

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT7118241

<b>SUBMISSION TYPE:</b>	CORRECTIVE ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	Corrective Assignment to correct the EXECUTION DATE OF THE FIRST INVENTOR previously recorded on Reel 056905 Frame 0821. Assignor(s) hereby confirms the CORRECT DATE IS 02/29/2012.
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
HAO XU	02/29/2012
XILIANG LUO	03/01/2012
XIAOXIA ZHANG	03/01/2012
PETER GAAL	04/02/2021
TINGFANG JI	03/02/2012
JUAN MONTOJO	03/01/2012
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	QUALCOMM INCORPORATED
<b>Street Address:</b>	5775 MOREHOUSE DRIVE
<b>City:</b>	SAN DIEGO
<b>State/Country:</b>	CALIFORNIA
<b>Postal Code:</b>	92121-1714
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
Application Number:	17378183
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	(713)623-4846
<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>	713-623-4844
<b>Email:</b>	psdocketing@pattersonsheridan.com, tthomas@pattersonsheridan.com
<b>Correspondent Name:</b>	PATTERSON & SHERIDAN, LLP
<b>Address Line 1:</b>	24 GREENWAY PLAZA
<b>Address Line 2:</b>	SUITE 1600
<b>Address Line 4:</b>	HOUSTON, TEXAS 77046
<b>ATTORNEY DOCKET NUMBER:</b>	QUAL/111064USC01
<b>NAME OF SUBMITTER:</b>	TAMMI THOMAS
<b>SIGNATURE:</b>	/TAMMI THOMAS/

PATENT

<b>DATE SIGNED:</b>	01/12/2022
<b>Total Attachments: 16</b> source=111064D1C1_Previously_filed_ASG#page1.tif source=111064D1C1_Previously_filed_ASG#page2.tif source=111064D1C1_Previously_filed_ASG#page3.tif source=111064D1C1_Previously_filed_ASG#page4.tif source=111064D1C1_Previously_filed_ASG#page5.tif source=111064D1C1_Previously_filed_ASG#page6.tif source=111064D1C1_Previously_filed_ASG#page7.tif source=111064D1C1_Previously_filed_ASG#page8.tif source=111064D1C1_Previously_filed_ASG#page9.tif source=111064D1C1_Previously_filed_ASG#page10.tif source=111064D1C1_Previously_filed_ASG#page11.tif source=111064D1C1_Previously_filed_ASG#page12.tif source=111064D1C1_Previously_filed_ASG#page13.tif source=111064D1C1_Previously_filed_ASG#page14.tif source=111064D1C1_Previously_filed_ASG#page15.tif source=111064D1C1_Previously_filed_ASG#page16.tif	

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<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT														
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<table border="1"><thead><tr><th>Name</th><th>Execution Date</th></tr></thead><tbody><tr><td>HAO XU</td><td>02/28/2012</td></tr><tr><td>XILIANG LUO</td><td>03/01/2012</td></tr><tr><td>XIAOXIA ZHANG</td><td>03/01/2012</td></tr><tr><td>PETER GAAL</td><td>04/02/2012</td></tr><tr><td>TINGFANG JI</td><td>03/02/2012</td></tr><tr><td>JUAN MONTOJO</td><td>03/01/2012</td></tr></tbody></table>	Name	Execution Date	HAO XU	02/28/2012	XILIANG LUO	03/01/2012	XIAOXIA ZHANG	03/01/2012	PETER GAAL	04/02/2012	TINGFANG JI	03/02/2012	JUAN MONTOJO	03/01/2012	
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<b>NAME OF SUBMITTER:</b>	TAMMI THOMAS														

**PATENT**

<b>Signature:</b>	/TAMMI THOMAS/
<b>Date:</b>	07/19/2021
<b>Total Attachments: 12</b> source=111064D1C1_Assignment from parent#page1.tif source=111064D1C1_Assignment from parent#page2.tif source=111064D1C1_Assignment from parent#page3.tif source=111064D1C1_Assignment from parent#page4.tif source=111064D1C1_Assignment from parent#page5.tif source=111064D1C1_Assignment from parent#page6.tif source=111064D1C1_Assignment from parent#page7.tif source=111064D1C1_Assignment from parent#page8.tif source=111064D1C1_Assignment from parent#page9.tif source=111064D1C1_Assignment from parent#page10.tif source=111064D1C1_Assignment from parent#page11.tif source=111064D1C1_Assignment from parent#page12.tif	
<b>RECEIPT INFORMATION</b>  <b>EPAS ID:</b> PAT6820806 <b>Receipt Date:</b> 07/19/2021	

PATENT

## ASSIGNMENT

WHEREAS, WE,

1. **Hao Xu**, a citizen of The United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121, US and a resident of San Diego, CA, US,
2. **Xiliang Luo**, a citizen of China, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121, US and a resident of Cardiff, CA, US,
3. **Xiaoxia Zhang**, a citizen of China, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121, US and a resident of San Diego, CA, US,
4. **Peter Gaal**, a citizen of The United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121, US and a resident of San Diego, CA, US,
5. **Tingfang Ji**, a citizen of China, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121, US and a resident of San Diego, CA, US,
6. **Juan Montojo**, a citizen of The United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121, US and a resident of San Diego, CA, US,

have conceived of one or more processes, methods, machines, articles of manufacture, designs, compositions of matter, inventions, discoveries or new or useful improvements relating to **POWER CONTROL AND USER MULTIPLEXING FOR HETEROGENEOUS NETWORK COORDINATED MULTIPOINT OPERATIONS** (collectively the "INVENTIONS") for which WE have executed and/or may execute one or more patent applications therefor; and

WHEREAS, QUALCOMM Incorporated (hereinafter "**ASSIGNEE**"), a Delaware corporation, having a place of business at 5775 Morehouse Drive, San Diego, California 92121-1714, U.S.A., desires to acquire or otherwise obtain the entire right, title, and interest in and to said INVENTIONS, including all inventions related thereto or thereof, all patent applications therefor, and all patents that have granted or may be granted hereafter thereon, including but not limited to those identified below.

NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, WE do hereby acknowledge that WE have sold, assigned, conveyed, and transferred, and by these presents do hereby sell, assign, convey, and transfer, unto ASSIGNEE, its successors, its legal representatives, and its assigns, the entire right, title, and interest throughout the world in and to said INVENTIONS, including all patent applications therefor that may have been filed or may be filed hereafter for said INVENTIONS in the United States, including but not limited to U.S. Application No(s). **13/372,458** filed February 13, 2012, Qualcomm Reference No. 111064, and all provisional applications relating thereto, together

with U.S. Provisional Application No(s). **61/442,650**, filed February 14, 2011, Qualcomm Reference No. 111064P1, (and do hereby authorize ASSIGNEE and its representative to hereafter add herein such application number(s) and/or filing date(s) when known), and all divisional applications, renewal applications, continuation applications, continuation-in-part applications, and design applications thereof, and all issued patents of the United States which may have granted or may be granted hereafter thereon and all reissues, renewals, reexaminations, and extensions to any of the foregoing and all patents issuing thereon in the United States;

AND WE further do acknowledge and agree that WE have sold, assigned, conveyed, and transferred, and by these presents do hereby sell, assign, convey, and transfer, unto ASSIGNEE, its successors, its legal representatives, and its assigns, all rights of priority under International Conventions, Treaties, or Agreements, and the entire right, title, and interest throughout the world in said INVENTIONS, including all inventions related thereto or thereof, and all patent applications therefor that may have been filed or may be filed hereafter for said INVENTIONS in any foreign country, countries, or treaty/union organizations, and all divisional applications, renewal applications, continuation applications, continuation-in-part applications, patent of addition applications, confirmation applications, validation applications, utility model applications, and design applications thereof, and all issued patents which may have granted or may be granted hereafter for said INVENTIONS in any country or countries foreign to the United States, and all reissues, renewals, reexaminations, and extensions thereof;

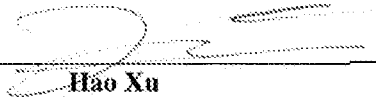
AND WE DO HEREBY authorize and request the Commissioner of Patents of the United States, and any Official of any country or countries foreign to the United States, whose duty it is to issue patents on applications or registrations, to issue all patents for said INVENTIONS to said ASSIGNEE, its successors, its legal representatives and its assigns, in accordance with the terms of this instrument;

AND WE DO HEREBY sell, assign, transfer, and convey to said ASSIGNEE, its successors, its legal representatives, and its assigns all claims for damages and all remedies arising out of or relating to any violation(s) of any of the rights assigned hereby that have or may have accrued prior to the date of assignment to said ASSIGNEE, or may accrue hereafter, including, but not limited to the right to sue for, seek, obtain, collect, recover, and retain damages and any ongoing or prospective royalties to which WE may be entitled, or that WE may collect for any infringement or from any settlement or agreement related to any of said patents before or after issuance;

AND WE HEREBY covenant and agree that WE will communicate promptly to said ASSIGNEE, its successors, its legal representatives, and its assigns, any facts known to us respecting said INVENTIONS, and will testify in any legal proceeding, sign all lawful papers, execute all applications and certificates, make all rightful declarations and/or oaths, and provide all lawful assistance to said ASSIGNEE, its successors, its legal representatives and its assigns, to obtain and enforce patent protection for said INVENTIONS in all countries;

AND WE HEREBY represent that WE have full and exclusive, unencumbered right to sell, assign, convey and transfer all subject matter herein, and hereby covenant that WE have not and will not execute any writing or do any act whatsoever conflicting with these presents.

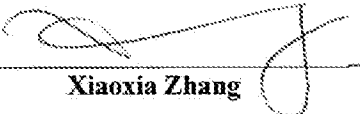
Done at San Diego, on 2/28/2012  
LOCATION DATE

  
Hao Xu

Done at San Diego, on 3/1/2012  
LOCATION DATE

  
Xiliang Luo

Done at San Diego, on 3/1/2012  
LOCATION DATE

  
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Done at \_\_\_\_\_, on \_\_\_\_\_  
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WHEREAS, QUALCOMM Incorporated (hereinafter "ASSIGNEE"), a Delaware corporation, having a place of business at 5775 Morehouse Drive, San Diego, California 92121-1714, U.S.A., desires to acquire or otherwise obtain the entire right, title, and interest in and to said INVENTIONS, including all inventions related thereto or thereof, all patent applications therefor, and all patents that have granted or may be granted hereafter thereon, including but not limited to those identified below.

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AND WE DO HEREBY authorize and request the Commissioner of Patents of the United States, and any Official of any country or countries foreign to the United States, whose duty it is to issue patents on applications or registrations, to issue all patents for said INVENTIONS to said ASSIGNEE, its successors, its legal representatives and its assigns, in accordance with the terms of this instrument;

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AND WE HEREBY represent that WE have full and exclusive, unencumbered right to sell, assign, convey and transfer all subject matter herein, and hereby covenant that WE have not and will not execute any writing or do any act whatsoever conflicting with these presents.

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Hao Xu

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Xiliang Luo

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Xiaoxia Zhang

Done at San Diego, on April 2, 2012  
LOCATION DATE   
Peter Gaal

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Tingfang Ji

Done at \_\_\_\_\_, on \_\_\_\_\_  
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WHEREAS, QUALCOMM Incorporated (hereinafter "ASSIGNEE"), a Delaware corporation, having a place of business at 5775 Morehouse Drive, San Diego, California 92121-1714, U.S.A., desires to acquire or otherwise obtain the entire right, title, and interest in and to said INVENTIONS, including all inventions related thereto or thereof, all patent applications therefor, and all patents that have granted or may be granted hereafter thereon, including but not limited to those identified below.

NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, WE do hereby acknowledge that WE have sold, assigned, conveyed, and transferred, and by these presents do hereby sell, assign, convey, and transfer, unto ASSIGNEE, its successors, its legal representatives, and its assigns, the entire right, title, and interest throughout the world in and to said INVENTIONS, including all patent applications therefor that may have been filed or may be filed hereafter for said INVENTIONS in the United States, including but not limited to U.S. Application No(s). 13/372,458 filed February 13, 2012, Qualcomm Reference No. 111064, and all provisional applications relating thereto, together

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Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Xiaoxia Zhang

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Peter Gaal

Done at San Diego, on 3/2/2012  
LOCATION DATE Tingfang Ji

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Juan Montojo

**ASSIGNMENT**

WHEREAS, WE,

1. **Hao Xu**, a citizen of The United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121, US and a resident of San Diego, CA, US,
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WHEREAS, QUALCOMM Incorporated (hereinafter "ASSIGNEE"), a Delaware corporation, having a place of business at 5775 Morehouse Drive, San Diego, California 92121-1714, U.S.A., desires to acquire or otherwise obtain the entire right, title, and interest in and to said INVENTIONS, including all inventions related thereto or thereof, all patent applications therefor, and all patents that have granted or may be granted hereafter thereon, including but not limited to those identified below.

NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, WE do hereby acknowledge that WE have sold, assigned, conveyed, and transferred, and by these presents do hereby sell, assign, convey, and transfer, unto ASSIGNEE, its successors, its legal representatives, and its assigns, the entire right, title, and interest throughout the world in and to said INVENTIONS, including all patent applications therefor that may have been filed or may be filed hereafter for said INVENTIONS in the United States, including but not limited to U.S. Application No(s). **13/372,458** filed February 13, 2012, Qualcomm Reference No. 111064, and all provisional applications relating thereto, together

with U.S. Provisional Application No(s). **61/442,650**, filed February 14, 2011, Qualcomm Reference No. 111064P1, (and do hereby authorize ASSIGNEE and its representative to hereafter add herein such application number(s) and/or filing date(s) when known), and all divisional applications, renewal applications, continuation applications, continuation-in-part applications, and design applications thereof, and all issued patents of the United States which may have granted or may be granted hereafter thereon and all reissues, renewals, reexaminations, and extensions to any of the foregoing and all patents issuing thereon in the United States;

AND WE further do acknowledge and agree that WE have sold, assigned, conveyed, and transferred, and by these presents do hereby sell, assign, convey, and transfer, unto ASSIGNEE, its successors, its legal representatives, and its assigns, all rights of priority under International Conventions, Treaties, or Agreements, and the entire right, title, and interest throughout the world in said INVENTIONS, including all inventions related thereto or thereof, and all patent applications therefor that may have been filed or may be filed hereafter for said INVENTIONS in any foreign country, countries, or treaty/union organizations, and all divisional applications, renewal applications, continuation applications, continuation-in-part applications, patent of addition applications, confirmation applications, validation applications, utility model applications, and design applications thereof, and all issued patents which may have granted or may be granted hereafter for said INVENTIONS in any country or countries foreign to the United States, and all reissues, renewals, reexaminations, and extensions thereof;

AND WE DO HEREBY authorize and request the Commissioner of Patents of the United States, and any Official of any country or countries foreign to the United States, whose duty it is to issue patents on applications or registrations, to issue all patents for said INVENTIONS to said ASSIGNEE, its successors, its legal representatives and its assigns, in accordance with the terms of this instrument;

AND WE DO HEREBY sell, assign, transfer, and convey to said ASSIGNEE, its successors, its legal representatives, and its assigns all claims for damages and all remedies arising out of or relating to any violation(s) of any of the rights assigned hereby that have or may have accrued prior to the date of assignment to said ASSIGNEE, or may accrue hereafter, including, but not limited to the right to sue for, seek, obtain, collect, recover, and retain damages and any ongoing or prospective royalties to which WE may be entitled, or that WE may collect for any infringement or from any settlement or agreement related to any of said patents before or after issuance;

AND WE HEREBY covenant and agree that WE will communicate promptly to said ASSIGNEE, its successors, its legal representatives, and its assigns, any facts known to us respecting said INVENTIONS, and will testify in any legal proceeding, sign all lawful papers, execute all applications and certificates, make all rightful declarations and/or oaths, and provide all lawful assistance to said ASSIGNEE, its successors, its legal representatives and its assigns, to obtain and enforce patent protection for said INVENTIONS in all countries;

AND WE HEREBY represent that WE have full and exclusive, unencumbered right to sell, assign, convey and transfer all subject matter herein, and hereby covenant that WE have not and will not execute any writing or do any act whatsoever conflicting with these presents.

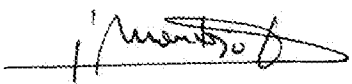
Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Hao Xu

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Xiliang Luo

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Xiaoxia Zhang

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Peter Gaal

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Tingfang Ji

Done at Nuremberg, on 3/1/12  
LOCATION DATE   
Juan Montojo