#### 504637066 11/10/2017

### PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT4683784

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

#### **CONVEYING PARTY DATA**

Name	Execution Date
BORNA J. OBRADOVIC	11/06/2017
TITASH RAKSHIT	11/06/2017
RWIK SENGUPTA	11/06/2017
JOON GOO HONG	11/06/2017
RYAN M. HATCHER	11/06/2017
JORGE A. KITTL	11/06/2017
MARK S. RODDER	11/07/2017

#### **RECEIVING PARTY DATA**

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State/Country:	KOREA, REPUBLIC OF
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#### **PROPERTY NUMBERS Total: 1**

Property Type	Number
Application Number:	15806259

#### **CORRESPONDENCE DATA**

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ATTORNEY DOCKET NUMBER:	145491 (414472) MJC/VDW	
NAME OF SUBMITTER:	VICKIE D. WALL	
SIGNATURE:	/Vickie D. Wall/	
DATE SIGNED:	11/10/2017	

# Total Attachments: 5 source=145491 Assignment#page1.tif source=145491 Assignment#page2.tif source=145491 Assignment#page3.tif source=145491 Assignment#page4.tif source=145491 Assignment#page5.tif

## COMBINED DECLARATION (37 CFR §1.63) FOR UTILITY OR DESIGN PATENT APPLICATION AND ASSIGNMENT FORM<sup>1</sup>

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, th	the undersigned, hereinafter referred to collectively as Assignor, has	invented:	
Title: A ML	MULTI-BIT, SoC-COMPATIBLE NEUROMORPHIC WEIGHT CELL USING FERRO	ELECTRIC FETS	
for which Ass	Assignor is about to make or has made United States or International a	application for	
WHEREAS, as	as a below named inventor(s), I/(we) hereby declare that:		
Section I. De	Declaration		
This declarati	ation is directed to:		
	The attached U.S. non-provisional patent application, or		
$\boxtimes$	U.S. non-provisional patent application number <u>15/806,259</u> , fi on <u>November 7, 2017</u> , or	led	
	PCT international patent application number	, filed on	
The above-ide	identified application was made or authorized to be made by me (us).		
	ve that I am (we are) the original inventor (original joint inventors) of n the above-identified application.	a claimed	
<sup>1</sup> This form req	requires the use of an Application Data Sheet.		
SEC Ref No	WB-201702-002-1 Attorney Ref No. <u>145491 (414</u>	472-00086)	

COMBINED DECLARATION (37 CFR 1.63) FOR UTILITY PATENT APPLICATION AND ASSIGNMENT FORM
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I (we) 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.

I hereby state that I have reviewed and understand the contents of the above identified application, including the claims.

I acknowledge that I am aware of the duty to disclose information which is material to patentability as defined in 37 CFR § 1.56.

#### Section II. Assignment

In consideration of and according to the provisions of the Assignor's employment agreement(s), 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 USC §100, in the invention or design 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 or designs as described in the aforesaid application, to the aforesaid application itself, and to provisional application(s) 62/528,856 to which the aforesaid application claims priority, and to all divisions, continuations, continuations-in-part, or other applications claiming priority directly or indirectly from the aforesaid application or provisional, 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

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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, re-examination, 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.

The undersigned hereby grant(s) the law firm of LEWIS ROCA ROTHGERBER CHRISTIE LLP 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	OBRADOVIC	Borna	J.
SIGNATURE	(Ene Cleus "	DATE	11/6/2017

SEC Ref No.	WB-201702-002-1	Attorney Ref No.	145491 (414472-00086)

LEGAL NAME OF	Family Name	First Given Name	Second Given Name
SECOND INVENTOR/ASSIGNOR	RAKSHIT	Titash	
	1011		
SIGNATURE	1 takshil	DATE	11/06/2017

LEGAL NAME OF THIRD	Family Name	First Given Name	Second Given Name
INVENTOR/ASSIGNOR	SENGUPTA	Rwik	
SIGNATURE	Sexample	DATE	11/6/2017

LEGAL NAME OF FOURTH	Family Name	First Given Name	Second Given Name
INVENTOR/ASSIGNOR	HONG	Joon Goo	
SIGNATURE	HongJoonGoo	DATE	11/06/2017

LEGAL NAME OF	Family Name	First Given Name	Second Given Name
FIFTH INVENTOR/ASSIGNOR	HATCHER	Ryan	M.
SIGNATURE	BAL	DATE	6 November 2017

SEC Ref No.	WB-201702-002-1	Attornev Ref No.	145491 (414472-00086)

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ly Name	First Given Name	Second Given Name
ittl	Jorge	Α.
Alli	DATE	11/6/2017
		Jorge

LEGAL NAME OF	Family Name	First Given Name	Second Given Name
SEVENTH INVENTOR/ASSIGNOR	RODDER	Mark	Š.
SIGNATURE	Wart S. Rodder	DATE	u/7/17

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**RECORDED: 11/10/2017** 

SEC Ref No. WB-201702-002-1 Attorney Ref No. 145491 (414472-00086)

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