

## PATENT ASSIGNMENT COVER SHEET

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<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
ISTVAN GONCZI	04/17/2018
IVAN BASSOV	04/16/2018
PHILIPPE ARMANGAU	04/17/2018
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	EMC IP HOLDING COMPANY LLC
<b>Street Address:</b>	176 SOUTH STREET
<b>City:</b>	HOPKINTON
<b>State/Country:</b>	MASSACHUSETTS
<b>Postal Code:</b>	01748
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	15956236
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	(508)366-4688
<i>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.</i>	
<b>Phone:</b>	508-616-2900
<b>Email:</b>	Docket@BainwoodHuang.com
<b>Correspondent Name:</b>	BAINWOOD, HUANG & ASSOCIATES, LLC
<b>Address Line 1:</b>	2 CONNECTOR ROAD
<b>Address Line 4:</b>	WESTBOROUGH, MASSACHUSETTS 01581
<b>ATTORNEY DOCKET NUMBER:</b>	1003-603
<b>NAME OF SUBMITTER:</b>	DAVID A. DAGG, ESQ.
<b>SIGNATURE:</b>	/David Dagg/
<b>DATE SIGNED:</b>	06/11/2018
<b>Total Attachments: 9</b>	
source=1003-603-lnv1-assignment-GONCZI#page1.tif	
source=1003-603-lnv1-assignment-GONCZI#page2.tif	
source=1003-603-lnv1-assignment-GONCZI#page3.tif	
source=1003-603-lnv2-assignment-BASSOV#page1.tif	

source=1003-603-Inv2-assignment-BASSOV#page2.tif  
source=1003-603-Inv2-assignment-BASSOV#page3.tif  
source=1003-603-Inv3-assignment-ARMANGAU#page1.tif  
source=1003-603-Inv3-assignment-ARMANGAU#page2.tif  
source=1003-603-Inv3-assignment-ARMANGAU#page3.tif

**ASSIGNMENT**

**WHEREAS**, I, Istvan Gonczi, as the original inventor or an original joint inventor have invented an invention comprising and/or embodying certain improvements or discoveries or both as described in an application for Letters Patent of the United States entitled

**PROVIDING DATA DEDUPLICATION IN A DATA STORAGE SYSTEM WITH  
PARALLELIZED COMPUTATION OF CRYPTO-DIGESTS FOR BLOCKS OF HOST  
I/O DATA**

which is further identified by Attorney Docket Number 1003-603;

**WHEREAS**, EMC IP Holding Company LLC (hereinafter "ASSIGNEE"), a limited liability company organized and existing under the laws of the state of Delaware and having a usual place of business at 176 South Street, Hopkinton, MA, 01748, USA, desires to acquire an interest therein in accordance with agreements duly entered into with me;

**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, I 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 thereon; 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 me had this assignment and sale not been made; I hereby convey to ASSIGNEE 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. I 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 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;

**AND**, I hereby further agree for myself and my 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 substitution, reissue, divisional or continuation 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**, I do hereby authorize and request the Commissioner of Patents of the United States to issue such Letters Patent as shall be granted upon said application or applications based thereon to said ASSIGNEE, its successors, assigns, and legal representatives;

**AND** I hereby authorize the attorneys at Bainwood Huang & Associates LLC to insert here in parentheses

( 15/956,236 , filed Apr. 18, 2018 )

the application number and filing date of said application (or foreign counterpart application) to facilitate the recording or other official processing of this Assignment.

Date: 4/17/2018

  
\_\_\_\_\_  
Inventor's Signature

Legal name of inventor: Istvan Gonczi  
Residence: 18 Osprey Drive  
Berkley, MA 02779  
United States of America  
Mailing Address: Same as Above  
Citizenship: US

I Siyu Zhou (name) whose residential address is  
20 tea party Ln, Holliston, MA

was personally present and did see Istvan Gonczi (name of person signing the assignment) who is personally known to me, execute the above assignment.

  
\_\_\_\_\_  
(signature of first witness)

Signed at Hopkinton, MA (location of witness signature)

on this day 4/17/2018 of 2018. (date of signature)

I John F. Gillow (name) whose residential address is  
27 Wintergreen Circle, Methuen, MA, 01844

was personally present and did see Istvan Gonczi (name of person signing the assignment) who is personally known to me, execute the above assignment.

  
\_\_\_\_\_  
(signature of second witness)

Signed at 228 South Street, Hopkinton, MA (location of witness signature)

on this day April 17<sup>th</sup> of 2018. (date of signature)

**ASSIGNMENT**

**WHEREAS**, I, Ivan Bassov, as the original inventor or an original joint inventor have invented an invention comprising and/or embodying certain improvements or discoveries or both as described in an application for Letters Patent of the United States entitled

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**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, I 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 thereon; 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 me had this assignment and sale not been made; I hereby convey to ASSIGNEE 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. I 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 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;

**AND**, I hereby further agree for myself and my 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 substitution, reissue, divisional or continuation 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**, I do hereby authorize and request the Commissioner of Patents of the United States to issue such Letters Patent as shall be granted upon said application or applications based thereon to said ASSIGNEE, its successors, assigns, and legal representatives;

**AND** I hereby authorize the attorneys at Bainwood Huang & Associates LLC to insert here in parentheses

( 15 / 956, 236 , filed April 18, 2018 )

the application number and filing date of said application (or foreign counterpart application) to facilitate the recording or other official processing of this Assignment.

PATENT ASSIGNMENT  
Attorney Docket No.: 1003-603  
Client Docket No.: 110510.01

Date: 4/16/2018

  
\_\_\_\_\_  
Inventor's Signature

Legal name of inventor: Ivan Bassov  
Residence: 55 Harvard Ave., Apt. 3  
Brookline, MA 02446  
United States of America  
Mailing Address: Same as Above  
Citizenship: US

I Vladimir Bassov (name) whose residential address is  
19 Willow St Apt 504, Lynn MA 01901

was personally present and did see Ivan Bassov (name of person signing the assignment) who is personally known to me, execute the above assignment.

V Bassov (signature of first witness)

Signed at Brookline, MA (location of witness signature)

on this day April 16 of 2018. (date of signature)

I Olga Basova (name) whose residential address is  
19 Willow St Apt 504, Lynn MA 01901

was personally present and did see Ivan Bassov (name of person signing the assignment) who is personally known to me, execute the above assignment.

Olga Basova (signature of second witness)

Signed at Brookline, MA (location of witness signature)

on this day April 16 of 2018. (date of signature)



**ASSIGNMENT**

**WHEREAS**, I, Philippe Armangau, as the original inventor or an original joint inventor have invented an invention comprising and/or embodying certain improvements or discoveries or both as described in an application for Letters Patent of the United States entitled

**PROVIDING DATA DEDUPLICATION IN A DATA STORAGE SYSTEM WITH  
PARALLELIZED COMPUTATION OF CRYPTO-DIGESTS FOR BLOCKS OF HOST  
I/O DATA**

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**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, I 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 thereon; 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 me had this assignment and sale not been made; I hereby convey to ASSIGNEE 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. I 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 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;

**AND**, I hereby further agree for myself and my 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 substitution, reissue, divisional or continuation 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**, I do hereby authorize and request the Commissioner of Patents of the United States to issue such Letters Patent as shall be granted upon said application or applications based thereon to said ASSIGNEE, its successors, assigns, and legal representatives;


**AND** I hereby authorize the attorneys at Bainwood Huang & Associates LLC to insert here in parentheses

( 15 / 956, 236 , filed April 18, 2018 )

the application number and filing date of said application (or foreign counterpart application) to facilitate the recording or other official processing of this Assignment.

PATENT ASSIGNMENT  
Attorney Docket No.: 1003-603  
Client Docket No.: 110510.01

Date: 4/17/18

  
\_\_\_\_\_  
Inventor's Signature

Legal name of inventor: Philippe Armangau  
Residence: 51 Seminole Road  
Acton, MA 01720  
United States of America  
Mailing Address: Same as Above  
Citizenship: US

I John F. Gillard (name) whose residential address is  
27 Wintonsgreen Circle, Methuen, MA 01844

was personally present and did see Philippe Armangau (name of person signing the assignment) who is personally known to me, execute the above assignment.

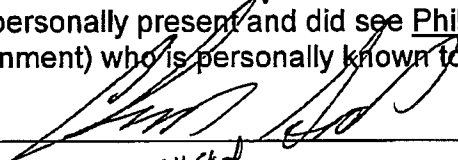
  
\_\_\_\_\_  
(signature of first witness)

Signed at 228 South Street, Hupkinton MA (location of witness signature)

on this day Apr. 17<sup>th</sup> of 20 18. (date of signature)

I Christopher Seibel (name) whose residential address is  
7 Jean Rd, Whitcomb, MA 02088

was personally present and did see Philippe Armangau (name of person signing the assignment) who is personally known to me, execute the above assignment.

  
\_\_\_\_\_  
(signature of second witness)

Signed at 228<sup>South Street</sup> Hupkinton, MA (location of witness signature)

on this day 4/17 of 20 18. (date of signature)