

PATENT ASSIGNMENT COVER SHEET

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NATURE OF CONVEYANCE:	RELEASE OF SECURITY INTERESTS IN PATENTS

CONVEYING PARTY DATA

Name	Execution Date
MARANON CAPITAL, L.P.	05/10/2019

RECEIVING PARTY DATA

Name:	VIRTUUM LLC
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City:	DOWNERS GROVE
State/Country:	ILLINOIS
Postal Code:	60515

PROPERTY NUMBERS Total: 30

Property Type	Number
Patent Number:	9305655
Patent Number:	9099173
Patent Number:	9064716
Patent Number:	8990484
Patent Number:	8918583
Patent Number:	8784125
Patent Number:	8124450
Patent Number:	8090988
Patent Number:	8028404
Patent Number:	7786563
Patent Number:	7762818
Patent Number:	7167373
Patent Number:	6566610
Application Number:	15050448
Application Number:	15011457
Application Number:	15089601
Application Number:	62722187
Application Number:	62692677
Application Number:	62739872
Application Number:	62739873

PATENT

Property Type	Number
Application Number:	62739874
Application Number:	62739875
Application Number:	62695191
Application Number:	62798094
Application Number:	14269203
Application Number:	13722806
Application Number:	13722556
Application Number:	13722736
Application Number:	13715639
Application Number:	13715848

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Total Attachments: 4

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RELEASE OF SECURITY INTERESTS IN PATENTS

THIS RELEASE OF SECURITY INTERESTS IN PATENTS (this “Release”) is made as of this 10th day of May, 2019, by **MARANON CAPITAL, L.P.**, as Administrative Agent (“Administrative Agent”), in favor of **VIRTUUM LLC**, a Delaware limited liability company (“Company”). Capitalized terms used but not defined herein shall have the same meanings assigned to such terms in the Patent Security Agreement (as defined below).

Reference is made to that certain Payoff Letter dated as of May 10, 2019 by and among Administrative Agent, Company and the other parties thereto (the “Payoff Letter”).

FOR GOOD AND VALUABLE CONSIDERATION, the receipt and adequacy of which are hereby acknowledged, subject to the terms and conditions of the Payoff Letter, Administrative Agent hereby terminates the Patent Security Agreement and terminates, releases and discharges all liens and security interests granted by Company in favor of Administrative Agent and reassigns to Company all right, title and interest to the Patent Collateral (as defined in the Patent Security Agreement) including without limitation, the patents and patent applications listed on Schedule A attached hereto pursuant to that certain Patent Security Agreement, dated as of March 6, 2019, executed by Company in favor of Administrative Agent and recorded with the United States Patent and Trademark Office on March 6, 2019 at Reel/Frame 048515/0493 (the “Patent Security Agreement”). Administrative Agent hereby authorizes Company or any of its authorized representatives to file this Release with the United States Patent and Trademark Office or any other applicable governmental office. Administrative Agent hereby agrees to execute, acknowledge, procure, and deliver any further documents and to do such other acts as may be reasonably requested by Company, at Company’s expense, to fully effectuate the purposes of this Release.

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IN WITNESS WHEREOF, Administrative Agent has caused this Release to be executed by its authorized officer as of the date of this Release.

MARANON CAPITAL, L.P., as Administrative Agent

By: 

Name: Rommel Garcia

Title: Managing Director

SCHEDULE A

U.S. PATENTS

Description	Application No.	Application Date	Patent No.	Patent Date
Solving MLC NAND paired page program using reduced spatial redundancy	14038749	9/27/13	9305655	4/5/16
Classifying flash devices using ECC	13715807	12/14/12	9099173	8/4/15
Stacking devices at finished package level	12571313	9/30/09	9064716	6/23/15
Heap-based mechanism for efficient garbage collection block selection	13715903	12/14/12	8990484	3/24/15
Adapting behavior of solid-state drive using real usage model	13722845	12/20/12	8918583	12/23/14
Side retainer assembly for heat sink and memory modules	13535309	6/27/12	8784125	7/22/14
Stacking multiple devices using single-piece interconnecting element	12844795	7/27/10	8124450	2/28/12
Saving information to flash memory during power failure	12625422	11/24/09	8090988	1/3/12
Multi-function module	12818084	6/17/10	8028404	10/4/11
Stacking multiple devices using single-piece interconnecting element	11824168	6/28/07	7786563	8/31/10
Multi-function module	12345536	12/29/08	7762818	7/27/10
Stacking multiple devices using flexible circuit	10796540	3/8/04	7167373	1/23/07
Stacking multiple devices using direct soldering	10032908	11/1/01	6566610	5/20/03

PENDING U.S. PATENT APPLICATIONS

Description	Application No.	Application Date	Patent No.	Patent Date
Visualization of usage impacts on solid state drive life acceleration	15050448	2/22/16	N/A	N/A
Data and collection methods to analyze life acceleration of SSD with real usages	15011457	1/29/16	N/A	N/A
Solving MLC NAND paired page program using reduced spatial redundancy	15089601	4/4/16	N/A	N/A
Architectural definition for data-pipelining in intelligent storage system	62722187	8/24/2019	N/A	N/A
IoT Storage Processing Unit	62692677	6/30/2019	N/A	N/A
Novel and agile storage communication interface for the industrial IoT system	62739872	10/2/2019	N/A	N/A
A novel method to secure storage data at the Edge for the Industrial IoT system	62739873	10/2/2019	N/A	N/A
A novel method of event recording and restoring to reduce communication bandwidth and cloud storage space in the Industrial IoT system	62739874	10/2/2019	N/A	N/A
An agile method to detect abnormal conditions and reduce storage space for the industrial IoT Edge system	62739875	10/2/2019	N/A	N/A
Dual Independent PCIe Channels for M.2 interface	62695191	7/8/2019	N/A	N/A
Side channel DATA access for Solid State Storage Devices	62798094	1/29/2020	N/A	N/A

ABANDONED U.S. PATENT APPLICATIONS

Description	Application No.	Application Date	Patent No.	Patent Date
Synergetic deduplication	14269203	5/5/14	N/A	N/A
ESTIMATING LIFESPAN OF SOLID-STATE DRIVE USING REAL USAGE MODEL	13722806	12/20/12	N/A	N/A
INTEGRATED AND NATURALIZED STATIC WEAR-LEVELING FOR BLOCK MAPPING	13722556	12/20/12	N/A	N/A
REAL USAGE MODEL FOR SOLID-STATE DRIVE	13722736	12/20/12	N/A	N/A
LIFE MONITORING IN SOLID-STATE DRIVE	13715639	12/14/12	N/A	N/A
NAND COMMAND AGGREGATION	13715848	12/14/12	N/A	N/A