

<b>PATENT ASSIGNMENT COVER SHEET</b>
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Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT5008885

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	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**

<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

**PROPERTY NUMBERS Total: 1**

Property Type	Number
<b>Application Number:</b>	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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ASSIGNMENT

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

15. **Stephen MOLLOY**, a citizen of the United States, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of Carlsbad, CA;

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 San Diego, on 7/13/2016  
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 \_\_\_\_\_  
LOCATION DATE **Saurabh PATODIA**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Jeffrey GEMAR**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Haw-Jing LO**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Vinod CHAMARTY**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Boris ANDREEV**

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

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Aravind BHASKARA**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Wenbiao WANG**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Stephen MOLLOY**

ASSIGNMENT

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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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;
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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;
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



15. **Stephen MOLLOY**, a citizen of the United States, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of Carlsbad, CA;

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;

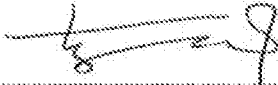
AND WE HEREBY covenant and agree that WE will communicate promptly to said ASSIGNEE, its successors, its legal representatives, and its assigns, any facts known to us respecting said INVENTIONS, and will testify in any legal proceeding, sign all lawful papers, execute all applications and certificates, 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 \_\_\_\_\_  
LOCATION DATE

\_\_\_\_\_  
Olivier ALAVOINE

Done at San Diego CA, on 7/13/2016  
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 \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Saurabh PATODIA**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Jeffrey GEMAR**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Haw-Jing LO**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Vinod CHAMARTY**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Boris ANDREEV**

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

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Aravind BHASKARA**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Wenbiao WANG**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Stephen MOLLOY**

ASSIGNMENT

WHEREAS, WE,

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15. **Stephen MOLLOY**, a citizen of the United States, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of Carlsbad, CA;

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 \_\_\_\_\_  
LOCATION DATE Olivier ALAVOINE

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Sejoong LEE

Done at Qualcomm, San Diego  
AVS 35 N, on 7/18/16  
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 \_\_\_\_\_  
LOCATION DATE **Saurabh PATODIA**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Jeffrey GEMAR**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Haw-Jing LO**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Vinod CHAMARTY**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Boris ANDREEV**

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

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Aravind BHASKARA**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Wenbiao WANG**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Stephen MOLLOY**

ASSIGNMENT

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



15. **Stephen MOLLOY**, a citizen of the United States, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of Carlsbad, CA;

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 \_\_\_\_\_  
LOCATION DATE **Olivier ALAVOINE**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Sejoong LEE**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Tauseef KAZI**

Done at San Diego, on August 25/2016  
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 \_\_\_\_\_  
LOCATION DATE **Saurabh PATODIA**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Jeffrey GEMAR**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Haw-Jing LO**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Vinod CHAMARTY**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Boris ANDREEV**

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

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Aravind BHASKARA**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Wenbiao WANG**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Stephen MOLLOY**

ASSIGNMENT

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

15. **Stephen MOLLOY**, a citizen of the United States, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of Carlsbad, CA;

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 \_\_\_\_\_  
LOCATION DATE Olivier ALAVOINE

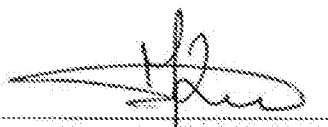
Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Sejoong LEE

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Tauseef KAZI

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Simon BOOTH

Done at San Diego, on 7/15/2016  
LOCATION DATE Edouardo REGINI

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   
LOCATION DATE Renatas JAKUSHOKAS

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Saurabh PATODIA

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Jeffrey GEMAR

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Haw-Jing LO

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Vinod CHAMARTY

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Boris ANDREEV

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

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Aravind BHASKARA

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Wenbiao WANG

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Stephen MOLLOY

ASSIGNMENT

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;
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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;
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;
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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



15. **Stephen MOLLOY**, a citizen of the United States, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of Carlsbad, CA;

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 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 SAN JOSE, on 07/16/2016  
LOCATION DATE  
*Saurabh Patodia*  
**Saurabh PATODIA**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE  
**Jeffrey GEMAR**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE  
**Haw-Jing LO**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE  
**Vinod CHAMARTY**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE  
**Boris ANDREEV**

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

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE  
**Aravind BHASKARA**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE  
**Wenbiao WANG**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE  
**Stephen MOLLOY**

ASSIGNMENT

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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15. **Stephen MOLLOY**, a citizen of the United States, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of Carlsbad, CA;

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 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 \_\_\_\_\_  
LOCATION DATE  
**Saurabh PATODIA**

Done at San Diego, on 7/16/16  
LOCATION DATE  
  
**Jeffrey GEMAR**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE  
**Haw-Jing LO**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE  
**Vinod CHAMARTY**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE  
**Boris ANDREEV**

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

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE  
**Aravind BHASKARA**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE  
**Wenbiao WANG**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE  
**Stephen MOLLOY**

ASSIGNMENT

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



15. **Stephen MOLLOY**, a citizen of the United States, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of Carlsbad, CA;

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.

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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 \_\_\_\_\_, 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 \_\_\_\_\_  
LOCATION DATE  
**Saurabh PATODIA**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE  
**Jeffrey GEMAR**

Done at SAN DIEGO, on JULY 15, 2016  
LOCATION DATE  
  
**Haw-Jing LO**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE  
**Vinod CHAMARTY**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE  
**Boris ANDREEV**

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

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE  
**Aravind BHASKARA**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE  
**Wenbiao WANG**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE  
**Stephen MOLLOY**

ASSIGNMENT

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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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

15. **Stephen MOLLOY**, a citizen of the United States, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of Carlsbad, CA;

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 \_\_\_\_\_, 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

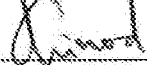
AND WE HEREBY covenant that WE will not execute any writing or do any act whatsoever conflicting with these presents.

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Renatas JAKUSHOKAS**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Saurabh PATODIA**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Jeffrey GEMAR**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Haw-Jing LO**

Done at SAN DIEGO, on 7/19/16  
LOCATION DATE   
**Vinod CHAMARTY**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Boris ANDREEV**

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

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Aravind BHASKARA**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Wenbiao WANG**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Stephen MOLLOY**

ASSIGNMENT

WHEREAS, WE,

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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 **Renatas JAKUSHOKAS**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Saurabh PATODIA**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Jeffrey GEMAR**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Haw-Jing LO**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Vinod CHAMARTY**

Done at San Diego, on 8/15/2016  
LOCATION DATE   
**Boris ANDREEV**

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

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Aravind BHASKARA**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Wenbiao WANG**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Stephen MOLLOY**

ASSIGNMENT

WHEREAS, WE,

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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;
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

15. **Stephen MOLLOY**, a citizen of the United States, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of Carlsbad, CA;

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 \_\_\_\_\_  
                    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**

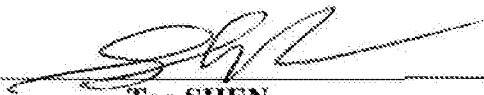
Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Saurabh PATODIA**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Jeffrey GEMAR**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Haw-Jing LO**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Vinod CHAMARTY**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Boris ANDREEV**

Done at San Diego, on 7/13/2016  
LOCATION DATE   
**Tao SHEN**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Aravind BHASKARA**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Wenbiao WANG**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Stephen MOLLOY**

ASSIGNMENT

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



15. **Stephen MOLLOY**, a citizen of the United States, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of Carlsbad, CA;

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 \_\_\_\_\_  
                          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 \_\_\_\_\_  
LOCATION DATE **Saurabh PATODIA**

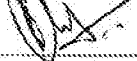
Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Jeffrey GEMAR**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Haw-Jing LO**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Vinod CHAMARTY**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Boris ANDREEV**

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

Done at SAN DIEGO, on 7/13/2016  
LOCATION DATE   
**Aravind BHASKARA**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Wenbiao WANG**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Stephen MOLLOY**

ASSIGNMENT

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

15. **Stephen MOLLOY**, a citizen of the United States, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714; and a resident of Carlsbad, CA;

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 \_\_\_\_\_  
                    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 \_\_\_\_\_  
LOCATION DATE **Saurabh PATODIA**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Jeffrey GEMAR**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Haw-Jing LO**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Vinod CHAMARTY**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Boris ANDREEV**

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

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Aravind BHASKARA**

Done at San Diego, CA, on 08/25/2016  
LOCATION DATE **Wenbiao WANG**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Stephen MOLLOY**

ASSIGNMENT

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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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 \_\_\_\_\_, 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 \_\_\_\_\_  
LOCATION DATE **Saurabh PATODIA**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Jeffrey GEMAR**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Haw-Jing LO**

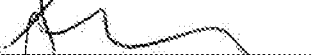
Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Vinod CHAMARTY**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Boris ANDREEV**

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

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Aravind BHASKARA**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Wenbiao WANG**

Done at San Diego, on 8/25/16  
LOCATION DATE   
**Stephen MOLLOY**