502671200 02/07/2014

PATENT ASSIGNMENT COVER SHEET

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EPAS ID: PAT2717807

| SUBMISSION TYPE: | NEW ASSIGNMENT |
|-----------------------|----------------|
| NATURE OF CONVEYANCE: | ASSIGNMENT |

CONVEYING PARTY DATA

| Name | Execution Date |
|------------------------|----------------|
| BRYAN W. CHIN | 11/06/2013 |
| SHUBHENDU S. MUKHERJEE | 02/04/2014 |
| WILSON P. SNYDER II | 11/08/2013 |
| MICHAEL BERTONE | 02/06/2014 |
| RICHARD E. KESSLER | 11/08/2013 |

RECEIVING PARTY DATA

| Name: | CAVIUM, INC. |
|-----------------|----------------------|
| Street Address: | 2315 N. FIRST STREET |
| City: | SAN JOSE |
| State/Country: | CALIFORNIA |
| Postal Code: | 95131 |

PROPERTY NUMBERS Total: 1

| Property Type | Number |
|---------------------|----------|
| Application Number: | 14038156 |

CORRESPONDENCE DATA

Fax Number: (978)341-0136 978-341-0036 Phone:

Email: cheryl.thomas@hbsr.com

Correspondence will be sent via US Mail when the email attempt is unsuccessful.

Correspondent Name: TIMOTHY J. MEAGHER

Address Line 1: HAMILTON, BROOK, SMITH & REYNOLDS, P.C.

530 VIRGINIA ROAD, P.O. BOX 9133 Address Line 2:

Address Line 4: CONCORD, MASSACHUSETTS 01742-9133

ATTORNEY DOCKET NUMBER: 3795.1112-000

CHERYL THOMAS NAME OF SUBMITTER:

REEL: 032170 FRAME: 0937 502671200

PATENT

| Signature: | /Cheryl Thomas/ |
|---|-----------------|
| Date: | 02/07/2014 |
| Total Attachments: 7 source=two#page1.tif source=two#page2.tif source=two#page3.tif source=two#page4.tif source=two#page5.tif source=two#page6.tif source=two#page7.tif | |

PATENT REEL: 032170 FRAME: 0938

Joint

ASSIGNMENT

WHEREAS, we, Bryan W. Chin, Shubhendu S. Mukherjee, Wilson P. Snyder II, Michael Bertone and Richard E. Kessler, have invented a certain improvement in Merged TLB Structure For Multiple Sequential Address Translations described in an application for Patent,

| | the specification of which is about to be filed in the United States Patent Office (use for utility (37 CFR § 1.53(b)) and design filings only); |
|-------------|---|
| | is about to be filed in the United States Patent Office as a Provisional Application; |
| \boxtimes | the specification of which is United States Application No. 14/038,156, filed September 26, 2013; |
| | the specification of which is a Patent Cooperation Treaty Application, International Application No. [], filed [], which designates the United States of America [and is assigned United States Application No. []]; |
| | which was patented under United States Patent No. []. |

WHEREAS, Cavium, Inc. (hereinafter "ASSIGNEE"), a corporation organized and existing under the laws of the State of Delaware, and having a usual place of business at 2315 N. First Street, San Jose, CA 95131 desires to confirm its interest therein in accordance with agreements duly entered into with us;

NOW, THEREFORE, to all whom it may concern be it known that for and in consideration of said agreements and of other good and valuable consideration, the receipt of which is hereby acknowledged, we have sold, assigned and transferred and by these presents do hereby sell, assign and transfer unto said ASSIGNEE, its successors, assigns and legal representatives, the entire right, title and interest in and throughout the United States of America, its territories and all foreign countries, in and to said invention as described in said application, together with the entire right, title and interest in and to said application and such Letters Patent as may issue on said invention; said invention, application and Letters Patent to be held and enjoyed by said ASSIGNEE for its own use and behalf and for its successors, assigns and legal representatives, to the full end of the term for which said Letters Patent may be granted as fully and entirely as the same would have been held by us had this assignment and sale not been made; we hereby convey all rights arising under or pursuant to any and all international agreements, treaties or laws relating to the protection of industrial property by filing any such applications for Letters Patent. We hereby acknowledge that this assignment, being of the entire right, title and interest in and to said invention, carries with it the right in ASSIGNEE to apply for any and all related provisional and nonprovisional, international and national phase applications, including any and all substitution, reissue, divisional, continuation, and continuation-in-part applications, and obtain from competent authorities in all countries of the world any and all Letters Patent by attorneys and agents of ASSIGNEE's selection and the right to procure the grant of all such Letters Patent to ASSIGNEE for its own name as assignee of the entire right, title and interest therein; we hereby expressly authorize the filing of an International Patent Application under the

1523949.1

Patent Cooperation Treaty which corresponds to and claims the priority of the above-identified application;

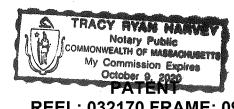
AND, we hereby further agree for ourselves and our executors and administrators to execute upon request any other lawful documents and likewise to perform any other lawful acts which may be deemed necessary to secure fully the aforesaid invention to said ASSIGNEE, its successors, assigns and legal representatives, but at its or their expense and charges, including the execution of applications for patents in foreign countries, and the execution of any future applications including substitution, reissue, divisional or continuation, continuation-in-part applications, and all related provisional and nonprovisional, international and national phase applications, and preliminary or other statements and the giving of testimony in any interference or other proceeding in which said invention or any application or patent directed thereto may be involved;

AND, we do hereby authorize and request each Patent Office and the Commissioner of Patents of the United States to issue such Letters Patent as shall be granted upon said invention to said ASSIGNEE, its successors, assigns, and legal representatives.

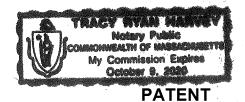
IN TESTIMONY WHEREOF, we have hereunto set our hands and affixed our seals the date set forth below.

| Inventor's Signature: | | 22- | | |
|---|---|----------------|----------------------|--|
| | Bryan | W. Chin | | |
| State/Commonwealth of California | Ž | | | |
| County of San ta Clara | | | | |
| On this 6th day of public, personally appeared Bry | | 20 /3, | before me, the under | signed notary |
| personally known to me | , or | | | |
| proved to me through sa | tisfactory evide | nce of identif | ication, which was | |
| CA Down Lie | lise | | | |
| to be the person whose name wacknowledged that he/she signe | - | ~ ~ | | • |
| | PANGBORN No | otary Public | Jeff ala | Service Control of the Control of th |
| Wife & BriNotary Pub | #2009391 lic · California ———————————————————————————————————— | Jeffrey A | , Fangborn | (print name) |
| | es Mar 2, 2017 M | v Commission | n expires 03 / 02 | 12017 |

| | I / I / I I I I I I I I I I I I I I I I |
|--|---|
| Inventor's Signature: \(\frac{\frac{1}{2}W\frac{1}{2}\frac{1}{2}}{2} \) | Land Jung |
| Shubh State/Commonwealth of \(\begin{align*} \begi | nendu S. Mukherjee |
| County of Middle Sey | |
| On this day of day of bublic, personally appeared Shubhendu S. | Mukherjee, |
| personally known to me, or | |
| proved to me through satisfactory | evidence of identification, which was |
| | on the foregoing instrument in my presence, and going instrument as his/her free act and deed. |
| (SEAL) | Notary Public Commonweary of the Hame |
| | My Commission expires October 9, 2020 |
| Inventor's Signature: WM P. | GA IT |
| Wis | Icon D. Snyder II |
| Wi State/Commonwealth | lson P. Snyder II |
| Wi State/Commonwealth of Mass | lson P. Snyder II |
| Wi State/Commonwealth | Ison P. Snyder II |
| Wi State/Commonwealth of Mass | <u>h.s.</u> 2013, before me, the undersigned notary |
| Wi State/Commonwealth of Mass County of Michesey On this Eth day of Dwen | <u>h.s.</u> 2013, before me, the undersigned notary |
| State/Commonwealth of Nass County of Nass On this Eth day of Novea public, personally appeared Wilson P. Sny personally known to me, or | <u>h.s.</u> 2013, before me, the undersigned notary |
| State/Commonwealth of Nass County of Nass On this Eth day of Novea public, personally appeared Wilson P. Sny personally known to me, or | ho 2013, before me, the undersigned notary yder II, |
| State/Commonwealth of Nass County of Maddesex On this day of | ho 2013, before me, the undersigned notary yder II, |
| State/Commonwealth of Nass County of Maddesex On this day of | 2013, before me, the undersigned notary yder II, evidence of identification, which was on the foregoing instrument in my presence, and |



| Inventor's Signature: Mull A- |
|---|
| Michael Bertone State/Commonwealth of |
| On this 84 day of 000 2013, before me, the undersigned notary public, personally appeared Michael Bertone, |
| personally known to me, or |
| proved to me through satisfactory evidence of identification, which was |
| to be the person whose name was signed on the foregoing instrument in my presence, and acknowledged that he/she signed the foregoing instrument as his/her free act and deed. |
| (SEAL) Notary Public Notary Public |
| My Commission Commonwealth of Massachusetts My Commission Commission Expires October 9, 2020 |
| Inventor's Signature: |
| Richard E. Kessler State/Commonwealth of Mass County of Maddesex |
| On this 8th day of November 2013, before me, the undersigned notary public, personally appeared Richard E. Kessler, |
| personally known to me, or |
| proved to me through satisfactory evidence of identification, which was |
| to be the person whose name was signed on the foregoing instrument in my presence, and acknowledged that he/she signed the foregoing instrument as his/her free act and deed. |
| (SEAL) Notary Public Nacy Pyco Havey Tracy Pyco Havely (print name) |
| My Commission expires 10 /9 /20 |



Joint

ASSIGNMENT

| Michael Bertone and Richard E. Kessler, have invented a certain improvement in Merged TLB Structure For Multiple Sequential Address Translations described in an application for Patent, | | |
|--|--|--|
| | the specification of which is about to be filed in the United States Patent Office (use for utility (37 CFR § 1.53(b)) and design filings only); | |
| | is about to be filed in the United States Patent Office as a Provisional Application | |
| \square | the specification of which is United States Application No. 14/038.156, filed | |

the specification of which is a Patent Cooperation Treaty Application,
International Application No. [], filed , which designates the United
States of America [and is assigned United States Application No.];

which was patented under United States Patent No. [].

September 26, 2013;

WHEREAS, Cavium, Inc. (hereinafter "ASSIGNEE"), a corporation organized and existing under the laws of the State of Delaware, and having a usual place of business at 2315 N. First Street, San Jose, CA 95131 desires to confirm its interest therein in accordance with agreements duly entered into with us;

NOW, THEREFORE, to all whom it may concern be it known that for and in consideration of said agreements and of other good and valuable consideration, the receipt of which is hereby acknowledged, we have sold, assigned and transferred and by these presents do hereby sell, assign and transfer unto said ASSIGNEE, its successors, assigns and legal representatives, the entire right, title and interest in and throughout the United States of America, its territories and all foreign countries, in and to said invention as described in said application, together with the entire right, title and interest in and to said application and such Letters Patent as may issue on said invention; said invention, application and Letters Patent to be held and enjoyed by said ASSIGNEE for its own use and behalf and for its successors, assigns and legal representatives, to the full end of the term for which said Letters Patent may be granted as fully and entirely as the same would have been held by us had this assignment and sale not been made; we hereby convey all rights arising under or pursuant to any and all international agreements, treaties or laws relating to the protection of industrial property by filing any such applications for Letters Patent. We hereby acknowledge that this assignment, being of the entire right, title and interest in and to said invention, carries with it the right in ASSIGNEE to apply for any and all related provisional and nonprovisional, international and national phase applications, including any and all substitution, reissue, divisional, continuation, and continuation-in-part applications, and obtain from competent authorities in all countries of the world any and all Letters Patent by attorneys and agents of ASSIGNEE's selection and the right to procure the grant of all such Letters Patent to ASSIGNEE for its own name as assignee of the entire right, title and interest therein; we hereby expressly authorize the filing of an International Patent Application under the

> PATENT REEL: 032170 FRAME: 0943

| Inventor's Signature: | ~ Ml |
|--|--|
| State/Commonwealth | ndu S. Mukherjee |
| of Mass | V |
| County of Middlesex | |
| On this day of February public, personally appeared Shubhendu S. M. | 2014, before me, the undersigned notary Mukherjee, |
| personally known to me, or | |
| proved to me through satisfactory ev | vidence of identification, which was |
| to be the person whose name was signed on acknowledged that he/she signed the forego | |
| (SEAL) | Notary Public Macy Farme (print name) |
| | My Commission expires TRACY RVAN HAVEY |
| Inventor's Signature: | Notary Public COMMONWEATH OF MASSACHUSETTS |
| State/Commonwealth of | on P. Snyder II |
| County of | |
| On this day of public, personally appeared Wilson P. Snyd | |
| personally known to me, or | |
| proved to me through satisfactory ex | vidence of identification, which was |
| acknowledged that he/she signed the forego | the foregoing instrument in my presence, and bing instrument as his/her free act and deed. |
| (SEAL) | Notary Public(print name) |
| | My Commission expires // |
| | Fig. Compared with the first transfer of |

| Inventor's Signature: Www from Miles | D |
|---|--|
| State/Commonwealth of Mass County of Middle | Bertone |
| On this day of February public, personally appeared Michael Bertone, | 20 14, before me, the undersigned notary |
| personally known to me, or | |
| proved to me through satisfactory eviden | ce of identification, which was |
| | tary Public(print name) |
| My | Commission expires TRACY RYAN HARVEY Notary Public COMMONWEALTH OF MASSACHUSETTS |
| Inventor's Signature: | My Commission Expires Octuber 9, 2020 E. Kessler |
| State/Commonwealth of County of | |
| On this day of | 20 , before me, the undersigned notary |
| public, personally appeared Richard E. Kessler, | |
| personally known to me, or | |
| proved to me through satisfactory evide | nce of identification, which was |
| to be the person whose name was signed on the acknowledged that he/she signed the foregoing | foregoing instrument in my presence, and instrument as his/her free act and deed. |
| (SEAL) | otary Public(nrint name) |
| M | y Commission expires// |

- 4 -

1523949.1 **RECORDED: 02/07/2014**