

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT4852283

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT
CONVEYING PARTY DATA	
Name	Execution Date
CHANGYU FENG	02/02/2018
HENRY AUSTIN SPANG IV	02/05/2018
JIAN GAO	02/02/2018
XINLEI XU	02/02/2018
LIFENG YANG	02/02/2018
RECEIVING PARTY DATA	
Name:	EMC IP HOLDING COMPANY LLC
Street Address:	176 SOUTH STREET
City:	HOPKINTON
State/Country:	MASSACHUSETTS
Postal Code:	01748
PROPERTY NUMBERS Total: 1	
Property Type	Number
Application Number:	15884502
CORRESPONDENCE DATA	
Fax Number:	(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>	
Phone:	508-616-2900
Email:	Docket@BainwoodHuang.com
Correspondent Name:	BAINWOOD, HUANG & ASSOCIATES, LLC
Address Line 1:	2 CONNECTOR ROAD
Address Line 4:	WESTBOROUGH, MASSACHUSETTS 01581
ATTORNEY DOCKET NUMBER:	1003-599
NAME OF SUBMITTER:	JAMES F. THOMPSON, ESQ.
SIGNATURE:	/James F. Thompson/
DATE SIGNED:	03/06/2018
Total Attachments: 15	
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ASSIGNMENT

WHEREAS, I, Changyu Feng, 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

**DATA STORAGE SYSTEM WITH CORE-AFFINED THREAD PROCESSING OF
DATA MOVEMENT REQUESTS**

which is further identified by Attorney Docket Number 1003-599;

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

(15/884,502 , filed 1/31/2018)

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: 2018.2.2

Feng Changyu
Inventor's Signature

Legal name of inventor: Changyu Feng
Residence: Room 702, Unit 1, 4th Building, ShiZhong Road
HouShaYu Town, Shunyi District
Beijing, 101318
China (People's Republic)
Mailing Address: Same as Above
Citizenship: CN

I Sihang Xia (name) whose residential address is
7F, Building D, Tsinghua Science Park, Haidian, Beijing, China,

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

Sihang Xia (signature of first witness)

Signed at Beijing, China (location of witness signature)

on this day 2/2 of 20 18. (date of signature)

I Zhao Zhenhua (name) whose residential address is
7F, Building D, Tsinghua Science Park, Beijing, China,

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

Zhao Zhenhua (signature of second witness)

Signed at Beijing, China (location of witness signature)

on this day Feb 2 of 20 18. (date of signature)

ASSIGNMENT

WHEREAS, I, Henry Austin Spang IV, 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

**DATA STORAGE SYSTEM WITH CORE-AFFINED THREAD PROCESSING OF
DATA MOVEMENT REQUESTS**

which is further identified by Attorney Docket Number 1003-599;

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

(15/884,502 , filed 1/31/2018)

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: 2/5/2018

Henry Austin Spang IV
Inventor's Signature

Legal name of inventor: Henry Austin Spang IV
Residence: 5 East Main Street
Hopkinton, MA 01748
United States of America
Mailing Address: Same as Above
Citizenship: US

I RICHARD G CHANDLER (name) whose residential address is
54 SELDEN HILL DR., WEST HARTFORD, CT 06107,
was personally present and did see Henry Austin Spang IV (name of person signing the
assignment) who is personally known to me, execute the above assignment.

Richard G Chandler (signature of first witness)

Signed at HOPKINTON, MA (location of witness signature)

on this day FEBRUARY 5 of 2018. (date of signature)

I Andrew P. Kubicki (name) whose residential address is
12 Belknap St. Westborough, MA 01581,
was personally present and did see Henry Austin Spang IV (name of person signing the
assignment) who is personally known to me, execute the above assignment.

Andrew P. Kubicki (signature of second witness)

Signed at HOPKINTON MA (location of witness signature)

on this day February 5 of 2018. (date of signature)

ASSIGNMENT

WHEREAS, I, Jian Gao, 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

**DATA STORAGE SYSTEM WITH CORE-AFFINED THREAD PROCESSING OF
DATA MOVEMENT REQUESTS**

which is further identified by Attorney Docket Number 1003-599;

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;

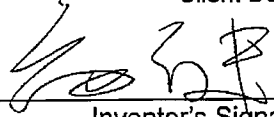
AND, I do hereby authorize and request the Commissioner of Patents of the United States to issue such Letters Patent as shall be granted upon said application or applications based thereon to said ASSIGNEE, its successors, assigns, and legal representatives;

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

(15/884, 502 , filed 1/31/2018)

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: 2018.2.12



Inventor's Signature

Legal name of inventor: Jian Gao
Residence: 601#, Building 16, Rongfeng 2008
Guanganmen Wai Street, Xicheng District
Beijing, 100000
China (People's Republic)
Mailing Address: Same as Above
Citizenship: CN

I Sihang Xia (name) whose residential address is
7F, Building D, Tsinghua Science Park, Haidian, Beijing, China,
was personally present and did see Jian Gao (name of person signing the assignment)
who is personally known to me, execute the above assignment.

Sihang Xia (signature of first witness)

Signed at Beijing, China (location of witness signature)

on this day 2/2 of 2018. (date of signature)

I Zhao Zhenhua (name) whose residential address is
7F, Building D, Tsinghua Science Park, Beijing, China,
was personally present and did see Jian Gao (name of person signing the assignment)
who is personally known to me, execute the above assignment.

Zhao Zhenhua (signature of second witness)

Signed at Beijing, China (location of witness signature)

on this day Feb 2 of 2018. (date of signature)

ASSIGNMENT

WHEREAS, I, Xinlei Xu, 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

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(15/884,502 , filed 1/31/2018)

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: 2018.2.2 Xinlei Xu.
Inventor's Signature

Legal name of inventor: Xinlei Xu
Residence: 6-6-602, Zhongyuan, Tiantongyuan
Changping District
Beijing, 102218
China (People's Republic)
Mailing Address: Same as Above
Citizenship: CN

I Sihang Xia (name) whose residential address is
7F, Building D, Tsinghua Science Park, Haidian, Beijing, China,
was personally present and did see Xinlei Xu (name of person signing the assignment)
who is personally known to me, execute the above assignment.

Sihang Xia (signature of first witness)

Signed at Beijing, China (location of witness signature)

on this day 2/2 of 2018. (date of signature)

I Zhao Zhenhua (name) whose residential address is
7F, Beijing, Tsinghua Science Park, Beijing, China,
was personally present and did see Xinlei Xu (name of person signing the assignment)
who is personally known to me, execute the above assignment.

Zhao Zhenhua (signature of second witness)

Signed at Beijing, China (location of witness signature)

on this day Feb 2 of 2018. (date of signature)

ASSIGNMENT

WHEREAS, I, Lifeng Yang, 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

**DATA STORAGE SYSTEM WITH CORE-AFFINED THREAD PROCESSING OF
DATA MOVEMENT REQUESTS**

which is further identified by Attorney Docket Number 1003-599;

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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;

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

(15/884,502 , filed 1/31/2018)

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: 2018 2.2

Lifeng Yang
Inventor's Signature

Legal name of inventor: Lifeng Yang
Residence: Xingfujiayuan 21-1803
Dongcheng District
Beijing, 100062
China (People's Republic)
Mailing Address: Same as Above
Citizenship: CN

I Sihang Xia (name) whose residential address is
7F, Building D, Tsinghua Science Park, Beijing, China

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

Sihang Xia (signature of first witness)

Signed at Beijing, China (location of witness signature)

on this day 2/2 of 20 18. (date of signature)

I Zhao Zhenhua (name) whose residential address is
7F, Building D, Tsinghua Science Park, Beijing, China

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

Zhao Zhenhua (signature of second witness)

Signed at Beijing, China (location of witness signature)

on this day Feb 2 of 20 18. (date of signature)