

PATENT ASSIGNMENT COVER SHEET

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 Stylesheet Version v1.2

EPAS ID: PAT3727486

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| SUBMISSION TYPE: | NEW ASSIGNMENT | |
| NATURE OF CONVEYANCE: | ASSIGNMENT | |
| CONVEYING PARTY DATA | | |
| Name | | Execution Date |
| DAVID R. CHERITON | | 01/25/2016 |
| RECEIVING PARTY DATA | | |
| Name: | INTEL CORPORATION | |
| Street Address: | 2200 MISSION COLLEGE BOULEVARD | |
| City: | SANTA CLARA | |
| State/Country: | CALIFORNIA | |
| Postal Code: | 95054 | |
| PROPERTY NUMBERS Total: 40 | | |
| Property Type | Number | |
| Patent Number: | 8407428 | |
| Patent Number: | 8504791 | |
| Application Number: | 12842958 | |
| Application Number: | 61273179 | |
| Patent Number: | 7650460 | |
| Application Number: | 60897773 | |
| Patent Number: | 8065476 | |
| Patent Number: | 8230168 | |
| Patent Number: | 8612673 | |
| Patent Number: | 8938580 | |
| Application Number: | 14569007 | |
| Patent Number: | 9047334 | |
| Application Number: | 61273178 | |
| Application Number: | 14697938 | |
| Patent Number: | 8838656 | |
| Application Number: | 61273177 | |
| Application Number: | 14457046 | |
| Application Number: | 14997104 | |
| Application Number: | 12890471 | |
| Application Number: | 61279380 | |

PATENT

| Property Type | Number |
|---------------------|----------|
| Patent Number: | 8370458 |
| Application Number: | 61008657 |
| Application Number: | 61281417 |
| Application Number: | 13541396 |
| Application Number: | 61504669 |
| Patent Number: | 9208082 |
| Application Number: | 61615103 |
| Application Number: | 14880248 |
| Application Number: | 13829527 |
| Application Number: | 61615102 |
| Patent Number: | 8316276 |
| Application Number: | 14058919 |
| Application Number: | 61738887 |
| Application Number: | 14178038 |
| Application Number: | 61775041 |
| Application Number: | 14479676 |
| Application Number: | 61876115 |
| Application Number: | 14596113 |
| Application Number: | 61927914 |
| Application Number: | 14178130 |

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| | |
|--------------------------------|-----------------|
| ATTORNEY DOCKET NUMBER: | HICAMP |
| NAME OF SUBMITTER: | ANGELA MILLER |
| SIGNATURE: | /Angela Miller/ |
| DATE SIGNED: | 02/04/2016 |

Total Attachments: 7

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Patent Assignment

David R. Cheriton, an individual with an address of 131 Cowper St., Palo Alto, CA 94301, ("Assignor") is the sole owner of the patents and patent applications listed in Schedule A hereto (collectively the "Patents"); and

Intel Corporation, a Delaware Corporation, with an office at 2200 Mission College Boulevard, Santa Clara, California, 95054, ("Buyer") desires to acquire all right, title and interest in the Patents and the related rights described below.

For good and valuable consideration, the receipt of which is hereby acknowledged, Assignor does hereby sell, assign, transfer and convey to Buyer and its successors and assigns all right, title and interest that may exist today and in the future to any and all:

- (1) Patents;
- (2) patents and patent applications to which any of the patents or patent applications listed in Schedule A directly or indirectly claims, or forms the basis for, priority anywhere in the world;
- (3) reissues, reexaminations, extensions, continuations, continuations-in-part, continuing prosecution applications and divisions of any of the items listed in (1) or (2) of this Assignment;
- (4) foreign counterparts to any of the items listed in (1), (2) or (3) of this Assignment, including utility models, inventors' certificates, industrial design protection and any other form of governmental grants or issuances for the protection of inventions, designs or discoveries;
- (5) inventions, invention disclosures, designs and discoveries described in the items listed in (1) through (4) of this Assignment;
- (6) patents that issue from any of the items listed in (1) through (5) of this Assignment;
- (7) claims, causes of action and enforcement rights of any kind, whether currently pending, filed or otherwise, and whether known or unknown, under or arising from any of the items listed in (1) through (6) of this Assignment, including all rights to pursue and collect damages, costs, injunctive relief and other remedies for past, current or future infringement of the Patents and including rights afforded under 35 U.S.C. § 154(d);
- (8) royalties, income and other payments due as of the date hereof or hereafter under or arising from any of the items listed in (1) through (7) of this Assignment; and
- (9) rights to apply for, file, register, maintain, extend and renew in any or all countries of the world patents, certificates of invention, utility models, industrial design protection, design patent protection and other governmental grants or issuances of

any kind related to any of the items listed in (1) through (9) of this Assignment.

Assignor shall execute and deliver any instruments, and do and perform any other acts and things as may be reasonably necessary or desirable for effecting and evidencing the assignments contemplated hereby, including the execution, acknowledgment and recordation of any instruments.

Assignor hereby authorizes and requests the Commissioner of Patents and Trademarks and any other patent office to issue any and all patents, utility models or other governmental grants or issuances pertaining to any of the items assigned hereunder in the name of Buyer.

This Assignment will inure to the benefit of Buyer and its successors, assigns and other legal representatives and is binding upon Assignor and its successors, assigns, heirs and legal representatives.

Assignor, by its duly authorized representative, has executed this Assignment on the date set forth below.

DATE: January 25, 2016

By: David R. Cheriton

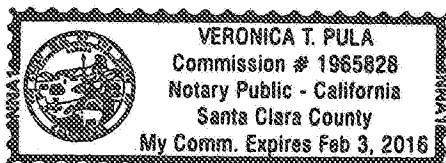
David R. Cheriton
Signature

STATE OF CALIFORNIA
COUNTY OF SAN MATEO

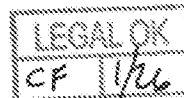
On January 25, 2016, before me, Veronica Pula, Notary Public, personally appeared David R. Cheriton who proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.
(Seal)



Veronica Pula
Signature
Veronica Pula
Print Name

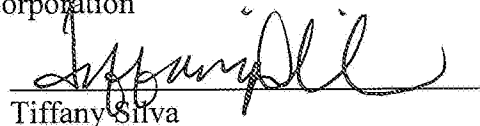


ACCEPTED:

DATE: 2/1, 2016

Intel Corporation

By:


Tiffany Silva

Title: Assistant Secretary

Schedule A

| Case Number | Application No. | Filing Date | Patent Number | Issue Date | Title |
|-------------|-----------------|-------------|---------------|------------|---|
| CHERP001 | 12/784,268 | 5/20/2010 | 8,407,428 | 3/26/2013 | Title: STRUCTURED MEMORY COPROCESSOR |
| CHERP001C1 | 13/629,183 | 9/27/2012 | 8,504,791 | 8/6/2013 | Title: HIERARCHICAL IMMUTABLE CONTENT-ADDRESSABLE MEMORY COPROCESSOR |
| CHERP002 | 12/842,958 | 7/23/2010 | | | Title: ITERATOR REGISTER FOR STRUCTURED MEMORY |
| CHERP002+ | 61/273,179 | 7/31/2009 | | | Title: ITERATOR REGISTER FOR EFFICIENT STRUCTURED MEMORY ACCESS |
| CHERP003 | 12/011,311 | 1/25/2008 | 7,650,460 | 1/19/2010 | Title: HIERARCHICAL IMMUTABLE CONTENT-ADDRESSABLE MEMORY PROCESSOR |
| CHERP003+ | 60/897,773 | 1/26/2007 | | | Title: HIERARCHICAL IMMUTABLE CONTENT-ADDRESSABLE MEMORY PROCESSOR |
| CHERP003C1 | 12/653,889 | 12/17/2009 | 8,065,476 | 11/22/2011 | Title: HIERARCHICAL IMMUTABLE CONTENT-ADDRESSABLE MEMORY PROCESSOR |
| CHERP003C2 | 13/271,137 | 10/11/2011 | 8,230,168 | 7/24/2012 | Title: HIERARCHICAL IMMUTABLE CONTENT-ADDRESSABLE MEMORY PROCESSOR |
| CHERP003C3 | 13/533,125 | 6/26/2012 | 8,612,673 | 12/17/2013 | Title: HIERARCHICAL IMMUTABLE CONTENT-ADDRESSABLE MEMORY PROCESSOR |
| CHERP003C4 | 14/062,301 | 10/24/2013 | 8,938,580 | 1/20/2015 | Title: HIERARCHICAL IMMUTABLE CONTENT-ADDRESSABLE MEMORY PROCESSOR |
| CHERP003C5 | 14/569,007 | 12/12/2014 | | | Title: HIERARCHICAL IMMUTABLE CONTENT-ADDRESSABLE MEMORY PROCESSOR |
| CHERP004 | 12/804,901 | 7/29/2010 | 9,047,334 | 6/2/2015 | Title: MERGE-UPDATE FOR EFFICIENT ATOMIC MEMORY MODIFICATION IN CONCURRENT COMPUTER SYSTEMS |
| CHERP004+ | 61/273,178 | 7/31/2009 | | | Title: MERGE-UPDATE FOR EFFICIENT ATOMIC MEMORY MODIFICATION IN CONCURRENT COMPUTER SYSTEMS |

Schedule A

| Case Number | Application No. | Filing Date | Patent Number | Issue Date | Title |
|-------------|-----------------|-------------|---------------|------------|--|
| CHERP004C1 | 14/697,938 | 4/28/2015 | | | Title: MERGE-UPDATE FOR EFFICIENT ATOMIC MEMORY MODIFICATION IN CONCURRENT COMPUTER SYSTEMS |
| CHERP005 | 12/804,900 | 7/29/2010 | 8,838,656 | 9/16/2014 | Title: HARDWARE-PROTECTED REFERENCE COUNT-BASED MEMORY MANAGEMENT USING WEAK REFERENCES |
| CHERP005+ | 61/273,177 | 7/31/2009 | | | Title: WEAK REFERENCE MANAGEMENT FOR HARDWARE-PROTECTED CYCLE-FREE REFERENCE COUNT-BASED MEMORY RECLAMATION |
| CHERP005C1 | 14/457,046 | 8/11/2014 | | | Title: HARDWARE-PROTECTED REFERENCE COUNT-BASED MEMORY MANAGEMENT USING WEAK REFERENCES |
| CHERP005C2 | 14/997,104 | 1/15/2016 | | | Title: HARDWARE-PROTECTED REFERENCE COUNT-BASED MEMORY MANAGEMENT USING WEAK REFERENCES |
| CHERP006 | 12/890,471 | 9/24/2010 | | | Title: COMPACT INSTRUCTION EXECUTION USING REGISTER TAG STATE |
| CHERP006+ | 61/279,380 | 10/19/2009 | | | Title: METHOD OF COMPACT INSTRUCTION REPRESENTATION USING DYNAMIC TAG STATE |
| CHERP007 | 12/317,375 | 12/19/2008 | 8,370,458 | 2/5/2013 | Title: HIERARCHICAL BLOCK-IDENTIFIED DATA COMMUNICATION FOR UNIFIED HANDLING OF STRUCTURED DATA AND DATA COMPRESSION |
| CHERP007+ | 61/008,657 | 12/21/2007 | | | Title: HIERARCHICAL BLOCK-IDENTIFIED DATA COMMUNICATION FOR UNIFIED HANDLING OF STRUCTURED DATA AND DATA COMPRESSION |
| CHERP008+ | 61/281,417 | 11/16/2009 | | | Title: HICAMP: A MEMORY ARCHITECTURE FOR FAULT-TOLERANT CONCURRENCY-SAFE SHARED STRUCTURED DATA ACCESS |
| CHERP009 | 13/541,396 | 7/3/2012 | | | Title: MEMORY SHARING AND PAGE DEDUPLICATION USING INDIRECT LINES |

Schedule A

| Case Number | Application No. | Filing Date | Patent Number | Issue Date | Title |
|-------------|-----------------|-------------|---------------|------------|--|
| CHERP009+ | 61/504,669 | 7/5/2011 | | | Title: MEMORY COMPACTION BY INDIRECT SHARED DATA LINES AND SOFTWARE PAGE DEDUPLICATION |
| CHERP010 | 13/712,878 | 12/12/2012 | 9,208,082 | 12/8/2015 | Title: HARDWARE-SUPPORTED PER-PROCESS METADATA TAGS |
| CHERP010+ | 61/615,103 | 3/23/2012 | | | Title: HARDWARE-SUPPORTED PER-PROCESS METADATA TAGS |
| CHERP010C1 | 14/880,248 | 10/11/2015 | | | Title: HARDWARE-SUPPORTED PER-PROCESS METADATA TAGS |
| CHERP011 | 13/829,527 | 3/14/2013 | | | Title: SPECIAL MEMORY ACCESS PATH WITH SEGMENT-OFFSET ADDRESSING |
| CHERP011+ | 61/615,102 | 3/23/2012 | | | Title: SPECIAL MEMORY ACCESS PATH WITH SEGMENT-OFFSET ADDRESSING |
| CHERP012 | 12/137,919 | 6/12/2008 | 8,316,276 | 11/20/2012 | Title: UPPER LAYER PROTOCOL (ULP) OFFLOADING FOR INTERNET SMALL COMPUTER SYSTEM INTERFACE (ISCSI) WITHOUT TCP OFFLOAD ENGINE (TOE) |
| CHERP013 | 14/058,919 | 10/21/2013 | | | Title: FINE GRAINED ONLINE REMAPPING TO HANDLE MEMORY ERRORS |
| CHERP013+ | 61/738,887 | 12/18/2012 | | | Title: FINE-GRAINED ONLINE REMAPPING TO HANDLE MEMORY ERRORS |
| CHERP014 | 14/178,038 | 2/11/2014 | | | Title: HAREWARE-SUPPORTED MEMORY TEMPORAL COPY |
| CHERP014+ | 61/775,041 | 3/8/2013 | | | Title: HARDWARE-SUPPORTED MEMORY TEMPORAL COPY AND LOGGING |
| CHERP015 | 14/479,676 | 9/8/2014 | | | Title: HYBRID MAIN MEMORY USING A FINE-GRAIN LEVEL OF REMAPPING |
| CHERP015+ | 61/876,115 | 9/10/2013 | | | Title: HYBRID MAIN MEMORY USING A FINE-GRAIN LEVEL OF REMAPPING |
| CHERP016 | 14/596,113 | 1/13/2015 | | | Title: DEDUPLICATION-BASED DATA SECURITY |

Schedule A

| Case Number | Application No. | Filing Date | Patent Number | Issue Date | Title |
|-------------|-----------------|-------------|---------------|------------|---|
| CHERP016+ | 61/927,914 | 1/15/2014 | | | Title: DEDUPLICATION-BASED MEMORY ENCRYPTION |
| CHERP017 | 14/178,130 | 2/11/2014 | | | Title: HARDWARE SUPPORTED MEMORY LOGGING |