502519835 10/03/2013

PATENT ASSIGNMENT

Electronic Version v1.1 Stylesheet Version v1.1

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

CONVEYING PARTY DATA

| Name | Execution Date |
|------------------|----------------|
| William J. Dally | 03/10/2013 |

RECEIVING PARTY DATA

| Name: | NVIDIA Corporation | |
|-----------------|---------------------------|--|
| Street Address: | 2701 San Tomas Expressway | |
| City: | Santa Clara | |
| State/Country: | CALIFORNIA | |
| Postal Code: | 95050 | |

PROPERTY NUMBERS Total: 1

| Property Type | Number |
|---------------------|----------|
| Application Number: | 13794563 |

CORRESPONDENCE DATA

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| ATTORNEY DOCKET NUMBER: | NVIDP794/SC-12-0319-US1 |
|-------------------------|--|
| NAME OF SUBMITTER: | JAMIE L. ROSSI |
| Signature: | /JAMIE ROSSI/ |
| Date: | 10/03/2013 |
| | This document serves as an Oath/Declaration (37 CFR 1.63). |

Total Attachments: 1

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PATENT REEL: 031339 FRAME: 0249

Attorney Docket No.: NVIDP794/SC-12-0319-US1

COMBINED DECLARATION (37 C.F.R. 1.63) AND ASSIGNMENT FOR UTILITY APPLICATION USING AN APPLICATION DATA SHEET (37 C.F.R. 1.76)

| Title of Invention: VARIABLE DYNAMIC MEMORY REFRESH |
|--|
| As the below named inventor, I hereby declare that: |
| This declaration is directed to the attached application, or (if following box is checked) United States application or PCT international application number, filed on |
| The above-identified application was made or authorized to be made by me. |
| I believe that I am the original inventor or an original joint inventor of a claimed invention in the application. |
| I hereby state that I have reviewed and understand the contents of the above-identified application, including the claims. |
| I acknowledge the duty to disclose information which is material to the patentability of this application in accordance with Title 37, CFR § 1.56. |
| Whereas, I the undersigned inventor have invented certain new and useful improvements as set forth in the above-identified patent application and further identified by the Attorney Docket Number provided above in the header of this document. |
| For good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, I the undersigned inventor hereby: |
| 1) Sell(s), assign(s) and transfer(s) to NVIDIA Corporation , a Delaware corporation having a place of business at 2701 San Tomas Expressway, Santa Clara, California 95050, (hereinafter referred to as ("ASSIGNEE"), the entire right title and interest in any and all improvements and inventions disclosed in, application(s) based upon, and Patent(s) (including foreign patents) granted upon the information which is disclosed in the above referenced application. |
| 2) Authorize and request the Commissioner of Patents to issue any and all Letters Patents resulting from said application or any division(s), continuation(s), substitutes(s) or reissue(s) thereof to the ASSIGNEE. |
| 3) Agree to execute all papers and documents and, entirely at the ASSIGNEE's expense, perform any acts which are reasonably necessary in connection with the prosecution of said application, as well as any derivative and applications thereof, foreign applications based thereon, and/or the enforcement of patents resulting from such applications. |
| 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 the inventor(s), as well as the inventor's heirs, legal representatives and assigns. |
| 5) Warrant and represent that I have not entered, and will not enter into any assignment, contract, or understanding that conflicts with this assignment. |
| I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both. |
| Signed on the date indicated beside my signature. |
| Legal Name of Inventor: William J. Dally Signature: Date: 3/10/12 |
| Date. 5/10/13 |

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RECORDED: 10/03/2013