

## TRADEMARK ASSIGNMENT COVER SHEET

Electronic Version v1.1  
Stylesheet Version v1.2

ETAS ID: TM402833

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT		
<b>NATURE OF CONVEYANCE:</b>	SECURITY INTEREST		
<b>CONVEYING PARTY DATA</b>			
<b>Name</b>	<b>Formerly</b>	<b>Execution Date</b>	<b>Entity Type</b>
QUANTUM CORPORATION		10/21/2016	Corporation: DELAWARE
<b>RECEIVING PARTY DATA</b>			
<b>Name:</b>	TCW ASSET MANAGEMENT COMPANY LLC, as Agent		
<b>Street Address:</b>	200 Clarendon Street, 51st Floor		
<b>City:</b>	Boston		
<b>State/Country:</b>	MASSACHUSETTS		
<b>Postal Code:</b>	02116		
<b>Entity Type:</b>	Limited Liability Company: DELAWARE		
<b>PROPERTY NUMBERS Total: 57</b>			
<b>Property Type</b>	<b>Number</b>	<b>Word Mark</b>	
<b>Registration Number:</b>	2123355	ADIC	
<b>Registration Number:</b>	1610492	AMASS	
<b>Registration Number:</b>	4685455	Q BE CERTAIN	
<b>Registration Number:</b>	2926907	CERTANCE	
<b>Registration Number:</b>	2864338	DLT	
<b>Registration Number:</b>	3399422	DLT	
<b>Registration Number:</b>	2518368	DLT SUPER TAPE	
<b>Registration Number:</b>	2373379	DLT TAPE	
<b>Registration Number:</b>	2864339	DLTTAPE	
<b>Registration Number:</b>	3655418	DXI	
<b>Registration Number:</b>	4172746	DXI ACCENT	
<b>Registration Number:</b>	4679234	DXI V1000	
<b>Registration Number:</b>	4175224	DXI-SERIES	
<b>Serial Number:</b>	85476480	DX-SERIES	
<b>Registration Number:</b>	2294666	FASTSTOR	
<b>Registration Number:</b>	2211317	FILESERV	
<b>Registration Number:</b>	3934430	GOPROTECT	
<b>Registration Number:</b>	4590993	LATTUS	
<b>Registration Number:</b>	2836782	LINEAR TAPE-OPEN	

OP \$1440.00 2123355

Property Type	Number	Word Mark
Registration Number:	2487985	LTO
Registration Number:	2815237	LTO LINEAR TAPE-OPEN
Registration Number:	4306048	NDX
Registration Number:	4388069	O
Registration Number:	4388070	O
Registration Number:	4388073	O
Registration Number:	3794867	PANCETERA
Registration Number:	2669251	PATHLIGHT
Registration Number:	4685094	PRESERVING THE WORLD'S MOST IMPORTANT DA
Registration Number:	3259974	Q
Registration Number:	4581554	Q-CLOUD
Registration Number:	2075239	QUANTUM
Registration Number:	1089619	QUANTUM
Registration Number:	2434568	QUANTUM
Registration Number:	0926161	QUANTUM
Registration Number:	2392749	QUANTUM
Registration Number:	4583134	QUANTUM
Registration Number:	2411810	QUANTUM
Registration Number:	1749927	QUANTUM
Registration Number:	2386775	QUANTUM
Registration Number:	4175381	QUANTUM DXI-SERIES
Serial Number:	85476482	QUANTUM DX-SERIES
Registration Number:	3732299	QUANTUM VISION
Registration Number:	2881314	SCALAR
Registration Number:	2030788	SCALAR
Registration Number:	3078209	SDLTTAPE
Registration Number:	3967730	SMARTREAD
Registration Number:	3018998	STORAGECARE
Registration Number:	2468420	STORNEXT
Registration Number:	2987717	SUPERLOADER
Registration Number:	3992387	SYMFORM
Registration Number:	4388065	SYMFORM
Registration Number:	4388066	SYMFORM
Registration Number:	4388068	SYMFORM
Registration Number:	1869317	TAPESTOR
Registration Number:	2487984	ULTRIUM
Registration Number:	4623199	ULTRIUM LTO
Registration Number:	1464451	VIPER

**CORRESPONDENCE DATA****Fax Number:** 3128637806*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:** 312-863-7198**Email:** nancy.brougher@goldbergkohn.com**Correspondent Name:** Nancy Brougher, Paralegal**Address Line 1:** Goldberg Kohn Ltd.**Address Line 2:** 55 East Monroe Street, Suite 3300**Address Line 4:** Chicago, ILLINOIS 60603**ATTORNEY DOCKET NUMBER:** 7129.021**NAME OF SUBMITTER:** Nancy Brougher**SIGNATURE:** /njb/**DATE SIGNED:** 10/21/2016**Total Attachments: 56**

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THE LIENS AND SECURITY INTERESTS SECURING THE OBLIGATIONS AS EVIDENCED HEREBY ARE SUBJECT TO THE PROVISIONS OF THE INTERCREDITOR AGREEMENT, DATED AS OF THE DATE HEREOF (AS AMENDED OR MODIFIED FROM TIME TO TIME), BY AND AMONG AGENT, AS TERM AGENT, AND PNC BANK, NATIONAL ASSOCIATION, AS ABL AGENT. IN THE EVENT OF ANY CONFLICT BETWEEN THE TERMS OF THE INTERCREDITOR AGREEMENT AND THIS AGREEMENT, THE TERMS OF THE INTERCREDITOR AGREEMENT SHALL GOVERN AND CONTROL.

INTELLECTUAL PROPERTY SECURITY AGREEMENT

This INTELLECTUAL PROPERTY SECURITY AGREEMENT (this "Agreement"), dated as of October 21, 2016, is made by QUANTUM CORPORATION, a Delaware corporation ("Quantum" and together with each Person joined hereto as a "Grantor" from time to time, collectively, "Grantors" and each a "Grantor"), in favor of TCW ASSET MANAGEMENT COMPANY LLC, in its capacity as "Agent" under the Credit Agreement referenced below (together with its successors and permitted assigns in such capacity, including any replacement or successor "Agent" appointed under the Credit Agreement, the "Agent").

WITNESETH:

WHEREAS, pursuant to that certain Revolving Credit and Security Agreement, dated of even date herewith, by and among the Agent, the financial institutions named therein or which hereafter become a party thereto as lenders (collectively, the "Lenders"), the Grantors and each other Person hereafter joined thereto as a borrower or guarantor from time to time (as amended, modified, supplemented, renewed, restated or replaced from time to time, the "Credit Agreement"; capitalized terms used herein but not otherwise defined herein shall have the meanings given to such terms in the Credit Agreement), Agent and Lenders have made and/or will hereinafter make certain extensions of credit to the Grantors upon the terms and subject to the conditions set forth in the Credit Agreement;

WHEREAS, pursuant to the Credit Agreement, Grantors have granted to Agent, for its own benefit and for the ratable benefit of the Secured Parties, security interests in and liens upon substantially all of each Grantor's assets, including without limitation all of each Grantor's Intellectual Property Collateral (as hereinafter defined); and

WHEREAS, Grantors have agreed to execute and deliver this Agreement, and to have a copy of this Agreement filed with the United States Patent and Trademark Office and/or the United States Copyright Office (as applicable), in order to perfect and/or protect all of Agent's security interest in and liens upon the Intellectual Property Collateral;

NOW, THEREFORE, in consideration of the premises and mutual covenants and agreements provided for herein and in the Credit Agreement, and for other good and valuable considerations, the receipt and sufficiency of which are hereby acknowledged by each party hereto, and intending to be legally bound, the parties hereto agree as follows:

Section 1. Grant of Security Interest in Intellectual Property Collateral. Without limiting any other grant of any lien by any Grantor in any Collateral under the Credit Agreement or any Other Document, to secure the prompt payment and performance of all Obligations to Agent and the other Secured Parties, each Grantor hereby assigns, pledges and grants to Agent, for its benefit and for the ratable benefit of the other Secured Parties, a continuing security interest in and lien upon all of such Grantor's right, title and interest in, to and under the following Collateral of such Grantor, all whether now owned and/or existing or hereafter created, arising and/or acquired (the "Intellectual Property Collateral"):

(a) all of its registered/issued United States patents and filed United States patent applications, including, without limitation, those referred to on Schedule 1 hereto or on any Schedule to any Supplement (as defined below) delivered hereafter, together with all reissues, reexaminations, continuations, continuations-in-part, divisionals, renewals and extensions of the foregoing;

(b) all of its registered United States trademarks and filed United States trademark applications constituting Collateral, including, without limitation, those referred to on Schedule 2 hereto or on any Schedule to any Supplement delivered hereafter, together with all renewals, reversions and extensions of the foregoing;

(c) all goodwill of the business connected with the use of, and symbolized by, each such trademark and trademark application covered by clause (b) above;

(d) all of its registered United States copyrights and filed United States copyright applications, including, without limitation, those referred to on Schedule 3 hereto or on any Schedule to any Supplement delivered hereafter, together with all renewals, reversions and extensions of the foregoing;

(e) any claims for damages by way of any past, present, or future infringement of any of the foregoing and proceeds thereof (including, without limitation, any proceeds resulting under insurance policies); and

(f) all cash, income, royalties, fees, other proceeds, Receivables, accounts and general intangibles that consist of rights of payment to or on behalf of any Grantor, proceeds from the sale, licensing or other disposition of all or any part of, or rights in, the Intellectual Property Collateral by or on behalf of any Grantor, and all rights to sue and recover at law or in equity for any past, present and future infringement, misappropriation, dilution, violation or other impairment thereof;

which such continuing security interest in and lien upon the Intellectual Property Collateral, and this Agreement, shall continue in full force and effect to secure each of the Obligations unless and until all of the Obligations have been Paid in Full and the Credit Agreement has been terminated in accordance with its terms.

Notwithstanding the foregoing, the Intellectual Property Collateral shall not include any Excluded Property.

Section 2. Credit Agreement. The security interests and liens granted pursuant to this Agreement are granted in conjunction with, and in no way limit, the security interests and liens granted to the Agent pursuant to the Credit Agreement and/or any of the Other Documents, and each Grantor hereby acknowledges and agrees that the rights and remedies of the Agent with respect to the security interests in and liens upon the Intellectual Property Collateral made and granted hereby are more fully set forth in the Credit Agreement, the terms and provisions of which are incorporated by reference herein as if fully set forth herein. In the event that any provisions of this Agreement are in conflict with the Credit Agreement, the provisions of the Credit Agreement shall govern.

Section 3. Registration/Filing. This Agreement is intended by the parties to be filed, and each Grantor hereby authorizes Agent to file and record a copy of this Agreement, with the United States Patent and Trademark Office and/or United States Copyright Office, as applicable.

Section 4. Grantors Remains Liable. Each Grantor hereby agrees that, anything herein to the contrary notwithstanding, such Grantor shall retain full and complete responsibility for the prosecution, defense, enforcement or any other necessary or desirable actions in connection with the Intellectual Property Collateral subject to a security interest hereunder.

Section 5. Agreement to Deliver Supplements. Each Grantor hereby covenants and agrees that upon the acquisition by such Grantor of any new Intellectual Property Collateral, Grantors shall, concurrently with the delivery of a Compliance Certificate under Section 9.7, 9.8 or 9.9 of the Credit Agreement with respect to the period in which such acquisition of such new Intellectual Property Collateral occurred, deliver to Agent a duly executed Supplement to this Agreement in the form of Exhibit A hereto (a "Supplement"), listing all such newly acquired Intellectual Property Collateral on Schedule I thereto, pursuant to which Grantors shall reconfirm the grant of a security interest in such newly acquired Intellectual Property Collateral to Agent, for its benefit and for the ratable benefit of the other Secured Parties, to secure the Obligations. Each Supplement is intended by the parties to be filed, and Grantors hereby authorize Agent to file and record a copy of each Supplement, with the United States Patent and Trademark Office and/or United States Copyright Office, as applicable. Regardless of whether any Supplement is delivered by Grantors, and without limiting the generality of the provisions of Section 1 hereof above, Grantors hereby confirm and agree that any and all such after-acquired Intellectual Property Collateral (in each case, other than Excluded Property) shall immediately and automatically upon any Grantor's acquisition of any right, title and interest therein become part of the Intellectual Property Collateral hereunder. Without limiting Grantors' obligations under this Section, each Grantor hereby authorizes Agent, its successors and assigns, and any officer, employee, attorney or agent thereof, as such Grantor's true and lawful attorney-in-fact, with the power, subject in each case to the provisions of the Intercreditor Agreement, to execute and endorse in the name of such Grantor any supplement or other documentation in order to unilaterally modify this Intellectual Property Security Agreement by amending any of the Schedules hereto to include any newly acquired Intellectual Property Collateral of any Grantor and to file the same with the United States Patent and Trademark Office and/or United States Copyright Office, as applicable, in the name of and on behalf of such Grantor. Notwithstanding the foregoing, no failure to so modify this Intellectual Property Security Agreement or amend any Schedule hereto shall in any way affect, invalidate or detract from Agent's continuing security interest in all Intellectual Property Collateral, whether or not listed on any Schedule hereto.

Section 6. Termination. Upon Payment in Full of all of the Obligations and the termination of the Credit Agreement in accordance with its terms, upon the written request of any Grantor, and at the sole expense of such Grantor, Agent shall execute and deliver to such Grantor an instrument, in form and substance reasonably satisfactory to Agent, in writing in recordable form releasing the lien and security interest of Agent in the Intellectual Property Collateral granted under this Agreement and each Supplement.

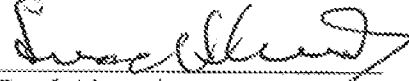
Section 7. Miscellaneous. This Agreement, and all matters relating hereto or arising herefrom (whether arising under contract law, tort law or otherwise) shall, in accordance with Section 5-1401 of the General Obligations Law of the State of New York, be governed by and construed in accordance with the laws of the State of New York. Without limiting the generality of the general incorporation of the Credit Agreement herein provided for above, the provisions of Section 16.1 of the Credit Agreement {agreements regarding, consents to and waivers regarding jurisdiction and venue}, Section 16.5 of the Credit Agreement {indemnities by Grantors}, Section 16.6 of the Credit Agreement {notices}, Section 16.9 of the Credit Agreement {expenses} and Article XII of the Credit Agreement {certain waivers including waivers of the rights of jury trial} are hereby specifically incorporated by reference. If any part of this Agreement is contrary to, prohibited by, or deemed invalid under Applicable Laws or regulations, such provision shall be inapplicable and deemed omitted to the extent so contrary, prohibited or invalid, but the remainder hereof shall not be invalidated thereby and shall be given effect so far as possible. This Agreement shall be binding upon and inure to the benefit of Grantors and Agent, and their respective successors and permitted assigns, except that no Grantor may assign or transfer any of its rights or obligations under this Agreement except in accordance with the provisions of the Credit Agreement. This Agreement may be executed in counterparts, each of which shall constitute an original, but all of which when taken together shall constitute a single contract. Any signature delivered by a party by facsimile or other electronic means of transmission (including email transmission of a PDF copy) shall be deemed to be an original signature hereto.



In witness whereof, each Grantor has caused this Intellectual Property Security Agreement to be executed and delivered by its duly authorized officer as of the date first set forth above.

GRANTOR:

QUANTUM CORPORATION

By:   
Name: Fuad Ahmad  
Title: Chief Financial Officer

ACCEPTED AND AGREED  
as of the date first above written:

TCW ASSET MANAGEMENT COMPANY  
LLC, as Agent

By:   
Name: Suzanne Grosso  
Title: Managing Director

[Signature Page to Intellectual Property Security Agreement]

**TRADEMARK**  
**REEL: 005907 FRAME: 0475**

EXHIBIT A

SUPPLEMENT TO INTELLECTUAL PROPERTY SECURITY AGREEMENT

THIS SUPPLEMENT TO INTELLECTUAL PROPERTY SECURITY AGREEMENT (the "Supplement") made as of this \_\_\_ day of \_\_\_\_\_, 201\_\_\_, QUANTUM CORPORATION, a Delaware corporation ("Quantum", and any other Person that may hereafter become a party to this Agreement as a grantor of liens under the Intellectual Property Security Agreement described below, collectively, "Grantors" and each a "Grantor"), in favor of TCW ASSET MANAGEMENT COMPANY LLC, in its capacity as "Agent" under the Credit Agreement referenced below (in such capacity, together with its successors and permitted assigns, the "Agent");

WITNESSETH

WHEREAS, Grantors and Agent are parties to a certain Intellectual Property Security Agreement, dated as of October 21, 2016 (as amended, modified, supplemented, renewed, restated or replaced from time to time, the "IP Security Agreement"). Capitalized terms used herein but not otherwise defined herein shall have the meanings given to such terms in the IP Security Agreement;

WHEREAS, pursuant to the IP Security Agreement, to secure the prompt payment and performance of all Obligations to Agent and each other Secured Party, Grantors have assigned, pledged and granted to Agent, for its benefit and for the ratable benefit of the other Secured Parties, a continuing security interest in and to and lien upon all of such Grantor's right, title and interest in, to and under the Intellectual Property Collateral of each Grantor, all whether now owned or hereafter created, arising and/or acquired; and

WHEREAS, pursuant to the IP Security Agreement, Grantors have agreed that upon the acquisition by any Grantor of any new Intellectual Property Collateral, Grantors shall deliver to Agent a Supplement to the IP Security Agreement in the form of Exhibit A thereto pursuant to which Grantors shall reconfirm the grant by them of a security interest in and lien upon all such newly acquired Intellectual Property Collateral, which such Supplement is intended by the parties to be filed with the United States Patent and Trademark Office and/or United States Copyright Office, as applicable,

NOW, THEREFORE, in consideration of the premises set forth herein and for other good and valuable consideration, receipt and sufficiency of which are hereby acknowledged by each party hereto, and intending to be legally bound, and with the foregoing background and recitals incorporated by reference, Grantors agree as follows:

1. Grant and Reaffirmation of Grant of Security Interests. Without limiting any other grant of any security interest or lien by any Grantor in and upon any Collateral under the Credit Agreement or any of the Other Documents, to secure the prompt payment and performance of all Obligations to Agent and the other Secured Parties, each Grantor hereby assigns, pledges and grants to Agent, for its benefit and for the ratable benefit of the other

Secured Parties, a continuing security interest in and to and lien upon all of such Grantor's right, title and interest in, to and under the following Collateral of such Grantor, all whether now owned or hereafter created, arising and/or acquired: the newly acquired Intellectual Property Collateral listed on Schedule 1 to this Supplement (together with all reissues, reexaminations, continuations, continuations-in-part, divisionals, renewals and extensions of the foregoing). Grantors agree that all such newly acquired Intellectual Property Collateral described above shall be included in and be part of the Intellectual Property Collateral under and subject to all of the terms and provisions of the IP Security Agreement. Grantors hereby authorize Agent to file and record a copy of this Supplement with the United States Patent and Trademark Office and/or United States Copyright Office, as applicable.

2. Incorporation of the IP Security Agreement. The terms and provisions of the IP Security Agreement are hereby incorporated by reference and this Supplement shall be considered an amendment and supplement to and part of the IP Security Agreement; all of the provisions of which IP Security Agreement are and remain in full force and effect as supplemented by this Supplement.

[Remainder of Page Left Intentionally Blank]

IN WITNESS WHEREOF, Grantors have duly executed this Supplement to the IP Security Agreement as of the date first written above.

GRANTORS:

QUANTUM CORPORATION

By: \_\_\_\_\_  
Name:  
Title:

ACCEPTED AND AGREED  
as of the date first above written:

TCW ASSET MANAGEMENT COMPANY  
LLC,  
as Agent

By: \_\_\_\_\_  
Name:  
Title:

**SCHEDULE 1  
PATENTS**

PATENT	PATENT NUMBER	REGIS. DATE
MULTI-CHANNEL, HIGH SPEED, TAPE HEAD CONTOUR	5774306	6/30/1998
TAPE REEL WITH FLANGE SECTIONS FOR UNIFORM TAPE STACKING	5803388	9/8/1998
TWO CHANNEL AZIMUTH AND TWO CHANNEL NON-AZIMUTH READ-AFTER-WRITE LONGITUDINAL MAGNETIC HEAD	5867339	2/2/1999
TAPE MEDIA CARTRIDGE SYSTEM AND COMPONENTS THEREOF AND METHODS OF MAKING AND USING THE SAME	5868333	2/9/1999
MEDIA LIBRARY HAVING LOCALLY VECTORED DRIVED ADDRESSING	5883864	3/16/1999
WIRELESS SECONDARY INTERFACE FOR DATA STORAGE DEVICE	5894425	4/13/1999
COMPUTER ARCHITECTURE FOR AUTOMATED STORAGE LIBRARY	5925119	7/20/1999
MAGAZINE CASSETTE LOCKING DEVICE	5936795	8/10/1999
POSITIVE ENGAGEMENT BUCKLE FOR A TAPE DRIVE AND CARTRIDGE	5971310	10/26/1999
METHOD AND APPARATUS FOR A LOW COST MULTI-CHANNEL TAPE RECORDING HEAD	5973872	10/26/1999
TWO CHANNEL AZIMUTH AND TWO CHANNEL NON-AZIMUTH READ-AFTER-WRITE LONGITUDINAL MAGNETIC HEAD	5973874	10/26/1999
DATA TRANSDUCER AND METHOD FOR WRITING DATA UTILIZING THE BOTTOM POLE AS THE TRAILING EDGE OF A THIN-FILM MAGNETIC A TAPE WRITE HEAD	5973891	10/26/1999
MAGNETORESISTIVE SENSOR WITH IMPROVED STABILITY	5986856	11/16/1999

PATENT	PATENT NUMBER	REGIS. DATE
TAPE LEADER PIN ASSEMBLY AND METHOD FOR MAKING THE SAME	6003802	12/21/1999
MECHANISM AND METHOD FOR LOADING A TAPE FROM A CARTRIDGE TO A TAKE-UP REEL	6034839	3/7/2000
TWO-PART TAPE CARTRIDGE REEL LOCKING MECHANISM	6034850	3/7/2000
HIGH SPEED REEL	6062500	5/16/2000
VIRTUAL MAGNETIC TAPE DRIVE LIBRARY SYSTEM	6067481	5/23/2000
A METHOD FOR SERIALIZING AND SYNCHRONIZING DATA PACKETS BY UTILIZING A PHYSICAL LOCK SYSTEM AND CONTROL DATA STRUCTURE FOR MUTUAL EXCLUSION LOCK	6067587	5/23/2000
PIVOTING LEVER CAM GUIDE TAPE HEAD POSITIONER	6075678	6/13/2000
INDEPENDENT DOUBLE HUB TAKE-UP REEL ARRANGEMENT FOR USE WITH A SINGLE REEL CARTRIDGE TAPE DRIVE	6082652	7/4/2000
BUCKLER FOR A TAPE DRIVE	6092754	7/25/2000
CARTRIDGE BUCKLER FOR A TAPE DRIVE	6095445	8/1/2000
MULTI-DRIVE, MULTI-MAGAZINE MASS STORAGE AND RETRIEVAL UNIT FOR TAPE CARTRIDGES	6097566	8/1/2000
METHODS AND APPARATUS FOR CALIBRATION OF A ROTATING SCANNER TO A PLURALITY OF DATA TRACK GROUPS RECORDED ON A TAPE	6101061	8/8/2000
MAGNETIC TAPE	6103365	8/15/2000
REEL LOCK AND COUPLING ENGAGEMENT MECHANISMS FOR A CARTRIDGE	6113020	9/5/2000
ROLLER-INSERTER FOR USE WITH CARTRIDGE STYLE INFORMATION STORAGE MEDIA	6120230	9/19/2000

PATENT	PATENT NUMBER	REGIS. DATE
METHOD AND APPARATUS FOR STORAGE APPLICATION PROGRAMMING INTERFACE FOR DIGITAL MASS STORAGE AND RETREIVAL BASED UPON DATA OBJECT TYPE OR SIZE AND CHARACTERISTICS OF THE DATA STORAGE DEVICE	6128717	10/3/2000
TWO CHANNEL AZIMUTH AND TWO CHANNEL NON-AZIMUTH READ-AFTER-WRITE LONGITUDINAL MAGNETIC HEAD	6130804	10/10/2000
MEDIA HANDLING SYSTEM AND METHOD	6138909	10/31/2000
METHOD OF READING OF RECORDING INFORMATION FROM A MAGNETIC TAPE THAT COMPENSATES FOR TRACK PITCH CHANGES	6141174	10/31/2000
TAPE DRIVE DATA STORAGE DEVICE HAVING PERPENDICULARLY ADJUSTED TAPE GUIDES	6141184	10/31/2000
ENCODING APPARATUS FOR RAID-6 SYSTEM AND TAPE DRIVES	6148430	11/14/2000
STORAGE MEDIUM CARTRIDGE HAVING AN INTEGRAL KEY	6175470	1/16/2001
RATE 321/33 (D=0, K=6) RUN LENGTH LIMITED MODULATION CODE HAVING OPTIMIZED ERROR PROPAGATION	6184806	2/6/2001
BACKWARD COMPATIBLE HEAD AND HEAD POSITIONING ASSEMBLY FOR A LINEAR DIGITAL TAPE DRIVE	6188532	2/13/2001
REEL LOCK AND COUPLING ENGAGEMENT MECHANISMS FOR A CARTRIDGE	6234416	5/22/2001
MODULATION ENCODERS AND DECODERS	6236340	5/22/2001
OPTICAL APPARATUS FOR TRACKING A MAGNETIC TAPE	6246535	6/12/2001
WIDE TAPE CARTRIDGE	6267313	7/31/2001
ERROR CHECKING TECHNIQUE FOR USE IN MASS STORAGE SYSTEMS	6269464	7/31/2001



PATENT	PATENT NUMBER	REGIS. DATE
TAPE CARTRIDGE	6271991	8/7/2001
DISK DRIVE SLED INSERTION AND REMOVAL SYSTEM	6304439	10/16/2001
REEL LOCK AND COUPLING ENGAGEMENT MECHANISMS FOR A CARTRIDGE	6318657	11/20/2001
TAPE DRIVE EMULATION SYSTEM INCLUDING TAPE LIBRARY INTERACE	6324497	11/27/2001
METHOD FOR REDUCING RADIO FREQUENCY EMISSIONS ON HIGH-SPEED SERIAL BUSES	6380873	4/30/2002
MAGNETIC TAPE CARTRIDGE	6452745	9/17/2002
MAGNETIC TAPE CARTRIDGE	6462906	10/8/2002
DATA STORAGE UNIT HAVING PLURAL REMOVABLE MAGAZINES	6498771	12/24/2002
TAPE LEADER PIN ASSEMBLY AND METHOD FOR MAKING THE SAME	6499684	12/31/2002
METHOD AND APPARATUS FOR READ-AFTER-WRITE VERIFICATION WITH ERROR TOLERANCE	6512644	1/28/2003
LIBRARY FOR STORING DATA-STORAGE MEDIA AND HAVING A REMOVABLE INTERFACE MODULE	6542787	4/1/2003
SHOCK MOUNT FOR A DEVICE PACKAGED IN A PORTABLE CARTRIDGE	6545865	4/8/2003
MAGNETIC TAPE CARTRIDGE HAVING BRAKE WITH SKIRT PORTION THEREOF CONTACTING REEL HUB CONTINUOUS WALL PORTION	6563671	5/13/2003
DYNAMIC ADJUSTMENT OF MULTIPLE SEQUENTIAL BURST DATA TRANSFERS	6571302	5/27/2003
CARTRIDGE MAGAZINE FOR A TAPE LIBRARY	6580582	6/17/2003
SINGLE TAPE CARTRIDGE INTERFACE HAVING A CARTRIDGE REINSERTION PREVENTING MECHANISM IN AN AUTOMATED AUTOLOADER/LIBRARY SYSTEM	6606218	8/12/2003

PATENT	PATENT NUMBER	REGIS. DATE
THERMAL COOLING SYSTEM FOR DENSELY PACKED STORAGE DEVICES	6618249	9/9/2003
QUICK RELEASE FASTENING SYSTEM FOR STORAGE DEVICES	6618255	9/9/2003
MASS STORAGE DEVICE WITH NETWORK INTERFACE	6622164	9/16/2003
MAGNETIC TAPE CARTRIDGE	6648259	11/18/2003
MAGNETIC TAPE CARTRIDGE WITH BRAKE RELEASE MEMBER PUSH ROD CONTACTING REEL GEAR HOLE VIA PROTRUSIONS	6667852	12/23/2003
MAGNETIC TAPE CARTRIDGE	6669127	12/30/2003
FORCED AIR COOLING FAN HAVING PIVOTAL FAN BLADES FOR UNIDIRECTIONAL AIR FLOW	6699013	3/2/2004
AUTOMATED TAPE LIBRARY	6710962	3/23/2004
CASTELLATION TECHNIQUE FOR IMPROVED LIFT-OFF OF PHOTORESIST IN THIN-FILM DEVICE PROCESSING AND A THIN-FILM DEVICE MADE THEREBY	6716515	4/6/2004
MAGNETIC TAPE CARTRIDGE HAVING PROJECTIONS	6717771	4/6/2004
MEDIA LIBRARY WITH FAIL OVER CAPABILITY	6725394	4/20/2004
MAGNETIC TAPE CARTRIDGE WITH CONICALLY INCLINED SELF-CENTERING BRAKE SURFACE	6728066	4/27/2004
LIBRARY OF HARD DISK DRIVES WITH TRANSPARENT EMULATING INTERFACE	6754768	6/22/2004
METHOD FOR ACCELERATION OF STORAGE DEVICES BY RETURNING SLIGHTLY EARLY WRITE STATUS	6757767	6/29/2004
MAGNETIC TAPE CARTRIDGE FOR HOUSING A REEL	6760192	7/6/2004
DATA STORAGE MEDIA LIBRARY WITH SCALABLE THROUGHPUT RATE FOR DATA ROUTING AND PROTOCOL CONVERSION	6766412	7/20/2004
ERASURE CORRECTION FOR ECC ENTITIES	6772390	8/3/2004

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CONCURRENT READ AND WRITE ACCESS TO SIMULATED SEQUENTIAL DATA OF A REMOVABLE RANDOM ACCESS DATA STORAGE MEDIUM	6785078	8/31/2004
REAL TIME STATISTICAL COMPUTATION IN EMBEDDED SYSTEMS	6785632	8/31/2004
THERMAL INSULATOR FOR PROTECTING A STORAGE TAPE IN A TAPE DRIVE	6791789	9/14/2004
TOOL-LESS FIELD REPLACEABLE PERIPHERAL MOUNTING SYSTEM	6795309	9/21/2004
METHOD FOR CALIBRATING A TAPE MEDIA USING STAGGERED CALIBRATION TRACKS	6801383	10/5/2004
METHOD AND APPARATUS FOR REINITIALIZING A TAPE DRIVE AFTER A POWER LOSS	6804077	10/12/2004
TAPE CARTRIDGE PICKER FOR AN AUTOMATED TAPE CARTRIDGE AUTOLOADER/LIBRARY SYSTEM	6816331	11/9/2004
AUTOMATED TAPE CARTRIDGE AUTOLOADER/LIBRARY SYSTEM	6829116	12/7/2004
PROGRAMMABLE WRITE EQUALIZATION CIRCUIT	6831797	12/14/2004
RELEASABLE, REPEATABLE ELECTRICAL CONNECTION EMPLOYING COMPRESSION	6837718	1/4/2005
MAGNETIC TRACK FOLLOWING SERVO ALGORITHM USING SIGNAL QUALITY	6839196	1/4/2005
CREATING VIRTUAL PRIVATE CONNECTIONS BETWEEN END POINTS ACROSS A SAN	6845387	1/18/2005
SPATIAL FILTERING OF LASER GHOSTS	6853652	2/8/2005
RELEASABLE, REPEATABLE ELECTRICAL CONNECTION EMPLOYING COMPRESSION	6854982	2/15/2005
MAGNETIC SERVO OF A RECORDING HEAD	6856484	2/15/2005
HARD DISK DRIVE LIBRARY	6865640	3/8/2005
STORAGE DEVICE MOUNTED IN PORTABLE DATA	6867942	3/15/2005

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STORAGE MEDIA TYPE CARTRIDGES		
THIN FILM RECORDING HEAD WITH A LOCALIZED COATING TO PROTECT AGAINST CORROSION AND ELECTROSTATIC DISCHARGE	6879470	4/12/2005
STORAGE SYSTEM UTILIZING AN ACTIVE SUBSET OF DRIVES DATA STORAGE AND RETRIEVAL OPERATIONS	6892275	5/10/2005
TAPE HEAD WITH THIN SUPPORT SURFACE AND METHOD OF MANUFACTURE	6937435	8/30/2005
METHOD FOR VERIFYING FUNCTIONAL INTEGRITY OF COMPUTER HARDWARE, PARTICULARLY DATA STORAGE DEVICES	6938188	8/30/2005
TRIPLE PUSH-PULL OPTICAL TRACKING SYSTEM	6940676	9/6/2005
METHOD AND APPARATUS FOR WRITTEN-IN TRACKING ERROR COMPENSATION FOR LINEAR TAPE DRIVES	6943979	9/13/2005
REMOVABLE DISK STORAGE ARRAY EMULATING TAPE LIBRARY HAVING BACKUP AND ARCHIVE CAPABILITY	6957291	10/18/2005
OPTICAL SERVO TRACK IDENTIFICATION ON TAPE STORAGE MEDIA	6961200	11/1/2005
SINGLE REEL TAPE CARTRIDGE WITH TAPE REEL CENTERING FEATURES	6962304	11/8/2005
MEDIA DRIVE MODULE AND STORAGE LIBRARY SYSTEM	6965811	11/15/2005
MAGNETIC MEDIA WITH EMBEDDED OPTICAL SERVO TRACKS	6980390	12/27/2005
ONE AND THREE QUARTERS INCH FORM FACTOR TAPE CARTRIDGE AUTOLOADER	6985328	1/10/2006
TENSION FEEDBACK SYSTEM FOR A TAPE DRIVE	7016138	3/21/2006
POINT-TO-POINT PROTOCOL	7023876	4/4/2006
CURRENT CONTROL LOOP BIAS CALIBRATION BY	7038417	5/2/2006

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INTEGRATION		
TAMPER RESISTANT WRITE ONCE RECORDING OF A DATA STORAGE CARTRIDGE HAVING REWRITABLE MEDIA	7038874	5/2/2006
TAPE DRIVE APPARATUS HAVING AN ARRANGEMENT FOR CAPTURING AND RETAINING A LEADER PIN FROM A TAPE CARTRIDGE	7066420	6/27/2006
TAPE GUIDING REEL	7073742	7/11/2006
ACCELERATED RAID WITH REWIND CAPABILITY	7076606	7/11/2006
ERROR CORRECTION CODES	7076723	7/11/2006
ELECTROMAGNETIC VOID-SENSING PROBES AND POSITION CONTROL SYSTEMS	7085095	8/1/2006
MAGNETIC TAPE CARTRIDGE WITH ROTATABLY-MOUNTED MULTI-PROJECTION BRAKE RELEASE MEMBER	7085101	8/1/2006
METHODS FOR CONTROLLING THE USE OF A CLEANING CARTRIDGE FOR TAPE DRIVES	7099103	8/29/2006
SELF-CENTERING TAPE REEL FOR SINGLE REEL TAPE CARTRIDGES	7100858	9/5/2006
SERVO METHODS AND SYSTEMS USING EXISTING DATA STRUCTURES AND MEDIUM EDGE POSITION	7102845	9/5/2006
MODULAR DATA CARTRIDGE LIBRARY	7102849	9/5/2006
MULTI-CHANNEL MAGNETIC TAPE SYSTEM HAVING OPTICAL TRACKING SERVO	7110210	9/19/2006
SYSTEM AND METHOD FOR LIBRARY INVENTORY	7111781	9/26/2006
METHODS AND SYSTEMS FOR MAGNETIC RECORDING	7116514	10/3/2006
SYSTEM AND METHOD FOR LIBRARY ROBOTICS POSITIONAL ACCURACY USING PARALLAX VIEWING	7117068	10/3/2006
DATA STORAGE DEVICES FOR LARGE SIZE DATA	7124124	10/17/2006

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STRUCTURES		
INTERFACES FOR AN OPEN SYSTEMS SERVER PROVIDING TAPE DRIVE EMULATION	7127388	10/24/2006
SERVO METHODS AND SYSTEMS USING MASKED MEDIUM EDGE POSITION SENSORS	7136255	11/14/2006
SERVO METHODS AND SYSTEMS USING EXISTING DATA STRUCTURES AND OPTICAL MASKS	7139152	11/21/2006
MOTOR/ENCODER ASSEMBLY FOR TAPE DRIVES	7145272	12/5/2006
METHOD OF GENERATING CONTROL COMMANDS IN A DISTRIBUTED MASS DATA STORAGE LIBRARY NETWORK	7146244	12/5/2006
METHOD AND APPARATUS FOR ATTACHING MORE THAN TWO DISK DEVICES TO AN IDE BUS	7146492	12/5/2006
OPTICAL APPARATUS FOR TRACKING A MAGNETIC TAPE	7149049	12/12/2006
SYSTEMS AND METHOD FOR FORMING A SERVO PATTERN ON A MAGNETIC TAPE	7153366	12/26/2006
OPTICAL RECORDING ARTICLE	7161894	1/9/2007
EXTENDED ERROR CORRECTION CODES	7162678	1/9/2007
METHOD OF PRODUCING FLUX GUIDES IN MAGNETIC RECORDING HEADS	7170721	1/30/2007
CREATING A BACKUP VOLUME USING A DATA PROFILE OF A HOST VOLUME	7185031	2/27/2007
METHOD AND SYSTEM FOR TRACKING MAGNETIC MEDIA WITH EMBEDDED OPTICAL SERVO TRACKS	7187515	3/6/2007
AUTOMATED STORAGE LIBRARY GRIPPER WITH FINGER POSITION DETECTOR	7193810	3/20/2007
MEDIA CARTRIDGE HAVING REEL SUSPENSION SYSTEM AND METHOD OF MANUFACTURE	7204444	4/17/2007
AUTOMATED STORAGE LIBRARY GRIPPER APPARATUS	7212375	5/1/2007

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AND METHOD		
DATA COMPRESSION WITH SELECTIVE ENCODING OF SHORT MATCHES	7215259	5/8/2007
CHANNEL PROCESSOR USING REDUCED COMPLEXITY LDPC DECODER	7222289	5/22/2007
METHODS AND SYSTEMS FOR OVERWRITE PROTECTED STORAGE MEDIA	7224545	5/29/2007
CORRECTING DATA HAVING MORE DATA BLOCKS WITH ERRORS THAN REDUNDANCY BLOCKS	7228467	6/5/2007
ERROR CORRECTION DECODER USING CELLS WITH PARTIAL SYNDROME GENERATION	7228490	6/5/2007
CORRELATION RECEIVER FOR DEMODULATING SERVO TRACK INFORMATION	7230782	6/12/2007
MEDIA CARTRIDGE AUTOLOADER	7242549	7/10/2007
LOGICAL LIBRARY ARCHITECTURE FOR DATA STORAGE APPLICATIONS AND METHODS OF USE	7263596	8/28/2007
BOUNDING DEFECTIVE REGIONS OF A TAPE STORAGE MEDIUM	7269687	9/11/2007
MAGNETIC HEAD WITH MINI-OUTRIGGERS AND METHOD OF MANUFACTURE	7271983	9/18/2007
METHODS AND SYSTEMS FOR PROVIDING PREDICTIVE MAINTENANCE, PREVENTATIVE MAINTENANCE, AND/OR FAILURE ISOLATION IN A TAPE STORAGE SUBSYSTEM	7277246	10/2/2007
CORRECTING DATA USING REDUNDANCY BLOCKS	7290197	10/30/2007
METHODS OF MANUFACTURING MAGNETIC HEADS WITH REFERENCE AND MONITORING DEVICES	7290325	11/6/2007
PRODUCING A MASS STORAGE BACKUP USING A LOG OF WRITE COMMANDS AND TIME INFORMATION	7334098	2/19/2008
DATA STORAGE SYSTEM AND PROCESS	7343460	3/11/2008

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EMULATED BACKUP TAPE DRIVE USING DATA COMPRESSION	7349930	3/25/2008
PRML BASED MAGNETIC SERVO POSITION DEMODULATOR	7362525	4/22/2008
MEDIA CARTRIDGE AUTOLOADER	7365935	4/29/2008
MEDIA CARTRIDGE AUTOLOADER	7365936	4/29/2008
EXTERNAL DESKTOP DOCK FOR A CARTRIDGE-BASED DATA STORAGE UNIT	7386868	6/10/2008
CARTRIDGE TRANSPORT ASSEMBLY	7387485	6/17/2008
CARTRIDGE REEL CENTERING DEVICE	7395982	7/8/2008
TAPE CARTRIDGE FOR TESTING AND REPAIRING A TAPE HEAD OF A TAPE DRIVE	7395983	7/8/2008
HEAD ACTUATOR ASSEMBLY FOR A TAPE DRIVE	7420781	9/2/2008
TAPE CARTRIDGE SOFT LOAD SYSTEM	7424983	9/16/2008
TAPE CARTRIDGE WITH MULTIPLE KEYING FEATURES	7427043	9/23/2008
LTM COMPENSATION METHODS AND SYSTEMS FOR MAGNETIC SERVO WRITING	7428118	9/23/2008
METHOD FOR CONSTRUCTING RLL CODES OF ARBITRARY RATE	7429937	9/30/2008
AZIMUTH COMPENSATION USING COMBINATION BUMP PES DETECTION	7436621	10/14/2008
METHOD AND SYSTEMS FOR A HIGHLY ERROR TOLERANT TAPE FORMAT	7440212	10/21/2008
TAPE DRIVE APPARATUS WITH A HEAD ALIGNMENT SYSTEMS	7440235	10/21/2008
ASSOCIATING EVENTS WITH THE STATE OF A DATA SET	7447850	11/4/2008
METHOD AND APPARATUS OF MAINTAINING TENSION IN A TAPE	7455254	11/25/2008



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PIEZOELECTRIC MICRO-ACTUATOR FOR MAGNETIC TAPE READ/WRITE HEAD	7474495	1/6/2009
SERVO WRITING AND DECODING POSITION ERROR SIGNAL FOR LINEAR TAPE DRIVE	7477474	1/13/2009
CENTER REEL LOCK STORAGE DEVICE	7481389	1/27/2009
COMPACT PICKER SYSTEMS AND METHODS FOR AUTOMATED STORAGE LIBRARIES	7483344	1/27/2009
ULTRA HIGH TRACK DENSITY ADAPTIVE HEAD CORE TRACK PITCH CONTROL	7486464	2/3/2009
UNIVERSAL HOUSING FOR HOLDING STORAGE DEVICES	7486473	2/3/2009
DATA STORAGE SYSTEM FOR STORING DATA IN DIFFERENT TYPES OF DATA STORAGE MEDIA	7487323	2/3/2009
NOISE TOLERANT PHASE LOCKED LOOP	7489203	2/10/2009
DATA FLOW CONTROL AND BRIDGING ARCHITECTURE ENHANCING PERFORMANCE OF REMOVABLE DATA STORAGE SYSTEMS	7493430	2/17/2009
AUTO-SERVO TAPE SYSTEM AND ASSOCIATED RECORDING HEAD	7499235	3/3/2009
MEDIA CARTRIDGE AUTOLOADER	7499240	3/3/2009
MEDIA CARTRIDGE AUTOLOADER	7499241	3/3/2009
HEAD ACTUATOR DESIGN FOR A LOW PROFILE TAPE DRIVE	7502196	3/10/2009
MEDIA CARTRIDGE AUTOLOADER	7502199	3/10/2009
CARTRIDGE CARRIER	7511916	3/31/2009
MEDIA LIBRARY ASSEMBLY HAVING FIRST DATA TRANSFER ASSEMBLY THAT RECEIVES FIRST COMMAND SIGNAL AND TRANSMITS SECOND COMMAND SIGNAL TO SECOND DATA TRANSFER ASSEMBLY TO DECREASE TIME-TO-DATA	7515987	4/7/2009

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LOW IMPEDANCE FLEXIBLE CIRCUIT FOR TAPE HEAD	7518831	4/14/2009
SERVO TRACK HAVING PERIODIC FRAMES OF TONE FIELD AND EMBEDDED SYNCHRONIZATION MARKS	7522371	4/21/2009
SERVO TRACK HAVING PERIODIC FRAMES OF TONE FIELD AND EMBEDDED SYNCHRONIZATION MARKS	7522372	4/21/2009
LOCKABLE EJECTION SYSTEM AND METHOD	7536701	5/19/2009
READ/WRITE HEAD AZIMUTH DETERMINATION VIA SERVO BAND SIGNAL INFORMATION	7538966	5/26/2009
ADJUSTMENT SYSTEM USING BALL-ENDED GUIDE RODS TO ALIGN TAPE DRIVE HEADS	7538982	5/26/2009
INTELLIGENT TAPE DRIVE ASSEMBLY THAT DIAGNOSES AND REPAIRS ITS OWN TAPE DRIVE	7583463	9/1/2009
MULTIPLE LUN SUPPORT FOR SATA DEVICES	7600059	10/6/2009
DATA FLOW CONTROL AND BRIDGING ARCHITECTURE ENHANCING PERFORMANCE OF REMOVABLE DATA STORAGE SYSTEMS	7620755	11/17/2009
DATA ERROR DETECTION DURING MEDIA WRITE	7624328	11/24/2009
CABLE CONNECTION APPARATUS	7635227	12/22/2009
DATA STORAGE AND PROTECTION APPARATUS AND METHODS OF DATA STORAGE AND PROTECTION	7636804	12/22/2009
AUTO-SERVO TAPE SYSTEM AND ASSOCIATED RECORDING HEAD	7649707	1/19/2010
METHOD AND APPARATUS FOR IMPLEMENTING ERROR CORRECTION CODING IN A RANDOM ACCESS MEMORY	7676730	3/9/2010
LOGIC LIBRARY ARCHITECTURE FOR DATA STORAGE APPLICATIONS AND METHODS OF USE	7680979	3/16/2010
MULTI-RATE TRACKING WITH A MULTI-ACTUATOR SERVO CONTROL	7684144	3/23/2010

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ERROR CORRECTION ALGORITHM USING INTERLEAVED PARITY CHECK AND REED-SOLOMON CODE	7694208	4/6/2010
METHOD FOR CONSTRUCTING RLL CODES OF ARBITRARY RATE	7714749	5/11/2010
METHODS, SYSTEMS AND APPARATUS FOR REDUCING THE EFFECTS OF TAPE DIMENSIONAL STABILITY	7738212	6/15/2010
APPARATUS AND METHOD FOR VIRTUALIZING DATA STORAGE MEDIA, SUCH AS FOR USE IN A DATA STORAGE LIBRARY PROVIDING RESOURCE VIRTUALIZATION	7743205	6/22/2010
MAGNETIC RECORDING HEADS WITH BEARING SURFACE PROTECTIONS AND METHODS OF MANUFACTURING	7751154	7/6/2010
ADJACENT TRACK READERS	7755863	7/13/2010
RECOVERY OF DATA ON A PRIMARY DATA VOLUME	7778958	8/17/2010
PASSWORD-BASED MEDIA CARTRIDGE AUTHENTICATION	7779220	8/17/2010
DATA STORAGE SYSTEM FOR STORING DATA IN DIFFERENT TYPES OF DATA STORAGE MEDIA	7793066	9/7/2010
METHOD FOR STORING DATA WITH A REDUCED REDUNDANCY USING DATA CLUSTERS	7814129	10/12/2010
IMPLEMENTING POWER SAVINGS IN AN AUTOMATED STORAGE SYSTEM	7817369	10/19/2010
SERVO ERROR DETECTION AND COMPENSATION UTILIZING VIRTUAL DATA TRACKING SERVO METHODS	7826169	11/2/2010
DATA FLOW CONTROL AND BRIDGING ARCHITECTURE ENHANCING PERFORMANCE OF REMOVABLE DATA STORAGE SYSTEMS	7831753	11/9/2010
DATA STORAGE SYSTEM INCLUDING UNIQUE BLOCK POOL MANAGER AND APPLICATIONS IN TIERED	7831793	11/9/2010

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STORAGE		
WINDOWED LEVEL DETECTOR FOR PARTIAL RESPONSE CHANNELS	7852965	12/14/2010
ULTRA HIGH TRACK DENSITY ADAPTIVE HEAD CORE TRACK PITCH CONTROL	7859786	12/28/2010
MULTI-CHANNEL TIMING RECOVERY SYSTEM	7860190	12/28/2010
SHARED COMMUNITY STORAGE NETWORK	7869383	1/11/2011
REPAIR OF A CORRUPT DATA SEGMENT USED BY A DE-DUPLICATION ENGINE	7913114	3/22/2011
APPARATUS AND METHOD FOR PARTITIONING DATA BLOCKS	7933939	4/26/2011
STRENGTHENING PARITY CHECK BIT PROTECTION FOR ARRAY-LIKE LDPC CODES	7949932	5/24/2011
MASTER CALIBRATION CHANNEL FOR A MULTICHANNEL TAPE DRIVE	7961415	6/14/2011
METHOD AND SYSTEM FOR ADAPTIVE TIMING RECOVERY	7961818	6/14/2011
METHODS AND SYSTEMS FOR IMPROVING READ PERFORMANCE IN DATA DE-DUPLICATION STORAGE	7962706	6/14/2011
METHODS AND SYSTEMS FOR VECTORED DATA DUPLICATION	7979670	7/12/2011
CLUSTERED STORAGE NETWORK	7991951	8/2/2011
A TAPE ARCHITECTURE AND A HEAD ARCHITECTURE FOR A LINEAR TAPE DRIVE HAVING A REDUCED ACTUATOR STROKE	8009377	8/30/2011
DATA FLOW CONTROL AND BRIDGING ARCHITECTURE ENHANCING PERFORMANCE OF REMOVABLE DATA STORAGE SYSTEMS	8041862	10/18/2011
DATA STORAGE SYSTEM	8046380	10/25/2011

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METHOD AND APPARATUS FOR DETECTING THE PRESENCE OF SUBBLOCKS IN A REDUCED-REDUNDANCY STORAGE SYSTEM	8051252	11/1/2011
STORAGE DEVICE FOR USE IN A SHARED COMMUNITY STORAGE NETWORK	8108502	1/31/2012
METHOD AND APPARATUS FOR TAPE DRIVE DATA LOGGING	8112557	2/7/2012
METHODOLOGY AND APPARATUS FOR SOFT-INFORMATION DETECTION AND LDPC DECODING ON AN ISI CHANNEL	8117515	2/14/2012
MEASURING READER/WRITER OFFSET IN A TAPE DRIVE HEAD	8154811	4/10/2012
ASSIGNING A PHYSICAL ADDRESS TO A DATA STORAGE DEVICE	8166262	4/24/2012
DATA ALLOCATION SYSTEM	8176270	5/8/2012
CONTROLLING CONFIGURABLE VARIABLE DATA REDUCTION	8176292	5/8/2012
HIGH DENSITY VARIABLE ACCESS STORAGE LIBRARY	8186929	5/29/2012
A METHOD FOR RELIABLE AND EFFICIENT FILESYSTEM METADATA CONVERSION	8190655	5/29/2012
REDUCING MESSAGING IN A CLIENT-SERVER SYSTEM	8190736	5/29/2012
ESTABLISHING PARSE SCOPE	8195629	6/5/2012
METHOD TO DIRECT DATA TO A SPECIFIC ONE OF SEVERAL REPOSITORIES	8209334	6/26/2012
METHODS AND SYSTEMS FOR IMPROVING READ PERFORMANCE IN DATA DE-DUPLICATION STORAGE	8209508	6/26/2012
METHODS, SYSTEMS AND APPARATUS FOR REDUCING THE EFFECTS OF TAPE DIMENSIONAL STABILITY	8213107	7/3/2012

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METHOD AND APPARATUS FOR DETECTING THE PRESENCE OF SUBBLOCKS IN A REDUCED-REDUNDANCY STORAGE SYSTEM	8214607	7/3/2012
MAGNETIC HEAD WITH MINI-OUTRIGGERS AND METHOD OF MANUFACTURE	8223456	7/17/2012
DATA DE-DUPLICATION BY PREDICTING THE LOCATIONS OF SUB-BLOCKS WITHIN THE REPOSITORY	8225060	7/17/2012
POLICY BASED DATA RETRIEVAL PERFORMANCE FOR DEDUPLICATED DATA	8244992	8/14/2012
METHOD FOR STORING DATA WITH A REDUCED REDUNDANCY USING DATA CLUSTERS	8255434	8/28/2012
ADAPTING A TIMER BOUNDED ARBITRATION PROTOCOL	8260830	9/4/2012
SYSTEM AND METHOD FOR ELECTRICAL CABLE MANAGMENT IN LIMITED ROTATION APPLICATIONS	8262009	9/11/2012
CLUSTERED STORAGE NETWORK	8266376	9/11/2012
IMPROVING SPATIAL LOCALITY OF FILE SYSTEM BLOCK ALLOCATIONS FOR RELATED ITEMS	8271760	9/18/2012
DATA STORAGE MEDIA ACCESSIBILITY IN A MEDIA LIBRARY	8276168	9/25/2012
A METHOD TO IMPROVE DEDUPLICATION SPEED ON DATA STREAMS FRAGMENTED BY SHUFFLING	8280860	10/2/2012
DATA FLOW CONTROL AND BRIDGING ARCHITECTURE ENHANCING PERFORMANCE OF REMOVABLE DATA STORAGE SYSTEMS	8281044	10/2/2012
CONSIDERING MULTIPLE LOOKUPS IN BLOOM FILTER DECISION MAKING	8296274	10/23/2012
ADAPTIVE FILTER USING SHIFTED REVERSE INTERPOLATION	8300758	10/30/2012
GENERATING UNIQUE ALIASES FOR KEYS USED WITH TAPE LIBRARIES	8320569	11/27/2012

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DATA STORAGE SYSTEM	8326884	12/4/2012
METHODS AND SYSTEMS FOR VECTORED DATA DUPLICATION	8332616	12/11/2012
TIMER BOUNDED ARBITRATION PROTOCOL FOR RESOURCE CONTROL	8332684	12/11/2012
DATA ALLOCATION SYSTEM	8335898	12/18/2012
SERVO TRACK FORMAT THAT PROVIDED A UNIQUE MEDIA ID FOR ENCRYPTION	8339726	12/25/2012
METHOD FOR INDEXING IN A REDUCED-REDUNDANCY STORAGE SYSTEM	8356021	1/15/2013
METHOD AND APPARATUS FOR FACILITATING CONTROL INTERFACE FAILOVER IN A REMOVABLE MEDIA STORAGE DEVICE	8381020	2/19/2013
UNIFIED DATA PROTECTION AND DATA DE-DUPLICATION IN A STORAGE SYSTEM	8392791	3/5/2013
INDEX ENTRY EVICTION	8397028	3/12/2013
DATA REDUCTION INDEXING	8423519	4/16/2013
METHOD AND APPARATUS FOR OBTAINING COEFFICIENTS OF A FRACTIONALLY-SPACED EQUALIZER	8433965	4/30/2013
A METHOD TO DE-DUPE DATA BY COMBINING HASH BASED DUPLICATION WITH SUB-BLOCK DIFFERENCING	8442942	5/14/2013
NO TOUCH SYNTHETIC FULL BACKUP	8442945	5/14/2013
ADAPTING A TIMER BOUNDED ARBITRATION PROTOCOL	8442948	5/14/2013
CREATING AND MANAGING LINKS TO DEDUPLICATION INFORMATION	8442954	5/14/2013
SAMPLING BASED ON DATA DE-DUPLICATION	8442956	5/14/2013
SHARED COMMUNITY STORAGE NETWORK	8462665	6/11/2013

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FILE REPAIR	8463757	6/11/2013
PRESENTING A FILE SYSTEM FOR A FILE CONTAINING ITEMS	8473531	6/25/2013
DELTA CHUNKS AND DELTA HASHES	8489611	7/16/2013
DE-DUPLICATION REFERENCE TAG RECONCILIATION	8504533	8/6/2013
CONTEXT AWARE PARTITIONING OF PEER GROUPS WITH GLOBALLY COHERENT DE-DUPLICATION REPOSITORY	8504595	8/6/2013
COLLABORATIVE, DISTRIBUTED, DATA DE-DUPLICATION	8543551	9/24/2013
REDUCING MESSAGING IN A CLIENT-SERVER SYSTEM	8554909	10/8/2013
MANIPULATING THE ACTUAL OR EFFECTIVE WINDOW SIZE IN A DATA-DEPENDANT VARIABLE-LENGTH SUB-BLOCK PARSER	8572042	10/29/2013
SUPPORTING INTERNAL CONSISTENCY CHECKING WITH CONSISTENCY CODED JOURNAL FILE ENTRIES	8572048	10/29/2013
DE-DUPLICATION INDEXING	8572053	10/29/2013
DATA DE-DUPLICATION AND SOLID STATE MEMORY DEVICE	8572312	10/29/2013
METHOD AND APPARATUS FOR NON-REDUNDANT ENCRYPTED STORAGE	8572409	10/29/2013
A METHOD FOR RELIABLE AND EFFICIENT FILESYSTEM METADATA CONVERSION	8577939	11/5/2013
WAVEFORM INTERPOLATOR ARCHITECTURE FOR ACCURATE TIMING RECOVERY BASED ON UP-SAMPLING TECHNIQUE	8594254	11/26/2013
CREATING A SELF-CONTAINED PORTABLE OUTPUT FILE	8595195	11/26/2013
HEAD ROTATOR ASSEMBLY FOR TAPE DRIVE	8599519	12/3/2013



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APPARATUS AND METHOD FOR VIRTUALIZING DATA STORAGE MEDIA, SUCH AS FOR USE IN A DATA STORAGE LIBRARY PROVIDING RESOURCE VIRTUALIZATION	8612697	12/17/2013
IDENTIFYING APPLICATION METADATA IN A BACKUP STREAM	8620845	12/31/2013
DATA IDENTIFICATION SYSTEM	8640241	1/28/2014
MINIMIZE DAMAGE CAUSED BY CORRUPTION OF DE-DUPLICATED DATA	8645334	2/4/2014
METHODS AND SYSTEMS FOR SPACE MANAGEMENT IN DATA DE-DUPLICATION	8650228	2/11/2014
PREVENTING READ WHILE WRITING OCCURENCES	8650357	2/11/2014
METHOD AND APPARATUS FOR DETECTING THE PRESENCE OF SUBBLOCKS IN A REDUCED REDUNDANCY STORING SYSTEM	8650368	2/11/2014
METADATA STORAGE IN UNUSED PORTIONS OF A VIRTUAL DISK FILE	8683111	3/25/2014
CLUSTERED STORAGE NETWORK	8683123	3/25/2014
CONTROL METHOD FOR TAPE DRIVE TO COMPENSATE FOR SYSTEM DISTURBANCES WITHOUT USE OF FEED-FORWARD SENSOR	8699174	4/15/2014
METHODS, SYSTEMS AND APPARATUS FOR REDUCING THE EFFECTS OF TAPE DIMENSIONAL STABILITY	8705199	4/22/2014
DATA CONTROL SYSTEMS FOR VIRTUAL ENVIRONMENTS	8707005	4/22/2014
CONTROLLING TAPE LAYOUT FOR DE-DUPLICATION	8719235	5/6/2014
SYSTEMS AND METHODS FOR COLLAPSING A DERIVATIVE VERSION OF A PRIMARY STORAGE VOLUME	8732427	5/20/2014
REDUCTION OF DEGRADATION OF MAGNETIC TAPE APPARATUS	8737007	5/27/2014

PATENT	PATENT NUMBER	REGIS. DATE
SNAPSHOT CREATION FROM BLOCK LISTS	8738883	5/27/2014
TAPE LIBRARY INITIATED ACTION	8743501	6/3/2014
METHODS AND SYSTEMS FOR IMPROVED THROUGHPUT PERFORMANCE IN A DISTRIBUTED DATA DE-DUPLICATION ENVIRONMENT	8751561	6/10/2014
ADAPTIVE CORRECTION OF SYMMETRICAL AND ASYMMETRICAL SATURATION IN MAGNETIC RECORDING DEVICES	8760789	6/24/2014
ADAPTIVE DISTURBANCE COMPENSATION WITH MULTI-RATE SYNCHRONIZED SAMPLING	8773800	7/8/2014
FREQUENCY, EFFICIENCY AND MIGRATION BASED REPARSING	8775759	7/8/2014
ESTABLISHING PARSE SCOPE	8799244	8/5/2014
METHOD FOR MOVER TRANSITION IN AN AUTOMATED MEDIA LIBRARY	8825195	9/2/2014
SYSTEMS AND METHODS FOR INCREASING DATA VOLUME SPARSENESS	8825936	9/2/2014
ADAPTIVE COLLABORATIVE DE-DUPLICATION	8849898	9/30/2014
MEDIA-FOLLOWING ENCRYPTION POLICY CONTROL	8850224	9/30/2014
HEAD ROTATOR ASSEMBLY FOR TAPE DRIVE	8867163	10/21/2014
METHOD FOR ASSOCIATING PHYSICAL ADDRESS WITH LOGICAL COMMUNICATION ADDRESS IN A MEDIA LIBRARY ASSEMBLY	8868818	10/21/2014
MAGNETIC TAPE HEADS	8873192	10/28/2014
SATISFYING A REQUEST FOR A PHYSICAL IMPORT/EXPORT SLOT WITH A SLOT THAT IS NOT A PHYSICAL IMPORT/EXPORT SLOT	8886353	11/11/2014
FILE SYSTEM BASED EXCHANGE BETWEEN DISK-BASED NETWORK ATTACHED STORAGE AND TAPE	8886606	11/11/2014
PRIORITIZATING DATA DEDUPLICATION	8886613	11/11/2014

PATENT	PATENT NUMBER	REGIS. DATE
BLOCKLET PATTERN IDENTIFICATION	8886616	11/11/2014
CLOUD BASED DE-DUPLICATION	8886716	11/11/2014
DEDUPLICATION SEEDING	8892526	11/18/2014
FINGERPRINT ANALYSIS FOR ANTI-VIRUS SCAN	8893277	11/18/2014
MESSAGING POLICY CONTROLLED EMAIL DE-DUPLICATION	8898240	11/25/2014
HEAD ROTATOR ASSEMBLY FOR TAPE DRIVE	8902541	12/2/2014
SYSTEM AND METHOD FOR DETECTING AND INHIBITING CYCLE SLIP FOR MULTI-CHANNEL MEDIA DRIVE	8922927	12/30/2014
MAGNETIC MEDIA ACCESS HEAD WITH METAL COATING	8934197	1/13/2015
FRONT END INTELLIGENCE FOR MONITORING BACK END STATE	8977590	3/10/2015
CONFIGURABLE DATA GENERATOR	8983916	3/17/2015
MANIPULATING THE ACTUAL OR EFFECTIVE WINDOW SIZE IN A DATA-DEPENDANT VARIABLE-LENGTH SUB-BLOCK PARSER	8984024	3/17/2015
MERGING DATA VOLUMES AND DERIVATIVE VERSIONS OF THE DATA VOLUMES	8990526	3/24/2015
SYNTHETIC VIEW	9020996	4/28/2015
METHODS AND SYSTEMS FOR VECTORED DATA DE-DUPLICATION	9047305	6/2/2015
ADAPTIVE DISTURBANCE COMPENSATION WITH MULTI-RATE SYNCHRONIZED SAMPLING	9047900	6/2/2015
REDUCING READ STARVATION	9069702	6/30/2015
MULTI-THREADED MESSAGE PASSING JOURNAL	9069790	6/30/2015
MULTI-TIER BANDWIDTH-CENTRIC DEDUPLICATION	9071584	6/30/2015

PATENT	PATENT NUMBER	REGIS. DATE
PROTECTING DE-DUPLICATION REPOSITORIES AGAINST A MALICIOUS ATTACK	9094195	7/28/2015
PRESENTING A FILE SYSTEM FOR A FILE CONTAINING ITEMS	9146813	9/29/2015
MAGNETIC MEDIA ACCESS HEAD WITH METAL COATING	9153259	10/6/2015
MERGING DATA VOLUMES AND DERIVATIVE VERSIONS OF THE DATA VOLUMES	9164678	10/20/2015
EFFICIENCY OF VIRTUAL MACHINES THAT USE DE-DUPLICATION AS PRIMARY DATA STORAGE	9176676	11/3/2015
COMPRESSED LEVEL TWO BLOCK BUFFER METADATA CACHE	9176887	11/3/2015
CLASSIFYING DATA FOR DEDUPLICATION AND STORAGE	9176978	11/3/2015
DATA CONTROL SYSTEM FOR VIRTUAL ENVIRONMENT	9183130	11/10/2015
DATA IDENTIFICATION SYSTEM	9223975	12/29/2015
DATA ALLOCATION SYSTEM	9262345	2/16/2016
COMBINED ASYNCHRONOUS AND SYNCHRONOUS FOUNTAIN CODE STORAGE IN AN OBJECT STORE	9304852	4/5/2016
ADAPTIVE CORRECTION OF SYMMETRICAL AND ASYMMETRICAL SATURATION IN MAGNETIC RECORDING DEVICES	9305591	4/5/2016
METHOD FOR MEDIA ALLOCATION IN A PARTITIONED REMOVABLE MEDIA STORAGE LIBRARY	9311147	4/12/2016
MULTI-DEDUPLICATION	9342525	5/17/2016
REDUCING METADATA CONTROLLER COMMUNICATION VOLUME	9342568	5/17/2016
MEDIA LIBRARY SYSTEM AND METHOD FOR MONITORING CHANGES IN INVENTORY OF MEDIA CARTRIDGES	9343100	5/17/2016

PATENT	PATENT NUMBER	REGIS. DATE
ADJUSTING REDUNDANCY IN AN ERASURE CODE OBJECT STORE TO ACCOUNT FOR VARYING DATA VALUE	9344120	5/17/2016
SHARED COMMUNITY STORAGE NETWORK	9344378	5/17/2016
DYNAMICALLY RECONFIGURING REBUILD AGENTS FOR ERASURE CODE REBUILD	9356628	5/31/2016
FILE SYSTEM METADATA CAPTURE AND RESTORE	9361187	6/7/2016
MERGING DATA VOLUMES AND DERIVATIVE VERSIONS OF THE DATA VOLUMES	9411871	8/9/2016
DOUBLY DISTRIBUTED ERASURE CODES	9431054	8/30/2016
MAGNETIC TAPE CARTRIDGE	D465786	11/19/2002
TAPE CARTRIDGE	D486498	2/10/2004
TAPE CARTRIDGE	D491564	6/15/2004
TWO-TONE MAGNETIC TAPE CARTRIDGE	D496368	9/21/2004
SHIPPING TRAY FOR MULTIPLE CARTRIDGES	D523338	6/20/2006
MEDIA CARTRIDGE PROTECTIVE CASE	D569103	5/20/2008
	<b>SERIAL NO.</b>	<b>FILING DATE</b>
DEDICATING AN AUTOMATED TAPE LIBRARY PARTITION FOR EXCLUSIVE USE BY THE AUTOMATED TAPE LIBRARY	12748900	3/29/2010
SYSTEMS AND METHODS FOR PROVIDING A FILE SYSTEM VIEW OF A STORAGE ENVIRONMENT	12849006	8/2/2010
METHOD FOR STORING AND RETRIEVING DEDUPLICATED DATA USING REMOVABLE SEQUENTIAL ACCESS STORAGE MEDIA	12861231	8/23/2010
DATA REPLICA CONTROL	13157937	6/10/2011
DATA REPLICATION SYSTEM FOR SMART REPLICATION	13198123	8/4/2011

PATENT	PATENT NUMBER	REGIS. DATE
PATH LOOKUP IN A HIERARCHICAL FILE SYSTEM	13248084	9/29/2011
A METHOD TO SYNTHESIZE A NEW BACKUP DATA SET USING SET OF EXISTING BACKUP DATA SETS WITHOUT INVOLVING AND DATA MOVEMENT	13305964	11/29/2011
ADAPTIVE EXPERIENCE BASED DE-DUPLICATION	13373990	12/7/2011
A METHOD FOR SYNTHESIZING NEW OBJECTS FROM OTHER OBJECTS (IN A DEDUPLICATED SYSTEM)	13459295	4/30/2012
DATA CONTROL SYSTEM FOR VIRTUAL ENVIRONMENT	13459451	4/30/2012
CONTROLLING CONFIGURABLE VARIABLE DATA REDUCTION	13460921	5/1/2012
TAPE STORAGE DEVICE HAVING AT LEAST ONE REDUNDANT READ DATA ELEMENT	13667421	11/2/2012
HEURISTIC JOURNAL RESERVATIONS	13787456	3/6/2013
REDUCE CB LIST BY UNDERSTANDING THAT MULTIPLE CB LIST ENTRIES CAN MAP TO THE SAME FILE IN THE VM	13852677	3/28/2013
A METHOD FOR GARBAGE COLLECTION DRIVEN BLOCK THINNING FOR STORAGE SYSTEMS	13918624	6/14/2013
METHOD AND APPARATUS FOR CREATING A MANAGEMENT PARTITION WITHIN A STORAGE DEVICE	13971368	8/20/2013
REDUCING MESSAGING IN A CLIENT-SERVER SYSTEM	14013387	8/29/2013
SINGLE PASS FILE SYSTEM REPAIR WITH COPY ON WRITE	14132324	12/18/2013
MITIGATING THE IMPACT OF A SINGLE POINT OF FAILURE IN AN OBJECT STORE	14180149	2/13/2014
DYNAMICALLY CONTROLLING ERASURE CODE DISTRIBUTION IN AN OBJECT STORE	14183310	2/18/2014
DYNAMICALLY CONFIGURING ERASURE CODE	14185331	2/20/2014

PATENT	PATENT NUMBER	REGIS. DATE
REDUNDANCY AND DISTRIBUTION		
CLUSTERED STORAGE NETWORK	14202908	3/10/2014
METADATA STORAGE IN UNUSED PORTIONS OF A VIRTUAL DISK FILE	14223301	3/24/2014
DATA CLASSIFICATION AWARE OBJECT STORAGE	14244935	4/4/2014
N-WAY INODE TRANSLATION	14263480	4/28/2014
SYSTEMS AND METHODS FOR COLLAPSING A DERIVATIVE VERSION OF A PRIMARY STORAGE VOLUME	14281858	5/19/2014
SNAPSHOT CREATION FROM BLOCK LISTS	14286443	5/23/2014
HIGH RELIABILITY ERASURE CODE DISTRIBUTION	14314977	6/25/2014
DATA DEDUPLICATION WITH ADAPTIVE ERASURE CODE REDUNDANCY	14326774	7/9/2014
ENABLING IMMEDIATE RECOVERY OF VIRTUAL MACHINES FROM A DE-DUPLICATION DEVICE BY USING SNAPSHOTS	14328747	7/11/2014
SELECTIVE COMPRESSION IN IMAGE LEVEL BACKUP FOR EFFICIENT FILE LEVEL RECOVERY	14328751	7/11/2014
FINGERPRINT ANALYSIS FOR ANTI-VIRUS SCAN	14445338	7/29/2014
DISTRIBUTION AND REPLICATION OF ERASURE CODES	14455529	8/8/2014
DATA CONTROL SYSTEM FOR VIRTUAL ENVIRONMENT	14509749	10/8/2014
MESSAGING POLICY CONTROLLED EMAIL DE-DUPLICATION	14515705	10/16/2014
METADATA PEERING	14593022	1/9/2015
IMPROVED GARBAGE COLLECTION AND DEFRAGMENTATION FOR SOLID STATE DRIVES (SSD) AND SHINGLED MAGNETIC RECORDING (SMR) DRIVES	14622976	1/16/2015

PATENT	PATENT NUMBER	REGIS. DATE
IMPROVING EFFICIENCY WITH PRIORITIZED ERASURE CODES	14607622	1/28/2015
METHODS AND SYSTEMS FOR VECTORED DATA DE-DUPLICATION	14641525	3/9/2015
METHODS AND SYSTEMS FOR VECTORED DATA DE-DUPLICATION	14642988	3/10/2015
METHODS AND SYSTEMS FOR VECTORED DATA DE-DUPLICATION	14657024	3/13/2015
MOVING DATA FROM LINEAR TAPE FILE SYSTEM STORAGE TO CLOUD STORAGE	14666561	3/24/2015
DYNAMICALLY VARIABLE ERROR CORRECTING CODE (ECC) SYSTEM WITH HYBRID RATELESS REED-SOLOMON ECCS	14722809	5/27/2015
CLOUD-BASED SOLID STATE DEVICE (SSD) WITH DYNAMICALLY VARIABLE ERROR CORRECTING CODE (ECC) SYSTEM	14722905	5/27/2015
GLOBAL STORAGE SOLUTION WITH LOGICAL CYLINDERS AND CAPSULES	14723005	5/27/2015
DATA STORAGE APPARATUS WITH SELECTIVE ADAPTIVE PREDICTIVE BEHAVIOR	14728497	6/2/2015
LOG STRUCTURED BLOCK DEVICE	14728038	6/2/2015
FILE SYSTEM WITH MULTI-CLASS STORAGE AND IN SITU TIERED ARCHIVING	14795463	7/9/2015
DATABASE CONVERSION FROM SINGLE MONOLITHIC FILE MODE TO ONE TABLE PER FILE AND ONE FILE PER TABLE MODE	14797738	7/13/2015
ADAPTIVE ERASURE CODES	14813442	7/30/2015
MOBILE DEVICE AGENT FOR PERSONAL DEDUPLICATION	14825470	8/13/2015
ADAPTIVE STORAGE MANAGEMENT FOR OPTIMIZING MULTI-TIER DATA STORAGE SYSTEM	14841788	9/1/2015



PATENT	PATENT NUMBER	REGIS. DATE
MEDIA LIBRARY INCLUDING STORAGE MEDIA RETRIEVAL ASSEMBLY	14860278	9/21/2015
PRESENTING A FILE SYSTEM FOR A FILE CONTAINING ITEMS	14867886	9/28/2015
MEDIA LIBRARY INCLUDING STORAGE MEDIA RETRIEVAL ASSEMBLY	14869827	9/29/2015
MAGNETIC MEDIA ACCESS HEAD WITH METAL COATING	14875332	10/5/2015
RECURSIVE MULTI-THREADED FILE SYSTEM SCANNER FOR SERIALIZING FILE SYSTEM METADATA EXOSKELETON	14922432	10/26/2015
STORAGE CONDITIONING	14944251	11/18/2015
IMPROVEMENTS TO SPATIAL DATABASE	14956553	12/2/2015
SELF-MANAGING STORAGE DEVICE	62270109	12/21/2015
POWER SAVINGS IN COLD STORAGE	15002560	1/21/2016
HIGH/LOW ENERGY ZONE DATA STORAGE	15002656	1/21/2016
EFFICIENT HIGH/LOW ENERGY ZONE SOLID STATE DEVICE DATA STORAGE	15006403	1/26/2016
FILTER FILE SYSTEM WITH INODE NUMBER AS PRIMARY DATABASE KEY	15007267	1/27/2016
ELECTRICAL CONNECTOR ASSEMBLY	29556813	3/3/2016
COMBINED ASYNCHRONOUS AND SYNCHRONOUS FOUNTAIN CODE STORAGE IN AN OBJECT STORE	15089968	4/4/2016
CUSTOMIZED AUTOMATED INSTALL PROCESS	15097540	4/13/2016
TAPE-BASED OBJECT STORE	62355090	6/27/2016
JOINT DE-DUPLICATION-ERASURE CODED DISTRIBUTED STORAGE	15211208	7/15/2016
DATA DEDUPLICATION WITH ADAPTIVE ERASURE CODE REDUNDANCY	15227285	8/3/2016

**SCHEDULE 2  
TRADEMARKS**

TRADEMARK	COUNTRY	APPL. DATE	APPL. NO.	REG. DATE	REG. NO.
(& Q Bracket Design)	THAI	12/17/2015	1019014		
(& Q Bracket Design)	THAI	12/17/2015	1019013		
ACCELIS	CTM	01/12/1999	001039452	12/21/2000	001039452
ACCELIS	JAPA	10/28/1998	H10-092103	10/27/2000	4427507
ACCELIS (Logo)	JAPA	08/18/1999	H11-073629	09/29/2000	4420274
ADIC	CTM	06/11/2001	2248904	02/27/2003	2248904
ADIC	SWIT	07/23/2001	72512001	11/16/2001	491544
ADIC	USA	10/25/1996	75187710	12/23/1997	2123355
AMASS	USA	12/08/1989	74009022	08/21/1990	1610492
ARTICO	USA	03/12/2015	86562171		
ARTICO	CTM	01/22/2016	015033401		
BE CERTAIN (& Q Bracket Design)	THAI	11/25/2014	963828		
BE CERTAIN (& Q Bracket Design)	USA	05/14/2012	85980820	02/10/2015	4685455
CERTANCE	CTM	06/20/2003	3239209	12/13/2004	3239209
CERTANCE	USA	02/12/2003	78214246	02/15/2005	2926907
DLT	INDI	07/13/2005	1370956	09/24/2008	1370956
DLT	USA	02/06/2003	76487967	07/20/2004	2864338
DLT (& Design)	BRAZ	03/10/2005	827232292		
DLT (& Design)	ARGE	02/09/2005	2570743	08/30/2006	2109443
DLT (& Design)	ASTL	09/27/1996	718480	09/27/1996	718480
DLT (& Design)	ASTL	02/10/2005	1041434	06/20/2005	1041434

TRADEMARK	COUNTRY	APPL. DATE	APPL. NO.	REG. DATE	REG. NO.
DLT (& Design)	BENE	08/01/1996	876091	08/01/1996	597981
DLT (& Design)	CANA	02/15/2005	1247344	03/14/2008	709,560
DLT (& Design)	CHIL	02/10/2005	676170	11/28/2005	1178252
DLT (& Design)	CHIL	11/28/1997	790724	11/28/1997	497747
DLT (& Design)	CHIN	02/18/2005	4508973	11/21/2007	4508973
DLT (& Design)	COLO	02/14/2005	T2005/012843	09/23/2005	303600
DLT (& Design)	COST	02/17/2005	2005-0001208	02/03/2006	156301
DLT (& Design)	ECUA	02/11/2005	IEPI-2015-16155	09/13/2005	2922-05
DLT (& Design)	CTM	04/01/1996	173567	04/11/1998	173567
DLT (& Design)	CTM	02/07/2005	004277646	06/09/2006	004277646
DLT (& Design)	HONG	02/07/2005	300368253	09/13/2005	300368253
DLT (& Design)	JAPA	04/01/2005	2005-28775	04/28/2006	4949273
DLT (& Design)	KORS	02/16/2005	40-2005-6418	01/06/2006	646315
DLT (& Design)	MEXI	02/18/2005	702829	06/21/2005	887187
DLT (& Design)	PARA	02/08/2005	25182005	06/08/2006	289592
DLT (& Design)	PERU	02/15/2005	233013	12/14/2005	111065
DLT (& Design)	PHIL	03/10/2005	42005002352	11/17/2008	42005002352
DLT (& Design)	SAUD	02/16/2005	94985	12/25/2006	881100
DLT (& Design)	SING	11/20/1996	12537/96	11/20/1996	12537/96
DLT (& Design)	SAFR	02/10/2005	200502708	01/12/2009	200502708
DLT (& Design)	TAIW	04/12/2005	94016815	01/01/2006	01189124
DLT (& Design)	USA	11/03/2004	78510625	03/18/2008	3399422
DLT (& Design)	VENE	02/10/2005	2024/2005	12/13/2011	2024/2005
DLT (& Design)	VIET	04/27/2005	4200504859	08/07/2007	85620

TRADEMARK	COUNTRY	APPL. DATE	APPL. NO.	REG. DATE	REG. NO.
DLT (& Design)	COLO	01/10/1997	97000846	07/23/1997	199491
DLT SUPER TAPE (& Design)	HONG	11/25/1999	199917298	10/14/1999	2001B05834
DLT SUPER TAPE (& Design)	ASTL	11/25/1999	815180	11/25/1999	815180
DLT SUPER TAPE (& Design)	BRAZ	07/07/2007	828546550	05/26/2009	828546550
DLT SUPER TAPE (& Design)	BRAZ	04/13/2000	822641038	05/02/2006	822641038
DLT SUPER TAPE (& Design)	CHIN	12/15/1999	9900151890	08/28/2001	1626435
DLT SUPER TAPE (& Design)	CTM	03/09/2000	1548056	05/02/2001	001548056
DLT SUPER TAPE (& Design)	ISRA	12/09/1999	132941	12/09/1999	132941
DLT SUPER TAPE (& Design)	MAYS	10/14/1999	99/13316	10/14/1999	9913316
DLT SUPER TAPE (& Design)	MEXI	03/31/2000	418795	03/31/2000	662356
DLT SUPER TAPE (& Design)	PHIL	09/16/2003	42003008560	09/24/2005	42003008560
DLT SUPER TAPE (& Design)	SING	03/21/2000	T00/04331F	10/14/1999	T00/04331F
DLT SUPER TAPE (& Design)	SAFR	03/31/2000	2000/06055	02/27/2004	2000/06055
DLT SUPER TAPE (& Design)	TAIW	04/07/2000	(89) 18449	10/16/2001	965592
DLT SUPER TAPE (& Design)	THAI	03/14/2000	414179	03/14/2010	TM139801
DLT SUPER TAPE (& Design)	GBRI	03/09/2000	2225168	10/13/2000	2225168
DLT SUPER TAPE (& Design)	USA	10/14/1999	75823333	12/11/2001	2518368
DLT SUPER TAPE (& Design)	CANA	12/07/1999	1038786	06/25/2003	584268
DLT SUPER TAPE (& Design)	SWIT	03/28/2000	03707/2000	03/28/2000	478910
DLT TAPE (& Design)	ARGE	05/15/1998	2924338	08/18/1999	2381642
DLT TAPE (& Design)	ASTL	05/15/1998	762304	10/16/1998	762304
DLT TAPE (& Design)	BENE	05/12/1998	915824	05/13/1998	0636685
DLT TAPE (& Design)	BRAZ	06/02/1998	820803944	12/26/2000	820803944
DLT TAPE (& Design)	CANA	05/12/1998	878,093	11/22/2001	TMA 554,269

TRADEMARK	COUNTRY	APPL. DATE	APPL. NO.	REG. DATE	REG. NO.
DLT TAPE (& Design)	CHIN	06/03/1998	9800059141	04/14/2000	1384492
DLT TAPE (& Design)	CTM	10/28/1999	1362383	01/22/2001	1362383
DLT TAPE (& Design)	HONG	05/13/1998	199806182	07/29/1999	1999B09595
DLT TAPE (& Design)	ISRA	05/13/1998	119600	09/07/1999	119600
DLT TAPE (& Design)	KORS	05/14/1998	10156/2009	06/29/1999	450208
DLT TAPE (& Design)	MAYS	05/27/1998	98/06395	05/27/1998	98006395
DLT TAPE (& Design)	PHIL	05/15/1998	03576	09/28/2003	41998003576
DLT TAPE (& Design)	SING	05/14/1998	T98/04602E	12/03/1997	T98/04602E
DLT TAPE (& Design)	SAFR	05/13/1998	98/08057	11/05/2001	98/08057
DLT TAPE (& Design)	SWIT	05/15/1998	03981/1998	09/02/1999	464594
DLT TAPE (& Design)	TAIW	05/19/1998	87/023714	09/16/2000	905281
DLT TAPE (& Design)	THAI	12/03/1997	361143	12/03/1997	KOR96911
DLT TAPE (& Design)	USA	12/03/1997	75399623	08/01/2000	2373379
DLT TAPE (& Design)	JAPA	06/03/1998	H10-046797	02/10/2000	4360996
DLT TAPE (& Design)	MEXI	05/18/1998	332916	07/31/1998	583518
DLTTAPE	USA	02/06/2003	76487968	07/20/2004	2864339
DXI	VENE	03/28/2008	5683/08		
DXI	VENE	03/28/2008	5684/08		
DXI	VENE	03/28/2008	568508		
DXI	VENE	03/28/2008	568608		
DXI	ASTL	03/25/2008	1231712	03/25/2008	1231712
DXI	BOLI	03/28/2008	SM14592008	01/07/2009	117585-C
DXI	BOLI	03/28/2008	SM14602008	01/07/2009	117586-C
DXI	BOLI	03/28/2008	SM14612008	01/07/2009	117587-C

TRADEMARK	COUNTRY	APPL. DATE	APPL. NO.	REG. DATE	REG. NO.
DXI	BOLI	03/28/2008	SM14622008	01/07/2009	117588-C
DXI	BRAZ	04/22/2008	829699244	06/18/2013	829699244
DXI	CANA	04/21/2008	1,392,299	08/12/2010	774,364
DXI	CHIL	03/25/2008	812823	12/02/2008	835.344
DXI	CHIL	03/25/2008	812825	12/02/2008	835345
DXI	CHIL	03/25/2008	812826	12/02/2008	835.346
DXI	CHIN	04/22/2008	6676917	01/28/2014	9115657
DXI	CHIN	04/22/2008	6676916	07/14/2010	6676916
DXI	CHIN	04/22/2008	6676915	04/14/2010	6676915
DXI	CHIN	04/22/2008	6676914	10/07/2010	6676914
DXI	COLO	03/31/2008	08031667	11/25/2008	367412
DXI	COLO	03/31/2008	08031671	11/25/2008	367413
DXI	COLO	03/31/2008	08031665	11/28/2008	367573
DXI	COLO	03/31/2008	08031662	11/25/2008	367411
DXI	COST	03/28/2008	2008-0002884	11/03/2008	181661
DXI	ECUA	03/25/2008	197060	07/22/2008	5832-08
DXI	ECUA	03/25/2008	197066	07/22/2008	5833-08
DXI	ECUA	03/25/2008	197061	07/22/2008	2401-08
DXI	EGYP	04/17/2008	215481	04/16/2008	215481
DXI	EGYP	04/17/2008	215482	04/16/2008	215482
DXI	EGYP	04/17/2008	215483	04/16/2008	215483
DXI	EGYP	04/17/2008	215484	04/16/2008	215484
DXI	HONG	03/25/2008	301078236	03/25/2008	301078236
DXI	INDI	04/21/2008	1678155	02/25/2011	1678155

TRADEMARK	COUNTRY	APPL. DATE	APPL. NO.	REG. DATE	REG. NO.
DXI	INDO	07/22/2008	D002008014314	02/03/2010	IDM000235134
DXI	INDO	07/22/2008	J002008014315	03/08/2010	IDM000239476
DXI	ISRA	03/20/2008	209,924	10/21/2009	209,924
DXI	ISRA	03/20/2008	209,925	10/21/2009	209,925
DXI	ISRA	03/20/2008	209,926	10/21/2009	209,926
DXI	ISRA	03/20/2008	209,927	10/21/2009	209,927
DXI	JAPA	04/22/2008	2008-31455	01/28/2011	5386966
DXI	KORS	04/22/2008	1763/2008	03/19/2010	30705
DXI	MAYS	03/25/2008	08005798	09/04/2009	08005798
DXI	MAYS	03/25/2008	08005799	09/09/2009	08005799
DXI	MAYS	10/22/2007	08005800	10/22/2007	08005800
DXI	MAYS	03/25/2008	08005797	12/09/2009	08005797
DXI	MEXI	04/22/2008	928553	03/27/2009	1092333
DXI	MEXI	04/22/2008	928556	08/25/2008	1055207
DXI	MEXI	04/22/2008	928558	08/25/2008	1055208
DXI	MEXI	04/22/2008	928551	08/25/2008	1055206
DXI	NEWZ	10/22/2007	786431	10/22/2007	786431
DXI	NORW	03/26/2008	200803940	12/16/2008	249128
DXI	PANA	04/22/2008	170572	04/22/2008	170572
DXI	PANA	04/22/2008	170566	04/22/2008	170566
DXI	PANA	04/22/2008	170571	04/22/2008	170571
DXI	PANA	04/22/2008	170573	04/22/2008	170573
DXI	PARA	03/31/2008	10137	09/23/2009	324056
DXI	PARA	03/31/2008	10138	12/11/2009	326159

TRADEMARK	COUNTRY	APPL. DATE	APPL. NO.	REG. DATE	REG. NO.
DXI	PARA	03/31/2008	10139	09/23/2009	324057
DXI	PARA	03/31/2008	10140	09/23/2009	324058
DXI	PERU	04/18/2008	351179	10/20/2008	144293
DXI	PERU	04/18/2008	351181	12/16/2008	54153
DXI	PERU	04/18/2008	351180	10/20/2008	144294
DXI	PERU	04/18/2008	351182	10/20/2008	53331
DXI	PHIL	03/28/2008	4-2008-003617	11/26/2010	4-2008-003617
DXI	SAUD	04/19/2008	129379	04/25/2010	1157/24
DXI	SAUD	04/19/2008	129380	04/06/2010	1152/60
DXI	SAUD	04/19/2008	129381	01/10/2010	1128/12
DXI	SAUD	04/19/2008	129382	01/23/2010	1133/51
DXI	SING	03/27/2008	T0803965B	03/27/2008	T0803965B
DXI	SAFR	03/25/2008	2008/06516	08/12/2010	2008/06516
DXI	SAFR	03/25/2008	2008/06514	08/12/2010	2008/06514
DXI	SAFR	03/25/2008	2008/06515	08/12/2010	2008/06515
DXI	SWIT	03/20/2008	53756/2008	03/20/2008	575,895
DXI	TAIW	04/16/2008	98880016	06/01/2009	01365697
DXI	USA	10/22/2007	77309905	07/14/2009	3655418
DXI	VIET	03/26/2008	4200806224	01/05/2010	140041
DXI	BRAZ	04/22/2008	829699392	02/26/2013	829699392
DXI	BRAZ	04/22/2008	829699406	02/26/2013	829699406
DXI	BRAZ	04/22/2008	829699414	02/26/2013	829699414
DXI	ARGE	03/26/2008	2812212	03/31/2009	2279346
DXI	ARGE	03/26/2008	2812214	03/31/2009	2279349



TRADEMARK	COUNTRY	APPL. DATE	APPL. NO.	REG. DATE	REG. NO.
DXI	ARGE	03/26/2008	2812215	03/31/2009	2279350
DXI	VENE	04/17/2008	7296/08	12/23/2008	7296/08
DXI	VENE	04/17/2008	7297/08	12/23/2008	7297/08
DXI	VENE	04/17/2008	7298/08	12/23/2008	7298/08
DXI	VENE	04/17/2008	7299/08	12/23/2008	7299/08
DXI	KORS	02/16/2009	487/2009	09/30/2009	29142
DXI	TAIW	03/04/2009	98880015	12/16/2009	1389463
DXI	CHIN	01/28/2011	9115657	01/28/2014	9115657
DXI	ECUA	03/25/2008	197059	07/22/2008	2452-08
DXI	CTM	10/23/2007	006388078	07/06/2009	6388078
DXI	SAFR	03/25/2008	2008/06513	08/12/2010	2008/06513
DXI	ARGE	03/26/2008	2812213	03/31/2009	2279348
DXi (Stylized)	THAI	04/03/2008	691829	12/03/2008	Kor303070
DXI ACCENT	USA	04/25/2011	85303443	07/10/2012	4172746
DXI ACCENT	CANA	10/13/2011	1547700	02/20/2013	843936
DXI ACCENT	ASTL	10/12/2011	1453222	03/05/2012	1453222
DXI ACCENT	KORS	10/20/2011	4520114776	01/18/2013	450043195
DXI ACCENT	CTM	10/13/2011	010338614	03/15/2012	010338614
DXI V1000	USA	01/31/2012	85529431	01/27/2015	4679234
DXI V1000	CTM	07/27/2012	011078946	12/25/2012	011078946
DXI-SERIES	USA	11/18/2011	85476473	07/17/2012	4175224
DXI-SERIES	CTM	11/23/2011	010438497	04/11/2012	010438497
DX-SERIES	USA	11/18/2011	85476480		
DX-SERIES	CTM	11/22/2011	010434421	07/30/2012	010434421

TRADEMARK	COUNTRY	APPL. DATE	APPL. NO.	REG. DATE	REG. NO.
ECOTIER	USA	03/12/2015	86562178		
ECOTIER	CTM	01/27/2016	15042963		
FASTSTOR	CTM	11/01/2001	2434678	06/26/2003	2434678
FASTSTOR	USA	08/11/1997	75339045	11/23/1999	2294666
FILESERV	USA	11/13/1992	74330814	12/15/1998	2211317
GOPROTECT	USA	07/23/2010	85091683	03/22/2011	3934430
GOPROTECT	CANA	09/20/2010	1496572	12/01/2011	TMA813090
GOPROTECT	CTM	07/27/2010	009277104	01/10/2010	009277104
GOVAULT	CANA	12/28/2005	1,284,546	11/18/2008	728,584
GOVAULT	CHIN	12/26/2005	5084769	12/21/2008	5084769
LATTUS	USA	06/18/2012	85654404	08/26/2014	4590993
LATTUS	CTM	05/01/2015	014018915	09/08/2015	014018915
LINEAR TAPE-OPEN	FINL	10/28/1998	216220	12/15/1999	216220
LINEAR TAPE-OPEN	GERM	10/27/1998	39861865.8	11/16/1999	39861865
LINEAR TAPE-OPEN	DENM	03/03/1999	VA0010331999	12/02/1999	VR0045301999
LINEAR TAPE-OPEN	JAPA	10/28/1998	H10-092105	10/27/2000	4427509
LINEAR TAPE-OPEN	CTM	01/12/1999	1,039,213	02/14/2001	001039213
LINEAR TAPE-OPEN	USA	04/03/1998	75983433	04/27/2004	2836782
LTO	FINL	10/28/1998	216223	12/15/1999	216223
LTO	GERM	10/27/1998	39861868.2	07/09/1999	39861868
LTO	USA	04/03/1998	75462012	09/11/2001	2487985
LTO	JAPA	10/28/1998	H10-092102	11/10/2000	4431036
LTO	CTM	01/12/1999	1039551	09/18/2000	1039551
LTO ACCELIS (& Design)	DENM	03/03/1999	VA0010351999	12/02/1999	VR0045321999

TRADEMARK	COUNTRY	APPL. DATE	APPL. NO.	REG. DATE	REG. NO.
LTO ACCELIS (& Design)	CTM	03/12/1999	001103159	06/07/2000	001103159
LTO LINEAR TAPE-OPEN (& Design)	USA	03/12/1999	75659481	02/17/2004	2815237
LTO LINEAR TAPE-OPEN (& Design)	CTM	03/12/1999	1103183	07/11/2002	1103183
LTO LINEAR TAPE-OPEN (& Design)	FINL	03/02/1999	217779	06/15/2000	217779
LTO LINEAR TAPE-OPEN (& Design)	GERM	03/01/1999	39911640.0	06/24/1999	39911640
LTO LINEAR TAPE-OPEN (& Design)	DENM	03/03/1999	VA0010361999	12/02/1999	VR0045331999
NDX	USA	08/26/2011	85408266	03/19/2013	4306048
NDX	CTM	02/27/2012	10677888	07/26/2012	10677888
O Logo	USA	01/16/2013	85825026	08/20/2013	4388069
O Logo	USA	01/16/2013	85825043	08/20/2013	4388070
O Logo	USA	01/16/2013	85825053	08/20/2013	4388073
PANCETERA	ASTL	01/13/2010	1340421	05/12/2010	1340421
PANCETERA	CTM	01/13/2010	8806564	07/05/2010	8806564
PANCETERA	NEWZ	01/13/2010	818213	07/14/2010	818213
PANCETERA	USA	07/13/2009	77779782	05/25/2010	3794867
PATHLIGHT	CTM	05/15/2002	2698421	12/05/2003	2698421
PATHLIGHT	USA	11/15/2001	78093622	12/31/2002	2669251
PRESERVING THE WORLD'S MOST IMPORTANT DATA. YOURS	USA	07/11/2012	85674041	02/10/2015	4685094
PYTHON	GBRI	04/11/1991	1461128	05/22/1992	1461128
PYTHON	ASTL	03/18/1991	552153	12/22/1992	552153

TRADEMARK	COUNTRY	APPL. DATE	APPL. NO.	REG. DATE	REG. NO.
Q (Stylized)	USA	09/10/2004	78481629	07/10/2007	3259974
Q (Stylized)	CTM	02/01/2005	004266491	03/27/2006	004266491
Q (Stylized)	JAPA	02/18/2005	2005-13432	12/22/2005	4917105
Q QUANTUM (Stylized)	PARA	08/26/1994	16905/94	09/26/1996	288602
QCLOUD	CTM	07/27/2012	011079118	01/23/2013	011079118
Q-CLOUD	CTM	07/27/2012	011079209	01/24/2013	011079209
Q-CLOUD	USA	02/01/2012	85981969	08/05/2014	4581554
QQLOUD	CTM	07/27/2012	011079266	01/23/2013	011079266
Q-QLOUD	CTM	07/27/2012	011079225	01/24/2013	011079225
QUANTUM	ARGE	04/20/2001	2335668		
QUANTUM	BRAZ	08/27/2007	829323198		
QUANTUM	BRAZ	08/27/2007	829323236		
QUANTUM	CTM	07/27/2007	6093975		
QUANTUM	BRAZ	01/22/2014	840770014		
QUANTUM	BRAZ	01/22/2014	840770022		
QUANTUM	BRAZ	01/22/2014	To be Researched		
QUANTUM	BRAZ	01/22/2014	840770030		
QUANTUM	BRAZ	01/22/2014	840770057		
QUANTUM	RUSS	08/07/2015	2015724959		
QUANTUM	MAYS	08/14/2015	2015063422		
QUANTUM	INDI	08/25/2015	3040707		
QUANTUM	ARGE	11/20/2002	2399459	10/19/2004	2712688
QUANTUM	ARGE	07/24/1992	2630261	12/21/1995	2482206
QUANTUM	ASTL	07/20/2007	1188864	10/22/2012	1188864

TRADEMARK	COUNTRY	APPL. DATE	APPL. NO.	REG. DATE	REG. NO.
QUANTUM	ASTL	01/30/1991	549694	01/30/1991	549694
QUANTUM	ATRA	02/25/1991	AM 900/91	04/30/1992	141712
QUANTUM	ATRA	11/20/1981	AM 2844/81	03/31/1982	99309
QUANTUM	BENE	07/07/1971	7281	07/07/1971	52255
QUANTUM	BENE	02/25/1991	760194	02/25/1991	496020
QUANTUM	BENE	10/21/1977	621399	10/21/1977	348128
QUANTUM	BOLI	02/29/2008	SM09942008	09/26/2008	115434C
QUANTUM	BOLI	02/29/2008	SM09952008	09/26/2008	115433C
QUANTUM	BOLI	02/29/2008	SM09962008	09/26/2008	115432C
QUANTUM	BOLI	02/29/2008	SM09972008	02/03/2012	133337-C
QUANTUM	BOLI	02/29/2008	SM09982008	03/21/2012	134707-C
QUANTUM	BOLI	07/22/1992	55854-C	02/24/1994	091491-A
QUANTUM	BRAZ	08/27/2007	829323163	10/25/2011	829323163
QUANTUM	BRAZ	08/27/2007	829323210	06/21/2011	829323210
QUANTUM	BRAZ	08/07/1995	818654767	08/14/2007	818654767
QUANTUM	CANA	04/16/1991	679,990	03/15/1996	TMA455129
QUANTUM	CANA	11/12/1998	896,145	05/08/2002	TMA561564
QUANTUM	CANA	11/12/1998	896143	12/05/2002	571853
QUANTUM	CANA	11/12/1998	896144	12/05/2002	571852
QUANTUM	CHIL	03/14/1992	196222	06/10/2002	632356
QUANTUM	CHIN	06/14/1995	95073390	02/28/1997	954636
QUANTUM	COLO	04/11/2007	07035674	12/30/2009	394432
QUANTUM	COST	03/25/1996	49632	01/06/1997	98510
QUANTUM	CYPR	09/05/2006	72882	05/18/2011	72882

TRADEMARK	COUNTRY	APPL. DATE	APPL. NO.	REG. DATE	REG. NO.
QUANTUM	CYPR	09/05/2006	72883	05/18/2011	72883
QUANTUM	CZEC	12/05/1995	106594	04/19/2000	223609
QUANTUM	DENM	11/04/1998	04738/1998	06/21/2000	02759/2000
QUANTUM	DENM	02/25/1991	1425/91	02/17/1995	VR199501112
QUANTUM	ECUA	09/20/1995	58416	04/28/1997	5821
QUANTUM	EGYP	12/29/1981	60007	12/29/1981	60007
QUANTUM	CTM	04/01/1996	173500	10/29/1998	173500
QUANTUM	FRAN	04/28/1997	97675570	04/28/1997	97675570
QUANTUM	FRAN	11/06/1998	98758203	11/06/1998	98758203
QUANTUM	FRAN	10/20/1987	883195	10/20/1987	1560728
QUANTUM	GERM	10/09/1990	Q1468	12/12/1993	2053173
QUANTUM	GERM	10/31/1998	39862856	01/11/2000	39862856
QUANTUM	GREC	12/17/1981	70640	01/17/1996	70640
QUANTUM	HONG	08/20/1997	199711905	07/15/2002	200208863
QUANTUM	HUNG	02/20/1996	M9600549	02/20/1996	148758
QUANTUM	INDI	11/27/1981	383572	11/27/1981	383572
QUANTUM	INDO	04/19/1983	171933	04/19/1983	IDM000002715
QUANTUM	IREL	10/06/1995	7017/95	10/06/1995	177248
QUANTUM	ISRA	11/24/1981	53295	11/24/1981	53295
QUANTUM	ISRA	03/06/1991	79122	10/05/1995	79122
QUANTUM	ITAL	01/19/1999	MI09C000391	12/11/2008	1159412
QUANTUM	ITAL	03/26/1991	MI01C003196	06/13/1994	0000971125
QUANTUM	ITAL	03/26/1991	MI2011C002533	06/13/1994	1432918
QUANTUM	JAPA	06/24/1986	6166046	08/29/1988	2075108

TRADEMARK	COUNTRY	APPL. DATE	APPL. NO.	REG. DATE	REG. NO.
QUANTUM	JAPA	11/09/1998	10-199896152	12/03/1999	4341273
QUANTUM	JAPA	02/22/1991	3-16940/91	12/19/1997	4094709
QUANTUM	JAPA	11/09/1998	10-199896153	11/17/2000	4433282
QUANTUM	KORS	12/04/1981	81-10754	02/04/1983	88589
QUANTUM	MAYS	11/21/1981	M/93033	11/21/1981	M/93033
QUANTUM	MEXI	07/31/1992	146199	01/25/2001	702192
QUANTUM	NEWZ	01/31/1991	207934	06/24/1996	207934
QUANTUM	PANA	09/29/1992	63252	11/14/1996	63252
QUANTUM	PARA	03/21/1994	4463/94	07/26/1996	289829
QUANTUM	PARA	07/29/1994	14504/94	07/26/1996	289858
QUANTUM	MAYS	11/25/1981	24201	11/25/1981	SAR/24201
QUANTUM	SAUD	11/19/1995	31717	04/03/1997	397/17
QUANTUM	SPAI	10/11/1995	1989926	10/11/1995	1989926
QUANTUM	SWIT	02/22/1991	1246/1991.7	02/22/1991	387941
QUANTUM	THAI	02/03/1982	479536	02/03/1982	Kor186547
QUANTUM	USA	02/01/1996	75052261	07/01/1997	2075239
QUANTUM	USA	05/23/1977	73127739	04/18/1978	1089619
QUANTUM	USA	12/07/1998	75608837	03/13/2001	2434568
QUANTUM	VIET	02/12/2004	4-2004-00995	06/04/2009	126394
QUANTUM	VIET	08/26/1995	N-3337/95	06/20/2003	49711
QUANTUM	PARA	04/08/1994	20176/2005	04/22/1996	284532
QUANTUM	PHIL	02/16/1996	41999106029	12/13/2004	41996106029
QUANTUM	TAIW	11/07/1998	87054271	08/01/2000	127084
QUANTUM	GBRI	11/02/1977	1085979	05/23/1977	1085979

TRADEMARK	COUNTRY	APPL. DATE	APPL. NO.	REG. DATE	REG. NO.
QUANTUM	USA	05/20/1969	72327773	12/28/1971	926161
QUANTUM	ECUA	07/22/1992	33429	09/09/1993	2293
QUANTUM	NEWZ	11/20/1981	139797	02/15/1985	139797
QUANTUM	NORW	02/25/1991	911027	07/18/1996	175587
QUANTUM	PARA	04/08/1994	5841/94	07/26/1996	289859
QUANTUM	PARA	05/12/1994	8525/1994	11/12/2001	241471
QUANTUM	PERU	08/07/1992	498104	11/25/1992	100590
QUANTUM	PORT	02/25/1991	271540	02/03/1993	271540
QUANTUM	SABA	11/21/1981	528995	11/21/1981	528995
QUANTUM	SING	12/14/2006	T0627528F	05/06/2008	T0627528F
QUANTUM	SING	11/30/1981	T8105278G	08/18/1986	T8105278G
QUANTUM	SAFR	11/18/1981	B81/8778	11/18/1981	B81/8778
QUANTUM	SWED	08/05/1997	97-07018	12/09/2005	377090
QUANTUM	SWIT	11/26/1992	083791992	07/15/1993	403509
QUANTUM	TAIW	11/07/1998	87-054270	11/01/1999	117196
QUANTUM	GBRI	01/30/1991	1454152	07/22/1994	1454152
QUANTUM	USA	12/07/1998	75604153	10/10/2000	2392749
QUANTUM	CYPR	09/05/2006	72885	06/14/2012	72885
QUANTUM	SARA	11/25/1981	R/024201	11/25/2012	R/024201
QUANTUM	ASTL	06/18/2012	1496858	03/17/2014	1496858
QUANTUM	CTM	09/18/2013	012151981	05/16/2014	012151981
QUANTUM	USA	09/17/2013	86066721	08/12/2014	4583134
QUANTUM	JAMA	09/16/2013	63400	09/16/2013	63400
QUANTUM	CHIL	06/10/2012	1015067	06/10/2012	1015067



TRADEMARK	COUNTRY	APPL. DATE	APPL. NO.	REG. DATE	REG. NO.
QUANTUM	NEWZ	12/05/2013	989101	01/28/2015	989101
QUANTUM	BENE	10/30/1998	925943	10/30/1998	662203
QUANTUM	PARA	08/26/1994	16906/94	07/10/1997	298055
QUANTUM	SING	12/14/2006	T0627530H	12/14/2006	T0627530H
QUANTUM	SING	12/14/2006	T0627531F	11/21/2008	T0627531F
QUANTUM	TAIW	12/10/1993	82060688	12/01/1994	662583
QUANTUM	USA	12/07/1998	75601999	12/12/2000	2411810
QUANTUM (& Q Bracket Design)	CANA	11/14/2012	1602314		
QUANTUM (& Q Bracket Design)	CTM	11/14/2012	011346038	03/28/2013	011346038
QUANTUM (& Q bracket design)	ASTL	11/14/2012	1525607	04/07/2014	1525607
QUANTUM (& Q Bracket Design)	JAPA	11/14/2012	201292450	03/22/2013	5567562
QUANTUM (& Q Bracket Design)	KORS	11/14/2012	707902012	09/18/2014	1059320
QUANTUM (Stylized)	USA	02/03/1992	74242149	02/02/1993	1749927
QUANTUM (Stylized)	USA	11/10/1997	75387699	09/19/2000	2386775
QUANTUM (Stylized)	FRAN	04/05/1991	278348	04/05/1991	1654185
QUANTUM BE CERTAIN (& Q Brackets Design)	CTM	11/14/2012	011345949	03/28/2013	011345949
QUANTUM CERTIFIED	USA	06/17/2016	87075198		
QUANTUM DXI-SERIES	USA	11/22/2011	85478509	07/17/2012	4175381
QUANTUM DXI-SERIES	CTM	11/23/2011	010438398	04/11/2012	010438398
QUANTUM DX-SERIES	USA	11/18/2011	85476482		
QUANTUM DX-SERIES	CTM	11/22/2011	010434355	07/31/2012	010434355

TRADEMARK	COUNTRY	APPL. DATE	APPL. NO.	REG. DATE	REG. NO.
QUANTUM ENTRAINMENT	MEXI	02/16/2011	1227282	07/14/2011	1227282
QUANTUM EXPERIENCE	USA	05/09/2016	87029719		
QUANTUM VISION	USA	07/24/2008	77530641	12/29/2009	3732299
ROCKSOFT	CTM	09/30/2002	002875987	02/20/2004	002875987
ROCKSOFT	ASTL	03/05/1992	573748	06/04/1993	573748
SCALAR	USA	04/25/2002	78124228	09/07/2004	2881314
SCALAR	USA	12/01/1994	74605165	01/14/1997	2030788
SCALAR	CTM	06/13/2001	2256410	10/20/2009	2256410
SCORPION	CANA	11/07/1989	644309	10/19/1990	TMA374707
SDLT	CTM	03/07/2005	4324646	12/05/2006	4324646
SDLT	JAPA	03/30/2005	2005-27805	12/02/2005	4910982
SDLTTAPE	CTM	03/07/2005	4324711	05/22/2006	4324711
SDLTTAPE	JAPA	03/30/2005	200527804	05/12/2006	4951305
SDLTTAPE	USA	09/30/2004	76613992	04/11/2006	3078209
SMARTREAD	USA	04/28/2010	85025522	05/24/2011	3967730
SNC	CTM	05/15/2002	2698405	12/05/2003	2698405
STORAGECARE	USA	05/12/2003	76518536	11/29/2005	3018998
STORNEXT	CTM	03/20/2000	1565654	06/12/2001	1565654
STORNEXT	USA	09/15/1999	75799829	07/10/2001	2468420
SUPERLOADER	USA	10/15/2001	76325313	08/23/2005	2987717
SYMFORM	USA	07/02/2010	85077543	07/12/2011	3992387
SYMFORM (Stylized & Design)	USA	01/16/2013	85824995	08/20/2013	4388065
SYMFORM (Stylized & Design)	USA	01/16/2013	85825004	08/20/2013	4388066
SYMFORM (Stylized & Design)	USA	01/16/2013	85825020	08/20/2013	4388068

TRADEMARK	COUNTRY	APPL. DATE	APPL. NO.	REG. DATE	REG. NO.
TAPESTOR	USA	08/25/1993	74429328	12/27/1994	1869317
ULTRIUM	FINL	10/28/1998	216221	12/15/1999	216221
ULTRIUM	GERM	10/27/1998	39861867.4	07/27/1999	39861867
ULTRIUM	USA	04/03/1998	75462005	09/11/2001	2487984
ULTRIUM	CTM	01/12/1999	1039403	07/04/2000	1039403
ULTRIUM	DENM	03/03/1999	VA0010321999	12/02/1999	VR0045291999
ULTRIUM	JAPA	10/28/1998	H10-092104	10/27/2000	4427508
ULTRIUM (Logo)	JAPA	08/18/1999	H11-073630	09/29/2000	4420275
ULTRIUM LTO	USA	01/22/2013	85829575	10/21/2014	4623199
ULTRIUM LTO (& Design)	FINL	02/26/1999	217777	06/15/2000	217777
ULTRIUM LTO (& Design)	GERM	02/26/1999	39911294.4	06/01/1999	39911294
ULTRIUM LTO (& Design)	CTM	03/12/1999	001103175	10/25/2000	001103175
ULTRIUM LTO (& Design)	DENM	03/03/1999	VA0010341999	12/02/1999	VR0045311999
VERACITY	ASTL	01/28/1993	594837	04/08/1994	594837
VIPER	CANA	11/07/1989	064431000	10/19/1990	TMA374708
VIPER	USA	04/14/1987	73655202	11/10/1987	1464451
XCELLIS	USA	09/09/2015	86751489		
XCELLIS	CTM	10/06/2015	014637375		

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<b>GRANTOR</b>	<b>TITLE</b>	<b>REG. NO.</b>	<b>DATE</b>
Quantum Corporation	Control program for 8049 microprocessor.	TX0000979601	1981
Quantum Corporation	Control program for Intel 8051 control microprocessor in rotating disk data storage device.	TX0001307338	1983
Quantum Corporation	Prodrive control program software.	TX0002323157	1988
Quantum Corporation	RF71 V102	TXu000446027	12/26/90
Quantum Corporation	RF71 V103	TXu000446028	12/26/90
Quantum Corporation	RF71 V104	TXu000446030	12/26/90
Quantum Corporation	RF71 V105	TXu000446031	12/26/90
Quantum Corporation	RF30 V102	TXu000446025	12/26/90
Quantum Corporation	RF30 V103	TXu000446024	12/26/90
Quantum Corporation	RF30 V104	TXu000446026	12/26/90
Quantum Corporation	RF30 V105	TXu000446029	12/26/90