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| City: Santa Clara State: CA Zip: 950 |
| Additional name(s) & address(es) attached? Yes |
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| B. Patent No.(s) |
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| 6. Total number of applications and patents involve |
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Commissioner of Patents & Trademarks, Box Assignments
Washington, D.C. 20231

ASSIGNMENT

In consideration of good and valuable consideration, the receipt of which is hereby acknowledged, <u>we</u> the undersigned:

ERIC A. SPRANGLE and ONUR MUTLU

hereby sell, assign, and transfer to:

INTEL CORPORATION

a corporation of <u>Delaware</u>, having a principal place of business at <u>2200 Mission College Blvd, Santa Clara, CA 95052</u>, ("Assignee"), and its successors, assigns, and legal representatives, the entire right, title, and interest for the United States and all foreign countries, in and to any and all improvements that are disclosed in the application for the United States patent that was filed <u>February 21, 2002</u> and assigned Application No. <u>10/079,967</u> and is entitled:

METHOD AND APPARATUS TO CONTROL MEMORY ACCESSES

and in and to said application and all divisional applications, continuation applications, continued prosecution applications, continuation-in-part applications, substitute applications, renewal applications, reissue applications, reexaminations, extensions, and all other patent applications that have been or shall be filed in the United States and all foreign countries on any of said improvements; and in and to all original patents, reissued patents, reexamination certificates, and extensions that have been or shall be issued in the United States and all foreign countries on said improvements; and in and to all rights of priority resulting from the filing of said United States application;

agree that said Assignee may apply for and receive a patent or patents for said improvements in its own name; and that, when requested, without charge to, but at the expense of, said Assignee, its successors, assigns, and legal representatives, to carry out in good faith the intent and purpose of this Assignment, the undersigned will execute all divisional applications, continuation applications, continued prosecution applications, continuation-in-part applications, substitute applications, renewal applications, reissue applications, reexaminations, extensions, and all other patent applications on any and all said improvements; execute all rightful oaths, assignments, powers of attorney, and other papers; communicate to said Assignee, its successors, assigns, and representatives all facts known to the undersigned relating to said improvements and the history thereof; and generally assist said Assignee, its successors, assigns, or representatives in securing and maintaining proper patent protection for said improvements and for vesting title to said improvements, and all applications for patents and all patents on said improvements, in said Assignee, its successors, assigns, and legal representatives; and

BSTZ Docket No.: 42390P13410 1 Serial No.: 10/079,967

PATENT REEL: 012877 FRAME: 0677

| ndersigned. | |
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| En Soul | |
| Name: Eric A. Sprangle | |
| | En Syl |

Name: Onur Mutlu

covenant with said Assignee, its successors, assigns, and legal representatives that no

assignment, grant, mortgage, license, or other agreement affecting the rights and property herein conveyed has been made to others by the undersigned, and that full right to convey the same as

Serial No.: 10/079,967

<u>ASSIGNMENT</u>

In consideration of good and valuable consideration, the receipt of which is hereby acknowledged, <u>we</u> the undersigned:

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a corporation of <u>Delaware</u>, having a principal place of business at <u>2200 Mission College Blvd, Santa Clara, CA 95052</u>, ("Assignee"), and its successors, assigns, and legal representatives, the entire right, title, and interest for the United States and all foreign countries, in and to any and all improvements that are disclosed in the application for the United States patent that was filed <u>February 21, 2002</u> and assigned Application No. <u>10/079,967</u> and is entitled:

METHOD AND APPARATUS TO CONTROL MEMORY ACCESSES

and in and to said application and all divisional applications, continuation applications, continued prosecution applications, continuation-in-part applications, substitute applications, renewal applications, reissue applications, reexaminations, extensions, and all other patent applications that have been or shall be filed in the United States and all foreign countries on any of said improvements; and in and to all original patents, reissued patents, reexamination certificates, and extensions that have been or shall be issued in the United States and all foreign countries on said improvements; and in and to all rights of priority resulting from the filing of said United States application;

agree that said Assignee may apply for and receive a patent or patents for said improvements in its own name; and that, when requested, without charge to, but at the expense of, said Assignee, its successors, assigns, and legal representatives, to carry out in good faith the intent and purpose of this Assignment, the undersigned will execute all divisional applications, continuation applications, continued prosecution applications, continuation-in-part applications, substitute applications, renewal applications, reissue applications, reexaminations, extensions, and all other patent applications on any and all said improvements; execute all rightful oaths, assignments, powers of attorney, and other papers; communicate to said Assignee, its successors, assigns, and representatives all facts known to the undersigned relating to said improvements and the history thereof; and generally assist said Assignee, its successors, assigns, or representatives in securing and maintaining proper patent protection for said improvements and for vesting title to said improvements, and all applications for patents and all patents on said improvements, in said Assignee, its successors, assigns, and legal representatives; and

BSTZ Docket No.: 42390P13410 1 Serial No.: 10/079,967

PATENT REEL: 012877 FRAME: 0679 covenant with said Assignee, its successors, assigns, and legal representatives that no assignment, grant, mortgage, license, or other agreement affecting the rights and property herein conveyed has been made to others by the undersigned, and that full right to convey the same as herein expressed is possessed by the undersigned.

| Date: | | | |
|----------------|------------------|------------------------|--|
| | | Name: Eric A. Sprangle | |
| Date: 03/31/02 | 03/31/02 | Grus Malla | |
| | Name: Onur Mutlu | | |

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