

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT4905156

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
MR. TAE-YOUNG YANG	03/29/2018
MR. EDUARDO X. ALBAN	03/29/2018
YANG-SEOK CHOI	03/29/2018
TIMO HUUSARI	04/03/2018
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	INTEL CORPORATION
<b>Street Address:</b>	2200 MISSION COLLEGE BOULEVARD
<b>City:</b>	SANTA CLARA
<b>State/Country:</b>	CALIFORNIA
<b>Postal Code:</b>	95054
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	15941446
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	(312)258-5600
<i>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.</i>	
<b>Phone:</b>	(312) 258-5500
<b>Email:</b>	patents-ch@schiffhardin.com
<b>Correspondent Name:</b>	SCHIFF HARDIN LLP
<b>Address Line 1:</b>	666 FIFTH AVENUE
<b>Address Line 2:</b>	SUITE 1700
<b>Address Line 4:</b>	NEW YORK, NEW YORK 10103
<b>ATTORNEY DOCKET NUMBER:</b>	42536-0815
<b>NAME OF SUBMITTER:</b>	MELVIN A. ROBINSON
<b>SIGNATURE:</b>	/Melvin A. Robinson/
<b>DATE SIGNED:</b>	04/09/2018
<b>Total Attachments: 8</b>	
source=signed Assignments#page1.tif	
source=signed Assignments#page2.tif	

source=signed Assignments#page3.tif

source=signed Assignments#page4.tif

source=signed Assignments#page5.tif

source=signed Assignments#page6.tif

source=signed Assignments#page7.tif

source=signed Assignments#page8.tif

## ASSIGNMENT

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

**Tae Young YANG, Timo S HUUSARI, Eduardo X ALBAN; and Yang-Seok CHOI**

hereby sell, assign, and transfer to:

### **Intel 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:

### **METHOD AND APPARATUS FOR BROADBAND HIGH-ISOLATION CIRCULATOR FOR SIMULTANEOUS TRANSMIT AND RECEIVE 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 March 30, 2018 as

U.S. Application Number 15/941,446  
COUNTRY or International Office

and

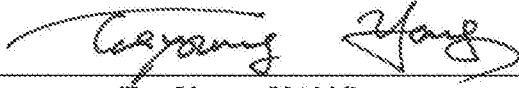
which has been executed by the undersigned prior hereto or concurrently herewith on the date(s) indicated below,

and in and to said application and all Additional Applications, and all other patent applications that have been or shall be 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 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.



Tae Young YANG

3/29/2018

Date signed

Timo S HUUSARI

Date signed

Eduardo X ALBAN

Date signed

Yang-Seok CHOI

Date signed

## **ASSIGNMENT**

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

**Tae Young YANG, Timo S HUUSARI, Eduardo X ALBAN; and Yang-Seok CHOI**

hereby sell, assign, and transfer to:

### **Intel 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:

### **METHOD AND APPARATUS FOR BROADBAND HIGH-ISOLATION CIRCULATOR FOR SIMULTANEOUS TRANSMIT AND RECEIVE 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 March 30, 2018 as

U.S. Application Number 15/941,446  
COUNTRY or International Office

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 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;

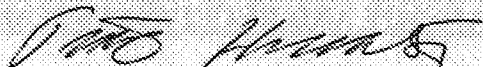
and agree that said Assignee may apply for and receive a patent or patents for said inventions and improvements in its own name; and that, when requested, without charge to, but at the expense of, said Assignee, its successors, assigns, and legal representatives, to carry out in good faith the intent 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 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.

\_\_\_\_\_  
Tae Young YANG

\_\_\_\_\_  
Date signed





\_\_\_\_\_  
Timo S HUUSARI

\_\_\_\_\_  
Date signed

\_\_\_\_\_  
Eduardo X ALBAN

\_\_\_\_\_  
Date signed

\_\_\_\_\_  
Yang-Seok CHOI

\_\_\_\_\_  
Date signed

## **ASSIGNMENT**

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

**Tae Young YANG, Timo S HUUSARI, Eduardo X ALBAN; and Yang-Seok CHOI**

hereby sell, assign, and transfer to:

### **Intel 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:

### **METHOD AND APPARATUS FOR BROADBAND HIGH-ISOLATION CIRCULATOR FOR SIMULTANEOUS TRANSMIT AND RECEIVE 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 March 30, 2018 as

U.S. Application Number 15/941,446  
COUNTRY or International Office

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 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 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

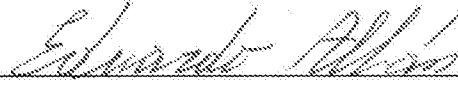
covenant with said Assignee, its successors, assigns, and legal representatives that no assignment, grant, mortgage, license, or other agreement affecting the rights and property herein conveyed has been made to others by the undersigned, and that full right to convey the same as herein expressed is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

\_\_\_\_\_  
Tae Young YANG

\_\_\_\_\_  
Date signed

\_\_\_\_\_  
Timo S HUUSARI

\_\_\_\_\_  
Date signed

  
\_\_\_\_\_  
Eduardo X ALBAN

03/29/2018  
\_\_\_\_\_  
Date signed

\_\_\_\_\_  
Yang-Seok CHOI

\_\_\_\_\_  
Date signed



## **ASSIGNMENT**

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

**Tae-Young YANG, Timo S HUUSARI, Eduardo X ALBAN; and Yang-Seok CHOI**

hereby sell, assign, and transfer to:

**Intel 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:

### **METHOD AND APPARATUS FOR BROADBAND HIGH-ISOLATION CIRCULATOR FOR SIMULTANEOUS TRANSMIT AND RECEIVE 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 March 30, 2018 as

U.S. Application Number 15/941,446  
COUNTRY or International Office

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 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 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.

\_\_\_\_\_  
Tae-Young YANG

\_\_\_\_\_  
Date signed

\_\_\_\_\_  
Timo S HUUSARI

\_\_\_\_\_  
Date signed

\_\_\_\_\_  
Eduardo X ALBAN

\_\_\_\_\_  
Date signed

  
\_\_\_\_\_  
Yang-Seok CHOI

  
\_\_\_\_\_  
Date signed