

PATENT ASSIGNMENT

Electronic Version v1.1
 Stylesheet Version v1.1

SUBMISSION TYPE:	NEW ASSIGNMENT										
NATURE OF CONVEYANCE:	ASSIGNMENT										
CONVEYING PARTY DATA											
<table border="1"> <thead> <tr> <th>Name</th> <th>Execution Date</th> </tr> </thead> <tbody> <tr> <td>Dexter T. Chun</td> <td>01/07/2013</td> </tr> <tr> <td>Serag Gadelrab</td> <td>02/05/2013</td> </tr> <tr> <td>Stephen Molloy</td> <td>02/05/2013</td> </tr> <tr> <td>Thomas Zeng</td> <td>01/29/2013</td> </tr> </tbody> </table>		Name	Execution Date	Dexter T. Chun	01/07/2013	Serag Gadelrab	02/05/2013	Stephen Molloy	02/05/2013	Thomas Zeng	01/29/2013
Name	Execution Date										
Dexter T. Chun	01/07/2013										
Serag Gadelrab	02/05/2013										
Stephen Molloy	02/05/2013										
Thomas Zeng	01/29/2013										
RECEIVING PARTY DATA											
<table border="1"> <tr> <td>Name:</td> <td>QUALCOMM Incorporated</td> </tr> <tr> <td>Street Address:</td> <td>5775 Morehouse Drive</td> </tr> <tr> <td>City:</td> <td>San Diego</td> </tr> <tr> <td>State/Country:</td> <td>CALIFORNIA</td> </tr> <tr> <td>Postal Code:</td> <td>92121-1714</td> </tr> </table>		Name:	QUALCOMM Incorporated	Street Address:	5775 Morehouse Drive	City:	San Diego	State/Country:	CALIFORNIA	Postal Code:	92121-1714
Name:	QUALCOMM Incorporated										
Street Address:	5775 Morehouse Drive										
City:	San Diego										
State/Country:	CALIFORNIA										
Postal Code:	92121-1714										
PROPERTY NUMBERS Total: 1											
<table border="1"> <thead> <tr> <th>Property Type</th> <th>Number</th> </tr> </thead> <tbody> <tr> <td>Application Number:</td> <td>13726537</td> </tr> </tbody> </table>		Property Type	Number	Application Number:	13726537						
Property Type	Number										
Application Number:	13726537										
CORRESPONDENCE DATA											
Fax Number: 8586582502 <i>Correspondence will be sent via US Mail when the fax attempt is unsuccessful.</i> Phone: (858) 651-5205 Email: usdocketing@qualcomm.com Correspondent Name: QUALCOMM Incorporated Address Line 1: 5775 Morehouse Drive Address Line 4: San Diego, CALIFORNIA 92121-1714											
ATTORNEY DOCKET NUMBER:	123065U1										
NAME OF SUBMITTER:	Julianna Hofmann										
Total Attachments: 12 source=123065U1_ASST_Part1#page1.tif											

CH \$40.00 13726537

source=123065U1_ASST_Part1#page2.tif
source=123065U1_ASST_Part1#page3.tif
source=123065U1_ASST_Part1#page4.tif
source=123065U1_ASST_Part1#page5.tif
source=123065U1_ASST_Part1#page6.tif
source=123065U1_ASST_Part2#page1.tif
source=123065U1_ASST_Part2#page2.tif
source=123065U1_ASST_Part2#page3.tif
source=123065U1_ASST_Part2#page4.tif
source=123065U1_ASST_Part2#page5.tif
source=123065U1_ASST_Part2#page6.tif

ASSIGNMENT

WHEREAS, WE,

1. Dexter T. Chun, a citizen of United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121, and a resident of San Diego, California, US,
2. Serag Gadelrab, a citizen of Canada, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121, and a resident of Ontario, Canada, US,
3. Stephen Molloy, a citizen of United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121, and a resident of San Diego, California, US,
4. Thomas Zeng, a citizen of United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121, and a resident of San Diego, California, US,

have conceived of one or more processes, methods, machines, articles of manufacture, designs, compositions of matter, inventions, discoveries or new or useful improvements relating to **SYSTEM AND METHOD FOR MANAGING PERFORMANCE OF A COMPUTING DEVICE HAVING DISSIMILAR MEMORY TYPES** (collectively the "INVENTIONS") for which WE have executed and/or may execute one or more patent applications therefor; and

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

NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, WE do hereby acknowledge that WE have sold, assigned, conveyed, and transferred, and by these presents do hereby sell, assign, convey, and transfer, unto ASSIGNEE, its successors, its legal representatives, and its assigns, the entire right, title, and interest throughout the world in and to said INVENTIONS, including all patent applications therefor that may have been filed or may be filed hereafter for said INVENTIONS in the United States, including but not limited to U.S. Application No(s). 13/726,537, filed December 24, 2012, Qualcomm Reference No. 123065U1, and all provisional applications relating thereto, together with U.S. Provisional Application No(s). 61/735,352, filed December 12, 2012, Qualcomm Reference No. 123065P1, (and do hereby authorize ASSIGNEE and its representative to hereafter add herein such application number(s) and/or filing date(s) when known), and all divisional applications, renewal applications, continuation applications, continuation-in-part

applications, and design applications thereof, and all issued patents of the United States which may have granted or may be granted hereafter thereon and all reissues, renewals, reexaminations, and extensions to any of the foregoing and all patents issuing thereon in the United States;

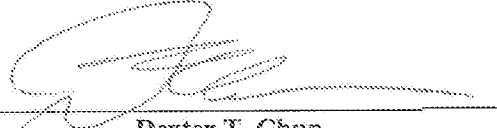
AND WE further do acknowledge and agree that WE have sold, assigned, conveyed, and transferred, and by these presents do hereby sell, assign, convey, and transfer, unto ASSIGNEE, its successors, its legal representatives, and its assigns, all rights of priority under International Conventions, Treaties,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

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

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

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

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

Done at San Diego, on 1/7/2013 
LOCATION DATE Dexter T. Chun

Done at _____, on _____
LOCATION DATE Serag Gadelrab

Done at _____, on _____
LOCATION DATE Stephen Molloy

Done at _____, on _____
LOCATION DATE Thomas Zeng

ASSIGNMENT

WHEREAS, WE,

1. Dexter T. Chun, a citizen of United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121, and a resident of San Diego, California, US,
2. Serag Gadelrab, a citizen of Canada, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121, and a resident of Ontario, Canada, US,
3. Stephen Molloy, a citizen of United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121, and a resident of San Diego, California, US,
4. Thomas Zeng, a citizen of United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121, and a resident of San Diego, California, US,

have conceived of one or more processes, methods, machines, articles of manufacture, designs, compositions of matter, inventions, discoveries or new or useful improvements relating to **SYSTEM AND METHOD FOR MANAGING PERFORMANCE OF A COMPUTING DEVICE HAVING DISSIMILAR MEMORY TYPES** (collectively the "INVENTIONS") for which WE have executed and/or may execute one or more patent applications therefor; and

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

NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, WE do hereby acknowledge that WE have sold, assigned, conveyed, and transferred, and by these presents do hereby sell, assign, convey, and transfer, unto ASSIGNEE, its successors, its legal representatives, and its assigns, the entire right, title, and interest throughout the world in and to said INVENTIONS, including all patent applications therefor that may have been filed or may be filed hereafter for said INVENTIONS in the United States, including but not limited to U.S. Application No(s). 13/726,537, filed December 24, 2012, Qualcomm Reference No. 123065U1, and all provisional applications relating thereto, together with U.S. Provisional Application No(s). 61/735,352, filed December 12, 2012, Qualcomm Reference No. 123065P1, (and do hereby authorize ASSIGNEE and its representative to hereafter add herein such application number(s) and/or filing date(s) when known), and all divisional applications, renewal applications, continuation applications, continuation-in-part

applications, and design applications thereof, and all issued patents of the United States which may have granted or may be granted hereafter thereon and all reissues, renewals, reexaminations, and extensions to any of the foregoing and all patents issuing thereon in the United States;

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

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

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

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

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

Done at _____, on _____
LOCATION DATE Dexter T. Chun

Done at Markham, CA, on Feb 5th, 2015
LOCATION DATE Serag Gadelrab
Serag Gadelrab

Done at _____, on _____
LOCATION DATE Stephen Molloy

Done at _____, on _____
LOCATION DATE Thomas Zeng

ASSIGNMENT

WHEREAS, WE,

1. Dexter T. Chun, a citizen of United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121, and a resident of San Diego, California, US,
2. Serag Gadelrab, a citizen of Canada, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121, and a resident of Ontario, Canada, US,
3. Stephen Molloy, a citizen of United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121, and a resident of San Diego, California, US,
4. Thomas Zeng, a citizen of United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121, and a resident of San Diego, California, US,

have conceived of one or more processes, methods, machines, articles of manufacture, designs, compositions of matter, inventions, discoveries or new or useful improvements relating to **SYSTEM AND METHOD FOR MANAGING PERFORMANCE OF A COMPUTING DEVICE HAVING DISSIMILAR MEMORY TYPES** (collectively the "INVENTIONS") for which WE have executed and/or may execute one or more patent applications therefor; and

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

NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, WE do hereby acknowledge that WE have sold, assigned, conveyed, and transferred, and by these presents do hereby sell, assign, convey, and transfer, unto ASSIGNEE, its successors, its legal representatives, and its assigns, the entire right, title, and interest throughout the world in and to said INVENTIONS, including all patent applications therefor that may have been filed or may be filed hereafter for said INVENTIONS in the United States, including but not limited to U.S. Application No(s). 13/726,537, filed December 24, 2012, Qualcomm Reference No. 123065U1, and all provisional applications relating thereto, together with U.S. Provisional Application No(s). 61/735,352, filed December 12, 2012, Qualcomm Reference No. 123065P1, (and do hereby authorize ASSIGNEE and its representative to hereafter add herein such application number(s) and/or filing date(s) when known), and all divisional applications, renewal applications, continuation applications, continuation-in-part

applications, and design applications thereof, and all issued patents of the United States which may have granted or may be granted hereafter thereon and all reissues, renewals, reexaminations, and extensions to any of the foregoing and all patents issuing thereon in the United States;

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

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

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

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

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

Done at _____, on _____
LOCATION DATE Dexter T. Chun

Done at _____, on _____
LOCATION DATE Serag Gadelrab

Done at San Diego, CA, on 2/5/13
LOCATION DATE 
Stephen Molloy

Done at _____, on _____
LOCATION DATE Thomas Zeng

ASSIGNMENT

WHEREAS, WE,

1. Dexter T. Chun, a citizen of United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121, and a resident of San Diego, California, US,
2. Serag Gadelrab, a citizen of Canada, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121, and a resident of Ontario, Canada, US,
3. Stephen Molloy, a citizen of United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121, and a resident of San Diego, California, US,
4. Thomas Zeng, a citizen of United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121, and a resident of San Diego, California, US,

have conceived of one or more processes, methods, machines, articles of manufacture, designs, compositions of matter, inventions, discoveries or new or useful improvements relating to **SYSTEM AND METHOD FOR MANAGING PERFORMANCE OF A COMPUTING DEVICE HAVING DISSIMILAR MEMORY TYPES** (collectively the "INVENTIONS") for which WE have executed and/or may execute one or more patent applications therefor; and

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

NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, WE do hereby acknowledge that WE have sold, assigned, conveyed, and transferred, and by these presents do hereby sell, assign, convey, and transfer, unto ASSIGNEE, its successors, its legal representatives, and its assigns, the entire right, title, and interest throughout the world in and to said INVENTIONS, including all patent applications therefor that may have been filed or may be filed hereafter for said INVENTIONS in the United States, including but not limited to U.S. Application No(s). 13/726,537, filed December 24, 2012, Qualcomm Reference No. 123065UI, and all provisional applications relating thereto, together with U.S. Provisional Application No(s). 61/735,352, filed December 12, 2012, Qualcomm Reference No. 123065P1, (and do hereby authorize ASSIGNEE and its representative to hereafter add herein such application number(s) and/or filing date(s) when known), and all divisional applications, renewal applications, continuation applications, continuation-in-part

applications, and design applications thereof, and all issued patents of the United States which may have granted or may be granted hereafter thereon and all reissues, renewals, reexaminations, and extensions to any of the foregoing and all patents issuing thereon in the United States;

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

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

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

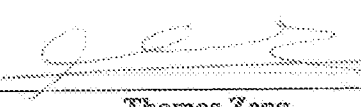
AND WE HEREBY covenant and agree that WE will communicate promptly to said ASSIGNEE, its successors, its legal representatives, and its assigns, any facts known to us respecting said INVENTIONS, and will testify in any legal proceeding, sign all lawful papers, execute all applications and certificates,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

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

Done at _____, on _____
LOCATION DATE Dexter T. Chun

Done at _____, on _____
LOCATION DATE Serag Gadelrab

Done at _____, on _____
LOCATION DATE Stephen Molloy

Done at Boulder Co, on 1/29/2013
LOCATION DATE  Thomas Zeng