

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT3895447

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT
CONVEYING PARTY DATA	
Name	Execution Date
AGENCY FOR SCIENCE, TECHNOLOGY AND RESEARCH	09/30/2014
RECEIVING PARTY DATA	
Name:	MARVELL INTERNATIONAL LTD.
Street Address:	CANON'S COURT
Internal Address:	22 VICTORIA STREET
City:	HAMILTON
State/Country:	BERMUDA
Postal Code:	HM 12
PROPERTY NUMBERS Total: 1	
Property Type	Number
Application Number:	14434691
CORRESPONDENCE DATA	
Fax Number:	(248)641-0270
<i>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.</i>	
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Correspondent Name:	HARNESS, DICKEY & PIERCE, P.L.C.
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ATTORNEY DOCKET NUMBER:	MP6242WOUS
NAME OF SUBMITTER:	RACHAEL A. ORLIK
SIGNATURE:	/Rachael A. Orlik/
DATE SIGNED:	05/31/2016
Total Attachments: 11	
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ASSIGNMENT AGREEMENT

THIS ASSIGNMENT AGREEMENT dated 30 September 2014 is made

BETWEEN:

- (1) **THE AGENCY FOR SCIENCE, TECHNOLOGY AND RESEARCH**, a body corporate established pursuant to the Agency for Science Technology and Research Act (Cap 5A) of 1 Fusionopolis Way, #20-10 Connexis North Tower, Singapore 138632 ("**A*STAR**") of the first part; and
- (2) **MARVELL INTERNATIONAL LTD**, a company incorporated in Bermuda, whose principal place of business is at Canon's Court, 22 Victoria Street, Hamilton HM 12, Bermuda (the "**Company**").

RECITALS

- (1) A*STAR is the registered proprietor of the Patents as defined below.
- (2) ETPL as defined below is a wholly owned subsidiary of A*STAR.
- (3) By an agreement dated 30 September 2014 between ETPL, and the Company ("the Patent Purchase and Commercialisation Agreement"), ETPL agrees to procure that A*STAR will assign its rights, title and interest in the Patents to the Company in consideration for certain payments to be made by the Company to ETPL.
- (4) A*STAR agrees, in consideration of the payments to be made by the Company to ETPL, to assign all its rights, title and interests in and to the Patents to the Company on the terms of this Assignment Agreement.

IT IS AGREED as follows:

1. Definitions

In this Assignment Agreement, the following words shall have the following meanings:

"4mm / 5mm Thin Drive" shall mean only the mechanics and design of a hard disk drive of a 2.5 inch form factor with height of 4mm or 5mm.

"4mm / 5mm Axial Field Motor" shall mean only the mechanics and design of a hard disk drive spindle motor that adopts a stator fixed between the rotating motor top hub with a permanent ring magnet and a co-rotating yoke. The permanent magnet generates axial, directional magnetic fields in parallel to the axis of rotation. The stator coils are arranged in a flat shape to couple the axial magnetic field in order to produce the motoring torque as the exciting currents go through them.

"A*STAR Affiliate" shall mean Exploit Technologies Pte Ltd, DSI and any research centre or institute funded or managed by A*STAR.

- "Dedicated Servo Technology" shall mean only the methodology of a continuous positioning technique that uses servo position information layer that is separate from a data recording layer on a multi-layered disk media to allow the magnetic head to stay on track.
- "DSI" shall mean Data Storage Institute
- "Effective Date" shall mean 1st July 2014
- "ETPL" shall mean Exploit Technologies Pte Ltd
- "Micro-milli Actuator" shall mean only the mechanics and design of a second stage actuator that has a piezoelectric actuator mount plate, one or more piezoelectric actuators, a suspension loadbeam, a suspension flexure, and one or more sensors for rotating the suspension loadbeam in response to control signals. The sensors are coupled to the suspension flexure and the suspension loadbeam for vibration compensation and suppression.
- "Micro-micro Actuator" shall mean only the mechanics and design of a second stage actuator that has one or more piezoelectric actuators mounted in the flexure tongue for rotating the slider in response to control signals. It has one or more sensors coupled to the suspension flexure and the suspension loadbeam for vibration compensation and suppression.
- "Patents" shall mean the patent(s) and patent application(s) identified in the attached Schedule

2. Assignment

- 2.1 In consideration of payment by the Company in accordance with the terms of the Patent Purchase and Commercialisation Agreement, A*STAR hereby assigns and transfers to the Company absolutely all its right, title and interest in the Patents.
- 2.2 It is agreed that this Assignment Agreement shall take effect from the Effective Date provided that it shall be a condition precedent to the assignment under this Assignment Agreement that the Company effects full payment to ETPL in accordance with the terms of the Patent Purchase and Commercialisation Agreement.

3. Perfection and Recordal

- 3.1 The Company shall be responsible for executing and lodging all documents, and doing all acts required to effect the recordal of the transfer of the Patents and the Assignment Agreement with the relevant registries or authorities at the cost and expense of the Company.
- 3.2 Upon request, A*STAR shall provide reasonable assistance to the Company, as appropriate, at the Company's cost and expense but without any service charge

imposed by A*STAR, to execute all requisite documentation reasonably required for the purpose of effecting and perfecting the transfer and recordal of the Patents pursuant to this Assignment Agreement. A*STAR shall seek the Company's prior approval if A*STAR is required to pay any third party any costs, fees or expenses in order to comply with its obligations to provide reasonable assistance to the Company under this Clause. All such costs, fees or expenses approved by the Company shall be promptly and fully reimbursed to A*STAR. If the Company does not so approve such costs, fees or expenses, A*STAR shall not incur the same and shall have no liability to the Company under this Clause.

4. Warranties, representations and undertakings

- 4.1 A*STAR warrants, represents and undertakes that it is the sole registered, proprietor of the Patents and that it has the right to enter into this Assignment Agreement with the Company and assign all its right, title and interest in the Patents to the Company. A*STAR warrants that to the best of its knowledge, as at the Effective Date, it has not received any notice of any unregistered joint owners of the Patents. A*STAR further warrants that as at the Effective Date, with respect to the Patents, all inventors of the inventions under the Patents are/were employees, contractors or consultants of DSI at the time of invention and have properly assigned their rights and interests in said inventions to either DSI or A*STAR.
- 4.2 A*STAR warrants, represents and undertakes that to the best of its knowledge, as of the Effective Date, A*STAR has not received any written notice of the invalidity of the Patents or any invalidation proceedings, interference proceedings, cancellation proceedings, inter partes reviews, post-grant reviews and/or other contested which have been instituted by any third party in any relevant patent registries or authorities or judicial venues in connection with the Patents. A*STAR warrants that, as of the Effective Date, none of the Patents have expired or been abandoned by A*STAR.
- 4.3 A*STAR warrants, represents and undertakes that as of the Effective Date, except as identified in the Schedule hereto, none of the Patents have outstanding actions that have deadlines for response (without incurring any extension) within three (3) months of the Effective Date.
- 4.4 A*STAR warrants, represents and undertakes that as at the Effective Date, except as identified in the Schedule hereto, no sublicense rights or any other rights that permit further licensing by a licensee with respect to the Patents have been granted to another party including but not limited to any third parties and any A*STAR Affiliates.
- 4.5 A*STAR warrants, represents and undertakes that, as on the Effective Date, no license rights or covenant not to sue with respect to the Patents have been granted to another party including but not limited to any third parties and any A*STAR Affiliates.
- 4.6 A*STAR warrants and represents that the Patents include all of the patents and patent applications covering inventions developed by DSI in the area of 4mm / 5mm Thin Drive, Dedicated Servo Technology, Micro-milli Actuator technology, Micro-micro Actuator technology and 4mm / 5mm Thin Drive Axial Field Motor technology existing as at the Effective Date.

4.7 A*STAR confirms that ETPL has the authority to grant the licence to the Company under Section 8.6 of the Research Development Services Agreement dated 30 September 2014 between DSI and Marvell.

5. Release of A*STAR

5.1 Save where expressly provided otherwise in this Agreement, with effect from the Effective Date, the Company hereby releases and discharges A*STAR from all further and prospective liability, obligation, cost and expense in connection with the Patents. In particular, the Company shall bear all costs and expenses relating to the preparation, filing, prosecution and maintenance of all Patents in respect of the Patents arising on or after the Effective Date and where A*STAR or its agents, sub-contractors, or assigns or any A*STAR Affiliate have borne such costs and expenses with prior written approval from the Company on or after the Effective Date, the Company shall forthwith reimburse A*STAR fully such costs and expenses.

6 Exclusions

6.1 Save where expressly provided otherwise in this Agreement, the Patents are assigned on an "as is" basis. The Company shall undertake its own due diligence with respect to the Patents.

6.2 Save where expressly provided otherwise in this Agreement, A*STAR makes no other representations, conditions or warranties, either express or implied with respect to the Patents assigned to the Company hereunder and all other warranties or representations by A*STAR are disclaimed to the fullest extent permitted by law. Without limiting the generality of and notwithstanding the foregoing, A*STAR expressly disclaims any implied warranty, condition or representation that the Patents:

- (i) are of merchantable quality;
- (ii) are fit for a particular purpose;
- (iii) are or will be valid or subsisting; or
- (iv) in the case of the patent applications as set out in the Schedule, that these applications will proceed to grant.

6.3 Save as expressly provided otherwise in this Agreement, nothing in this Agreement shall be construed as a warranty or representation by A*STAR that:

- (i) any of the Patents;
- (ii) the use of any of the Patents; or
- (iii) the exercise of any rights granted pursuant to this Assignment Agreement

will not infringe any other intellectual property rights or other rights of any other third party.

6.4 Nothing in this Agreement shall be construed as:

- (i) an obligation by A*STAR to bring or prosecute or defend actions or suits by or against third parties for infringement of patents, copyrights trade-marks, industrial designs or other intellectual property, whether in connection with the Patents or otherwise; or
- (ii) conferring to the Company, the right to use in any advertisement or publicity material or in any other manner whatsoever the name, logo or trademarks of the A*STAR or its affiliates except with the prior written consent of the A*STAR;

6.5 A*STAR shall not be liable for any indirect, consequential, incidental or special (and whether arising out of contract or tort) loss which the Company suffers arising from any defect, error, fault or failure to perform with respect to Patents.

7. Law and jurisdiction

7.1 The validity, construction and performance of this Assignment Agreement shall be governed by the laws of Singapore and A*STAR and the Company submit to the non-exclusive jurisdiction of the Singapore courts in respect of any dispute arising in connection therewith.

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IN WITNESS OF WHICH this Assignment Agreement has been executed as follows

MARVELL INTERNATIONAL LTD.

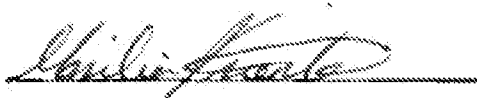
By:



Name: Ken Goertzen

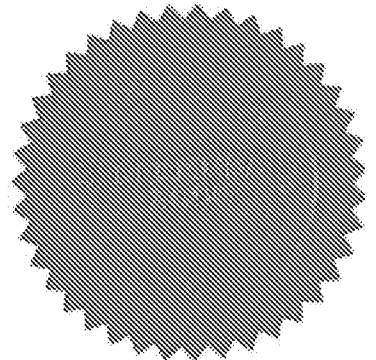
Designation: Assistant General Manager

In the presence of:



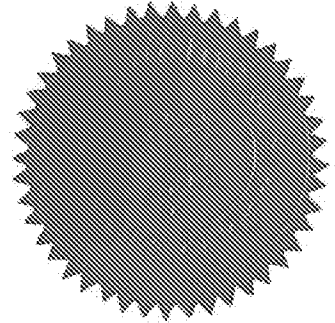
Name: Marilia Vicente

Designation: Administrative Assistant



Company Seal:

The Common Seal of)
AGENCY FOR SCIENCE,)
TECHNOLOGY AND RESEARCH)
was hereunto affixed in the presence of:)



CHAIRMAN/DEPUTY CHAIRMAN

Name : LIM CHUAN POH
Chairman, A*STAR

AUTHORISED EMPLOYEE

Name :

Suresh Sachi
Deputy Managing Director
(Corporate & Legal)
Agency for Science, Technology and Research

REVIEWED

no per EXX

MARVELL SEMICONDUCTOR, INC.
LEGAL DEPARTMENT

SCHEDULE

Patent Family No.	Country	Status	Application No.	Patent No.	Priority Date	Filing Date	Patent Title	Inventors	Action Due	Due Date
01617	Japan	Granted	2005-1576	4850118	1/7/2004	1/6/2005	A New Method to Detect the True Zero-Crossing points of Phase Back EMF for Sensorless Control of Brushless DC Motors	Jiang Quan, Bi Chao	Renewal	10/28/2015
	SG	Granted	200407944-8	113040	1/7/2004	12/27/2004	A New Method to Detect the True Zero-Crossing points of Phase Back EMF for Sensorless Control of Brushless DC Motors	Jiang Quan, Bi Chao	Renewal	12/27/2014
	US	Granted	10/752,013	US 6,879,324 B1	1/7/2004	1/7/2004	Method to Detect the True Zero-Crossing points of Phase Back EMF for Sensorless Control of Brushless DC Motors	Jiang Quan, Bi Chao	Renewal	10/12/2016
02755	China	Granted	200580051304.X	CN101288455B	8/10/2005	8/10/2005	Wireless Transportation Protocol	Meng Bin, Law Si-Yong, Yong Khai Leong, Ng Tiong King, Koh See Kok, Tan Cheng Ann	Renewal	8/10/2014
	US	Granted	12/063,461	US 7,908,392 B2	8/10/2005	8/10/2005	Wireless Transportation Protocol	Meng Bin, Law Si-Yong, Yong Khai Leong, Ng Tiong King, Koh See Kok, Tan Cheng Ann	Renewal	9/15/2014
04104	SG	Granted	200601534-1	139981	3/8/2006	3/8/2006	A Permanent Magnet Synchronous Motor	Bi Chao, Jiang Quan, Lin Song	Renewal	3/8/2015
04577	Japan	Pending	2010-510267	Pending	5/25/2007	5/29/2008	A Low Profile Spindle Motor	Bi Chao, Jiang Quan, Lin Song, Nay Lin Htun Aung, Hla Nu Phyu	NA	NA
	SG	Granted	200907798-3	157108	5/25/2007	5/19/2008	Low Profile Spindle Motor	Bi Chao, Jiang Quan, Lin Song, Nay Lin Htun Aung, Hla Nu Phyu	Renewal	5/9/2015
	US	Pending	12/601,782	Pending	5/25/2007	5/9/2008	Low Profile Spindle Motor	Bi Chao, Jiang Quan, Lin Song, Nay Lin Htun Aung, Hla Nu Phyu	NA	NA
04732	SG	Granted	201008145-3	166343	5/7/2008	5/7/2008	A Low Profile Permanent Magnet Synchronous Motor with Segment Structure	Bi Chao, Jiang Quan, Lin Song, Nay Lin Htun Aung, Hla Nu Phyu	Renewal	5/7/2015
	US	Granted	12/736,740	US8,575,797	5/7/2008	5/7/2008	Low Profile Permanent Magnet Synchronous Motor with Segment Structure	Bi Chao, Jiang Quan, Lin Song, Nay Lin Htun Aung, Hla Nu Phyu	Renewal	5/5/2017
06861	CN	Pending	201280054156.7	Pending	8/1/2011	8/31/2012	Data Storage Device	42 inventors	Request for examination	9/1/2014
	US	Pending	14/342,111	Pending	9/1/2011	8/31/2012	Data Storage Device	42 inventors	NA	NA
06927	SG	Pending	201305436-5	Pending	7/16/2012	7/16/2013	Method and System for Controlling A Motor	Lin Song, Bi Chao	NA	NA
	US	Pending	13/943,635	Pending	7/16/2012	7/16/2013	Method and System for Controlling A Motor	Lin Song, Bi Chao	NA	NA
07001	US	Pending	13/684,026	Pending	11/21/12	11/21/12	Media, Method of Fabricating a Medium, Recording System and Method of Controlling a Recording System	Yuan Zhimin; Liu Bo; Shi Jianzhong; Zhou Weidong	NA	NA
07002	US	Pending	13/683,174	Pending	11/21/12	11/21/12	Data Recording Medium, Method for Generating a Reference Clock Signal, and Data Storage Device	Zhang Jingliang, Leong Siang Hwei, Yuan Zhimin, Liu Bo	NA	NA
07003	US	Pending	13/684,116	Pending	11/21/12	11/21/12	A Data Storage Device and a Method for Providing a Synchronization Signal for at Least One of a Read Operation or a Write Operation Carried out by Means of a Head in a Data Storage Device	Qing Chun Lan, Yuan Zhimin, Zhang Jingliang, Liu Bo	GA	7/30/2014
07004	US	Pending	13/683,161	Pending	11/21/12	11/21/12	Data Recording Medium and Method for Generating a Reference Clock Signal	Zhang Jingliang, Lin Lin Thi, Yuan Zhimin, Liu Bo	NA	NA

Patent Family No.	Country	Status	Application No.	Patent No.	Priority Date	Filing Date	Patent Title	Inventors	Action Due	Due Date
07005	US	Pending	14/358,291	Pending	11/21/2011	11/21/2012	Data Storage Device and Method for Generating a Reference Clock Signal for Data Storage Device	Zhang Jingliang, Lin Lin Thi	NA	NA
07006	US	Pending	13/684,038	Pending	11/21/2011	11/21/2012	Recording Medium	Zhang Jingliang, Yuan Zhimin, Liu Bei, Lin Lin Thi	NA	NA
07007	US	Pending	13/684,033	Pending	11/21/2011	11/21/2012	Device, Method Of Formatting Media And Method Of Servo Writing	Leong Siang Huel, Yuan Zhimin, Bo Liu, Lim Joo Boon Marcus	OA (A*STAR is in progress to prepare the response)	6/30/2014 (the deadline is extendable up to 3 months)
07008	US	Pending	13/684,304	Pending	11/21/2011	11/21/2012	Data Storage Device And Method of Processing A Signal In A Data Storage Device	Chan Kheong Sann, Elidrisi Masulay Rachid, Qin Zhiliang	NA	NA
07009	US	Pending	14/358,646	Pending	11/21/2011	11/21/2012	Method of Processing Address Information for a Data Storage Device, and Storage Medium, Modulator, Demodulator, And Data Storage Device	Chan Kheong Sann, Zhang Song Hua, Elidrisi Masulay Rachid,	NA	NA
07010	US	Pending	13/684,129	Pending	11/21/2011	11/21/2012	A Method And A Demodulator For Demodulating A Position Error Signal From A Readback Servo Signal	Chan Kheong Sann	NA	NA
07057	SG	Pending	201305431-7	Pending	7/16/2012	7/16/2013	Methods for Reading Data from a Storage Medium Using A Reader and Storage Devices	Ong Chun Lian, Yuan Zhimin, Leong Siang Huel, Liu Bo	NA	NA
	US	Pending	13/943,726	Pending	7/16/2012	7/16/2013	Methods for Reading Data from a Storage Medium Using A Reader and Storage Devices	Ong Chun Lian, Yuan Zhimin, Leong Siang Huel, Liu Bo	OA (A*STAR is in progress to prepare the response)	7/16/2014 (the deadline is extendable up to 3 months)
07058	SG	Pending	201305531-4	Pending	7/19/2012	7/19/2013	Methods for Reading Data from a Storage Medium Using a Reader Head and Storage Devices	Ong Chun Lian, Yuan Zhimin, Ang Shimming	NA	NA
	US	Pending	13/946,621	Pending	7/19/2012	7/19/2013	Methods for Reading Data from a Storage Medium Using a Reader Head and Storage Devices	Ong Chun Lian, Yuan Zhimin, Ang Shimming	OA (A*STAR is in progress to prepare the response)	6/26/2014 (the deadline is extendable up to 3 months)
07090	SG	Pending	201305442-4	Pending	7/16/2012	7/16/2013	Data Storage Systems, Method of Writing to Storage in the Data Storage System, Hard Disk and Method of Forming the Hard Disk	Xi Weiya, Jin Chan, Yong Khai Leong, Ching Zhi Yong	NA	NA
07075	US	Pending	13/942,852	Pending	7/16/2012	7/17/2013	Data Storage Systems, Method of Writing to Storage in the Data Storage System, Hard Disk and Method of Forming the Hard Disk	Xi Weiya, Jin Chan, Yong Khai Leong, Ching Zhi Yong	NA	NA
07146	PCT	Pending	PCT/SG2013/000056	Pending	2/13/2012	2/13/2013	Motor and Method for Assembling the Same	Wong Chiew Leong, Stephen Ralph Viskochil	NPE	8/13/2014
07147	PCT	Pending	PCT/SG2013/000055	Pending	2/13/2012	2/13/2013	A Motor and Method for Assembling the Same	Wong Chiew Leong, Stephen Ralph Viskochil, Bi Chao	NPE	8/13/2014
07163	SG	Pending	201301339-6	Pending	2/23/2012	2/22/2013	Data Storage Device and Method of Managing a Cache in a Data Storage Device	Xi Weiya, Jin Chan, Yong Khai Leong, Tan Sophia, Ching Zhi Yong	NA	NA

Patent Family No.	Country	Status	Application No.	Patent No.	Priority Date	Filing Date	Patent Title	Inventors	Action Due	Due Date
	US	Pending	13/773,942	Pending	2/23/2012	2/22/2013	Data Storage Device and Method of Managing a Cache in a Data Storage Device	Xi Weiya, Jin Chao, Yong Khai Leong, Tan Sophia, Ching Zhi Yong	NA	NA
07166	PCT	Pending	PCT/SG2013/00065	Pending	2/17/2012	2/18/2013	A Recording Medium and a Method of Writing Servo Information on the Same	Wong Chiew Leong, Pantelis Alexopoulos, Yuan Zhimin, Ong Chun Lian	NPE	8/17/2014
07206	US	Pending	13/346,648	Pending	7/20/2012	7/19/2013	Recording Medium and Method of Forming the Same	Shi Jianzhong, Lim Wee Kiat	NA	NA
07338	US	Pending	13/946,804	Pending	7/20/2012	7/19/2013	Direct Data Connectors for a Sealed Device and Methods for Forming a Direct Data Connector for a Sealed Device	Ying Ji-Feng, Tsai Wen Hwei	NA	NA
07301 07302 07303	US	Pending	13/891,735	Pending	5/10/2012	5/10/2013	Methods and Apparatus for Hard Disk Drive System Operation Monitoring and Self-Adjustment	Budi Santoso, Ong Chun Lian, Leong Siang Hwei, Yuan Zhimin, Pantelis Alexopoulos	QA	8/9/2014
07385 07386	SG US	Pending	201305561-1 13/946,982	Pending	7/20/2012	7/19/2013	Recording Media, Data Storage Devices, and Methods for Determining a Position Error Signal in a Recording Medium	Zhang Jingliang, Kong Anmin, Zhang Songhua, Lin Jin Thi	NA	NA
07437 07906 07908	PCT	Pending	PCT/SG2013/000303	Pending	7/25/2012	7/25/2013	A Recording Medium, A Data Storage Apparatus and A Method of Preparing A Recording Medium	Ong Chun Lian, Yuan Zhimin, Ang Shiming, Santoso Budi, Zhang Jingliang, Leong Siang Hwei	NPE	1/25/2015
07441	PCT	Pending	PCT/SG2013/000318	Pending	7/30/2012	7/30/2013	Servers and Methods for Controlling A Server	Jin Chao, Xi Weiya, Pantelis Alexopoulos, Sophoclis, Lim Chun Teck	NPE	1/30/2015
07524	PCT	Pending	PCT/SG2013/000438	Pending	10/12/2012	10/12/2013	Axial Field Motor and Method of Assembling	Ong Eng Teck, Liu Mengjun, Ming Chou Lin, Ke Gan, Wong Chiew Leong, Lin Wuzhong, Stephen Ralph Viskochil	NPE	4/12/2015
07539	US	Pending	14/260,536	Pending	4/24/2013	4/24/2014	Spindle motor with screw clamping structure	Yu YinQuan, Bi Chao, Jiang Quan	NA	NA
07540	JP	Pending	2014-091091	Pending	4/25/2013	4/25/2014	Apparatus to measure quality of motor coil PCBs	Jiang Quan, Yu Yin Quan, Bi Chao, Lin Song	NA	NA
07560	US	Pending	14/056,130	Pending	10/18/2012	10/17/2013	Storage Controllers and Storage Control Methods	Xi Weiya, Tan Sophia, Sophia, Yong Khai Leong, Lim Chun Teck, Chao Jin, Ching Zhi Yong	NA	NA
07576	US	Pending	14/058,156	Pending	10/18/2012	10/18/2013	Storage devices and methods for controlling a storage device	Chao Jin, Xi Weiya, Alexopoulos Pantelis, Lim Chun Teck, Ching Zhi Yong	NA	NA
07585 07905	US	Pending	14/082,784	Pending	11/16/2012	11/16/2013	Design and Method of Operation of Micro-Millactuators and Micro-Microactuators	Michael Hatch	NA	NA
07790	Provisional	Pending	201305785-6	Pending	7/30/2013	7/30/2013	Signal processing and write compensation for read-write	Zhang Jingliang, Yuan Zhimin, Leong Siang Hwei, Santoso Budi, Alexopoulos Pantelis, Sophoclis	Conversion	7/30/2014
07847	Provisional	Pending	201306448-0	Pending	8/26/2013	8/26/2013	Reader Arrays for Ultrahigh Track Density and Two-Dimensional Magnetic Recording (TDMR)	Han Guochang, Yuan Zhimin, Pantelis Sophoclis, Alexopoulos	Conversion	8/26/2014
07930	PCT	Pending	To be updated	Pending	6/26/2013	6/25/2014	Read Assembly, Data Storage System, and Methods of Using the Same	Chen Yunjie, Leong Siang Hwei, Lu Bo	NA	NA
07945	Provisional	Pending	201306591-7	Pending	9/2/2013	9/2/2013	Data Interference Cancellation Method for PES Demodulation in Dedicated Servo	Zhang Jingliang, Kong Anmin, Zhang Songhua, Yuan Zhimin	Conversion	9/2/2014

Patent Family No.	Country	Status	Application No.	Patent No.	Priority Date	Filing Date	Patent Title	Inventors	Action Due	Due Date
08084	Provisional	Pending	20130643 0-8	Pending	8/23/2013	8/23/2013	V/F constant Speed close-loop control system for spindle motor	Jiang Quan	Conversion	8/23/2014
08132	Provisional	Pending	20130707 3-0	Pending	9/17/2013	9/17/2013	Servo Layer for dedicated servo media	Shi Jianzhong, Hu Jiang-Feng, Ng Hanxiang Lionel, Ong Chun Lian	Conversion	9/18/2014
08133	Provisional	Pending	20130702 4-8	Pending	9/17/2013	9/17/2013	DC staggered DC+/DC- servo pattern for dedicated servo	Yuan Zhimin; Zhang Jinglang; Ong Chun Lian; Ang Shiming	Conversion	9/17/2014
08144	Provisional	Pending	20130707 2-2	Pending	9/17/2013	9/17/2013	Servo Printing via Projection	Tsai Wen Hwei Jack, Leong Siang Hwei, Xu Baoxi	Conversion	9/18/2014
08442	Provisional	Pending	10201400 541V	Pending	3/11/2014	3/11/2014	Nested coil configurations with multi-tilt magnets for hdd axial field spindles	Ming Chou Lin; Liu Mengjun; Jiang Quan	Conversion	3/11/2015
08494	Provisional	Pending	10201401 8835	Pending	4/28/2014	4/28/2014	Servo and data dependent noise prediction	Yubin Ng; Chan Kheong Sann; Amnis Kong	Conversion	4/28/2015
08495	Provisional	Pending	10201401 781X	Pending	4/24/2014	4/24/2014	DC free constraint codes for disk drive systems with dedicated servos	Cai Yui, Amnis Kong, Yuan Zhimin	Conversion	4/24/2015