### 505098967 09/18/2018

### PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT5145727

| SUBMISSION TYPE:      | NEW ASSIGNMENT |
|-----------------------|----------------|
| NATURE OF CONVEYANCE: | ASSIGNMENT     |

#### **CONVEYING PARTY DATA**

| Name                         | Execution Date |
|------------------------------|----------------|
| HONG HE                      | 06/09/2017     |
| SEUNGHEE HAN                 | 01/26/2016     |
| ALEXEI VLADIMIROVICH DAVYDOV | 01/25/2016     |
| GANG XIONG                   | 01/25/2016     |

#### **RECEIVING PARTY DATA**

| Name:           | INTEL IP CORPORATION       |
|-----------------|----------------------------|
| Street Address: | 2200 MISSION COLLEGE BLVD. |
| City:           | SANTA CLARA                |
| State/Country:  | CALIFORNIA                 |
| Postal Code:    | 95054                      |

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

| Property Type       | Number   |
|---------------------|----------|
| Application Number: | 15760975 |

### **CORRESPONDENCE DATA**

Fax Number:

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: 612-373-6900
Email: request@slwip.com

Correspondent Name: SCHWEGMAN, LUNDBERG & WOESSNER/INTEL

Address Line 1: PO BOX 2938

Address Line 4: MINNEAPOLIS, MINNESOTA 55402

| ATTORNEY DOCKET NUMBER: | 4884.409US1     |
|-------------------------|-----------------|
| NAME OF SUBMITTER:      | NANCY CUNDALL   |
| SIGNATURE:              | /Nancy Cundall/ |
| DATE SIGNED:            | 09/18/2018      |

#### **Total Attachments: 9**

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PATENT 505098967 REEL: 046898 FRAME: 0111



# RECORDATION FORM COVER SHEET PATENTS ONLY

Attv Ref/Docket No.: (P89903PCT-US) 4884.409US1 Patent and Trademark Office To the Director of the U.S. Patent and Trademark Office: Please record the attached original documents or copy thereof. Name and address of receiving party(ies): 1. Name of conveying party(ies): Name: Intel IP Corporation Hong He, Seunghee Han, Alexei Vladimirovich Davydov, Street Address: 2200 Mission College Boulevard Gang Xiong Additional name(s) of conveying party(ies) attached? City: Santa Clara State: CA Zip: 95054 Country: United States of America [ ]Yes [X]No Additional name(s) & address(es) attached? [ ]Yes [X]No 3. Nature of conveyance: [X] Assignment [ ] Merger [ ] Security Agreement [ ] Change of Name [ ] Other Execution Date: <u>June 9, 2017, January 26, 2016, January 25, 2016, January 25, 2016</u> 4. Application number(s) or patent number(s): If this document is being filed together with a new application, the execution date of the application is: A. Patent Application No.(s) B. Patent No.(s) Serial No. 15/760,975 Additional numbers attached? [ ]Yes [X]No 6. Total number of applications and patents involved: 1 5. Name and address of party to whom correspondence concerning document should be mailed: 7. Total fee (37 CFR 3.41):\$ 0.00 Name: Ognyan I. Beremski [[Enclosed [Authorized to be charged to deposit account Address: 190743 Schwegman Lundberg & Woessner, P.A. P.O. Box 2938 Please charge any additional fees or credit any over Minneapolis, Minnesota 55402 payments to our Deposit Account No.: 190743 DO NOT USE THIS SPACE Statement and signature. To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document. /Ognyan I. Beremski/ Ognyan I. Beremski/Reg. No. 51,458 September 18, 2018 Name of Person Signing Signature Total number of pages including cover sheet: 9 Mail documents to be recorded with required cover sheet information to:

Commissioner of Patents and Trademarks Mail Stop Assignment Recordation Services P.O. Box 1450 Alexandria, VA 22313-1450

Intel Docket No.: P89903PCT SLW Reference No.: 4884.409WO1

# ASSIGNMENT

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

<Hong He, Seunghee Han, Alexei Vladimirovich Davydov, Gang Xiong>

hereby sell, assign, and transfer to:

**Intel IP Corporation** 

a 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:

TRANSMISSION OF UPLINK CONTROL INFORMATION IN WIRELESS SYSTEMS

(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 December 23, 2015 as

PCT Application Number PCT/US2015/000312

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;

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, assigns, and legal representatives all facts known to the undersigned relating to said inventions and improvements and

Intel Docket No.: P89903PCT SLW Reference No.: 4884.409WO1

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

covenant with said Assignee, its successors, assigns, and legal representatives that no assignment, grant, mortgage, license, or other agreement affecting the rights and property herein conveyed has been made to others by the undersigned, and that full right to convey the same as herein expressed is possessed by the undersigned.

| He Hong                      | 06/09/2017  |
|------------------------------|-------------|
| Hong He                      | Date Signed |
| Seunghee Han                 | Date Signed |
| Alexei Vladimirovich Davydov | Date Signed |
| Gang Xiong                   | Date Signed |

Intel Docket No.: P89903PCT SLW Reference No.: 4884,409W01

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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

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| Hong He                      | Date Signed                     |
|------------------------------|---------------------------------|
| Seunghee Han                 | <u>⊅//26/4≈/</u><br>Date Signed |
| Alexei Vladimirovich Davydov | Date Signed                     |
| Gang Xiong                   | Date Signed                     |

Intel Docket No.: P89903PCT SLW Reference No.: 4884,409WO1

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Page 1 of 2

Intel Docket No.: P89903PCT SLW Reference No.: 4884.409W01

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| Hong He                       | Date Signed  |
|-------------------------------|--------------|
| Seunghee Han                  | Date Signed  |
| dahal                         | Jan 25, 2011 |
| Alexei Vladinairovich Davydov | Date Signed  |
| Gang Xiong                    | Date Signed  |

Intel Docket No.: P89903PCT SLW Reference No.: 4884.409WO1

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| Hong He                      | Date Signed |
|------------------------------|-------------|
| Seunghee Han                 | Date Signed |
| Alexei Vladimirovích Davydov | Date Signed |
| Annual Marie Carlot          | 01/22/2016  |
| Gang Xiong                   | Date Signed |