

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
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EPAS ID: PAT4627968

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT	
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT	
<b>CONVEYING PARTY DATA</b>		
	<b>Name</b>	<b>Execution Date</b>
	ALAN GATHERER	10/04/2017
	JINSEOK CHOI	10/03/2017
<b>RECEIVING PARTY DATA</b>		
<b>Name:</b>	FUTUREWEI TECHNOLOGIES, INC.	
<b>Street Address:</b>	5340 LEGACY DRIVE, BLDG 3	
<b>Internal Address:</b>	SUITE 175	
<b>City:</b>	PLANO	
<b>State/Country:</b>	TEXAS	
<b>Postal Code:</b>	75024	
<b>PROPERTY NUMBERS Total: 1</b>		
<b>Property Type</b>	<b>Number</b>	
<b>Application Number:</b>	15720743	
<b>CORRESPONDENCE DATA</b>		
<b>Fax Number:</b>		
<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>Email:</b>	REQUEST@SLWIP.COM	
<b>Correspondent Name:</b>	SCHWEGMAN LUNDBERG & WOESSNER, P.A.	
<b>Address Line 1:</b>	PO BOX 2938	
<b>Address Line 4:</b>	MINNEAPOLIS, MINNESOTA 55402-0938	
<b>ATTORNEY DOCKET NUMBER:</b>	4368.141US1	
<b>NAME OF SUBMITTER:</b>	KERRI WRIGHT	
<b>SIGNATURE:</b>	/KERRI WRIGHT/	
<b>DATE SIGNED:</b>	10/05/2017	
<b>Total Attachments: 4</b>		
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Atty Ref/Docket No.: 4368.141US1

Patent and Trademark Office

To the Director of the U.S. Patent and Trademark Office: Please record the attached original documents or copy thereof.

1. Name of conveying party(ies):

Alan Gatherer, Jinseok Choi

Additional name(s) of conveying party(ies) attached?

☐ Yes ☒ No

3. Nature of conveyance:

☒ Assignment

☐ Merger

☐ Security Agreement ☐ Change of Name

☐ Other

2. Name and address of receiving party(ies):

Name: Futurewei Technologies, Inc.

Street Address: 5340 Legacy Drive, Bldg 3  
Suite 175

City: Plano State: TX Zip: 75024

Country: United States of America

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

Execution Date: October 4, 2017, October 3, 2017

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. 15/720,743, filed September 29, 2017

Additional numbers attached? ☐ Yes ☒ No

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

Name: Paul J. Urbanski

Address:

Schwegman Lundberg & Woessner, P.A.

P.O. Box 2938

Minneapolis, Minnesota 55402--0938

6. Total number of applications and patents involved: 1

7. Total fee (37 CFR 3.41): \$ 0.00

☐ Enclosed

☐ Authorized to be charged to deposit account 19-0743

8. Please charge any additional fees or credit any over payments to our Deposit Account No.: 19-0743

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9. 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.

Paul J. Urbanski/Reg. No. 58,351

Name of Person Signing

*Paul J. Urbanski*

Signature

October 5, 2017

Date

Total number of pages including cover sheet: 4

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**Mail Stop Assignment Recordation Services**

**P.O. Box 1450**

**Alexandria, VA 22313-1450**

**PATENT**  
**REEL: 043793 FRAME: 0989**

## ASSIGNMENT

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WHEREAS, I/we, the undersigned inventor (or one of the undersigned joint inventors), of residence as listed below, having invented certain new and useful improvements as below entitled, for which application for United States Letters Patent is made, the said application having been executed on the date set forth below; and

WHEREAS, Futurewei Technologies, Inc. ("Assignee"), a corporation organized and existing under the laws of Texas, with its principal office at 5340 Legacy Drive, Suite 175, Plano, TX 75024 is desirous of acquiring my/our entire right, title and interest in the said invention, and to the said application and any Letters Patent that may issue thereon in the United States and all other countries throughout the world;


NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, I/we will assign, and hereby assign and transfer to the Assignee and the Assignee's legal representatives, successors and assigns the full and exclusive right, title and interest in and to the invention in the United States and every foreign country and the entire right, title, and interest in and to the patent application and other such applications (e.g., provisional applications, non-provisional applications, continuations, continuations-in-part, divisional, reissues, reexaminations, National Phase applications, including petty patent applications, and utility model applications) that may be filed in the United States and every foreign country on the invention, and the patents, extensions, or derivations thereof, both foreign and domestic, that may issue thereon, and I/we do hereby authorize and request the Commissioner for Patents to issue U.S. patents for said invention, or patent resulting therefrom, insofar as my interest is concerned, to the Assignee agreeably with the terms of this assignment document.

I/we also hereby agree to sell and to assign, and sell and assign to Assignee, its successors and assigns, my foreign rights to the invention disclosed in said application, in all countries of the world, including, but not limited to, the right to file applications and obtain patents under the terms of the International Convention, and further agree to execute any and all patent applications, assignments, affidavits, and any other papers in connection therewith necessary to perfect such patent rights.

I/we hereby further agree that I/we will communicate to Assignee, or its successors, assigns, and legal representative, any facts known to me respecting said invention or the file history thereof, and at the expense of said assignee company, testify in any legal proceedings, sign all lawful papers, execute all divisional, continuation, reissue and substitute applications, make all lawful oaths, and generally do everything possible to aid such Futurewei, its successors, assigns and nominees to obtain and enforce proper patent protection for said invention in all countries.


# ASSIGNMENT

IN WITNESS WHEREOF, I hereunto set my hand and seal this day and year;

Title of Invention	ADC BIT ALLOCATION UNDER BIT CONSTRAINED MU- MASSIVE MIMO SYSTEMS	
	Appl. No.: U.S. Serial No. 15/720,743	Filing Date: 29 September 2017
Signature of Inventor		
Inventor Name	Alan Gatherer	
Date	4 <sup>th</sup> OCT 2017	
Residence (City/State)	Richardson, TX	

## ASSIGNMENT

IN WITNESS WHEREOF, I hereunto set my hand and seal this day and year;

Title of Invention	<b>ADC BIT ALLOCATION UNDER BIT CONSTRAINED MU- MASSIVE MIMO SYSTEMS</b>	
	Appl. No. / U.S. Serial No. <b>15/720,743</b>	Filing Date: <b>29 September 2017</b>
Signature of Inventor		
Inventor Name	<b>Jinseok Choi</b>	
Date	<b>10-03-17</b>	
Residence (City/State)	<b>Austin, TX</b>	