

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT4553729

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
FAN ZHANG	01/27/2016
TAEIL UM	01/29/2016
YU CAI	01/29/2016
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	SK HYNIX MEMORY SOLUTIONS INC.
<b>Street Address:</b>	3103 NORTH FIRST STREET
<b>City:</b>	SAN JOSE
<b>State/Country:</b>	CALIFORNIA
<b>Postal Code:</b>	95134
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
Application Number:	15013855
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	
<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>	650-326-2400
<b>Email:</b>	mvera@kilpatricktownsend.com
<b>Correspondent Name:</b>	KILPATRICK TOWNSEND & STOCKTON LLP
<b>Address Line 1:</b>	TWO EMBARCADERO CENTER
<b>Address Line 2:</b>	EIGHT FLOOR
<b>Address Line 4:</b>	SAN FRANCISCO, CALIFORNIA 94111
<b>ATTORNEY DOCKET NUMBER:</b>	098645-0963895-SK001-N
<b>NAME OF SUBMITTER:</b>	CIARA MCDERMOTT
<b>SIGNATURE:</b>	/Ciara McDermott/
<b>DATE SIGNED:</b>	08/16/2017
<b>Total Attachments: 5</b>	
source=Complete Signed Assignment - All Inventors 098645-SK001-N-0963895#page1.tif	
source=Complete Signed Assignment - All Inventors 098645-SK001-N-0963895#page2.tif	
source=Complete Signed Assignment - All Inventors 098645-SK001-N-0963895#page3.tif	

source=Complete Signed Assignment - All Inventors 098645-SK001-N-0963895#page4.tif

source=Complete Signed Assignment - All Inventors 098645-SK001-N-0963895#page5.tif

**ASSIGNMENT**  
(Patent Application)

We, the undersigned, have invented certain inventions and improvements disclosed in a utility (provisional or non-provisional) or design patent application entitled

“SUPPORTING INVALIDATION COMMANDS FOR NON-VOLATILE MEMORY,”

the specification of which is provided with this Assignment and identified by the Attorney Docket No. above. (Serial No. 15/013,855 filed on February 2, 2016 )

For other good and valuable consideration, the receipt and sufficiency of which we acknowledge, we:

1. Agree to assign, transfer, convey, and sell, hereby assign, transfer, convey, and sell and have assigned, transferred, conveyed, and sold to SK HYNIX MEMORY SOLUTIONS INC., a corporation of the State of Delaware having a principal place of business at 3103 North First Street, San Jose, California 95134, U.S.A. (“Assignee”), the entire right, title, and interest in and to:
  - (a) all intellectual property (including, without limitation, any innovation, information, invention, discovery, product, process, work or design) disclosed, embodied, shown, or claimed in the above-referenced patent application, implicitly or explicitly;
  - (b) the above-referenced patent application, the right to claim priority to the above-referenced patent application, all applications based in whole or in part upon the above-referenced patent application, including, without limitation, all applications that are a provisional, non-provisional, design, divisional, continuation, continuation-in-part, registration, utility model, industrial design, reissue, renewal, substitute, extension, reexamination, post-grant review, inter partes review, supplemental examination or non-U.S. patent application or application for other rights based in whole or in part on the above-referenced patent application;
  - (c) all patents (including, without limitation, all U.S. and non-U.S. patents, registrations, utility models, industrial designs, design patents, counterparts, continuations, continuations-in-part, divisionals, reissues, renewals, substitutes, extensions, reexaminations, post-grant reviews, inter partes reviews and supplemental examinations) that are granted or issued upon, or that claim priority to, any and all applications described in (b) of this paragraph or that disclose or claim intellectual property described in (a) of this paragraph, in whole or in part; and

ASSIGNMENT

SUPPORTING INVALIDATION COMMANDS FOR NON-VOLATILE MEMORY

Attorney Docket No. 098645-0963895-SK001-N

Page 2 of 3

- (d) all claims for damages by reason of past infringement of any rights under the applications or patents described in (a), (b) or (c) of this paragraph (including provisional rights to reasonable royalties pursuant to 35 U.S.C. §154(d)) and the right to sue for and collect such damages and royalties for Assignee's own use.
2. Authorize and request the U.S. Patent and Trademark Office or any other U.S. or non-U.S. agency to issue to the Assignee any and all patent(s), or other rights or documents, resulting from the intellectual property, patent application(s) and patents described in paragraph 1 of this Assignment.
  3. Agree to sign all papers and documents, including without limitation, applications, declarations, oaths and petitions, and, at the Assignee's expense, perform any other acts that are necessary in connection with prosecution of patent application(s) or intellectual property described in paragraph 1 of this Assignment and the enforcement of patent(s) or other rights resulting from such patent application(s) or intellectual property.
  4. Agree that the terms, covenants, and conditions of this Assignment shall inure to the benefit of the Assignee, its successors, assigns and other legal representative, and shall be binding upon us, as well as our heirs, legal representatives, and assigns.
  5. Promise and affirm that we have not entered, and will not enter, into any assignment, contract, or understanding that conflicts with this Assignment.
  6. Authorize Kilpatrick Townsend & Stockton to insert above the application number and filing date of the above-described patent application when known.

Signed on the dates indicated beside our signatures.

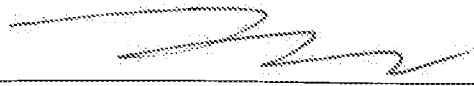
Signature: \_\_\_\_\_

Fan Zhang

Date: \_\_\_\_\_

- (d) all claims for damages by reason of past infringement of any rights under the applications or patents described in (a), (b) or (c) of this paragraph (including provisional rights to reasonable royalties pursuant to 35 U.S.C. §154(d)) and the right to sue for and collect such damages and royalties for Assignee's own use.
2. Authorize and request the U.S. Patent and Trademark Office or any other U.S. or non-U.S. agency to issue to the Assignee any and all patent(s), or other rights or documents, resulting from the intellectual property, patent application(s) and patents described in paragraph 1 of this Assignment.
  3. Agree to sign all papers and documents, including without limitation, applications, declarations, oaths and petitions, and, at the Assignee's expense, perform any other acts that are necessary in connection with prosecution of patent application(s) or intellectual property described in paragraph 1 of this Assignment and the enforcement of patent(s) or other rights resulting from such patent application(s) or intellectual property.
  4. Agree that the terms, covenants, and conditions of this Assignment shall inure to the benefit of the Assignee, its successors, assigns and other legal representative, and shall be binding upon us, as well as our heirs, legal representatives, and assigns.
  5. Promise and affirm that we have not entered, and will not enter, into any assignment, contract, or understanding that conflicts with this Assignment.
  6. Authorize Kilpatrick Townsend & Stockton to insert above the application number and filing date of the above-described patent application when known.


Signed on the dates indicated beside our signatures.

Signature:   
Fan Zhang

Date: 1/27/16

Signature: \_\_\_\_\_  
Taeil Um

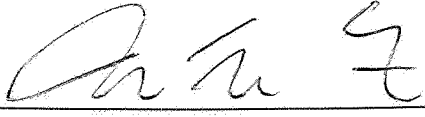
Date: \_\_\_\_\_

Signature:  \_\_\_\_\_  
Yu Cai

Date: 1/29/2016

SK hynix  
Confidential

ASSIGNMENT  
SUPPORTING INVALIDATION COMMANDS FOR NON-VOLATILE MEMORY  
Attorney Docket No. 098645-0963895-SK001-N  
Page 3 of 3

Signature:   
Taeil Um

Date: 1/29/2016

Signature: \_\_\_\_\_  
Yu Cai

Date: \_\_\_\_\_