

<b>PATENT ASSIGNMENT COVER SHEET</b>
--------------------------------------

Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT4466548

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
YUAN CHEN	10/31/2014
VANISH TALWAR	11/14/2014
NAILA FAROOQUI	10/31/2014
INDRAJIT ROY	10/31/2014
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	Hewlett-Packard Development Company, L.P.
<b>Street Address:</b>	11445 Compaq Center Drive West
<b>City:</b>	Houston
<b>State/Country:</b>	TEXAS
<b>Postal Code:</b>	77070
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	15522354
<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>	(970) 898-7472
<b>Email:</b>	hpe.ip.mail@hpe.com
<b>Correspondent Name:</b>	HEWLETT PACKARD ENTERPRISE
<b>Address Line 1:</b>	3404 E. HARMONY ROAD MS 79
<b>Address Line 4:</b>	FORT COLLINS, COLORADO 80528
<b>ATTORNEY DOCKET NUMBER:</b>	90356509
<b>NAME OF SUBMITTER:</b>	KATHY HUNGSBERG
<b>SIGNATURE:</b>	/Kathy Hungsberg/
<b>DATE SIGNED:</b>	06/19/2017
<b>Total Attachments: 8</b>	
source=90356509AssignExecutedAll#page1.tif	
source=90356509AssignExecutedAll#page2.tif	
source=90356509AssignExecutedAll#page3.tif	

source=90356509AssignExecutedAll#page4.tif  
source=90356509AssignExecutedAll#page5.tif  
source=90356509AssignExecutedAll#page6.tif  
source=90356509AssignExecutedAll#page7.tif  
source=90356509AssignExecutedAll#page8.tif

HEWLETT-PACKARD COMPANY  
Intellectual Property Administrator  
2404 E. Harmony Road  
Mail Stop 35  
Fort Collins, Colorado 80528

PATENT APPLICATION

RECORD ID: 84030631

### ASSIGNMENT OF PATENT APPLICATION

I/We, the undersigned (each), 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, agree to assign and transfer and hereby 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:

### INTEGRATED HETEROGENEOUS PROCESSING UNITS

Filing Date: 04/27/2017 Application No.: 15/522354

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 therefore; and any reissues, or reexaminations, or extensions of said Patent.

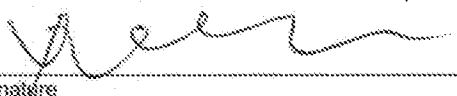
I/we additionally authorize HPDC to file applications in my/our name for Patent in any country, to be held and enjoyed by HPDC, its successors, assigns, nominees or legal representatives, to the full end of the term or terms for which said Patent respectively may be granted, reissued or extended, as 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

10/31/2014  
Date

Yuan

CHEN

First/Middle Name

Last Name

Inventor's Signature

Date

Vanish

TALWAR

First/Middle Name

Last Name

HEWLETT-PACKARD COMPANY  
Intellectual Property Administrator  
3404 E. Harmony Road  
Mail Stop 35  
Fort Collins, Colorado 80528

PATENT APPLICATION

RECORD ID: 84030631

**ASSIGNMENT OF PATENT APPLICATION (cont.)**

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

Naila FAROOQUI  
First/Middle Name Last Name

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

Indrajit ROY  
First/Middle Name Last Name

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

\_\_\_\_\_  
First/Middle Name Last Name

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

\_\_\_\_\_  
First/Middle Name Last Name

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

\_\_\_\_\_  
First/Middle Name Last Name

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

\_\_\_\_\_  
First/Middle Name Last Name

HEWLETT-PACKARD COMPANY  
Intellectual Property Administrator  
3404 E. Harmony Road  
Mail Stop 35  
Fort Collins, Colorado 80528

PATENT APPLICATION

RECORD ID: 84030631

**ASSIGNMENT OF PATENT APPLICATION**

I/We, the undersigned (each), 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, agree to assign and transfer and hereby 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:

**INTEGRATED HETEROGENEOUS PROCESSING UNITS**

Filing Date: 04/27/2017 Application No.: 15/522354

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 therefore; 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.

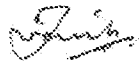
I/we further authorize and direct the attorneys of record to insert the filing date and application number of said application for Patent, now identified by the Record ID and title set forth above, as soon as the same shall have been made known to them.

IN WITNESS WHEREOF, I/we hereto set my/our hand(s) and seal(s):

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

Yuan CHEN

\_\_\_\_\_  
First/Middle Name Last Name

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

05/14/16  
Date

Vanish TALWAR

\_\_\_\_\_  
First/Middle Name Last Name

HEWLETT-PACKARD COMPANY  
Intellectual Property Administrator  
3404 E. Harmony Road  
Mail Stop 35  
Fort Collins, Colorado 80528

PATENT APPLICATION

RECORD ID: 84030631

**ASSIGNMENT OF PATENT APPLICATION (cont.)**

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

Naila FAROOQUI  
First/Middle Name Last Name

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

Indrajit ROY  
First/Middle Name Last Name

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

\_\_\_\_\_  
First/Middle Name Last Name

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

\_\_\_\_\_  
First/Middle Name Last Name

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

\_\_\_\_\_  
First/Middle Name Last Name

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

\_\_\_\_\_  
First/Middle Name Last Name

HEWLETT-PACKARD COMPANY  
Intellectual Property Administrator  
3404 E. Harmony Road  
Mail Stop 35  
Fort Collins, Colorado 80528

PATENT APPLICATION

RECORD ID: 84030631

**ASSIGNMENT OF PATENT APPLICATION**

I/We, the undersigned (each), 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, agree to assign and transfer and hereby 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:

**INTEGRATED HETEROGENEOUS PROCESSING UNITS**

Filing Date: 04/27/2017 Application No.: 15/522354

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 therefore; 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

Yuan CHEN  
\_\_\_\_\_  
First/Middle Name Last Name

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

\_\_\_\_\_  
Date

Vanish TALWAR  
\_\_\_\_\_  
First/Middle Name Last Name

HEWLETT-PACKARD COMPANY  
Intellectual Property Administrator  
3404 E. Harmony Road  
Mail Stop 35  
Fort Collins, Colorado 80528

PATENT APPLICATION

RECORD ID: 84030631

ASSIGNMENT OF PATENT APPLICATION (cont.)

  
Inventor's Signature \_\_\_\_\_ Date 10/31/2014

Naila FAROOQUI  
First/Middle Name Last Name

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

Indrajit ROY  
First/Middle Name Last Name

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

\_\_\_\_\_  
First/Middle Name Last Name

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

\_\_\_\_\_  
First/Middle Name Last Name

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

\_\_\_\_\_  
First/Middle Name Last Name

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

\_\_\_\_\_  
First/Middle Name Last Name



HEWLETT-PACKARD COMPANY  
Intellectual Property Administrator  
3404 E. Harmony Road  
Mail Stop 35  
Fort Collins, Colorado 80528

PATENT APPLICATION

RECORD ID: 84030631

**ASSIGNMENT OF PATENT APPLICATION**

I/We, the undersigned (each), 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, agree to assign and transfer and hereby 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:

**INTEGRATED HETEROGENEOUS PROCESSING UNITS**

Filing Date: 04/27/2017 Application No.: 15/522354

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 therefore; 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

Yuan CHEN  
\_\_\_\_\_  
First/Middle Name Last Name

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

\_\_\_\_\_  
Date

Vanish TALWAR  
\_\_\_\_\_  
First/Middle Name Last Name

HEWLETT-PACKARD COMPANY  
Intellectual Property Administrator  
3404 E. Harmony Road  
Mail Stop 35  
Fort Collins, Colorado 80528

PATENT APPLICATION

RECORD ID: 84030631

ASSIGNMENT OF PATENT APPLICATION (cont.)

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

Naila FAROOQUI  
\_\_\_\_\_  
First/Middle Name Last Name

Indrajit Roy 10/31/2014  
\_\_\_\_\_  
Inventor's Signature Date

Indrajit ROY  
\_\_\_\_\_  
First/Middle Name Last Name

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

\_\_\_\_\_  
First/Middle Name Last Name

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

\_\_\_\_\_  
First/Middle Name Last Name

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

\_\_\_\_\_  
First/Middle Name Last Name

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

\_\_\_\_\_  
First/Middle Name Last Name