504962138 06/15/2018

# PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT5008885

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

#### **CONVEYING PARTY DATA**

Name	Execution Date
OLIVIER ALAVOINE	07/13/2016
SEJOONG LEE	07/13/2016
TAUSEEF KAZI	07/18/2016
SIMON BOOTH	08/25/2016
EDOARDO REGINI	07/13/2016
RENATAS JAKUSHOKAS	08/18/2016
SAURABH PATODIA	07/16/2016
JEFFREY GEMAR	07/16/2016
MICHAEL HAWJING LO	07/13/2016
VINOD CHAMARTY	07/19/2016
BORIS ANDREEV	08/15/2016
TAO SHEN	07/13/2016
ARAVIND BHASKARA	07/13/2016
WENBIAO WANG	08/25/2016
STEPHEN MOLLOY	08/25/2016

#### **RECEIVING PARTY DATA**

Name:	QUALCOMM INCORPORATED	
Street Address:	et Address: 5775 MOREHOUSE DRIVE	
City:	SAN DIEGO	
State/Country:	CALIFORNIA	
Postal Code:	92121-1714	

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

Property Type	Number
Application Number:	15944041

#### **CORRESPONDENCE DATA**

Fax Number: (703)391-2901

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: 7033912900

**Email:** ptonoticesqc@marburylaw.com

Correspondent Name: THE MARBURY LAW GROUP, PLLC Address Line 1: 11800 SUNRISE VALLEY DRIVE

Address Line 2: 15TH FLOOR

Address Line 4: RESTON, VIRGINIA 20191

ATTORNEY DOCKET NUMBER:	157031C1 / 1376-1913C1
NAME OF SUBMITTER:	WHITNEY TEETS
SIGNATURE:	/Whitney Teets/
DATE SIGNED:	06/15/2018

#### **Total Attachments: 56**

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WHEREAS, WE,

- 1. Olivier ALAVOINE, a citizen of France, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of San Diego, CA;
- 2. **Sejoong LEE**, a citizen of the Republic of Korea, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of San Diego, CA;
- 3. **Tauseef KAZI**, a citizen of the United States, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of San Diego, CA;
- 4. **Simon BOOTH**, a citizen of Canada, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of San Diego, CA;
- 5. **Edoardo REGINI**, a citizen of Italy, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of San Diego, CA;
- 6. **Renatas JAKUSHOKAS**, a citizen of Israel having a mailing address located at 14012 Chicarita Creek Road, San Diego, CA 92128 and a resident of San Diego, CA;
- 7. **Saurabh PATODIA**, a citizen of India having a mailing address located at 760N 7<sup>th</sup> Street Apt 4209, San Jose, CA 95112; and a resident of San Jose, CA;
- 8. **Jeffrey GEMAR**, a citizen of the United States, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of San Diego, CA;
- 9. **Haw-Jing LO**, a citizen of Taiwan, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of San Diego, CA;
- 10. **Vinod CHAMARTY**, a citizen of India, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of San Diego, CA;
- 11. **Boris ANDREEV**, a citizen of the United States, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of San Diego, CA;
- 12. **Tao SHEN**, a citizen of the United States, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of San Diego, CA;
- 13. **Aravind BHASKARA**, a citizen of the United States, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of San Diego, CA;
- 14. **Wenbiao WANG**, a citizen of the United States, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of San Diego, CA; and

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 FORCED IDLING OF MEMORY SUBSYSTEMS (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). 15/016,806 filed February 5, 2016, Qualcomm Reference No. 157031 and all provisional applications relating thereto, (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 covenant that WE will not execute any writing or do any act whatsoever conflicting with these presents.

Done at S	an Diego	_, on <u>7/73/</u>	2016	
	LOCATION	DATE	Olivier ALAVOINE	
Done at _		, on		
	LOCATION	DATE	Sejoong LEE	
Done at		, on		
	LOCATION	DATE	Tauseef KAZI	
Done at		on		
	LOCATION	DATE	Simon BOOTH	
Done at _		, on		
	LOCATION	DATE	Edoardo REGINI	

AND WE HEREBY covenant that WE will not execute any writing or do any act whatsoever conflicting with these presents.

Done at		, on	
	LOCATION	DATE	Renatas JAKUSHOKAS
Done at _		, on DATE	Saurabh PATODIA
	LOCATION	DATE	Saurabh PATODIA
Done at _		, on DATE	
	LOCATION	DATE	Jeffrey GEMAR
Done at _		, on	Haw-Jing LO
	LOCATION	DATE	Haw-Jing LO
Done at _		, on DATE	
	LOCATION	DATE	Vinod CHAMARTY
Done at _		, on DATE	
	LOCATION	DATE	Boris ANDREEV
Done at _		, on DATE	
	LOCATION	DATE	Tao SHEN
Done at _		, on DATE	A STATE OF THE PARTY AS A STAT
	LOCATION	DATE	Aravind BHASKARA
Done at _		, on	Wenbiao WANG
	LOCATION	DATE	Wenbiao WANG
Done at _	Y 00 A 777 0 Y	, on	Stephen MOLLOY
	LUCATION	DATE	Stednen Villia i

WHEREAS, WE,

- 1. Olivier ALAVOINE, a citizen of France, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of San Diego, CA;
- 2. **Sejoong LEE**, a citizen of the Republic of Korea, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of San Diego, CA;
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- 5. **Edoardo REGINI**, a citizen of Italy, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of San Diego, CA;
- 6. **Renatas JAKUSHOKAS**, a citizen of Israel having a mailing address located at 14012 Chicarita Creek Road, San Diego, CA 92128 and a resident of San Diego, CA;
- 7. **Saurabh PATODIA**, a citizen of India having a mailing address located at 760N 7<sup>th</sup> Street Apt 4209, San Jose, CA 95112; and a resident of San Jose, CA;
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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 FORCED IDLING OF MEMORY SUBSYSTEMS (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). 15/016,806 filed February 5, 2016, Qualcomm Reference No. 157031 and all provisional applications relating thereto, (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 covenant that WE will not execute any writing or do any act whatsoever conflicting with these presents.

Done at	, (	on	<u> </u>
	LOCATION	DATE	Olivier ALAVOINE
Done at	San Diego CA,	on 7/13/2016	- to the same of t
·	LOCATION	DATE	Sejoong LEE
Done at	LOCATION	on	Tauseef KAZI
Done at	LOCATION	on	Simon BOOTH
Done at	,,3	on:	
	LOCATION	DATE	Edoardo REGINI

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Done at		, on		
	LOCATION		DATE	Renatas JAKUSHOKAS
Done at _		, on	DATE	Saurabh PATODIA
	LOCATION		DATE	Saurabh PATODIA
Done at _	LOCATION	, on		
	LOCATION		DATE	Jeffrey GEMAR
Done at _		, on		Haw-Jing LO
	LOCATION		DATE	Haw-Jing LO
Done at _	LOCATION	, on		
	LOCATION		DATE	Vinod CHAMARTY
Done at _	LOCATION	, on		
	LOCATION		DATE	Boris ANDREEV
Done at _	LOCATION	, on		
	LOCATION		DATE	Tao SHEN
Done at		, on	DATE	
	LOCATION		DATE	Aravind BHASKARA
Done at _		, on		Wenbiao WANG
	LOCATION		DATE	Wenbiao WANG
Done at		, on		Stephen MOLLOY
	LOCATION		DATE	Stephen MULLICY

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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). 15/016,806 filed February 5, 2016, Qualcomm Reference No. 157031 and all provisional applications relating thereto, (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 covenant that WE will not execute any writing or do any act whatsoever conflicting with these presents.

Done at	, 01	1	
	LOCATION	DATE	Olivier ALAVOINE
Done at	, 0	n	
	LOCATION	DATE	Sejoong LEE
Qu Done at	alcomm, Sand NS35 P.o.		Jans Eller,
	LOCATION	DATE	Tauscef KAZI
Done at	, 0	n:	
	LOCATION	DATE	Simon BOOTH
Done at	, 0	n	
,	LOCATION	DATE	Edoardo REGINI

AND WE HEREBY covenant that WE will not execute any writing or do any act whatsoever conflicting with these presents.

Done at		, on	
	LOCATION	DATE	Renatas JAKUSHOKAS
Done at _		, on DATE	Saurabh PATODIA
	LOCATION	DATE	Saurabh PATODIA
Done at _		, on DATE	
	LOCATION	DATE	Jeffrey GEMAR
Done at _		, on	Haw-Jing LO
	LOCATION	DATE	Haw-Jing LO
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Done at _		, on DATE	
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Done at _		, on DATE	
	LOCATION	DATE	Tao SHEN
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	LOCATION	DATE	Aravind BHASKARA
Done at _		, on	Wenbiao WANG
	LOCATION	DATE	Wenbiao WANG
Done at _	Y 000 A 777 00 7	, on	Stephen MOLLOY
	LUCATION	DATE	Stednen Villia i

#### WHEREAS, WE,

- 1. Olivier ALAVOINE, a citizen of France, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of San Diego, CA;
- 2. **Sejoong LEE**, a citizen of the Republic of Korea, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of San Diego, CA;
- 3. **Tauseef KAZI**, a citizen of the United States, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of San Diego, CA;
- 4. **Simon BOOTH**, a citizen of Canada, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of San Diego, CA;
- 5. **Edoardo REGINI**, a citizen of Italy, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of San Diego, CA;
- 6. **Renatas JAKUSHOKAS**, a citizen of Israel having a mailing address located at 14012 Chicarita Creek Road, San Diego, CA 92128 and a resident of San Diego, CA;
- 7. **Saurabh PATODIA**, a citizen of India having a mailing address located at 760N 7<sup>th</sup> Street Apt 4209, San Jose, CA 95112; and a resident of San Jose, CA;
- 8. **Jeffrey GEMAR**, a citizen of the United States, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of San Diego, CA;
- 9. **Haw-Jing LO**, a citizen of Taiwan, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of San Diego, CA;
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- 11. **Boris ANDREEV**, a citizen of the United States, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of San Diego, CA;
- 12. **Tao SHEN**, a citizen of the United States, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of San Diego, CA;
- 13. **Aravind BHASKARA**, a citizen of the United States, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of San Diego, CA;
- 14. **Wenbiao WANG**, a citizen of the United States, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of San Diego, CA; and

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 FORCED IDLING OF MEMORY SUBSYSTEMS (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). 15/016,806 filed February 5, 2016, Qualcomm Reference No. 157031 and all provisional applications relating thereto, (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;

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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;

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 covenant that WE will not execute any writing or do any act whatsoever conflicting with these presents.

Done at		, on		
· · · · · · · · · · · · · · · · · · ·	LOCATION	DATE	Olivier ALAVOINE	
Done at _	<del></del>	_, on	<u> </u>	
	LOCATION	DATE	Sejoong LEE	
Done at _		, on		
	LOCATION	DATE	Tauseef KAZI	
Done at <u>s</u>	Sin Viens	on <u>August 25/2</u> 016 DATE	<u> </u>	
	LOCATION	DATE	Simon BOOTH	
Done at _		, on		
	LOCATION	DATE	Edeardo REGINI	

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	LOCATION	DATE	Renatas JAKUSHOKAS
Done at _		, on DATE	Saurabh PATODIA
	LOCATION	DATE	Saurabh PATODIA
Done at _		, on DATE	
	LOCATION	DATE	Jeffrey GEMAR
Done at _		, on	Haw-Jing LO
	LOCATION	DATE	Haw-Jing LO
Done at _		, on DATE	
	LOCATION	DATE	Vinod CHAMARTY
Done at _		, on DATE	
	LOCATION	DATE	Boris ANDREEV
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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 covenant that WE will not execute any writing or do any act whatsoever conflicting with these presents.

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LOCATION DATE Sejoong LEE  Done at, on
LOCATION DATE Sejoong LEE  Done at, on
Done at, on
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2 6 6 1 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6
LOCATION DATE Tauseef KAZI
Done at , on
LOCATION DATE Simon BOOTH

# PATENT QUALCOMM Ref. No. 157031 Page 4 of 4

AND WE HEREBY covenant that WE will not execute any writing or do any act whatsoever conflicting with these presents. Done at San Diego, on Aug 18, 2016 Renatas JAKUSHOKAS Jeffrey GEMAR Done at \_\_\_\_\_\_, on \_\_\_\_\_\_\_LOCATION DATE Vinod CHAMARTY Done at \_\_\_\_\_\_, on \_\_\_\_\_\_

LOCATION DATE Tao SHEN Done at \_\_\_\_\_\_, on \_\_\_\_\_\_

LOCATION DATE Aravind BHASKARA Wenbiao WANG 

WHEREAS, WE,

- 1. Olivier ALAVOINE, a citizen of France, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of San Diego, CA;
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- 13. **Aravind BHASKARA**, a citizen of the United States, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of San Diego, CA;
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AND WE HEREBY covenant that WE will not execute any writing or do any act whatsoever conflicting with these presents.

Done at		, on		
-	LOCATION		DATE	Olivier ALAVOINE
Done at _		, on		
	LOCATION		DATE	Sejoong LEE
Done at		, on		
	LOCATION		DATE	Tauseef KAZI
Done at		. On		
	LOCATION	,	DATE	Simon BOOTH
-				
Done at $\_$		, on		
	LOCATION		DATE	Edoardo REGINI

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Done at		on	
	LOCATION	DATE	Renatas JAKUSHOKAS
Done at	SAN JOSE	on D7/16/2016	Samabh Pato La
	LOCATION	on <u>07/16/2016</u> DATE	Saurabh PATODIA
Done at		, on	·
	LOCATION	DATE	Jeffrey GEMAR
Done at_		, on	Haw-Jing LO
	LOCATION	DATE	Haw-Jing LO
Done at_		, on	19.77
	LOCATION	DATE	Vined CHAMARTY
Done at		, on	A YANGA WANG T
	LOCATION	DATE	Boris ANDREEV
Done at _	***************************************		
	LOCATION	DATE	Tao SHEN
Done at_		, on	
	LOCATION	DATE	Aravind BHASKARA
Done at	<u>``</u>	, on	
•	LOCATION	DATE	Wenbiao WANG
		, on	
	LOCATION	DATE	Stephen MOLLOY

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AND WE HEREBY covenant that WE will not execute any writing or do any act whatsoever conflicting with these presents.

Done at		, on		
-	LOCATION		DATE	Olivier ALAVOINE
Done at _		, on		
	LOCATION		DATE	Sejoong LEE
Done at		, on		
	LOCATION		DATE	Tauseef KAZI
Done at		. On		
	LOCATION	,	DATE	Simon BOOTH
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Done at $\_$		, on		
	LOCATION		DATE	Edoardo REGINI

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Done at	, on		**************************************
LOCA	TION	DATE	Renatas JAKUSHOKAS
Done at	, on	*	~
Done atLOCA	TION	DATE	Saurabh PATODIA
Done at Society	<u>~,</u> on	7/16/16 DATE	Jeffrey GEMAR
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LOCA	ATION	DATE	Boris ANDREEV
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LOCA	ATION	DATE	Tao SHEN
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LOCA	ATION	DATE	Aravind BHASKARA
Done at	on	DATE	
LOCA	ATION	DATE	Wenbiao WANG
Done at	, on	<u></u>	Stephen MOLLOY
T.OCA	ATION	DATE	Stephen MOLLOY

WHEREAS, WE,

- 1. Olivier ALAVOINE, a citizen of France, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of San Diego, CA;
- 2. **Sejoong LEE**, a citizen of the Republic of Korea, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of San Diego, CA;
- 3. **Tauseef KAZI**, a citizen of the United States, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of San Diego, CA;
- 4. **Simon BOOTH**, a citizen of Canada, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of San Diego, CA;
- 5. **Edoardo REGINI**, a citizen of Italy, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of San Diego, CA;
- 6. **Renatas JAKUSHOKAS**, a citizen of Israel having a mailing address located at 14012 Chicarita Creek Road, San Diego, CA 92128 and a resident of San Diego, CA;
- 7. **Saurabh PATODIA**, a citizen of India having a mailing address located at 760N 7<sup>th</sup> Street Apt 4209, San Jose, CA 95112; and a resident of San Jose, CA;
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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 FORCED IDLING OF MEMORY SUBSYSTEMS (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). 15/016,806 filed February 5, 2016, Qualcomm Reference No. 157031 and all provisional applications relating thereto, (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;

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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;

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;

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	LOCATION		DATE	Sejoong LEE
Done at		, on		
	LOCATION		DATE	Tauseef KAZI
Done at		. On		
	LOCATION	,	DATE	Simon BOOTH
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Done at $\_$		, on		
	LOCATION		DATE	Edoardo REGINI

#### PATENT

QUALCOMM Ref. No. 157031

Page 4 of 4

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Done at	, on	
LOCATION	DATE	Renatas JAKUSHOKAS
Done at	, on	
LOCATION	DATE	Saurabh PATODIA
Done at	, on	
LOCATION		Jeffrey GEMAR
Done at SAN DIEA 0  LOCATION	, on July 15, 2016	m
LOCATION	DATE	Haw-Jing LO
Done at	, on	
LOCATION	DATE	Vinod CHAMARTY
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LOCATION	DATE	Boris ANDREEV
Done at	, on	
LOCATION	DATE	Tao SHEN
Done at	_, on	Aravind BHASKARA
LOCATION	DATE	Aravind BHASKARA
Done at	, on DATE	
LOCATION	DATE	Wenbiao WANG
Done at	OnDATE	
LOCATION	DATE	Stephen MOLLOY

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-	LOCATION		DATE	Olivier ALAVOINE
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	LOCATION		DATE	Sejoong LEE
Done at		, on		
	LOCATION		DATE	Tauseef KAZI
Done at		. On		
	LOCATION	,	DATE	Simon BOOTH
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Done at $\_$		, on		
	LOCATION		DATE	Edoardo REGINI

Done at	, on	
Done atLOCATION	DATE	Renatas JAKUSHOKAS
Done at	, on DATE	
LOCATION	DATE	Saurabh PATODIA
Done at	, on	Jeffrey GEMAR
LOCATION	DATE	Jeffrey GEMAR
Done at	on	Haw-Jing LO
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LOCATION	DATE	Tao SHEN
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LOCATION	DATE	Wenbiao WANG
Done at	on	Stephen MOLLOY
LOCATION	DATE	SICHICH MUSIKATI

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Done at		, on			_
	LOCATION		DATE	Olivier ALAVOINE	
Done at _		, on			_
	LOCATION		DATE	Sejoong LEE	
Done at _		, on			_
	LOCATION		DATE	Tauseef KAZI	
Done at		, on			
-	LOCATION		DATE	Simon BOOTH	
Done at _		, on			
	LOCATION		DATE	Edoardo REGINI	

Done at		, on		
•••	LOCATION	D.	ATE	Renatas JAKUSHOKAS
Done at	LOCATION	, on		
	LOCATION	D.	ATE	Saurabh PATODIA
Done at	LOCATION	, on		
	LOCATION	Da	ATE	Jeffrey GEMAR
Done at _	LOCATION	, on		Haw-Jing LO
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Done at _	LOCATION	, on		Tao SHEN
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	LOCATION	$\mathbf{D}_{\ell}$	ATE	Aravind BHASKARA
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	LOCATION	$\mathbf{D}_{\ell}$	ATE	Wenbiao WANG
Done at_	LOCATION	, on		Stephen MOLLOY
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Done at		, on			_
	LOCATION		DATE	Olivier ALAVOINE	
Done at _		, on			_
	LOCATION		DATE	Sejoong LEE	
Done at _		, on			_
	LOCATION		DATE	Tauseef KAZI	
Done at		, on			
-	LOCATION		DATE	Simon BOOTH	
Done at _		, on			
	LOCATION		DATE	Edoardo REGINI	

Done at		on		
	LOCATION		DATE	Renatas JAKUSHOKAS
Done at _	LOCATION	on		
	LOCATION		DATE	Saurabh PATODIA
Done at _	·····	on	DATE	
	LOCATION		DATE	Jeffrey GEMAR
Done at	LOCATION	on		Haw-Jing LO
	LOCATION		DATE	Haw-Jing LO
Done at _		on	DATE	
	LOCATION		DATE	Vinod CHAMARTY
Done at		on	·····	Boris ANDREEV
Done at =	San Viego	on	7/13/2016	Tao SHEN
	LOCATION*		DATE	Hao Sheny
Done at _	3 6565 A TESTAS	on	TY A T'E	Aravind BHASKARA
	EOCATION		MAIR	Aravinu Driaskara
Done at _	LOCATION	on	Th A PPY	Wenbiao WANG
	ENTRE CERTIFIES		MANEE.	TACHDIAG AN WASTA
Done at _	LOCATION .	on	TYATE	Stephen MOLLOY
	XAZASAX EXAM		INCOME.	prefuen morror

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	LOCATION		DATE	Sejoong LEE	
Done at _		, on			_
	LOCATION		DATE	Tauseef KAZI	
Done at		, on			
-	LOCATION		DATE	Simon BOOTH	
Done at _		, on			
	LOCATION		DATE	Edoardo REGINI	

Done at		on,		
	LOCATION		DATE	Renatas JAKUSHOKAS
Done at		, on	DATE	
	LOCATION		DATE	Saurabh PATODIA
Done at_	***************************************	, on	DATE	
	LOCATION		DATE	Jeffrey GEMAR
Done at_		, on	DATE	
	LOCATION		DATE	Haw-Jing LO
Done at_	FOCATION:	, on	DATE	Vinod CHAMARTY
	LOUATRON		DATE	Vinou CHAMAKI Y
Done at _	LOCATION	on	DATE	Boris ANDREEV
	WOODNOT BELLEVIE		5.800 5.ES	DOTS ANADASS.
Done at_	LOCATION	, on	DATE	Tao SHEN
Done at _	SAM DIEGO LOCATION	, on	7/13/2016 DATE	Aravind BHASKARA
Done at		on.		
ersigne Gr	LOCATION	, O18	DATE	Wenbiao WANG
Done at		, on	DATE	
	LOCATION		DATE	Stephen MOLLOV

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Done at _		, on		
	LOCATION		DATE	Sejoong LEE
Done at		, on		
	LOCATION		DATE	Tauseef KAZI
Done at		. On		
	LOCATION	,	DATE	Simon BOOTH
-				
Done at $\_$		, on		
	LOCATION		DATE	Edoardo REGINI

Done at		, on		·
	LOCATION		DATE	Renatas JAKUSHOKAS
Done at _		, on		
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Done at _		_, on		<u> </u>
	LOCATION		DATE	Jeffrey GEMAR
Done at _		_, on _		
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Done at _		, on		
	LOCATION		DATE	Boris ANDREEV
Done at		, on	DATE	Tao SHEN
	LOCATION		DATE	Tao SHEN
Done at _	T. Part S. entres F	_, on	Sea of Colons	A DANK A MARKA
	LOCATION	. 🛦	DATE / / /	Aravind BHASKARA
Done at 🤽	an Pirgo	CA on C	8/25/2016 DATE	Wendiao WANG
	COCATRON		DATE	Wendiao WANG
Done at	Y A CONTRACTOR OF	on	DATE	No. 1 1501 Y OV
	LUCATION		DAID	Stephen MOLLOY

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Done at _	LOCATION	, on	Aravind BHASKARA
	LOCATION	DATE	Araving DIASKAKA
Done at _	LOCATION	, on	Wenbiao WANG
			0
Done at _	200 D-620	on 8/25/16	Stephen MOLLOY
	LOCATION	DATE	Stephen MOLLOY

PATENT REEL: 046376 FRAME: 0512

**RECORDED: 06/15/2018**