## 505192290 11/15/2018

# PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT5239059

| SUBMISSION TYPE:      | NEW ASSIGNMENT |
|-----------------------|----------------|
| NATURE OF CONVEYANCE: | ASSIGNMENT     |

#### **CONVEYING PARTY DATA**

| Name          | Execution Date |
|---------------|----------------|
| HYUNG MIN LEE | 11/08/2018     |

#### **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: | 16191793 |  |

#### **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:** 5713275450

Email: ipntlaw@ipntlaw.com

Correspondent Name: IP & T GROUP LLP

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Address Line 2: SUITE 650

Address Line 4: VIENNA, VIRGINIA 22182

| ATTORNEY DOCKET NUMBER: | PO180208HD                                                 |  |
|-------------------------|------------------------------------------------------------|--|
| NAME OF SUBMITTER:      | KEON WOO PARK                                              |  |
| SIGNATURE:              | /Keon Woo PARK/                                            |  |
| DATE SIGNED:            | 11/15/2018                                                 |  |
|                         | This document serves as an Oath/Declaration (37 CFR 1.63). |  |

### **Total Attachments: 1**

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PATENT 505192290 REEL: 047572 FRAME: 0100

|          | [All | Œ. PTP!  | US201 | 800318] |
|----------|------|----------|-------|---------|
|          |      |          |       |         |
| Attorney | Doc  | ket No.: |       |         |

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

WHEREAS, Hyung Min LEE

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

SEMICONDUCTOR MEMORY DEVICE, STORAGE DEVICE HAVING THE SAME, AND METHOD OF OPERATING

| MEMORY CONTROLLER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| [O] said application being attached hereto;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| [ ] the specification of which was filed under the Patent Cooperation Treaty on, Serial No, the United States of America being designated.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| AND WHEREAS, SK hymix Inc. of 2091, Gyeongchung-daero, Bubal-eub, 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 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 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 of 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 of 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 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: Hyungmin Lee Date: 11:8,2018                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Printed or Typed Name: Hyung Min LEE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

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