

PATENT ASSIGNMENT

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

CONVEYING PARTY DATA

Name	Execution Date
Seung Joon LEE	10/08/2008
Dong Seung KWON	10/08/2008
Giuseppe Caire	10/13/2008
Hooman Shirani-Mehr	10/13/2008

RECEIVING PARTY DATA

Name:	Electronics and Telecommunications Research Institute
Street Address:	161, Gajeong-dong, Yuseong-gu,
City:	Daejeon-city
State/Country:	KOREA, REPUBLIC OF
Postal Code:	305-350

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

Name:	UNIVERSITY OF SOUTHERN CALIFORNIA of UNIVERSITY PARK Campus
Street Address:	3740 McClintock Avenue,
Internal Address:	Hughes EEB 131
City:	LOS ANGELES
State/Country:	CALIFORNIA
Postal Code:	90089

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	12274046

CORRESPONDENCE DATA

500709441

**PATENT
 REEL: 021862 FRAME: 0255**

OP \$40.00 12274046

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Phone: 202-293-2941
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Address Line 4: Washington, DISTRICT OF COLUMBIA 20036

ATTORNEY DOCKET NUMBER:	0204-0044
NAME OF SUBMITTER:	Maeng-Ho Shin

Total Attachments: 5
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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) Seung Joon LEE, 2) Dong Seung KWON, 3) Giuseppe Caire,
and 4) Hooman Shirani-Mehr

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

3. Nature of conveyance/Execution Date(s):

Execution Date(s) October 8, 2008; October 13, 2008

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

2. Name and address of receiving party(ies)

Name: Electronics and Telecommunications Research Institute

Internal Address: _____

Street Address: 161, Gajeong-dong, Yuseong-gu,

City: Daejeon

State: _____

Country: Republic of Korea Zip: _____

Additional name(s) & address(es) attached? Yes No

4. Application or patent number(s):

This document is being filed together with a new application.

A. Patent Application No.(s)

12/274,046

B. Patent No.(s)

Additional numbers attached? Yes No

5. Name and address to whom correspondence concerning document should be mailed:

Name: Jefferson IP Law, LLP

Internal Address: Maeng-Ho SHIN

Street Address: 1730 M Street, NW, Suite 807

City: Washington

State: DC Zip: 20036

Phone Number: 202-293-0804

Fax Number: 202-403-3587

Email Address: usdocteting@jeffersonip.com

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)

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

November 19, 2008

Signature

Date

Maeng-Ho SHIN

Name of Person Signing

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

5

Documents to be recorded (including cover sheet) should be faxed to (571) 273-0140, or mailed to:
Mail Stop Assignment Recordation Services, Director of the USPTO, P.O.Box 1450, Alexandria, V.A. 22313-1450

Additional name and address of receiving parties:

1. Name: SAMSUNG ELECTRONICS CO., LTD.

Address: 416, Maetan-dong, Yeongtong-gu, Suwon-si, Gyeonggi-do 442-742,
Republic of Korea

2. Name: UNIVERSITY OF SOUTHERN CALIFORNIA of UNIVERSITY PARK
Campus

Address: 3740 McClintock Avenue, Hughes EEB131, Los Angeles, California
90089, U.S.A.

Attorney Docket No.:
Client Docket No.:

Assignment

WHEREAS, the following inventors, namely **LEE, Seung Joon** of 119-903, Clover Apt., Dunsan-dong, Seo-gu, Daejeon, Republic of Korea; **KWON, Dong Seung** of 204-1304, Expo Apt., Jeonmin-dong, Yuseong-gu, Daejeon, Republic of Korea; **Giuseppe Caire** of 1987 Huntington Dr., South Pasadena, CA91030, USA; and **Hooman Shirani-Mehr** of 620 MC CARTHY WAY, # 101, LOS ANGELES, CA 90089-0155, USA, (hereinafter called "Assignors"), having made or discovered certain new, useful and non-obvious improvements in an invention having a working title of:

METHOD FOR CHANNEL STATE FEEDBACK BY QUANTIZATION OF TIME-DOMAIN COEFFICIENTS,

for which a United States Patent Application is being filed concurrently herewith or, if not being concurrently filed, was filed on November 19, 2008, and assigned Serial No. 12/274,046; and,) MMS
11/19/2008

WHEREAS, **Electronics and Telecommunications Research Institute**, a research institute duly organized under the laws of the Republic of Korea, located and doing business at 161, Gajeong-dong, Yuseong-gu, Daejeon 305-350, Republic of Korea; **UNIVERSITY OF SOUTHERN CALIFORNIA**, a university duly organized under the laws of the United States of America, located and doing business at University Park Campus, Los Angeles, California 90089, USA; and **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 442-742, 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

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- 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 Assignees 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 Assignees, their 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 Assignors' heirs, legal representatives and/or administrators and assigns.

Assignors hereby grant to the law firm of JEFFERSON IP Law, LLP of Washington, DC and their 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:	<i>Seung Joon Lee</i>	Oct. 8, 2008
	LEE, Seung Joon	Date
Signature of Second Inventor:	<i>Kwon Seung</i>	Oct. 8, 2008
	KWON, Dong Seung	Date
Signature of Third Inventor:	Giuseppe Caire	Date
Signature of Fourth Inventor:	Hooman Shirani-Mehr	Date

Attorney Docket No.:
Client Docket No.:

- 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 Assignees 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 Assignees, their 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 Assignors' heirs, legal representatives and/or administrators and assigns.

Assignors hereby grant to the law firm of JEFFERSON IP Law, LLP of Washington, DC and their 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:

LEE, Seung Joon

Date

Signature of Second Inventor:

KWON, Dong Seung

Date

Signature of Third Inventor:



Giuseppe Cairé

10/13/2008
Date

Signature of Fourth Inventor:



Hooman Shirani-Mehr

Oct -13 - 2008
Date