## 503575779 11/18/2015

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT3622406

SUBMISSION TYPE:	CORRECTIVE ASSIGNMENT
NATURE OF CONVEYANCE:	Corrective Assignment to correct the TITLE OF APPLICATION AND NAME OF INVENTOR KYUNG-HOAE KOO previously recorded on Reel 032584 Frame 0337. Assignor(s) hereby confirms the APPLICATION TITLE IS ASSIST CIRCUIT FOR MEMORY AND NAME OF INVENTOR KYUNG-HOAE KOO.

## **CONVEYING PARTY DATA**

Name	Execution Date
JAYDEEP KULKARNI	03/27/2014
ANUPAMA THAPLOO	03/31/2014
IQBAL RAJWANI	03/31/2014
KYUNG-HOAE KOO	03/27/2014
ERIC A. KARL	03/27/2014
MUHAMMAD KHELLAH	03/27/2014

## **RECEIVING PARTY DATA**

Name:	Intel Corporation
Street Address:	2200 Mission College Boulevard
City:	Santa Clara
State/Country:	CALIFORNIA
Postal Code:	95054

## **PROPERTY NUMBERS Total: 1**

Property Type	Number
Application Number:	14229767

## **CORRESPONDENCE DATA**

**Fax Number:** (503)796-2900

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent

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

**Phone:** (503) 222-9981

Email: adonnell@schwabe.com

Correspondent Name: SCHWABE, WILLIAMSON & WYATT, P.C. Address Line 1: 1211 SW FIFTH AVENUE, SUITE 1600

Address Line 4: PORTLAND, OREGON 97204

ATTORNEY DOCKET NUMBER:	110350-195434 (P64565)
NAME OF SUBMITTER:	ASHLEY A. DONNELL
SIGNATURE:	/Ashley A. Donnell/

PATENT 503575779 REEL: 037146 FRAME: 0036

DATE SIGNED:	11/18/2015		
Total Attachments: 12			
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PATENT REEL: 037146 FRAME: 0037

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT2797163

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

#### **CONVEYING PARTY DATA**

Name	Execution Date
JAYDEEP P KULKARNI	03/27/2014
ANUPAMA THAPLOO	03/31/2014
IOBAL RAJWANI	03/31/2014
KYUNG-KOAE KOO	03/27/2014
ERIC A KARL	03/27/2014
MUHAMMAD KHELLAH	03/27/2014

#### **RECEIVING PARTY DATA**

Name:	INTEL CORPORATION
Street Address:	2200 MISSION COLLEGE BOULEVARD
City:	SANTA CLARA
State/Country:	CALIFORNIA
Postal Code:	95054

#### **PROPERTY NUMBERS Total: 1**

Property Type	Number
Application Number:	14229767

#### **CORRESPONDENCE DATA**

Fax Number: (206)292-0460

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent via

US Mail.

Phone: 2066221711

Email: mchristopherson@schwabe.com
Correspondent Name: MELEE CHRISTOPHERSON

Address Line 1: 1420 FIFTH AVENUE

Address Line 2: SUITE 3400

Address Line 4: SEATTLE, WASHINGTON 98101

ATTORNEY DOCKET NUMBER: 110350-195434 (P64565)

NAME OF SUBMITTER: MELEE CHRISTOPHERSON

SIGNATURE: /Melee Christopherson/

DATE SIGNED: 04/02/2014

**Total Attachments: 5** 

PATENT 7146 FRAME: 0038

**REEL: 037146 FRAME: 0038** 

MK, 4/05/12\*15

# ASSIGNMENT

In consideration of good and valuable consideration, the receipt of which is hereby acknowledged, we, the undersigned inventor(s):

Jaydeep Kulkarni, Anupama Thaploo, Iqbal Rajwani, Kyung-Koae Koo, Eric Karl Muhammad Khellah

hereby sell, assign, and transfer to:

## Intel Corporation

s corporation of Delaware, having a principal place of business at 2200 Mission College Boulevard, Santa Clara, California, 95054 USA ("Assignee"), and its successors, assigns, and legal representatives, the entire right, title, and interest for the United States and all other countries, in and to any and all inventions and improvements that are disclosed in the application for the patent entitled:

## ASSIST CIRCUIT FOR MEMORY

UNIFIED CIRCUIT ASSIST FOR REGISTER FILE (RF) AND ROAMIN-REDUCTION, LEAKAGE REDUCTION, AGEING TOLERANCE AND ARRAY COMPACTION

(I hereby suthorize and request any attorney having appropriate authority from the assignee to insert on the designated lines below, the filing date and application number of said application when known.)

which was filed on .	March 28, 2014			
United States		Application Number	34/229,767	and

which has been executed by the undersigned prior hereto or concurrently herewith on the date(s) indicated below,

and in and to said application and all Additional Applications, and all other patent applications that have been or shall be filled in the United States and all other countries and international filling offices on any of said inventions and improvements; and in and to all original and reissued patents that have been or shall be issued in the United States and all other countries and international filling offices on said inventions and improvements; and in and to all rights of priority resulting from the filling of said applications; as used herein "Additional Applications" includes but is not limited to design, utility, utility model, divisional, continuing, continuation-in-part, substitute, renewal, reissue, and national phase applications on said inventions and improvements;

and agree that said Assignee may apply for and receive a patent or patents for said inventions and improvements in its own name; and that, when requested, without charge to, but at the expense of, said Assignee, its successors, assigns, and legal representatives, to carry out in good faith the intent and purpose of this Assignment, the undersigned will execute all Additional Applications, and all other patent applications on any and all said inventions and improvements; execute all rightful oaths, assignments, powers of attorney, and other papers; communicate to said Assignee, its successors,

Page 1 of 2

## ASSIGNMENT

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(I hereby authorize and request any attorncy baving appropriate authority from the assignee to insert on the designated lines below, the filing date and application number of said application when known.)

which was filed on March 28, 2014	<del></del>	3.5	*
United States COUNTRY or International Office	Application Number	14/329/767	286

which has been executed by the undersigned prior hereto or concurrently herewith on the date(s) indicated below,

and in and to said application and all Additional Applications, and all other patent applications that have been or shall be filled in the United States and all other countries and international filing offices on any of said inventions and improvements; and in and to all original and reissued patents that have been or shall be issued in the United States and all other countries and international filing offices on said inventions and improvements; and in and to all rights of priority resulting from the filing of said applications; as used herein "Additional Applications" includes but is not limited to design, utility, utility model, divisional, continuing, continuation-in-part, substitute, renewal, release, and national phase applications on said inventions and improvements;

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Page Loff

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(I bereby authorize and request any attorney having appropriate authority from the assignee to insert on the designated lines below, the filing date and application number of said application when known.)

which was filed on Merch 28, 2014			.88	
United States  COUNTRY or International Office	Application Number	14/229/367		md

which has been executed by the undersigned prior hereto or concurrently herewith on the date(s) indicated below,

and in and to said application and all Additional Applications, and all other patent applications that have been or shall be filled in the United States and all other countries and international filling offices on any of said inventions and improvements; and in and to all original and reissued patents that have been or shall be issued in the United States and all other countries and international filling offices on said inventions and improvements; and in and to all rights of priority resulting from the filling of said applications; as used herein "Additional Applications" includes but is not limited to design, utility, utility model, divisional, continuing, continuation-in-part, substitute, renewal, reissue, and national phase applications on said inventions and improvements;

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Page ) of 2

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## ASSIST CIRCUIT FOR MEMORY

UNIFIED CIRCUIT ASSIST FOR REGISTER FILE (RF) AND RO VMIN REDUCTION, LEAKAGE REDUCTION, AGEING TOLERANCE AND ARRAY COMPACTION

KHK 11/21/2015

(I bereby authorize and request any attorney having appropriate authority from the assignee to insert on the designated lines below, the filing date and application number of said application when known.)

which was filed on March 28, 2014		
United States  COUNTRY or International Office	Application Number 14/229,767	3000

which has been executed by the undersigned prior hereto or concurrently herewish on the date(s) indicated below,

and in and to said application and all Additional Applications, and all other patent applications that have been or shall be filled in the United States and all other countries and international filing offices on any of said inventions and improvements; and in and to all original and reissued patents that have been or shall be issued in the United States and all other countries and international filing offices on said inventions and improvements; and in and to all rights of priority resulting from the filing of said applications; as used herein "Additional Applications" includes but is not limited to design, utility, utility model, divisional, continuing, continuation-in-part, substitute, renewal, reissue, and national phase applications on said inventions and improvements;

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Page 1 of 2

Jaydeep P. Kulkarni	Date signed  Date signed	
Anupama Thaploo		
Iqbal Rajwani	Date signed	
WK 11/3/2019	0.097744	
Kyung-Kone Koo	Date signed	
Chr. Lind	3/27/20pf	
Eric A. Karl	Date signed	

# ASSIGNMENT

In consideration of good and valuable consideration, the receipt of which is hereby acknowledged, we, the undersigned inventor(s):

Jaydeep Kulkurni, Anupama Thaploo, Iqbal Rajwani, Kyung-Koac Koo, Eric Karl Muhammad Khellah

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#### ASSIST CIRCUIT FOR MEMORY

(I bereby sutheries and request any attorney having appropriate authority from the assigned to insert on the designated lines below, the filing date and application number of said application when known.)

which was filed on March 28, 201	\$ (5)::::::::::::::::::::::::::::::::::::		
United States COUNTRY or International Offi	Application Number	14/228/78/7	

which has been executed by the undersigned prior benefic or concurrently herewith on the date(s) indicated below.

and in said to said application and all Additional Applications, and all other patent applications that have been or shall be filled in the United States and all other countries and international filling offices on any of said inventions and improvements; and in and to all original and reference patents that have been or shall be issued in the United States and all other countries and international filling offices on said inventions and improvements; and in and to all rights of priority resulting from the filling of said applications; as used herein "Additional Applications" includes but is not limited to design, utility, utility model, divisional, continuing, continuation-in-part, substitute, renewal, reissue, and national phase applications on said inventions and improvements:

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8986 1 01 S

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# UNIFIED CIRCUIT ASSIST FOR REGISTER FILE (RF) AND RO VMIN REDUCTION, LEAKAGE REDUCTION, AGEING TOLERANCE AND ARRAY COMPACTION

(I hereby authorize and request any attorney having appropriate authority from the assignee to insert on the designated lines below, the filing date and application number of said application when known.)

which was filed on	March 28, 2014	as	
United States	Application Number	14/229,767	and
COUNTRY or Inter	rnational Office		

which has been executed by the undersigned prior hereto or concurrently herewith on the date(s) indicated below,

and in and to said application and all Additional Applications, and all other patent applications that have been or shall be filed in the United States and all other countries and international filing offices on any of said inventions and improvements; and in and to all original and reissued patents that have been or shall be issued in the United States and all other countries and international filing offices on said inventions and improvements; and in and to all rights of priority resulting from the filing of said applications; as used herein "Additional Applications" includes but is not limited to design, utility, utility model, divisional, continuing, continuation-in-part, substitute, renewal, reissue, and national phase applications on said inventions and improvements;

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Date signed
<u> </u>
Date signed
Date signed
3/27/2014
Date signed
3/27/2014
Date signed

- July	03/27/2014
Jaydeep P. Kulkarni	Date signed
Anupama Thaploo	Date signed
Iqbal Rajwani	Date signed
Kyung-Koae Koo	Date signed
Eric A. Karl	Date signed
KILLIP	3/27/2014
Muhammad Khellah	Date signed

Jaydeep P. Kulkarni	Date signed
Anupama Thaploo	Date signed
- Danaga	03/31/14
tajiai Rajwani	Date signed
Kyung-Koae Koo	Date signed
Eric A. Karl	Date signed
Muhammad Khellah	Date signed

assigns, and legal representatives all facts known to the undersigned relating to said inventions and improvements and the history thereof; and generally assist said Assignee, its successors, assigns, or legal representatives in securing and maintaining proper patent protection for said inventions and improvements and for vesting title to said inventions and improvements, and all applications for patents and all patents on said improvements, in said Assignee, its successors, assigns, and legal representatives; and

Jaydeep P. Kulkarni	Date signed	
Anupama Thaploo	03/31/2014 Date signed	
Anupama Thaploo	Date signed	
Iqbal Rajwani	Date signed	
Kyung-Koae Koo	Date signed	
Frie A. Karl	Date signed	
Muhammad Kheilah	Date signed	