PATENT ASSIGNMENT

Electronic Version v1.1

Stylesheet Version v1.1

| SUBMISSION TYPE: | | NEW AS | SIGNMENT | | |
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| NATURE OF CONVE | ANCE: | ASSIGN | MENT | | |
| CONVEYING PARTY | DATA | | | | |
| Name | | | | Execution Date | |
| Catherine Chingi Chang | | | | 03/28/2013 | |
| Henry Y. Lui | | | | 04/03/2013 | |
| Ramanand Venkata | | | | 04/03/2013 | |
| RECEIVING PARTY D | ΑΤΑ | | | | |
| Name: | Altera Corporation | | | | |
| Street Address: | 101 Innovation Drive | | | | |
| City: | San Jose | | | | |
| State/Country: | CALIFORNIA | | | | |
| Postal Code: | 95134 | | | | |
| PROPERTY NUMBER | S Total: 1 | | | | |
| Property Type | | | Number | | |
| Application Number: 1380 | | 13802752 | | | |
| CORRESPONDENCE | DATA | | | | |
| Fax Number: 6503310184 | | | | | |
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| | <i>be sent via US</i> 650-585 | <i>Mail when the fax</i> -2933 | x attempt is unsuccessful. | 0 840 840 | |
| <i>Correspondence will b</i> Phone: Email: | <i>be sent via US</i> 650-585 lupe@bl | <i>Mail when the fax</i> -2933 hiplaw.com | x attempt is unsuccessful. | | |
| <i>Correspondence will t</i> Phone: Email: Correspondent Name: | <i>be sent via US</i> 650-585 lupe@bl Guadalu | <i>Mail when the fax</i> -2933 hiplaw.com pe M. Garcia | x attempt is unsuccessful. | | |
| <i>Correspondence will b</i> Phone: Email: Correspondent Name: Address Line 1: | be sent via US 650-585 lupe@bl Guadalu 378 Car | <i>Mail when the fax</i> -2933 hiplaw.com | x attempt is unsuccessful. | | |
| <i>Correspondence will t</i> Phone: Email: Correspondent Name: | <i>be sent via US</i> 650-585 lupe@bl Guadalu 378 Car Suite F | <i>Mail when the fax</i> -2933 hiplaw.com pe M. Garcia | | | |
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| Correspondence will b Phone: Email: Correspondent Name: Address Line 1: Address Line 2: Address Line 4: ATTORNEY DOCKET | be sent via US 650-585 lupe@bl Guadalu 378 Car Suite F Palo Alte NUMBER: | Mail when the fax -2933 hiplaw.com pe M. Garcia hbridge Avenue b, CALIFORNIA 9 900016-0 Guadalu | 94306 600005 | | |

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| Data | |
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| Dale | • |

Total Attachments: 2

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ASSIGNMENT OF PATENT APPLICATION

WHEREAS, Catherine Chingi Chang, Henry Y. Lui, Ramanand Venkata, hereinafter referred to as "Assignors," are the inventors of the invention described and set forth in the below identified application for United States Letters Patent:

Title of Invention: **Programmable Matrix for the Allocation of Communication Resources** Date(s) of execution of Declaration: Filing Date: March 14, 2013 Application No.: 13/802,752

WHEREAS, Altera Corporation, a Delaware Corporation, located at 101 Innovation Drive, San Jose, CA 95134, hereinafter referred to as "ASSIGNEE," is desirous of acquiring an interest in the invention and application and in any U.S. Letters Patent and Registrations which may be granted on the same;

For good and valuable consideration, receipt of which is hereby acknowledged by Assignor, Assignor has assigned, and by these presents do assign to Assignee all right, title, and interest in and to the invention and application and to all foreign counterparts (including patent, utility model and industrial designs), and in and to any Letters Patent and Registrations which may hereafter be granted on the same in the United States and all countries throughout the world, and to claim the priority from the application as provided by the Paris Convention. The right, title and interest is to be held and enjoyed by Assignee and Assignee's successors and assigns as fully and exclusively as it would have been held and enjoyed by Assignor had this Assignment not been made, for the full term of any Letters Patent and Registrations which may be granted thereon, or of any division, renewal, continuation in whole or in part, substitution, conversion, reissue, prolongation or extension thereof.

Assignor further agrees that he will, without charge to Assignee, but at Assignee's expense, (a) cooperate with Assignee in the prosecution of U.S. Patent applications and foreign counterparts on the invention and any improvements, (b) execute, verify, acknowledge and deliver all such further papers, including patent applications and instruments of transfer, and (c) perform such other acts as Assignee lawfully may request to obtain or maintain Letters Patent and Registrations for the invention and improvements in any and all countries, and to vest title thereto in Assignee, or Assignee's successors and assigns.

The undersigned hereby grants each practitioner at Customer No. 96286, my attorney(s) and/or agent(s), the power to insert on this document any further identification necessary or desirable to, among other things, comply with the rules of the United States Patent and Trademark Office.

Attorney Docket No.: 900016-600005

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IN TESTIMONY WHEREOF, Assignor has signed his name on the date indicated.

Full Name: Residence: (City, State, Country)

Mailing Address:

Dated: 3/28/2013

Full Name: Residence: (City, State, Country)

Mailing Address:

Dated: 4-3-2013

Full Name: Residence: (City, State, Country)

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RECORDED: 08/19/2013

PATENT REEL: 031039 FRAME: 0129