504097313 11/15/2016

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT4143982

| SUBMISSION TYPE: | NEW ASSIGNMENT |
|-----------------------|--------------------------|
| NATURE OF CONVEYANCE: | NUNC PRO TUNC ASSIGNMENT |
| EFFECTIVE DATE: | 05/14/2012 |

CONVEYING PARTY DATA

| Name | Execution Date |
|-----------------------------|----------------|
| MAGMA DESIGN AUTOMATION LLC | 10/06/2016 |

RECEIVING PARTY DATA

| Name: | SYNOPSYS, INC. | |
|-----------------|---------------------------|--|
| Street Address: | 690 EAST MIDDLEFIELD ROAD | |
| City: | MOUNTAIN VIEW | |
| State/Country: | CALIFORNIA | |
| Postal Code: | 94043 | |

PROPERTY NUMBERS Total: 3

| Property Type | Number |
|---------------------|----------|
| Application Number: | 11781043 |
| Application Number: | 14066272 |
| Application Number: | 11781054 |

CORRESPONDENCE DATA

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| ATTORNEY DOCKET NUMBER: | 063787-464932 (3 MATTERS) | |
|-------------------------|---------------------------|--|
| NAME OF SUBMITTER: | LAURA SOUTHAM | |
| SIGNATURE: | /Laura Southam/ | |
| DATE SIGNED: | 11/15/2016 | |

Total Attachments: 2

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PATENT REEL: 040330 FRAME: 0689 504097313

NUNC PRO TUNC ASSIGNMENT OF U.S. PATENT APPLICATIONS

THIS NUNC PRO TUNC PATENT ASSIGNMENT is effective May 14, 2012. For good and valuable consideration, receipt of which is hereby acknowledged, Magma Design Automation LLC, a Delaware Limited Liability Company, having a place of business at 2711 Centerville Road, Suite 400, Wilmington, Delaware 19808 (the "Assignor"), hereby effective May 14, 2012, sells, assigns, and transfer to Synopsys, Inc., a California Corporation having a place of business at 690 East Middlefield Road, Mountain View, California 94043 (the "Assignee"), its successors and assigns, the entire right, title, and interest throughout the world in the inventions, discoveries, improvements, or designs of the patents and patent applications listed on Schedule A attached hereto, and all patent applications and letters patent (including, but not limited to, utility patents, design patents, utility models, inventor certificates, and applications thereof) of every country for such inventions, including divisions, reissues, reexaminations, continuations, continuations-in-part, and extensions thereof, and all rights of priority resulting from the filing of such applications. Effective May 14, 2012, the Assignor authorizes the Assignee to apply for patents of foreign countries for such inventions, discoveries, improvements, or designs, and to claim all rights of priority without further authorization from the Assignor. Effective May 14, 2012, the Assignor agrees to execute or use its best efforts to cause the execution of all papers necessary or advisable in connection with such United States and foreign applications. Effective May 14, 2012, the Assignor hereby requests the U.S. Patent and Trademark Office or any other U.S. or non-U.S. agency to issue any and all of the Patent Rights to Assignee, its successors and assigns.

Effective May 14, 2012, the Assignor further assigns to the Assignee the right to bring or maintain suit at law and equity against past infringement of said patents and patent applications listed on Schedule A hereof and to retain for the benefit of the Assignee all damages or settlements arising from any such past infringement.

Executed this (day of October, 2016

MAGMA DESIGN AUTOMATION LLC

a Delaware Limited Liability Company

Dated: Oct. 6 2016

Name: Erika Varga Mc Enroe
Title: Manager

SYNOPSYS, INC.

a California Corporation

Name: Craig Shinners

Title: Legal Counsel Director

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LEGAL02/35744719vI

Dated: Oct. 6, 2016

SCHEDULE A

- 1. U.S. Patent No. 8,473,876
- 2. U.S. Patent No. 8,572,523
- 3. U.S. Patent Application No. 14/066,272

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PATENT REEL: 040330 FRAME: 0691