503581222 11/23/2015

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2

1 v1.1 EPAS ID: PAT3627850

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

CONVEYING PARTY DATA

| Name | Execution Date |
|----------------|----------------|
| JUNG HYUK YOON | 08/31/2015 |

RECEIVING PARTY DATA

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

PROPERTY NUMBERS Total: 1

| Property Type | Number |
|---------------------|----------|
| Application Number: | 14948692 |

CORRESPONDENCE DATA

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| ATTORNEY DOCKET NUMBER: | PA1321-1X | |
|--|---------------------|--|
| NAME OF SUBMITTER: | R: WOOCHOON W. PARK | |
| SIGNATURE: | /Woochoon W. Park/ | |
| DATE SIGNED: 11/23/2015 | | |
| This document serves as an Oath/Declaration (37 CFR 1.63). | | |

Total Attachments: 1

source=PA1321-1X_Declaration_Assignment#page1.tif

PATENT 503581222 REEL: 037117 FRAME: 0001

USING AN APPLICATION DATA SHEET (37 CFR 1.76) AND ASSIGNMENT

| Title of Invention | SEMICONDUCTOR MEMORY APPARATUS AND OPERATION METHOD USING THE SAME | | |
|---------------------------|---|---|--|
| Declaration | PCT/KR########## filed on The above-identified application was I believe that I am the original or an application. I hereby acknowledge that any was a second control or a second control | r r PCT international application number | |
| Assignment | NOW, THEREFORE, in consideration of the sum of one dollar (\$1), the receipt whereof is acknowledge, and other good and valuable consideration, I, by these presents do sell, assign and transfer unto said assignee(s) SK hynix Inc. 2091, Gyeongchung-daero, Bubal-eub, Icheon-si, Gyeonggi-do, Republic of Korea and the heirs, successors, assigns and legal representatives of the assignee(s) the full and exclusive right to the said invention in the United States and in its territorial possessions and in any and all foreign countries any and all improvements thereof, the entire rights, title and interest in and to any and all Patents which may be granted therefore in the United States. I hereby authorize and request the Director of the U.S. Patent and Trademark Office to issue said United States Patent to said assignee(s), of the entire right, title, and interest in and to the same, for his sole use and for the use of his legal representatives, to the full end of the term for which said Patent may be granted, as fully and entirely as the same would have been held by me had this assignment and sale not been made. I agree promptly upon request of the assignee(s), its heirs, successors, assigns and legal representatives of the assignee(s) to communicate any facts known to it respecting the patent and the invention set forth therein, and to execute and deliver without further compensation any power of attorney, Assignment, application, whether original, continuation, divisional or reissue, or other papers that may be necessary. I hereby covenant that no assignment, sale agreement or encumbrance has been or will be made or entered into which would conflict with this assignment and sale. I further covenant that assignee(s) will, upon its request, be provided promptly with all pertinent facts and documents relating to said invention and said Letters Patent and legal equivalents as may be known and accessible to me and will testify as to the same in any litigation related thereto and will promptly execute and deliver to as | | |
| Legal Name Of Inventor | Inventor Name (First Middle LAST): | Jung Hyuk YOON | |
| | Inventor Signature: | <u> </u> | |
| | Date: | 2015,08,31 | |

A total of _ supplemental sheet(s) are attached hereto for additional inventors, if any.

PATENT REEL: 037117 FRAME: 0002