clare that the above-identified application wa	is made or authorized t	to be
		an original joint inventor of a claimed inventic		
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	knowledge that any withil tais nent of not more than five (5) y	se statement made in this declaration is punis	nable under 18 U.S.C.	1001
of time or militiscim	acm or my more man nee (2) y	cars, or over.		
ASSIGNOR (INVE	NTOR):			
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ec	KIM	Date: Sep 1	9.2016	
Signature:	- CAME	Date:		
Printed or Typed Na	ime: <u>LEE, Do-Yun</u>			
		Page 1of 1		

**SK** hynix

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Attorney Docket No.:

ASSIGNMENT OF AND DECLARATION FOR APPLICATION FOR UNITED STATES LETTERS PATENT
WHEREAS LEE Jac-Jin , hereinafter
referred to collectively as the assignor and inventor, has invented a certain improvement relating to
MEMORY SYSTEM
[X] said application being attached hereto; [ ] said application having been filed in the United States Patent and Trademark Office on
[ ] the specification of which was filed under the Patent Cooperation Treaty on,  Serial No, the United States of America being designated.
social inc.
AND WHERBAS 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 assignce'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: LEC TARTEN Date: V/32/2016

Page 1of 1

Printed or Typed Name: <u>LEE Jac-Jin</u>

Attorney Docket No.:

ASSIGNMENT OF AND DECLARATION FOR APPLICATION FOR UNITED STATES LETTERS PATENT	
WHEREAS AING Hoc-Kwon hereinafter	
referred to collectively as the assignor and inventor, has invented a certain improvement relating to	
MEMORY SYSTEM	
X) said application being attached hereto;  I said application having been filed in the United States Patent and Trademark Office on	
as Application Serial No, and was amended m(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	
AND WHEREAS SK hymix Inc.	
nereinafter referred to as the assignee or applicant, is desirons 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 an 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 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 neluding 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 assignce, or said assignce's successors of assigns, any and all acts relating to the obtaining or to the asserting of said patents, including any and all renewals, reissue and prolongations thereof.	
AND said assignor authorizes and requests the Commissioner of Patents and Trademarks to issue Letters Patent or 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 nade 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. 100 by fine or imprisonment of not more than five (5) years, or both.	
ASSIGNOR (INVENTOR):	
Signature:	

Page lof I

**PATENT REEL: 039999 FRAME: 0830** 

Printed or Typed Name: JUNG, Hoe-Kwon