

**NON-VOLATILE MEMORY HOST CONTROLLER INTERFACE SPECIFICATION
CONTRIBUTOR/ ADOPTER AGREEMENT**

This Non-Volatile Memory Host Controller Interface Specification Contributor/Adopter Agreement (“Agreement”) is entered into as of _____ (“Effective Date”) by and between Intel Corporation, a Delaware Corporation, having an office at 2200 Mission College Blvd., Santa Clara, California USA 95052, and its Affiliates (“Intel”) and the party, including its Affiliates, as set forth below (“Contributor” or “Adopter” as the case may be).

Check One:

- Contributor Adopter

Company Name of Contributor or Adopter

City

State

Zip

Contact Name

Telephone

Email

Intel and Contributor or Adopter hereby agree as follows:

RECITALS

Whereas, Intel has not yet completed development of the Non-Volatile Memory Host Controller Interface (“NVMHCI”) Specification;

Whereas, Contributor wishes to review, provide feedback, and possibly contribute to preliminary drafts of the NVMHCI specification as circulated by Intel for the purpose of formulating the Final Specification (as defined below), and Intel is willing to include the Contributor in those portions of its development process in which Contributor has specific expertise;

Whereas, Adopter wishes to obtain the Final Specification (as defined below) and have the right to obtain licenses to Necessary Claims.

Whereas, Intel and Contributor or Adopter desire to have the following conditions apply to this Agreement, and Intel represents that the form of this Agreement will be identical for all Contributing Parties and Adopters, other than the Effective Date and the Contributor or Adopter specific information set forth prior to the Recitals above and in Section 8.7 hereto (the form of agreement subject to these limited modifications is hereinafter referred to as the “Identical Form of Agreement”);

Now, therefore, in consideration of the mutual promises and conditions contained herein, Intel and Contributor or Adopter agree as follows:

1. DEFINITIONS

1.1 “Adopted” and “Adoption” means Intel’s formal adoption and publication of the applicable Final Specification which, for the purposes of this Agreement, is considered to occur on the date on which written notice of such Adoption is provided to Contributor or Adopter and all Contributing Parties.

1.2 “Adoption Period” for any given Adopter means any time prior to the first sale by such Adopter of a product that includes a Compliant Portion.

1.3 “Affiliate” means any entity that is directly or indirectly controlled by, under common control with or that controls the subject party. For purposes of this definition, “control” means direct or indirect ownership of or the right to exercise: (a) greater than fifty percent (50%) of the outstanding shares or securities entitled to vote for the election of directors or similar managing authority of the subject entity; or (b) greater than fifty percent (50%) of the ownership interest representing the right to make the decisions for the subject entity.

1.4 “Caching Algorithm” means a method for storing data on the Non-Volatile Memory Module that is received from, or addressed to another storage device. For clarification, the algorithm may include determination of which data is placed in the cache, determination of how to evict or remove data from the cache, and mechanisms for ensuring a mutually consistent state between the cache and the device being cached (including during power failure, system crash, or other catastrophic events), and other methods to optimize performance, reliability, and/or consistency of the cache.

1.5 “Contributing Party” means any other entity, including its Affiliates, but other than Intel or Contributor, that is authorized to submit Contributions and has signed an Identical Form of Agreement.

1.6 “Contributions” means the initial Draft Specification provided by Intel, and all submissions proposing an addition to or a modification of the Draft Specification submitted by Intel, Contributor, and/or a Contributing Party provided that the submission is submitted in writing (including a submission written in an electronic medium) and is approved for submittal by such party.

1.7 “Compliant Portion” means only those specific portions of products (hardware, firmware, micro-code, software, or combinations thereof) that: (a) implement and are compliant with all relevant portions of the Final Specification that are not optional or specifically designated as “not licensed”; and (b) are within the bounds of the Scope.

1.8 “Draft Specification” means all versions of the document entitled Non-Volatile Memory Host Controller Interface Specification and all Contributions thereto that are to be considered for inclusion in the applicable version of the Final Specification, including versions of the Draft Specification described by Intel as being “version .x”, prior to Intel’s Adoption of that version of the Final Specification

1.9 “Final Specification” means the applicable version number of the Non-Volatile Memory Host Controller Interface Specification as Adopted by Intel. The first such version number and all subsequent major revision shall be described by Intel as being “version 1.0, 2.0, 3.0 etc.” of the Final Specification. Minor revisions to the applicable version (in the nature of clarifications and error correction) shall be described by Intel as being “version X.x” of the NVMHCI Specification.

1.10 “Necessary Claims” for each party to this Agreement means, with respect to a particular Final Specification, any claim included in any patent or patent application, where such claim:

now or at any future time during the term of this agreement, is owned or controlled and licensable by such party or any of its Affiliates; and

in the absence of a license, would necessarily be infringed by at least one Compliant Portion because there is no commercially and technically reasonable non-infringing alternative for implementing such Compliant Portion.

Notwithstanding the foregoing sentence, Necessary Claims do not include any claims

other than those set forth above even if contained in the same patent as a Necessary Claim; or

that read solely on any implementations of any portion of the Final Specification that are not within the bounds of the Scope; or

that may be infringed by implementing any portion(s) of the Final Specification that are optional or specifically designated as “not licensed”; or

that, if licensed, would require a payment of royalties by the licensor to unaffiliated third parties; or

if multiple Final Specifications exist in connection with this Agreement, that qualify as Necessary Claims for purposes of one or more other Final Specifications, but not for purposes of the particular Final Specification which the Compliant Portions implement.

For purposes of this definition, the Final Specification shall be deemed to include only architectural and interconnection requirements essential for interoperability and shall not include any implementation examples unless such implementation examples are expressly identified as being required for compliance with the Final Specification.

1.11 “Non-Volatile Memory Module” means a memory subsystem consisting of a memory controller (e.g., a NAND memory controller), a non-volatile memory storage medium (e.g., NAND memory devices), an interface between the memory controller and memory storage medium, a microcontroller, and software/firmware running on the microcontroller or processor supporting the operation of the memory controller and/or of the storage medium. For clarification, the software/firmware may be formatted in object code, may be embedded in hardware, may reside in proximity to the memory controller and/or the non-volatile memory, or may be stored in a separate memory area. For further clarification, any management algorithms (e.g. wear leveling, error correction, power fail recovery, performance enhancements) that optimize or otherwise support the operation of the controller and/or the non-volatile memory shall be considered part of the Non-Volatile Memory Module.

1.12 “Processor” means any integrated circuit or combination of integrated circuits capable of processing digital data, such as a microprocessor or coprocessor (including, without limitation, a math coprocessor, graphics coprocessor, or digital signal processor).

1.13 “Scope” means any host controller interface disclosed with particularity in the Final Specification and implemented in a computer device (each of the foregoing a “Scope Unit”), where the sole purpose of such Scope Unit is to enable interfacing between at least one Processor and at least one Non-Volatile Memory Module, where the Processor(s) and Non-Volatile Memory Module(s) are in-

cluded in or otherwise directly attached to the same computer device. Notwithstanding the foregoing, the Scope shall not include:

- (a) Enabling Technologies. Any technologies that may be necessary to make or use any product or portion thereof that complies with a Final Specification but are not themselves expressly set forth in a Final Specification (e.g., semiconductor manufacturing technology, compiler technology, object oriented technology, basic operating system technology or the like)
- (b) Other Technologies. The Non-Volatile Memory Module (and each of its constituent components enumerated in section 1.11), Caching Algorithms, connectors and form factors, any Processor, any intra-circuit bus, or any data bus (e.g., any X86 data bus implemented by a manufacturer to facilitate communications between the manufacturer's Processor and other components);
- (c) Externally Developed Specification. The implementation or use of other published specifications not developed for use by the Promoters pursuant to this Agreement but referred in the body of the Final Specification even if required for compliance with the Final Specification (e.g., the PCI specification); or
- (d) Non-Normative Portions of Final Specifications. Any portion of any product or any combination of products (or portions of products) that is not required for compliance with the Final Specification; or
- (e) Combinations. Any combinations of or including Compliant Portions the purpose or function of which is not required for compliance with required portions of the Final Specification.

1.14 "Secretary" means the individual designated by Intel to undertake certain duties in connection with the administration of this Agreement.

2. COMPLIANCE WITH ANTITRUST LAWS

Contributor, Adopter and Intel are committed to fostering open competition in the development of products and services based on the Final Specification. Contributor, Adopter and Intel understand that in certain lines of business they are or may be direct competitors and that it is imperative that they and their representatives act in a manner which does not violate any state, federal or international antitrust laws and regulations. Contributor, Adopter and Intel agree to comply with all applicable antitrust laws pertaining to Contributor's participation in formulating the Draft Specifications and/or the Final Specification, and nothing in this Agreement shall be construed to require or permit conduct that violates any applicable antitrust law. Without limiting the generality of the foregoing, Contributor, Adopter and Intel acknowledge that this Agreement prohibits any communications regarding costs, prices, quantity or quality of production levels, methods or channels of distribution, markets, customers, exclusion of competitors or any other topic that may be construed as a violation of antitrust laws. Accordingly, Contributor, Adopter and Intel will counsel their respective representatives who participate in any activities under this Agreement on the importance of limiting the scope of their discussions and communications to the topics that relate to the purposes of this Agreement, whether or not such discussions and communications take place during formal meetings, informal gatherings, or otherwise.

3. SUBMISSIONS TO INTEL

This Section 3 shall only be applicable to Contributors. Contributor understands that all submissions it makes to Intel with regard to Draft Specifications shall be governed by the following:

3.1 Confidentiality of Contributions. Contributor agrees that any Contributions made by Contributor shall be deemed to be made on a non-confidential basis and that Intel shall be free to disclose Contributions for any purpose and may disclose such Contributions to any third parties. Contributor and Intel agree that Contributor can also provide its own Contributions and/or Contributions it receives from Contributing Parties to other Contributing Parties, as well as to any other third parties, at its discretion.

3.2 Copyrights in Final Specification. Effective as of thirty (30) days following Intel's Adoption of the Final Specification, Contributor hereby agrees to convey to Intel a non-exclusive, undivided, perpetual and equal ownership in the copyrights in the Final Specification, subject to the underlying copyright ownership rights of the Contributions of Contributor. Intel may exercise any and all rights of copyright ownership and sublicense such rights in the Final Specification as if such rights were solely owned by Intel and without permission of the Contributor and without any duty to account.

3.3 Copyright License for Draft Specifications. Subject to Section 5, each Contributor and Intel will grant to each of the Contributing Parties and Intel (as applicable), a license under its copyrights to reproduce, distribute, display, perform, and create derivative works of any Draft Specification, Contributions, or derivative works thereof for the purpose of developing Draft Specifications and publishing Final Specifications.

4. LIMITED PATENT LICENSING OBLIGATIONS.

4.1 Limited Interim License. In addition to any other rights granted under this Section 4, during the period prior to Intel's Adoption of the Final Specification (and subject to the withdrawal provisions under Section 7.3), Intel and Contributor agree to grant to each other and to each Contributing Party a non-exclusive, non-transferable, non-sublicensable, world-wide license under any Necessary Claims of a patent or patent application reading on any of the Contributions made by Intel and Contributor, respectively, to make, have made, use, import, and otherwise distribute Compliant Portions in and/or for use with **non-revenue generating** samples and/or evaluation units provided that, solely for purposes of this Section 4.1, the definitions of "Necessary Claims," "Compliant Portion" and "Scope" shall each be deemed to include the phrase "Draft Specifications" in each such definition; and provided further that such license does not extend to any part or function of a product in which a Compliant Portion is incorporated that is not itself part of the Compliant Portion. Such license shall be granted on a royalty-free basis and under otherwise reasonable and non-discriminatory terms, provided that such license grant will be conditioned upon each Contributing Party's grant of a reciprocal license to Intel and Contributor as evidenced by each such Contributing Party's execution of an Identical Form of Agreement.

4.2 Contributor's and Adopter's Licensing Obligations. Effective upon thirty (30) days following Intel's Adoption of the Final Specification (and subject to the withdrawal provisions under Section 7.3), Contributor or Adopter hereby agrees to grant to Intel, other Contributing Parties and Adopters, a non-exclusive, non-transferable, non-sublicensable, world-wide license under any of its Necessary Claims, to make, have made, use, import, sell, offer to sell, and otherwise distribute and dispose of Compliant Portions; provided that such license need not extend to any part or function of a product in

which a Compliant Portion is incorporated that is not itself part of the Compliant Portion. Such license will be granted on a royalty free basis and under otherwise reasonable and non-discriminatory terms.

4.3 Intel's Licensing Obligations. Effective upon thirty (30) days following Intel's Adoption of the Final Specification (and subject to the withdrawal provisions under Section 7.3), Intel hereby agrees to grant to Contributor, other Contributing Parties and Adopters, a non-exclusive, non-transferable, non-sublicensable, world-wide license under any of its Necessary Claims, to make, have made, use, import, sell, offer to sell, and otherwise distribute and dispose of Compliant Portions; provided that such license need not extend to any part or function of a product in which a Compliant Portion is incorporated that is not itself part of the Compliant Portion. Such license will be granted on a royalty free basis and under otherwise reasonable and non-discriminatory terms and may be conditioned upon the Contributor's or other Contributing Party's or Adopter's grant of a reciprocal license to Intel, Contributor, other Contributing Parties and Adopters, as evidenced by each such Contributor's or other Contributing Party's or Adopter's execution of an Identical Form of Agreement.

5. DISTRIBUTION; CONFIDENTIALITY

5.1 Distribution of Draft Specifications. At least thirty (30) calendar days prior to the Adoption of the Final Specification, Intel will distribute to Contributor and each Contributing Party copies of the Draft Specification. **Draft Specifications will not be distributed or made available to Adopters.**

5.2 Confidentiality of Draft Specifications. Until Intel's Adoption of the Final Specification and until the Final Specification is generally made publicly available, Contributor will maintain all versions and revisions of the Draft Specifications ("Confidential Material") in confidence with at least the same degree of care that it uses to protect its own confidential and proprietary information, but no less than a reasonable degree of care under the circumstances and will not use, disclose or copy the Confidential Material except as necessary for its employees with a need to know, and authorized contractors with a need to know and who have signed a written non-disclosure agreement with Contributor with terms no less restrictive than those contained herein, to evaluate and comment thereon.

5.3 Residuals. Notwithstanding anything herein to the contrary, any party may use Residuals for any purpose, including without limitation use in development, manufacture, promotion, sale and maintenance of its products and services; provided that this right to Residuals does not represent a license under any patents, copyrights or mask works of the disclosing party. The term "Residuals" means any information retained in the unaided memories of the receiving party's employees who have had access to the disclosing party's Confidential Material pursuant to the terms of this Agreement. An employee's memory is unaided if the employee has not intentionally memorized the Confidential Material for the purpose of retaining and subsequently using or disclosing it.

5.4 Press Release. Following Intel's Adoption of the Final Specification, Contributor or Adopter may make a press or other public announcement regarding its activities as a Contributor or Adopter and may include the names of Intel, Contributors, other Contributing Parties and Adopters in such announcement, with Intel's and each such Contributor's, other Contributing Party's and Adopter's prior written approval.

6. TRADE NAMES

6.1 Non Assertion. Contributor or Adopter and Intel hereby each agree not to assert against each other, any Contributor, other Contributing Party or Adopter any trademark, trade name, or similar rights it may have now or hereafter in the names Non-Volatile Memory Host Controller Interface or NVMHCI (collectively “Trade Names”).

6.2 No Obligation To Use Trade Names. Contributor or Adopter shall not be obligated to use any of the Trade Names on any product, advertising, or on any other material in any manner.

6.3 Use of the Trade Names. Contributor or Adopter and Intel hereby each agree that it shall only use any one or more of the Trade Names to label and/or promote products that contain relevant Compliant Portions.

7. TERM AND TERMINATION

7.1 Term. Unless terminated as provided herein, this Agreement shall remain in full force and effect for a period of five (5) years from the Effective Date.

7.2 Termination By Contributor or Adopter. Contributor or Adopter may terminate this Agreement at any time upon giving written notice to the Secretary. After the effective date of termination, Contributor or Adopter shall not be subject to any agreement to grant any further copyright ownership, or license of its Necessary Claims, except as provided in Section 7.3 below.

7.3 Survival of License Grants if Contributor or Adopter Terminates. Notwithstanding Contributor’s or Adopter’s termination of this Agreement, (i) Contributor’s and Intel’s agreement to grant equal ownership to copyrights as provided in Section 3.2, (ii) Contributor’s, Intel’s or Adopter’s agreement to grant the licenses as provided in Sections 4.1, 4.2 and 4.3 shall remain in full force and effect but only for (x) those Contributions made by Intel or Contributor prior to the effective date of such Contributor’s termination or (y) Necessary Claims of Contributors, Intel or Adopters in Final Specifications Adopted thirty (30) days prior to the effective date of Contributor’s or Adopter’s termination. Regardless of the date when Contributor or Adopter may terminate this Agreement, Contributor’s and Adopter’s agreement to grant such ownership and license grants will extend to Intel, and to all Contributors, other Contributing Parties and Adopters (collectively, “Licensees”) including Licensees that become Licensees after the effective date of the Contributor’s or Adopter’s termination; however, Contributor will only receive such ownership and license grants for those copyrights and licenses and Adopter will only receive such licenses available as of thirty (30) days prior to the effective date of Contributor’s or Adopter’s termination. Terminated Contributors will not be eligible to receive distributions of Draft Specifications or any other material pursuant to Section 5.1 hereof following such termination.

7.4 Additional Clauses to Survive Termination. Sections 5.0, 7.3, 7.4, 8.3, 8.4, 8.5, and 8.6 shall also survive termination of this Agreement.

8. GENERAL

8.1 Effective Date. This Agreement shall become effective upon the date this Agreement is executed by Intel and Contributor or Adopter.

8.2 No Other Licenses. Except for the rights expressly provided by this Agreement, Intel, Contributor, Adopter and/or Licensees neither grants nor receives, by implication, or estoppel, or otherwise, any rights under any patents or other intellectual property rights.

8.3 Representations and Disclaimer of Warranty.

8.3.1 Except as otherwise agreed in writing, Intel and Contributor represent and warrants that (1) at the time of making a Contribution, to the knowledge of the employee making the Contribution, the Contribution is not being made in violation of the copyright or trade secret interests of another, (2) the Contribution does not include source code, (3) the Contribution will not cause any Draft Specification or Final Specification to be subject to the licensing requirements of an Excluded License, and (4) they will not cause a Final Specification to be distributable under the terms of an Excluded License. By way of clarification, the reference to source code in (2) above does not include pseudocode. For purposes of this Section 8.3.1, “pseudocode” means a compact and informal high-level description of a computer programming algorithm that uses the structural conventions of programming languages, but omits detailed subroutines, variable declarations or language-specific syntax. An Excluded License is any license that requires, as a condition of use, modification and/or distribution of software or other materials (“Software”) subject to the Excluded License, that such Software, and/or other software or other materials combined and/or distributed with such Software be (a) disclosed or distributed in source code form; (b) licensed for the purpose of making derivative works; or (c) redistributable at no charge.

8.3.2 Except as set forth in 8.3.1, all parties acknowledge that all information provided as part of the Final Specification development process, and the Draft Specification and/or Final Specification itself, are all provided “AS IS” WITH NO WARRANTIES WHATSOEVER, WHETHER EXPRESS, IMPLIED, STATUTORY, OR OTHERWISE, AND THE PARTIES EXPRESSLY DISCLAIM ANY WARRANTY OF MERCHANTABILITY, NON-INFRINGEMENT, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY WARRANTY OTHERWISE ARISING OUT OF ANY PROPOSAL, SPECIFICATION, OR SAMPLE.

8.4 Limitation of Liability. IN NO EVENT WILL EITHER PARTY HERETO BE LIABLE TO ANY OTHER FOR THE COST OF PROCURING SUBSTITUTE GOODS OR SERVICES, LOST PROFITS, LOSS OF USE, LOSS OF DATA OR ANY INCIDENTAL, CONSEQUENTIAL, INDIRECT, OR SPECIAL DAMAGES, WHETHER UNDER CONTRACT, TORT, WARRANTY OR OTHERWISE, ARISING IN ANY WAY OUT OF THIS OR ANY OTHER RELATED AGREEMENT, WHETHER OR NOT SUCH PARTY HAD ADVANCE NOTICE OF THE POSSIBILITY OF SUCH DAMAGES.

8.5 Governing Law. This Agreement shall be construed and controlled by the laws of the State of New York without reference to conflict of laws principles.

8.6 Jurisdiction. The parties agree that all disputes arising in any way out of this Agreement shall be heard exclusively in, and all parties irrevocably consent to, jurisdiction and venue in the state and federal courts of New York.

8.7 Notices. All notices hereunder shall be in writing and sent to the parties at the following addresses or at such addresses as the Secretary and/or Contributor or Adopter may later specify by such written notice. For purposes of this Section 8.7, written notice shall not include notice by electronic mail or by facsimile.

Notices to Intel:

Notices to Contributor or Adopter

Intel Corporation
2200 Mission College Blvd
Santa Clara, CA 95052
Attn.: General Counsel
With a copy to the Secretary

Such notices shall be deemed served when received by addressee or, if delivery is not accomplished by reason of some fault of the addressee, when tendered for delivery. Any party may give written notice of a change of address and, after notice of such change has been received, any notice or request shall thereafter be given to such party at such changed address.

8.8 Authority. Each party hereby warrants to the other party that it has power to enter into, and perform its obligations as set forth in this Agreement.

8.9 Not Partners. The parties hereto are independent companies and are not partners or joint venturers with each other.

8.10 Complete Agreement; No Waiver. This Agreement sets forth the entire understanding of the parties and supersedes all prior agreements and understandings relating hereto. No modifications or additions to or deletions from this Agreement shall be binding unless accepted in writing by an authorized representative of the parties, and the waiver of any breach or default will not constitute a waiver of any other right hereunder or any subsequent breach or default.

8.11 No Rule of Strict Construction. Regardless of which party may have drafted this Agreement, no rule of strict construction shall be applied against any party. If any provision of this Agreement is determined by a court to be unenforceable, the parties shall deem the provision to be modified to the extent necessary to allow it to be enforced to the extent permitted by law, or if it cannot be modified, the provision will be severed and deleted from this Agreement, and the remainder of the Agreement will continue in effect.

8.12 Compliance with Laws. Anything contained in this Agreement to the contrary notwithstanding, the obligations of the parties hereto shall be subject to all laws, present and future, of any government having jurisdiction over the parties hereto, and to orders, regulations, directions or requests of any such government.

In witness of their agreement, the parties have executed this Agreement below:

Intel Corporation

Contributor or Adopter _____

By _____

By _____

Name _____

Name _____

Title _____

Title _____

Date _____

Date _____

Fax: _____

Fax: _____

Please send two signed copies to the following address for agreement execution by Intel:

Intel Corporation
NVMHCI Specification
2111 NE 25th Avenue
MS: JF5-371
Hillsboro, OR 97124
ATTN: Amber Huffman