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PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
HOJU SONG	03/13/2020
SEOKHYUN KIM	03/13/2020
YOUNGJUN KIM	03/13/2020
JINHYUNG PARK	03/13/2020
HYERAN LEE	03/13/2020
BONGSOO KIM	03/13/2020
SUNGWOO KIM	03/13/2020

RECEIVING PARTY DATA

Name:	SAMSUNG ELECTRONICS CO., LTD.
Street Address:	129, SAMSUNG-RO, YEONGTONG-GU
City:	SUWON-SI, GYEONGGI-DO
State/Country:	KOREA, REPUBLIC OF
Postal Code:	16677

PROPERTY NUMBERS Total: 1

Property Type	Number	
Application Number:	16826655	

CORRESPONDENCE DATA

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using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

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ATTORNEY DOCKET NUMBER:	SAM-57377
NAME OF SUBMITTER:	JINSEONG PARK
SIGNATURE:	/Jinseong Park/
DATE SIGNED:	04/03/2020

Total Attachments: 5 source=SAM-57377_Dec&Assignment#page1.tif source=SAM-57377_Dec&Assignment#page2.tif source=SAM-57377_Dec&Assignment#page3.tif

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COMBINED DECLARATION (37 CFR § 1.63) FOR UTILITY PATENT APPLICATION AND ASSIGNMENT FORM¹

The undersigned acknowledges that this document is being used both as an assignment of the invention and as the declaration (37 CFR § 1.63) for a Utility or Design Application.

WHEREAS, the undersigned, hereinafter referred to individually and collectively as Assignor, has invented:

Title:	SEMICONDUCTOR MEMORY DEVICE AND METHOD OF MANUFACTURING THE SAME
for which for paten	Assignor is about to make or has made United States or International application t.
WHEREAS	S, as a below named inventor(s), I/(we) hereby declare that:
Section I.	Declaration
This decla	aration is directed to:
\geq	The attached U.S. non-provisional patent application, or
	U.S. non-provisional patent application number, filed on, or
	PCT international patent application number, filed on
The above	e-identified application was made or authorized to be made by me (us).
	ieve that I am (we are) the original inventor (original joint inventors) of a claimed in the above-identified application.
	ereby acknowledge that any willful false statement made in this declaration is le under 18 U.S.C. § 1001 by fine or imprisonment of not more than five (5) years,
	reby state that I (we) have reviewed and understand the contents of the above application, including the claims.
	knowledge that I (we) am (are) aware of the duty to disclose information which is to patentability as defined in 37 C.F.R. § 1.56.
¹ This form	n requires the use of an Application Data Sheet.
SEC Ref N	o. <u>IE-201905-007-1-US0</u> Attorney Ref No. <u>SAM-57377</u>
COMBINE	D DECLARATION (37 CFR 1.63) FOR UTILITY PATENT APPLICATION AND ASSIGNMENT FORM

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Section II. Assignment

In consideration of the sum of One Dollar (\$1.00) and other good and valuable consideration paid to each of the undersigned, the undersigned hereby sell(s) and assign(s) to

Samsung Electronics Co., Ltd.

having an address at 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do 16677, Republic of Korea (hereinafter designated as the Assignee), the entire (100%) right, title and interest for the United States as defined in 35 U.S.C. § 100, in the invention described in the application identified in Section I of this document.

Assignor hereby confirms any prior assignment to Assignee, and to the extent that Assignor has not already done so, agrees to assign, and hereby does, sell, assign and transfer unto Assignee and its successors in interest, the full and exclusive right, title and interest in the United States of America and throughout the world, including the right to claim priority under the laws of the United States, the Paris Convention, and any foreign countries, to the inventions as described in the aforesaid application, to the aforesaid application itself, and all divisions, continuations, continuations-in-part, or other applications claiming priority directly or indirectly from the aforesaid application, and any United States or foreign Letters Patent, utility model, or other similar rights which may be granted thereon, including reissues, reexaminations and extensions thereof, and all copyright rights throughout the world in the aforesaid application and the subject matter disclosed therein, these rights, title and interest to be held and enjoyed by Assignee to the full end of the term for which the Letters Patent, utility model, or other similar rights, are granted and any extensions thereof as fully and entirely as the same would have been held by Assignor had this assignment and sale not been made, and the right to sue for, and recover for past infringements of, or liabilities for, any of the rights relating to any of the applications, patents, utility models, or other similar rights, resulting therefrom, and the copyright rights;

Assignor hereby covenants and agrees to execute all instruments or documents required or requested for the making and prosecution of any applications of any type for patent, utility model, or other similar rights, and for copyright, in the United States and in all foreign countries including, but not limited to, any provisional, continuation, continuation-in-part, divisional, renewal or substitute thereof, and as to letters patent any reissue, reexamination, or extension thereof, and for litigation regarding, or for the purpose of protecting title and to the said invention, the United States application for patent, or Letters Patent therefor, and to testify in support thereof, for the benefit of Assignee without further or other compensation than that above set forth;

Assignor hereby covenants that no assignment, sale, license, agreement or encumbrance has been or will be entered into which would conflict with this Assignment; and

Assignor hereby requests the United States Patent and Trademark Office to issue the Letters Patent of the United States of America to Assignee, and requests that any official of any country or countries foreign to the United States, whose duty it is to issue or grant patents and applications as aforesaid, to issue the Letters Patent, Utility Model Registration or other similar right to Assignee.

SEC Ret No.	1E-201905-007-1-US0	Attorney Ref No.	SAM-57377	

REEL: 052303 FRAME: 0412

ELECTRONICS	

The undersigned hereby grant(s) the law firm of Muir Patent Law, PLLC the power to insert on this Declaration and 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.

Section III. Inventor(s)/Assignor(s) Signature(s)

LEGAL NAME OF	Family Name	First Given Name	Second Given Name
FIRST INVENTOR/ASSIGNOR	Song	Hoju	
SIGNATURE	An	DATE	<u> 2020 / 3/ /3</u>
LEGAL NAME OF	Family Name	First Given Name	Second Given Name
SECOND INVENTOR/ASSIGNOR	Kim	Seokhyun	
SIGNATURE _	7/m/m Family Name	DATE	가야하기 3 / 기술. Second Given Name
THIRD -	Kim	Youngjun	Jecond Given Name
SIGNATURE	경제	DATE	Dono/3/33
SEC Ref No TE-20	1965-067-1-US6	Attorney Ref No.	SAM-57377

COMBINED DECLARATION (37 CFR 1.63) FOR UTILITY PATENT APPLICATION AND ASSIGNMENT FORM DRAM TD 2P/(世史朝智/會章至/06368623/2020-03-13 17:00 Page 3 of 5

SAMSUNG ELECTRONICS	CO., LTO		
LEGAL NAME OF	Family Name	First Given Name	Second Given Name
FOURTH INVENTOR/ASSIGNOR	Park	Jinhyung	
SIGNATURE	- 22	DATE	2020. 3, 13
LEGAL NAME OF	Family Name	First Given Name	Second Given Name
FIFTH INVENTOR/ASSIGNOR	lee	Hyèran	
SIGNATURE	1w	_ DATE	2020. 3.13
LEGAL NAME OF	Family Name	First Given Name	Second Given Name
SIXTH INVENTOR/ASSIGNOR	Kim	Bongsoa	
SIGNATURE	Cin Boy &	DATE	2020, 3,13

COMBINED DECLARATION (37 CFR 1.63) FOR UTILITY PATENT APPLICATION AND ASSIGNMENT FORM
DRAM TO 2P/(반도체인/송호주/66368623/2020-03-18 17:00 Page 4 of 5

SEC Ref No. IE-201905-007-1-US9 Attorney Ref No. SAM-57377

LEGAL NAME OF	Family Name	First Given Name	Second Given Name
SEVENTH INVENTOR/ASSIGNOR	Kim	Sungwoo	
SIGNATURE	In Egyle	DATE	2020/3//3

COMBINED DECLARATION (37 CFR 1.63) FOR UTILITY PATENT APPLICATION AND ASSIGNMENT FORM DRAM TO 2P/K性年來到/舍室至/06368623/2020-03-13 17/00) Page 5 of 5

PATENT REEL: 052303 FRAME: 0415

RECORDED: 04/03/2020