

PATENT ASSIGNMENT

Electronic Version v1.1
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SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
Jae-Sup LEE	04/19/2011
Kang-Yoon LEE	04/19/2011
An-Soo PARK	04/19/2011
Young-Gun PU	04/19/2011
Joon-Sung PARK	04/19/2011

RECEIVING PARTY DATA

Name:	SAMSUNG ELECTRONICS CO., LTD.
Street Address:	416, Maetan-dong, Yeongtong-gu
City:	Suwon-si, Gyeonggi-do
State/Country:	REPUBLIC OF KOREA

Name:	KONKUK UNIVERSITY INDUSTRY COOPERATION CORP.
Street Address:	1, Hwayang-dong, Gwangjin-gu
City:	Seoul
State/Country:	REPUBLIC OF KOREA

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	13089558

CORRESPONDENCE DATA

Fax Number: (202)403-3587
Correspondence will be sent via US Mail when the fax attempt is unsuccessful.
 Phone: 202-293-0804
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 Correspondent Name: Jefferson IP Law, LLP
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 Address Line 2: Suite 420

OP \$40.00 13089558

Address Line 4: Washington, DISTRICT OF COLUMBIA 20036

ATTORNEY DOCKET NUMBER:	0201-0354
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NAME OF SUBMITTER:	Soo Oh
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Total Attachments: 4

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RECORDATION FORM COVER SHEET PATENTS ONLY

To the Director of the U.S. Patent and Trademark Office: Please record the attached documents or the new address(es) below.

1. Name of conveying party(ies)
 1) Jae-Sup LEE, 2) Kang-Yoon LEE, 3) An-Soo PARK,
 4) Young-Gun PU, and 5) Joon-Sung PARK

Additional name(s) of conveying party(ies) attached? Yes No

2. Name and address of receiving party(ies)
 Name: Samsung Electronics Co., Ltd.
 Internal Address: _____

 Street Address: 416, Maetan-dong, Yeongtong-gu

 City: Suwon-si, Gyeonggi-do
 State: _____
 Country: Republic of Korea Zip: _____
 Additional name(s) & address(es) attached? Yes No

3. Nature of conveyance/Execution Date(s):
 Execution Date(s) April 19, 2011

Assignment Merger
 Security Agreement Change of Name
 Joint Research Agreement
 Government Interest Assignment
 Executive Order 9424, Confirmatory License
 Other _____

4. Application or patent number(s): This document is being filed together with a new application.

A. Patent Application No.(s)
13/089,558

B. Patent No.(s)

Additional numbers attached? Yes No

6. Total number of applications and patents involved: One

7. Total fee (37 CFR 1.21(h) & 3.41) \$ _____

Authorized to be charged by credit card
 Authorized to be charged to deposit account
 Enclosed
 None required (government interest not affecting title)

5. Name and address to whom correspondence concerning document should be mailed:
 Name: Jefferson IP Law, LLP
 Internal Address: Maeng-Ho SHIN

 Street Address: 1130 Connecticut Ave., NW, Suite 420

 City: Washington
 State: DC Zip: 20036
 Phone Number: 202-293-0804
 Fax Number: 202-403-3587
 Email Address: usdocketing@jeffersonip.com

8. Payment Information

a. Credit Card Last 4 Numbers _____
 Expiration Date _____

b. Deposit Account Number _____
 Authorized User Name _____

9. Signature: _____ /Maeng-Ho SHIN/ Reg. #53,859 _____ March 01, 2008
 Signature Date

Maeng-Ho SHIN
 Name of Person Signing

Total number of pages including cover sheet, attachments, and documents: 4

Additional name and address of receiving parties:

Name: KONKUK UNIVERSITY INDUSTRY COOPERATION CORP.

Address: 1, Hwayang-dong, Gwangjin-gu, Seoul, 143-701

Republic of Korea

Assignment

WHEREAS, the following inventors, namely 1) **Jae-Sup LEE**, 2) **Kang-Yoon LEE**, 3) **An-Soo PARK**, 4) **Young-Gun PU**, and 5) **Joon-Sung PARK**, all citizens of the Republic of Korea and residing respectfully at 1) RF Lab, 23Floor, R4, Samsung Electronics Co., 416, Maetan 3-dong, Yeongtong-gu, Suwon-si, Gyeonggi-do, Republic of Korea, 2) #C-382, Konkuk Univ. College of Engineering, Hwayang-dong, Gwangjin-gu, Seoul, Republic of Korea, 3) #C-384, Konkuk Univ. College of Engineering, Hwayang-dong, Gwangjin-gu, Seoul, Republic of Korea, 4) #C-384, Konkuk Univ. College of Engineering, Hwayang-dong, Gwangjin-gu, Seoul, Republic of Korea, and 5) #C-384, Konkuk Univ. College of Engineering, Hwayang-dong, Gwangjin-gu, Seoul, Republic of Korea (hereinafter called "Assignors"), having made or discovered certain new, useful and non-obvious improvements in an invention having a working title of:

TIME-TO-DIGITAL CONVERTER AND OPERATION METHOD THEREOF,

for which a United States Patent Application is being filed concurrently herewith or, if not being concurrently filed, was filed on April 19, 2011, and assigned Serial No. 13/089,558; and,

WHEREAS, **Samsung Electronics Co., Ltd.**, a corporation duly organized under the laws of the Republic of Korea, located and doing business at 416, Maetan-dong, Yeongtong-gu, Suwon-si, Gyeonggi-do, Republic of Korea and **Konkuk University Industry Cooperation Corp.**, located and doing business at 1, Hwayang-dong, Gwangjin-go, Seoul, 143-701, Republic of Korea (hereinafter called "Assignees"), is desirous of acquiring the entire right, title and interest therein;

NOW, THEREFORE, BE IT KNOWN that for and in good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Assignors do hereby sell, assign and transfer unto said Assignees the entire and exclusive worldwide right, title and interest in and to all said inventions and discoveries disclosed in said application, and in and to said application, any and all substitutions, divisions, provisionals, conversions of provisionals and continuations thereof, and in and to all Letters Patent, United States and foreign, that may be granted for said inventions and discoveries, and in and to all extensions, renewals and reissues thereof; and the right to file any foreign application and/or claim priority under the provisions of any international treaty or convention arising from this application or any divisional, continuing, substitute or reissue application therefrom. The aforesaid assignment includes the right in and to all income, royalties, damages and payments, now or hereafter due or payable with respect to any Letters Patent which may be granted, and in and to all causes of action (either in law or in equity), and the right to sue, counterclaim, and recover for past, present and future infringement of the rights assigned or to be assigned under this Assignment, as fully and entirely as the same would have been held and enjoyed by Assignors if this sale, assignment and transfer had not been made.

Assignors covenant and agree, without further compensation to said Assignors but at Assignees' expense:

- a. to execute:
 - i. all papers to be used in connection with this application and any divisional, continuing, substitute or reissue application thereof, as the Assignees may deem necessary or expedient, and
 - ii. all papers in connection with any interference, litigation, mediation, arbitration or other proceeding relating to this application or any divisional, continuing, substitute or reissue application thereof, as may be necessary or expedient;
- b. to cooperate with the Assignees in every way possible in obtaining evidence and going forward in any interference, litigation, mediation, arbitration or other proceeding relating to said invention, said application and any divisional, continuing, substitute or reissue application thereof;



- c. to communicate to the Assignees any facts relating to said invention, said application and any divisional, continuing, substitute or reissue application thereof, including evidence for any interference, litigation, mediation, arbitration or other proceeding relating to said invention, whenever requested;
- d. to testify in any interference, litigation, mediation, arbitration or other proceeding relating to said invention, said application and any divisional, continuing, substitute or reissue application thereof whenever requested; and
- e. to perform all other affirmative acts which may be necessary or desirable to secure full and complete protection of the inventions and discoveries or that may be necessary or desirable to vest in Assignees the complete title to the inventions and discoveries and Letters Patent hereby conveyed and to enable Assignee to record title.

Assignors hereby authorize and request the United States Patent and Trademark Office or any other issuing authority to issue any and all Letters Patent that may be granted upon this invention and/or this application or any divisional, continuing, substitute or reissue application thereof to the Assignee, its legal representatives, successors and assigns.

Assignors each hereby represent, covenant and warrant that he or she has the full right to convey the entire right, title and interest by this instrument, free of any encumbrances and that no other agreement has been or will be executed in conflict herewith.

The provisions of this Assignment are binding upon each Assignor's heirs, legal representatives and/or administrators and assigns.

Assignors hereby grant to the law firm of Jefferson IP Law, LLP of Washington, DC and its attorneys and agents as associated with **Customer No. 68103** the authority and power to insert on this instrument any further identification which may be necessary or desirable for purposes of recordation in the United States Patent and Trademark Office or a Patent Office of any foreign country.

Signature of First Inventor:	 _____ Jae-Sup LEE	<u>April 19, 2011</u> Date
Signature of Second Inventor:	 _____ Kang-Yoon LEE	<u>April 19, 2011</u> Date
Signature of Third Inventor:	 _____ An-Soo PARK	<u>April 19, 2011</u> Date
Signature of Fourth Inventor:	 _____ Young-Gun PU	<u>April 19, 2011</u> Date
Signature of Fifth Inventor:	 _____ Joon-Sung PARK	<u>April 19, 2011</u> Date