504353792 05/05/2017

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT4400482

| SUBMISSION TYPE: | NEW ASSIGNMENT |
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| NATURE OF CONVEYANCE: | ASSIGNMENT |

CONVEYING PARTY DATA

| Name | Execution Date |
|---------------------|----------------|
| NING GE | 10/23/2014 |
| JIANHUA YANG | 10/21/2014 |
| ZHIYONG LI | 10/21/2014 |
| R. STANLEY WILLIAMS | 10/22/2014 |

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 | |
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| Application Number: | 15515317 | |

CORRESPONDENCE DATA

Fax Number: (970)778-4063

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.

Correspondent Name: HP INC.

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Address Line 2: INTELLECTUAL PROPERTY

Address Line 4: FORT COLLINS, COLORADO 80528

| ATTORNEY DOCKET NUMBER: | 84613140 |
|-------------------------|-------------|
| NAME OF SUBMITTER: | KUBAE KIM |
| SIGNATURE: | /Kubae Kim/ |
| DATE SIGNED: | 05/05/2017 |

Total Attachments: 5

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

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| RECORD ID: | 84030930 | |
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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 entitled: | and interest, including the right | of priority, in, to an | d under an application for Patent |
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| GENERATING A REPRESEN | ITATIVE LOGIC INDICATOR OF | F GROUPED MEMP | RISTORS |
| Filing Date: 03-29-2017 | Α | pplication No.: | 15/515,317 |
| divisionals, and renewals of a | nd substitutes for said application | n for said Patent, ar | tions, continuations-in-part (C-I-P's), nd any and all other Patent of any examinations, or extensions of said |
| by HPDC, its successors, assignment respectively may be gra | gns, nominees or legal representa | itives, to the full end ally and entirely as th | any country, to be held and enjoyed of the term or terms for which said as same would have been held and |
| executed and will not execute a time a request is made, and will perfect the title to said invention nominees or legal representative said invention(s) or improveme papers, to execute all disclain rightful oaths and declarations, and legal representatives to obtimprovement(s) in any and a cooperation and assistance are AND I/we hereby authorize applications as aforesaid, to is | any agreement in conflict herewith thout undue delay, execute and den(s) or improvement(s), said applicates, and liwe agree to communicating, said application and said Peners and divisionals, continuation, and generally to do everything patent and enforce, for its or their ow II countries provided the expensional by HPDC; e and request the official of any sue to HPDC, as assignee of the which may be issued and gra | , and I/we further cov- diver all such papers ation and said Pater to to HPDC, or to its attent, to testify in any s. C-I-P's, reissue at cossible to aid HPDC on benefit, proper pate tes which may be it country or countries entire right, title and | rein assigned, and that I/we have not renant and agree that I/we will, each as may be necessary or desirable to it, to HPDC, its successors, assigns, nominee, all known facts respecting legal proceedings, to sign all fawful and foreign applications, to make all, its successors, assigns, nominees ent protection for said invention(s) or neutred by me/us in lending such whose duty it is to issue patents on interest, any and all Patent for said sult of the application aforesaid, in |
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| Rev 8/2014 (Assignment) | Page 1 of | 2. | |

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

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| GENERATING A | A REPRESENTA | ATIVE LOGIC IND | ICATOR OF GROU | IPED MEMRIS | STORS |
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| Filing Date: | 03-29-2017 | | Applicati | on No.: | 15/515,317 |
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PATENT REEL: 042254 FRAME: 0965 HEWLETT-PACKARD COMPANY intellectual Property Administrator 3404 E. Harmony Road Mall Stop 35

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PATENT APPLICATION

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ASSIGNMENT OF PATENT APPLICATION (cont.)

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| Zhiyong | Li | |
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