505505708 06/03/2019

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2

SUBMISSION TYPE: NEW ASSIGNMENT

NATURE OF CONVEYANCE: ASSIGNMENT

EPAS ID: PAT5552512

CONVEYING PARTY DATA

| Name | Execution Date |
|-----------------------|----------------|
| NED M SMITH | 01/04/2018 |
| RAJESH POORNACHANDRAN | 02/02/2018 |
| MICHAEL NOLAN | 01/16/2018 |
| SIMON N PEFFERS | 01/16/2018 |

RECEIVING PARTY DATA

| Name: | INTEL CORPORATION |
|-----------------|----------------------------|
| Street Address: | 2200 MISSION COLLEGE BLVD. |
| City: | SANTA CLARA |
| State/Country: | CALIFORNIA |
| Postal Code: | 95054 |

PROPERTY NUMBERS Total: 1

| Property Type | Number |
|---------------------|----------|
| Application Number: | 15858097 |

CORRESPONDENCE DATA

Fax Number:

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.

Phone: 612-373-6900 **Email:** request@slwip.com

Correspondent Name: SCHWEGMAN, LUNDBERG & WOESSNER/INTEL

Address Line 1: PO BOX 2938

Address Line 4: MINNEAPOLIS, MINNESOTA 55402

| ATTORNEY DOCKET NUMBER: | 1884.411US1 |
|-------------------------|-----------------|
| NAME OF SUBMITTER: | NANCY CUNDALL |
| SIGNATURE: | /Nancy Cundall/ |
| DATE SIGNED: | 06/03/2019 |

Total Attachments: 9

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PATENT 505505708 REEL: 049349 FRAME: 0568



RECORDATION FORM COVER SHEET PATENTS ONLY

Patent and Trademark Office Atty Ref/Docket No.: (AA1788-US-X1) 1884.411US1 To the Director of the U.S. Patent and Trademark Office: Please record the attached original documents or copy thereof. 2. Name and address of receiving party(ies): 1. Name of conveying party(ies): Name: Intel Corporation Ned M. Smith. Rajesh Poornachandran, Michael Nolan, Street Address: 2200 Mission College Blvd. Simon N. Peffers Additional name(s) of conveying party(ies) attached? City: Santa Clara State: CA Zip: 95054 Country: United States of America []Yes [X]No Additional name(s) & address(es) attached? []Yes [X]No 3. Nature of conveyance: [X] Assignment [] Merger [] Security Agreement [] Change of Name [] Other Execution Date: January 4, 2018, February 2, 2018, January 16, 2018, January 16, 2018 4. Application number(s) or patent number(s): If this document is being filed together with a new application, the execution date of the application is: A. Patent Application No.(s) B. Patent No.(s) Serial No. 15/858,097 Additional numbers attached? []Yes [X]No 6. Total number of applications and patents involved: 1 5. Name and address of party to whom correspondence concerning document should be mailed: 7. Total fee (37 CFR 3.41):\$ 0.00 Name: John I. Fischer [[Enclosed [Authorized to be charged to deposit account Address: 190743 Schwegman Lundberg & Woessner, P.A. P.O. Box 2938 Please charge any additional fees or credit any over Minneapolis, Minnesota 55402 payments to our Deposit Account No.: 190743 DO NOT USE THIS SPACE Statement and signature. To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document. 31 May 2019 John I. Fischer/Reg. No. 60,900 Name of Person Signing Signature Date Total number of pages including cover sheet: 9

Mail documents to be recorded with required cover sheet information to:

Commissioner of Patents and Trademarks Mail Stop Assignment Recordation Services P.O. Box 1450 Alexandria, VA 22313-1450

Intel Docket No.: AA1788-US-XI SLW Reference No.: (AA1788-US-X1) 1884,411US1

ASSIGNMENT

In consideration of good and valuable consideration, the receipt of which is hereby acknowledged, we, the undersigned inventor(s):

<Ned M. Smith, Rajesh Poornachandran, Michael Nolan, Simon N. Peffers>

hereby sell, assign, and transfer to:

Intel Corporation

a corporation of Delaware, having a principal place of business at 2200 Mission College Boulevard, Santa Clara, California, 95054 USA ("Assignee"), and its successors, assigns, and legal representatives, the entire right, title, and interest for the United States and all other countries, in and to any and all inventions and improvements that are disclosed in the application for the patent entitled:

HIERARCHICAL DATA, INFORMATION, KNOWLEDGE AND WISDOM MARKETS

(I hereby authorize and request any attorney having appropriate authority from the assignee to insert on the designated lines below, the filing date and application number of said application when known.)

which was filed on December 29, 2017 as

United States of America Application Number 15/858,097

which has been executed by the undersigned prior hereto or concurrently herewith on the date(s) indicated below,

and in and to said application and all Additional Applications, and all other patent applications that have been or shall be filed in the United States and all other countries and international filing offices on any of said inventions and improvements; and in and to all original and reissued patents that have been or shall be issued in the United States and all other countries and international filing offices on said inventions and improvements; and in and to all rights of priority resulting from the filing of said applications; as used herein "Additional Applications" includes but is not limited to design, utility, utility model, divisional, continuing, continuation-in-part, substitute, renewal, reissue, and national phase applications on said inventions and improvements;

and agree that said Assignee may apply for and receive a patent or patents for said inventions and 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 Additional Applications, and all other patent applications on any and all said inventions and improvements; execute all rightful oaths, assignments, powers of attorney, and other papers; communicate to said Assignee, its successors,

Page 1 of 2

Intel Docket No.: AA1788-US-X1 SLW Reference No.: (AA1788-US-X1) 1884.411US1

assigns, and legal representatives all facts known to the undersigned relating to said inventions and improvements and the history thereof; and generally assist said Assignee, its successors, assigns, or legal representatives in securing and maintaining proper patent protection for said inventions and improvements and for vesting title to said inventions and improvements, and all applications for patents and all patents on said improvements, in said Assignee, its successors, assigns, and legal representatives; and

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.

| | 1- 4 -29 |
|-----------------------|-----------------|
| Ned M. Smith | Date Signed |
| | |
| Rajesh Poornachandran | Date Signed |
| | |
| Michael Nolan | Date Signed |
| | |
| Simon N. Peffers | Date Signed |

Intel Docket No.: AA1788-US-X1 SLW Reference No.: (AA1788-US-X1)

1884.411US1

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| Ned M. Smith | Date Signed |
|-----------------------|-------------|
| Que. | 8/50/30 |
| Rajesh Poornachandran | Date Signed |
| Michael Nolan | Date Signed |
| Simon N. Peffers | Date Signed |

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| | Ned M. Smith | | · Date Signed |
|---|-----------------------|-------------|---------------|
| | | | |
| | Rajesh Poornachandran | | Date Signed |
| | Michael Wolan | | 16-JAN-2018 |
| , | Michael Nolan | | Date Signed |
| | | | |
| | Simon N. Peffers | | Date Signed |

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| Ned M. Smith | Date Signed |
|-----------------------|-------------|
| Rajesh Poornachandran | Date Signed |
| Michael Nolan | Date Signed |
| Jus 7 //2 | 1/16/18 |
| Sinkon N. Peffers | Date Signed |

Page 2 of 2