504082680 11/04/2016

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT4129348

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
RICHARD H. HENZE	01/31/2014
NAVEEN MURALIMANOHAR	01/31/2014
YOOCHARN JEON	02/01/2014
MARTIN FOLTIN	01/31/2014
ERIK ORDENTLICH	01/31/2014
GREGG B. LESARTRE	01/31/2014
R. STANLEY WILLIAMS	01/31/2014

RECEIVING PARTY DATA

Name: Hewlett-Packard Development Company, L.P.	
Street Address: 11445 Compaq Center Drive West	
City:	Houston
State/Country:	TEXAS
Postal Code:	77070

PROPERTY NUMBERS Total: 1

Property Type	Number	
Application Number:	15113914	

CORRESPONDENCE DATA

Fax Number:

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.

Phone: (970) 898-7444

Email: hpe.ip.mail@hpe.com

Correspondent Name: HEWLETT PACKARD ENTERPRISE Address Line 1: 3404 E. HARMONY ROAD MS 79
Address Line 4: FORT COLLINS, COLORADO 80528

ATTORNEY DOCKET NUMBER:	90239157
NAME OF SUBMITTER:	KATHY HUNGSBERG
SIGNATURE:	/Kathy Hungsberg/
DATE SIGNED:	11/04/2016

PATENT REEL: 040225 FRAME: 0195

Total Attachments: 8 source=90239157Assignment#page1.tif source=90239157Assignment#page3.tif source=90239157Assignment#page4.tif source=90239157Assignment#page5.tif source=90239157Assignment#page6.tif source=90239157Assignment#page7.tif source=90239157Assignment#page7.tif source=90239157Assignment#page8.tif

PATENT REEL: 040225 FRAME: 0196

HEWLET	-PACKARD COMPANY
	Property Administrator
	armony Road
Mail Stop	
Fort Collin	s, Colorado 80528
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	I/We, the undersigned

Rev 1/ 2013 (Assignment)

HEWLETT-PACKARD COMPANY				P.	ATENT APPLICATI	ON
Intellectual Property Administrator 3404 E. Harmony Road						
Mail Stop 35		RECORD IE):	8	3763853	
Fort Collins, Colorado 80528						
Land Control of the C	ASSIGNMENT OF P	ATENT APPLICA	TION			
I/We, the undersigned receipt of which is hereby as DEVELOPMENT COMPANY, L Texas, (hereinafter HPDC), and assigns, the entire right, title as entitled:	(each) have agreed and cknowledged, and in fur P., a Texas Limited Pa i to its subsidiaries and a	hereby agree, that rtherance of my/ou rtnership having its ffiliates, to assign a	for god ir obli princi nd trai	od and valo gations to pal place on sfer to HF	HEWLETT-PACKA of business in Hous PDC, its successors	\RD ton, and
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Filing Date: <u>07/25/2016</u>	MANAGEM OF THE PARTY OF THE PAR	Application No				
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I/we additionally authorize H by HPDC, its successors, assign Patent respectively may be gran enjoyed by me/us had this assign	ns, nominees or legal repr sted, reissued or extended	esentatives, to the fi , as fully and entire!	bne Ilu	of the tem	n or terms for which	said
AND I/we hereby covenant to executed and will not execute and time a request is made, and with perfect the title to said invention (nominees or legal representative said invention(s) or improvement papers, to execute all disclaime rightful oaths and declarations, and legal representatives to obtain provement(s) in any and all cooperation and assistance are papers.	by agreement in conflict he out undue delay, execute a s) or improvement(s), said is, and live agree to commut(s), said application and sets and divisionals, continuand generally to do everythin and enforce, for its or the countries provided the example of the	rewith, and I/we furth and deliver all such p application and said nunleate to HPDC, o aid Patent, to testify uations, C-I-P's, reis thing possible to aid neir own benefit, prop expenses which ma	ner coverage of the coverage o	renant and as may be to HPDC nominee, a legal procur nd foreign its succesent protection ncurred by	agree that I/we will, onecessary or desirable, its successors, assign and leadings, to sign all leadings, to sign all leadings, to make soors, assigns, noming on for said invention or me/us in lending in	each ole to igns cting wfu e al nees s) o
applications as aforesaid, to issu- invention(s) or improvement(s) accordance with the terms of this	ue to HPDC, as assignee which may be issued an	of the entire right, tit	le and	interest, a	ny and all Patent for	sald
I/we further authorize and application for Patent, now identi known to them.	direct the attorneys of re fied by the Record ID and	cord to insert the fi title set forth above, a	iling d: as sooi	ate and ap	plication number of me shall have been n	said nade
IN WITNESS WHEREOF, I/	we hereunto set my/our	hand(s) and seal(s)):			
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Inventor's Signature	<i>y</i> • •	Date		•	,	
Richard H. Henze						
Inventor's Typed Name						
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Inventor's Signature		Date	:			
Naveen Muralimanohar						
Inventor's Typed Name						
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Page 1 of 2

PATENT APPLICATION

RECORD ID:	83763853

ASSIGNMENT OF PATENT APPLICATION (cont.)

Inventor's Signature	Date Assignment Signed
Yoocharn Jeon	
Inventor's Typed Name	Date Application Signed
Inventor's Signature	Date Assignment Signed
Martin Foltin	
Inventor's Typed Name	Date Application Signed
Inventor's Signature	Date Assignment Signed
Erik Ordentlich	
Inventor's Typed Name	Date Application Signed
Inventor's Signature	Date Assignment Signed
Gregg B. Lesartre	
Inventor's Typed Name	Date Application Signed
Inventor's Signature	Date Assignment Signed
R. Stanley Williams	
Inventor's Typed Name	Date Application Signed
Inventor's Signature	Date Assignment Signed
Inventor's Typed Name	Date Application Signed

PATENT APPLICATION

DECORD ID:	83763853
RECORD ID:	0010000

ASSIGNMENT OF PATENT APPLICATION

I/We, the undersigned (each) have agreed and hereby agree, that for good and valuable consideration, the receipt of which is hereby acknowledged, and in furtherance of my/our obligations to HEWLETT-PACKARD DEVELOPMENT COMPANY, L.P., a Texas Limited Partnership having its principal place of business in Houston, Texas, (hereinafter HPDC), and to its subsidiaries and affiliates, to assign and transfer to HPDC, its successors and assigns, the entire right, title and interest, including the right of priority, in, to and under an application for Patent partitled:

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NON-VOLATILE	MEMORY WITH MULTIPLE LATENCY	TIERS	
Filing Date:	07/25/2016	Application No.:	15/113914
divisionale and	n(s) and improvement(s) set forth therein, renewals of and substitutes for said applia which may be granted thereon or therefore	cation for said Patent, :	and any and all other raters or ony
by HPDC, its su	nally authorize HPDC to file applications in r ccessors, assigns, nominees or legal repre ely may be granted, reissued or extended, s had this assignment, and transfer not beer	sentatives, to the full en as fully and entirely as	d of the fetth or fettie for willour said
executed and witime a request is perfect the title to nominees or leg said invention(s) papers, to executiful oaths are and legal repressimprovement(s) cooperation and	ereby covenant that I/we have full right to could not execute any agreement in conflict here is made, and without undue delay, execute as a said invention(s) or improvement(s), said all representatives, and I/we agree to commit or improvement(s), said application and saute all disclaimers and divisionals, continued declarations, and generally to do everythe contatives to obtain and enforce, for its or the in any and all countries provided the exassistance are paid by HPDC;	awin, and twe futifier of ad deliver all such paper application and said Pate unicate to HPDC, or to it id Patent, to testify in ations, C-I-P's, reissue ling possible to aid HPD ir own bonefit, proper pate spenses which may be	overlati and sgree day for desirable to ent, to HPDC, its successors, assigns, its nominee, all known facts respecting my legal proceedings, to sign all lawful and foreign applications, to make all DC, its successors, assigns, nominees atent protection for said invention(s) or incurred by me/us in lending such
applications as invention(s) or	nereby authorize and request the official of aforesaid, to issue to HPDC, as assigned o improvement(s) which may be issued and the terms of this assignment.	ar ene estates autre, autros	id illicitori, arij aria ari
I/we furthe application for F known to them.	r authorize and direct the attornoys of rec ratent, now identified by the Record ID and to	cord to insert the filing its set forth above, as so	date and application number of said oon as the same shall have been made
IN WITNE	SS WHEREOF, I/we hereunto set my/our	hand(s) and seal(s):	
Inventor's Signat	ure	Date	

Inventor's Signature

Richard H. Henze
Inventor's Typed Name

Inventor's Signature

Naveen Muralimanohar
Inventor's Typed Name

PATENT REEL: 040225 FRAME: 0199 HEWLETT-PACKARD COMPANY Intellectual Property Administrator 3404 E. Harmony Road Mail Stop 35

PATENT APPLICATION

Mail Stop 35	RECORD ID:	83763853
Fort Collins, Colorado 80528		
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Inventor's Signature	Date	
Yoocharn Jeon		
Inventor's Typed Name		
Inventor's Signature	Date	
Martin Foltin		
Inventor's Typed Name		
Inventor's Signature	Date	
Erik Ordentlich Inventor's Typed Name		
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Inventor's Signature	Date	
Gregg B. Lesartre		
Inventor's Typed Name		
Inventor's Signature	Date	
D. Stantov Milliama		
R. Stantey Williams Inventor's Typed Name		
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Inventor's Signature	Date	
Inventor's Typed Name		
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Page 2 of 2

Rev 09/11 (Assignment)

PATENT	' APPL	ICATION
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ASSIGNMENT OF PATENT APPLICATION

I/We, the undersigned (each) have agreed and hereby agree, that for good and valuable consideration, the

receipt of which is hereby acknowledged, and in furtherance of my/our obligations to HEWLETT-PACKARD DEVELOPMENT COMPANY, L.P., a Texas Limited Partnership having its principal place of business in Houston, Texas, (hereinafter HPDC), and to its subsidiaries and affiliates, to assign and transfer to HPDC, its successors and assigns, the entire right, title and interest, including the right of priority, in, to and under an application for Patent entitled: NON-VOLATILE MEMORY WITH MULTIPLE LATENCY TIERS Filing Date: 07/25/2016 Application No.: 15/113914 and the invention(s) and improvement(s) set forth therein, and any and all continuations, continuations-in-part (C-I-P's), divisionals, and renewals of and substitutes for said application for said Patent, and any and all other Patent of any countries thereto which may be granted thereon or therefor; and any reissues, or reexaminations, or extensions of said Patent. I/we additionally authorize HPDC to file applications in my/our name for Patent in any country, to be held and enjoyed by HPDC, its successors, assigns, nominees or legal representatives, to the full end of the term or terms for which said Patent respectively may be granted, reissued or extended, as fully and entirely as the same would have been held and enjoyed by me/us had this assignment, and transfer not been made; AND I/we hereby covenant that I/we have full right to convey the entire interest herein assigned, and that I/we have not executed and will not execute any agreement in conflict herewith, and I/we further covenant and agree that I/we will, each time a request is made, and without undue delay, execute and deliver all such papers as may be necessary or desirable to perfect the title to said invention(s) or improvement(s), said application and said Patent, to HPDC, its successors, assigns, nominees or legal representatives, and I/we agree to communicate to HPDC, or to its nominee, all known facts respecting said invention(s) or improvement(s), said application and said Patent, to testify in any legal proceedings, to sign all lawful papers, to execute all disclaimers and divisionals, continuations, C-I-P's, reissue and foreign applications, to make all rightful oaths and declarations, and generally to do everything possible to aid HPDC, its successors, assigns, nominees and legal representatives to obtain and enforce, for its or their own benefit, proper patent protection for said invention(s) or improvement(s) in any and all countries provided the expenses which may be incurred by me/us in lending such cooperation and assistance are paid by HPDC; AND I/we hereby authorize and request the official of any country or countries whose duty it is to issue patents on applications as aforesaid, to issue to HPDC, as assignee of the entire right, title and interest, any and all Patent for said invention(s) or improvement(s) which may be issued and granted on or as a result of the application aforesaid, in accordance with the terms of this assignment. I/we further authorize and direct the attorneys of record to insert the filing date and application number of said application for Patent, now identified by the record ID and title set forth above, as soon as the same shall have been made known to them. IN WITNESS WHEREOF, I/we hereunto set my/our hand(s) and seal(s): Inventor's Signature Date Assignment Signed Richard H. Henze **Date Application Signed** Inventor's Typed Name Inventor's Signature **Date Assignment Signed** Naveen Muralimanohar **Date Application Signed** Inventor's Typed Name

Page 1 of 2

Rev 1/ 2013 (Assignment)

PATENT APPLICATION

Mail Stop 35 Fort Collins, Colorado 80528	RECORD ID: 83763853	
ASSIGNMENT OF PATENT APPLICATION (cont.)		
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roocharn Jeon hventor's Typed Name		
Mardin Foldin	1/31/2014	
nventor's Signature Viartin Foltin	Date	
Inventor's Typed Name		
Inventor's Signature	Date	
Erik Ordentlich Inventor's Typed Name	APP Company of the Co	
3 B	1/31/20/4	
Inventor's Sjønature Gregg B. Lesartre	Date /	
Inventor's Typed Name		
Inventor's Signature	Date	
R. Stanley Williams Inventor's Typed Name		
Inventor's Signature	Date	
Inventor's Typed Name		

Page 2 of 2

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RECORD ID:	83763853

ASSIGNMENT OF PATENT APPLICATION

I/We, the undersigned (each) have agreed and hereby agree, that for good and valuable consideration, the

receipt of which is hereby acknowledged, and in furtherance of my/our obligations to HEWLETT-PACKARD DEVELOPMENT COMPANY, L.P., a Texas Limited Partnership having its principal place of business in Houston, Texas, (hereinafter HPDC), and to its subsidiaries and affiliates, to assign and transfer to HPDC, its successors and assigns, the entire right, title and interest, including the right of priority, in, to and under an application for Patent entitled: NON-VOLATILE MEMORY WITH MULTIPLE LATENCY TIERS Filing Date: 07/25/2016 Application No.: and the invention(s) and improvement(s) set forth therein, and any and all continuations, continuations-in-part (C-I-P's), divisionals, and renewals of and substitutes for said application for said Patent, and any and all other Patent of any countries thereto which may be granted thereon or therefor; and any reissues, or reexaminations, or extensions of said Patent. I/we additionally authorize HPDC to file applications in my/our name for Patent in any country, to be held and enjoyed by HPDC, its successors, assigns, nominees or legal representatives, to the full end of the term or terms for which said Patent respectively may be granted, reissued or extended, as fully and entirely as the same would have been held and enjoyed by me/us had this assignment, and transfer not been made; AND I/we hereby covenant that I/we have full right to convey the entire interest herein assigned, and that I/we have not executed and will not execute any agreement in conflict herewith, and I/we further covenant and agree that I/we will, each time a request is made, and without undue delay, execute and deliver all such papers as may be necessary or desirable to perfect the title to said invention(s) or improvement(s), said application and said Patent, to HPDC, its successors, assigns, nominees or legal representatives, and I/we agree to communicate to HPDC, or to its nominee, all known facts respecting said invention(s) or improvement(s), said application and said Patent, to testify in any legal proceedings, to sign all lawful papers, to execute all disclaimers and divisionals, continuations, C-I-P's, reissue and foreign applications, to make all rightful oaths and declarations, and generally to do everything possible to aid HPDC, its successors, assigns, nominees and legal representatives to obtain and enforce, for its or their own benefit, proper patent protection for said invention(s) or improvement(s) in any and all countries provided the expenses which may be incurred by me/us in lending such cooperation and assistance are paid by HPDC; AND I/we hereby authorize and request the official of any country or countries whose duty it is to issue patents on applications as aforesaid, to issue to HPDC, as assignee of the entire right, title and interest, any and all Patent for said invention(s) or improvement(s) which may be issued and granted on or as a result of the application aforesaid, in accordance with the terms of this assignment. I/we further authorize and direct the attorneys of record to insert the filing date and application number of said application for Patent, now identified by the record ID and title set forth above, as soon as the same shall have been made known to them. IN WITNESS WHEREOF, I/we hereunto set my/our hand(s) and seal(s): Inventor's Signature Date Assignment Signed Richard H. Henze **Date Application Signed** Inventor's Typed Name Inventor's Signature **Date Assignment Signed** Naveen Muralimanohar **Date Application Signed** Inventor's Typed Name

Rev 09/11 (Assignment) Page 1 of 2 HEWLETT-PACKARD COMPANY Intellectual Property Administrator 3404 E. Harmony Road Mail Stop 35

PATENT APPLICATION

ASSIGNMENT OF PATENT Inventor's Signature Yoocharn Jeon Inventor's Typed Name Inventor's Signature Martin Foltin Inventor's Typed Name	APPLICATION (cont.) Date Date
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Page 2 of 2

PATENT REEL: 040225 FRAME: 0204

RECORDED: 11/04/2016