PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT3678233

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	INTELLECTUAL PROPERTY SECURITY JOINDER AGREEMENT

CONVEYING PARTY DATA

Name	Execution Date
NEXPLANAR CORPORATION	12/31/2015

RECEIVING PARTY DATA

Name:	BANK OF AMERICA, N.A., AS ADMINISTRATIVE AGENT
Street Address:	135 S. LASALLE STREET
Internal Address:	IL4-135-05-41
City:	CHICAGO
State/Country:	ILLINOIS
Postal Code:	60603

PROPERTY NUMBERS Total: 63

Property Type	Number
Application Number:	14489177
Application Number:	13757163
Patent Number:	9211628
Application Number:	14610991
Application Number:	14307846
Patent Number:	7425172
Patent Number:	7704122
Patent Number:	8380339
Patent Number:	7704125
Patent Number:	8864859
Patent Number:	7377840
Patent Number:	7287793
Patent Number:	8932116
Patent Number:	8715035
Patent Number:	9180570
Patent Number:	8383003
Patent Number:	9017140
Patent Number:	9156124
Patent Number:	8628384

Property Type	Number
Patent Number:	9028302
Patent Number:	8702479
Patent Number:	8657653
Patent Number:	8439994
Patent Number:	8968058
Patent Number:	8920219
Patent Number:	9067297
Patent Number:	9067298
Application Number:	14562589
Application Number:	14874179
Application Number:	14823956
Application Number:	14183894
Application Number:	14152792
Application Number:	14875513
Application Number:	13113655
Application Number:	14530534
Application Number:	14550129
Application Number:	14736568
Application Number:	14732497
Application Number:	14727586
Application Number:	13488149
Application Number:	13747139
Application Number:	13829990
Application Number:	13955398
Application Number:	14635973
Application Number:	62083101
Application Number:	62127734
Application Number:	14611064
Application Number:	14931737
PCT Number:	US2011020870
PCT Number:	US2011020840
PCT Number:	US2011053678
PCT Number:	US2011055796
PCT Number:	US2012021899
PCT Number:	US1234717
PCT Number:	US2012038212
PCT Number:	US2012046037
PCT Number:	US2012038211

Property Type	Number
PCT Number:	US2013043126
PCT Number:	US2014011792
PCT Number:	US2014020754
PCT Number:	US2014047065
PCT Number:	US2015035662
PCT Number:	US2015060343

CORRESPONDENCE DATA

Fax Number: (704)444-8857

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: 70043432104
Email: twitcher@mcguirewoods.com
Correspondent Name: TERRY L. WITCHER, PARALEGAL
Address Line 1: MCGUIREWOODS LLP
Address Line 2: 201 N. TRYON STREET, SUITE 3000
Address Line 4: CHARLOTTE, NORTH CAROLINA 28202

ATTORNEY DOCKET NUMBER:	4452178-3929
NAME OF SUBMITTER:	TERRY L. WITCHER, PARALEGAL
SIGNATURE:	/s/ Terry L. Witcher
DATE SIGNED:	12/31/2015

Total Attachments: 29
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INTELLECTUAL PROPERTY SECURITY JOINDER AGREEMENT

THIS INTELLECTUAL PROPERTY SECURITY JOINDER AGREEMENT dated as of December 31, 2015 (this "Intellectual Property Security Joinder Agreement"), is made by **NexPlanar Corporation**, a Delaware corporation (the "Joining Grantor"), in favor of **BANK OF AMERICA, N.A.**, in its capacity as administrative agent (the "Administrative Agent") for the Secured Parties (as defined in the Credit Agreement referenced below unless otherwise indicated; all capitalized terms used but not defined herein shall have the meanings given to such terms in such Credit Agreement).

WITNESSETH:

A. Cabot Microelectronics Corporation, a Delaware corporation (the "Borrower"), certain of its Subsidiaries and the Administrative Agent, are party to an Intellectual Property Security Agreement dated as of February 13, 2012 (as in effect on the date hereof, the "Intellectual Property Security Agreement").

B. The Joining Grantor is a Subsidiary of the Borrower and is required by the terms of the Credit Agreement to become a Guarantor and be joined as a party to the Intellectual Property Security Agreement as a Grantor (as defined in the Intellectual Property Security Agreement).

C. The Joining Grantor will materially benefit directly and indirectly from the making and maintenance of the extensions of credit made from time to time under the Credit Agreement, Secured Cash Management Agreements and Secured Hedge Agreements.

In order to induce the Secured Parties to from time to time make and maintain extensions of credit under the Credit Agreement, Secured Cash Management Agreements and Secured Hedge Agreements, the Joining Grantor hereby agrees as follows:

1. Joinder. The Joining Grantor hereby irrevocably, absolutely and unconditionally becomes a party to the Intellectual Property Security Agreement as a Grantor and bound by all the terms, conditions, obligations, liabilities and undertakings of each Grantor or to which each Grantor is subject thereunder, including without limitation the grant pursuant to Section 3 of the Intellectual Property Security Agreement of a security interest to the Administrative Agent for the benefit of the Secured Parties in, and collateral assignment to the Administrative Agent for the benefit of the Secured Parties of, the Collateral (as defined in the Intellectual Property Security Agreement) of such Grantor or in which such Grantor has or may have or acquire an interest or the power to transfer rights therein, whether now owned or existing or hereafter created, acquired or arising and wheresoever located, as security for the payment and performance of the Secured Obligations (as defined in the Intellectual Property Security Agreement), all with the same force and effect as if the Joining Grantor were a signatory to the Intellectual Property Security Agreement.

2. Affirmations. The Joining Grantor hereby acknowledges and affirms as of the date hereof with respect to itself, its properties and its affairs each of the waivers,

representations, warranties, acknowledgements and certifications applicable to any Grantor contained in the Intellectual Property Security Agreement.

3. Supplemental Schedules. Attached to this Intellectual Property Security Joinder Agreement are duly completed schedules (the "Supplemental Schedules") supplementing as thereon indicated the respective Schedules to the Intellectual Property Security Agreement. The Joining Grantor represents and warrants that the information contained on each of the Supplemental Schedules with respect to such Joining Grantor and its properties and affairs is true, complete and accurate as of the date hereof.

4. Severability. If any provision of this Intellectual Property Security Joinder Agreement is held to be illegal, invalid or unenforceable, (a) the legality, validity and enforceability of the remaining provisions of this Intellectual Property Security Joinder Agreement shall not be affected or impaired thereby and (b) the parties shall endeavor in good faith negotiations to replace the illegal, invalid or unenforceable provisions with valid provisions the economic effect of which comes as close as possible to that of the illegal, invalid or unenforceable provisions. The invalidity of a provision in a particular jurisdiction shall not invalidate or render unenforceable such provision in any other jurisdiction.

5. Counterparts. This Intellectual Property Security Joinder Agreement may be executed in any number of counterparts each of which when so executed and delivered shall be deemed an original, and it shall not be necessary in making proof of this Intellectual Property Security Joinder Agreement to produce or account for more than one such counterpart executed by the Joining Grantor. Without limiting the foregoing provisions of this Section 5, the provisions of Section 10.10 of the Credit Agreement shall be applicable to this Intellectual Property Security Joinder Agreement.

6. Delivery. The Joining Grantor hereby irrevocably waives notice of acceptance of this Intellectual Property Security Joinder Agreement and acknowledges that the Secured Obligations are and shall be deemed to be incurred, and credit extensions under the Loan Documents, Secured Cash Management Agreements and Secured Hedge Agreements made and maintained, in reliance on this Intellectual Property Security Joinder Agreement and the Grantor's joinder as a party to the Intellectual Property Security Agreement as herein provided.

7. Governing Law; Jurisdiction; Waiver of Jury Trial; Etc. The provisions of Section 16 of the Intellectual Property Security Agreement are hereby incorporated by reference as if fully set forth herein.

[Signature page follows.]

IN WITNESS WHEREOF, the Joining Grantor has duly executed and delivered this Intellectual Property Security Joinder Agreement as of the day and year first written above.

JOINING GRANTOR:

NexPlanar Corporation

By: _____
Name: H. Carol Bernstein
Title: Vice President, Secretary and General Counsel

SUPPLEMENTAL SCHEDULE I

Patents and Patent Applications

TITLE REFERENCE #	FILED	SERIAL#	ISSUED	PATENT#	STATUS	COUNTRY
SYNTHESIS OF FUNCTIONALLY GRADED PAD FOR CHEMICAL MECHANICAL PLANARIZATION Reference 100635 CN	6/3/04	200480018857.0	6/22/11	ZL200480018857.0	Issued	China
METHODS FOR PRODUCING IN-SITU GROOVES IN CHEMICAL MECHANICAL PLANARIZATION (CMP) PADS, AND NOVEL CMP PAD DESIGNS Reference 100636 CN	7/15/05	200580024127.6	4/3/13	ZL200580024127.6	Issued	China
CUSTOMIZED POLISHING PADS FOR CMP AND METHODS OF FABRICATION AND USE THEREOF Reference 100637 CN	2/21/06	200680012730.7	9/7/11	ZL200680012730.7	Issued	China
CMP PAD WITH LOCAL AREA TRANSPARENCY Reference 100640 CN	1/11/11	201180005898.6			Pending	China
SOFT POLISHING PAD FOR POLISHING A SEMICONDUCTOR SUBSTRATE Reference 100641 CN	1/11/11	201180043031.X			Pending	China
POLISHING PAD FOR EDDY CURRENT END-POINT DETECTION Reference 100642 CN	9/28/11	201180057370.3			Pending	China
POLISHING PAD WITH MULTI-MODAL DISTRIBUTION OF PORE DIAMETERS Reference 100643 CN	10/11/11	201180049789.4			Pending	China

TITLE REFERENCE #	FILED	SERIAL#	ISSUED	PATENT#	STATUS	COUNTRY
POLISHING PAD WITH CONCENTRIC OR APPROXIMATELY CONCENTRIC POLYGON GROOVE PATTERN Reference 100646 CN	1/19/12	201280013062.5			Pending	China
POLISHING PAD WITH HOMOGENEOUS BODY HAVING DISCRETE PROTRUSIONS THEREON Reference 100648 CN	5/16/12	201280024792.5			Pending	China
POLISHING PAD WITH APERTURE Reference 100649 CN	7/10/12	201280045294.9			Pending	China
POLISHING PAD WITH FOUNDATION LAYER AND POLISHING SURFACE LAYER Reference 100650 CN	5/16/12	201280058372.9			Pending	China
POLISHING PAD WITH POLISHING SURFACE LAYER HAVING AN APERTURE OR OPENING ABOVE A TRANSPARENT FOUNDATION LAYER Reference 100653 CN	5/29/13	201380041299.9			Pending	China
POLISHING PAD HAVING POLISHING SURFACE WITH CONTINUOUS PROTRUSIONS HAVING TAPERED SIDEWALLS Reference 100655 CN	3/5/14				Pending	China
POLISHING PAD WITH FOUNDATION LAYER AND POLISHING SURFACE LAYER Reference 100650 DE	5/16/12				Pending	Germany
CUSTOMIZED POLISH PADS FOR CHEMICAL MECHANICAL PLANARIZATION Reference 100634 EP	3/25/04	04758522.9	10/22/14	1610929	Issued	Europe
CMP PAD WITH LOCAL AREA TRANSPARENCY Reference 100640 EP	1/11/11	11700493.7	12/2/15	2523777	Issued	Europe

TITLE REFERENCE #	FILED	SERIAL#	ISSUED	PATENT#	STATUS	COUNTRY
POLISHING PAD WITH HOMOGENEOUS BODY HAVING DISCRETE PROTRUSIONS THEREON Reference 100648 EP	5/16/12	12723065.4	4/1/15	2714331	Issued	Europe
METHODS FOR PRODUCING IN-SITU GROOVES IN CHEMICAL MECHANICAL PLANARIZATION (CMP) PADS, AND NOVEL CMP PAD DESIGNS Reference 100636 EP	7/15/05	05772600.2			Pending	Europe
CUSTOMIZED POLISHING PADS FOR CMP AND METHODS OF FABRICATION AND USE THEREOF Reference 100637 EP	2/21/06	06735719.4			Pending	Europe
SOFT POLISHING PAD FOR POLISHING A SEMICONDUCTOR SUBSTRATE Reference 100641 EP	1/11/11	11700490.3			Pending	Europe
POLISHING PAD WITH MULTI-MODAL DISTRIBUTION OF PORE DIAMETERS Reference 100643 EP	10/11/11	11773633.0			Pending	Europe
POLISHING PAD WITH CONCENTRIC OR APPROXIMATELY CONCENTRIC POLYGON GROOVE PATTERN Reference 100646 EP	1/19/12	12702367.9			Pending	Europe
POLISHING PAD WITH HOMOGENEOUS BODY HAVING DISCRETE PROTRUSIONS THEREON Reference 100648 EP DIV	5/16/12	14198969.9			Pending	Europe
POLISHING PAD WITH FOUNDATION LAYER AND POLISHING SURFACE LAYER Reference 100650 EP	5/16/12	12723064.7			Pending	Europe

TITLE REFERENCE #	FILED	SERIAL#	ISSUED	PATENT#	STATUS	COUNTRY
POLISHING PAD WITH POLISHING SURFACE LAYER HAVING AN APERTURE OR OPENING ABOVE A TRANSPARENT FOUNDATION LAYER Reference 100653 EP	5/29/13	13728287.7			Pending	Europe
POLISHING PAD HAVING POLISHING SURFACE WITH CONTINUOUS PROTRUSIONS Reference 100654 EP	1/16/14	14702711.4			Pending	Europe
POLISHING PAD HAVING POLISHING SURFACE WITH CONTINUOUS PROTRUSIONS HAVING TAPERED SIDEWALLS Reference 100655 EP	3/5/14	14712132.1			Pending	Europe
POLISHING PAD WITH FOUNDATION LAYER AND POLISHING SURFACE LAYER Reference 100650 GB	5/16/12				Pending	Great Britain
CUSTOMIZED POLISHING PADS FOR CMP AND METHODS OF FABRICATION AND USE THEREOF Reference 100637 IL	2/21/06	185099	3/1/14	185099	Issued	Israel
CMP PAD WITH LOCAL AREA TRANSPARENCY Reference 100640 IL	1/11/11	220649			Pending	Israel
SOFT POLISHING PAD FOR POLISHING A SEMICONDUCTOR SUBSTRATE Reference 100641 IL	1/11/11	224052			Pending	Israel
POLISHING PAD WITH MULTI-MODAL DISTRIBUTION OF PORE DIAMETERS Reference 100643 IL	10/11/11	225390			Pending	Israel

TITLE REFERENCE #	FILED	SERIAL#	ISSUED	PATENT#	STATUS	COUNTRY
POLISHING PAD HAVING POLISHING SURFACE WITH CONTINUOUS PROTRUSIONS HAVING TAPERED SIDEWALLS Reference 100655 IL	3/5/14				Pending	Israel
METHODS FOR PRODUCING IN-SITU GROOVES IN CHEMICAL MECHANICAL PLANARIZATION (CMP) PADS, AND NOVEL CMP PAD DESIGNS Reference 100636 IN	7/15/05	3936/KOLNP/2006			Pending	India
CMP PAD WITH LOCAL AREA TRANSPARENCY Reference 100640 IN	1/11/11	2023/KOLNP/2012			Pending	India
SOFT POLISHING PAD FOR POLISHING A SEMICONDUCTOR SUBSTRATE Reference 100641 IN	1/11/11	4167/KOLNP/2012			Pending	India
POLISHING PAD WITH MULTI-MODAL DISTRIBUTION OF PORE DIAMETERS Reference 100643 IN	10/11/11	1223/KOLNP/2013			Pending	India
CMP PAD WITH LOCAL AREA TRANSPARENCY Reference 100640 JP	1/11/11	2012-549005			Allowed	Japan
POLISHING PAD WITH MULTI-MODAL DISTRIBUTION OF PORE DIAMETERS Reference 100643 JP	10/11/11	2013-533944			Allowed	Japan
SYNTHESIS OF FUNCTIONALLY GRADED PAD FOR CHEMICAL MECHANICAL PLANARIZATION Reference 100635 JP	6/3/04	2006-515172	5/20/11	4746540	Issued	Japan

TITLE REFERENCE #	FILED	SERIAL#	ISSUED	PATENT#	STATUS	COUNTRY
SYNTHESIS OF FUNCTIONALLY GRADED PAD FOR CHEMICAL MECHANICAL PLANARIZATION Reference 100635 JP DIV	6/3/04	2010-63374	1/10/14	5448177	Issued	Japan
METHODS FOR PRODUCING IN-SITU GROOVES IN CHEMICAL MECHANICAL PLANARIZATION (CMP) PADS, AND NOVEL CMP PAD DESIGNS Reference 100636 JP	7/15/05	2007-522606	4/20/12	4977604	Issued	Japan
CMP PAD WITH LOCAL AREA TRANSPARENCY Reference 100640 JP DIV	1/11/11	2013-259788	10/9/15	5820869	Issued	Japan
POLISHING PAD FOR EDDY CURRENT END-POINT DETECTION Reference 100642 JP	9/28/11	2013-531768	1/30/15	5688466	Issued	Japan
POLISHING PAD WITH HOMOGENEOUS BODY HAVING DISCRETE PROTRUSIONS THEREON Reference 100648 JP	5/16/12	2014-511502	12/5/14	5657178	Issued	Japan
CUSTOMIZED POLISHING PADS FOR CMP AND METHODS OF FABRICATION AND USE THEREOF Reference 100637 JP	2/21/06	2007-556409			Pending	Japan
CMP PAD WITH LOCAL AREA TRANSPARENCY Reference 100640 JP DIV2	1/11/11	2015-8413			Pending	Japan
SOFT POLISHING PAD FOR POLISHING A SEMICONDUCTOR SUBSTRATE Reference 100641 JP	1/11/11	2013-518379			Pending	Japan
SOFT POLISHING PAD FOR POLISHING A SEMICONDUCTOR SUBSTRATE Reference 100641 JP DIV	1/11/11	2014-267011			Pending	Japan

TITLE REFERENCE #	FILED	SERIAL#	ISSUED	PATENT#	STATUS	COUNTRY
POLISHING PAD FOR EDDY CURRENT END-POINT DETECTION Reference 100642 JP DIV	9/28/11	2014-132128			Pending	Japan
POLISHING PAD FOR EDDY CURRENT END-POINT DETECTION Reference 100642 JP DIV2	9/28/11	2015-225406			Pending	Japan
POLISHING PAD WITH MULTI-MODAL DISTRIBUTION OF PORE DIAMETERS Reference 100643 JP DIV	10/11/11	2015-88319			Pending	Japan
POLISHING PAD WITH CONCENTRIC OR APPROXIMATELY CONCENTRIC POLYGON GROOVE PATTERN Reference 100646 JP	1/19/12	2013-552021			Pending	Japan
POLISHING PAD WITH CONCENTRIC OR APPROXIMATELY CONCENTRIC POLYGON GROOVE PATTERN Reference 100646 JP DIV	1/19/12	2015-59242			Pending	Japan
POLISHING PAD WITH HOMOGENEOUS BODY HAVING DISCRETE PROTRUSIONS THEREON Reference 100648 JP DIV	5/16/12	2014-209683			Pending	Japan
POLISHING PAD WITH FOUNDATION LAYER AND POLISHING SURFACE LAYER Reference 100650 JP	5/16/12	2014-543467			Pending	Japan
POLISHING PAD WITH POLISHING SURFACE LAYER HAVING AN APERTURE OR OPENING ABOVE A TRANSPARENT FOUNDATION LAYER Reference 100653 JP	5/29/13	2015-515155			Pending	Japan
POLISHING PAD HAVING POLISHING SURFACE WITH CONTINUOUS PROTRUSIONS Reference 100654 JP	1/16/14	2015-552686			Pending	Japan

TITLE REFERENCE #	FILED	SERIAL#	ISSUED	PATENT#	STATUS	COUNTRY
POLISHING PAD HAVING POLISHING SURFACE WITH CONTINUOUS PROTRUSIONS HAVING TAPERED SIDEWALLS Reference 100655 JP	3/5/14				Pending	Japan
POLISHING PAD WITH MULTI-MODAL DISTRIBUTION OF PORE DIAMETERS Reference 100643 KR DIV	10/11/11	10-2014-7024352			Allowed	Republic of Korea
POLISHING PAD WITH APERTURE Reference 100649 KR	7/10/12	10-2014-7002650			Allowed	Republic of Korea
SYNTHESIS OF FUNCTIONALLY GRADED PAD FOR CHEMICAL MECHANICAL PLANARIZATION Reference 100635 KR	6/3/04	10-2005-7022758	1/13/12	10-1108024	Issued	Republic of Korea
METHODS FOR PRODUCING IN-SITU GROOVES IN CHEMICAL MECHANICAL PLANARIZATION (CMP) PADS, AND NOVEL CMP PAD DESIGNS Reference 100636 KR	7/15/05	10-2007-7000129	11/6/12	10-1200312	Issued	Republic of Korea
METHODS FOR PRODUCING IN-SITU GROOVES IN CHEMICAL MECHANICAL PLANARIZATION (CMP) PADS, AND NOVEL CMP PAD DESIGNS Reference 100636 KR DIV	7/15/05	10-2012-7011484	2/12/13	10-1234168	Issued	Republic of Korea
CMP PAD WITH LOCAL AREA TRANSPARENCY Reference 100640 KR	1/11/11	10-2012-7019401	2/24/15	10-1495145	Issued	Republic of Korea
POLISHING PAD FOR EDDY CURRENT END-POINT DETECTION Reference 100642 KR	9/28/11	10-2013-7010876	10/8/14	10-1451230	Issued	Republic of Korea

TITLE REFERENCE #	FILED	SERIAL#	ISSUED	PATENT#	STATUS	COUNTRY
POLISHING PAD FOR EDDY CURRENT END-POINT DETECTION Reference 100642 KR DIV	9/28/11	10-2014-7008035	2/24/15	10-1495141	Issued	Republic of Korea
POLISHING PAD FOR EDDY CURRENT END-POINT DETECTION Reference 100642 KR DIV2	9/28/11	10-2004-7008037	2/24/15	10-1495143	Issued	Republic of Korea
CUSTOMIZED POLISHING PADS FOR CMP AND METHODS OF FABRICATION AND USE THEREOF Reference 100637 KR	2/21/06	10-2007-7021088			Pending	Republic of Korea
CUSTOMIZED POLISHING PADS FOR CMP AND METHODS OF FABRICATION AND USE THEREOF Reference 100637 KR DIV	2/21/06	10-2013-7019342			Pending	Republic of Korea
CUSTOMIZED POLISHING PADS FOR CMP AND METHODS OF FABRICATION AND USE THEREOF Reference 100637 KR DIV2	2/21/06	10-2015-7013802			Pending	Republic of Korea
POLISHING PAD WITH MULTI-MODAL DISTRIBUTION OF PORE DIAMETERS Reference 100643 KR	10/11/11	10-2013-7010017			Pending	Republic of Korea
POLISHING PAD WITH MULTI-MODAL DISTRIBUTION OF PORE DIAMETERS Reference 100643 KR DIV2	10/11/11	10-2015-7020203			Pending	Republic of Korea
POLISHING PAD WITH CONCENTRIC OR APPROXIMATELY CONCENTRIC POLYGON GROOVE PATTERN Reference 100646 KR	1/19/12	10-2013-7020419			Pending	Republic of Korea
POLISHING PAD WITH CONCENTRIC OR APPROXIMATELY CONCENTRIC POLYGON GROOVE PATTERN Reference 100646 KR DIV	1/19/12	10-2015-7029008			Pending	Republic of Korea

TITLE REFERENCE #	FILED	SERIAL#	ISSUED	PATENT#	STATUS	COUNTRY
POLISHING PAD WITH HOMOGENEOUS BODY HAVING DISCRETE PROTRUSIONS THEREON Reference 100648 KR	5/16/12	10-2013-7029736			Pending	Republic of Korea
POLISHING PAD WITH HOMOGENEOUS BODY HAVING DISCRETE PROTRUSIONS THEREON Reference 100648 KR DIV	5/16/12	10-2015-7029108			Pending	Republic of Korea
POLISHING PAD WITH APERTURE Reference 100649 KR DIV	7/10/12	10-2015-7020491			Pending	Republic of Korea
POLISHING PAD WITH FOUNDATION LAYER AND POLISHING SURFACE LAYER Reference 100650 KR	5/16/12	10-2014-7017782			Pending	Republic of Korea
POLISHING PAD WITH FOUNDATION LAYER AND POLISHING SURFACE LAYER Reference 100650 KR DIV	5/16/12	10-2015-7023009			Pending	Republic of Korea
POLISHING PAD WITH POLISHING SURFACE LAYER HAVING AN APERTURE OR OPENING ABOVE A TRANSPARENT FOUNDATION LAYER Reference 100653 KR	5/29/13	10-2014-7036283			Pending	Republic of Korea
POLISHING PAD HAVING POLISHING SURFACE WITH CONTINUOUS PROTRUSIONS Reference 100654 KR	1/16/14	10-2015-7020592			Pending	Republic of Korea
POLISHING PAD HAVING POLISHING SURFACE WITH CONTINUOUS PROTRUSIONS HAVING TAPERED SIDEWALLS Reference 100655 KR	3/5/14	10-2015-7027915			Pending	Republic of Korea

TITLE REFERENCE #	FILED	SERIAL#	ISSUED	PATENT#	STATUS	COUNTRY
CUSTOMIZED POLISHING PADS FOR CMP AND METHODS OF FABRICATION AND USE THEREOF Reference 100637 MX	2/21/06	MX/a/2007/009822	5/10/13	309514	Issued	Mexico
CMP PAD WITH LOCAL AREA TRANSPARENCY Reference 100640 MY	1/11/11	PI 2012003162			Pending	Malaysia
SOFT POLISHING PAD FOR POLISHING A SEMICONDUCTOR SUBSTRATE Reference 100641 MY	1/11/11	PI 2013000052			Pending	Malaysia
POLISHING PAD WITH MULTI-MODAL DISTRIBUTION OF PORE DIAMETERS Reference 100643 MY	10/11/11	PI 2013001300			Pending	Malaysia
POLISHING PAD HAVING POLISHING SURFACE WITH CONTINUOUS PROTRUSIONS HAVING TAPERED SIDEWALLS Reference 100655 MY	3/5/14	PI 2015703096			Pending	Malaysia
CUSTOMIZED POLISH PADS FOR CHEMICAL MECHANICAL PLANARIZATION Reference 100634 SG	3/25/04	2005058946	10/31/07	115092	Issued	Singapore
CUSTOMIZED POLISH PADS FOR CHEMICAL MECHANICAL PLANARIZATION Reference 100634 SG DIV	3/25/04	200708864-4	4/13/12	153668	Issued	Singapore
CUSTOMIZED POLISH PADS FOR CHEMICAL MECHANICAL PLANARIZATION Reference 100634 SG DIV2	3/25/04	201008653-6	4/28/15	185141	Issued	Singapore

TITLE REFERENCE #	FILED	SERIAL#	ISSUED	PATENT#	STATUS	COUNTRY
SYNTHESIS OF FUNCTIONALLY GRADED PAD FOR CHEMICAL MECHANICAL PLANARIZATION Reference 100635 SG	6/3/04	200507614-6	7/31/08	117762	Issued	Singapore
SYNTHESIS OF FUNCTIONALLY GRADED PAD FOR CHEMICAL MECHANICAL PLANARIZATION Reference 100635 SG DIV	6/3/04	200802604-9	10/15/12	168412	Issued	Singapore
METHODS FOR PRODUCING IN-SITU GROOVES IN CHEMICAL MECHANICAL PLANARIZATION (CMP) PADS, AND NOVEL CMP PAD DESIGNS Reference 100636 SG	7/15/05	200700235-5	7/31/09	129005	Issued	Singapore
CUSTOMIZED POLISHING PADS FOR CMP AND METHODS OF FABRICATION AND USE THEREOF Reference 100637 SG	2/21/06	200706048-6	2/26/10	134788	Issued	Singapore
CMP PAD WITH LOCAL AREA TRANSPARENCY Reference 100640 SG	1/11/11	201204908-6	1/29/15	182327	Issued	Singapore
SOFT POLISHING PAD FOR POLISHING A SEMICONDUCTOR SUBSTRATE Reference 100641 SG	1/11/11	201300033-6	7/14/15	186908	Issued	Singapore
POLISHING PAD FOR EDDY CURRENT END-POINT DETECTION Reference 100642 SG	9/28/11	201302127-4	9/25/15	188632	Issued	Singapore
POLISHING PAD WITH MULTI-MODAL DISTRIBUTION OF PORE DIAMETERS Reference 100643 SG	10/11/11	201302131-6	3/27/14	189053	Issued	Singapore

TITLE REFERENCE #	FILED	SERIAL#	ISSUED	PATENT#	STATUS	COUNTRY
POLISHING PAD WITH CONCENTRIC OR APPROXIMATELY CONCENTRIC POLYGON GROOVE PATTERN Reference 100646 SG	1/20/12	201200479-2	7/22/14	182934	Issued	Singapore
SYNTHESIS OF FUNCTIONALLY GRADED PAD FOR CHEMICAL MECHANICAL PLANARIZATION Reference 100635 SG DIV2	6/3/04	201207372-2			Pending	Singapore
CMP PAD WITH LOCAL AREA TRANSPARENCY Reference 100640 SG DIV	1/11/11	10201408738R			Pending	Singapore
SOFT POLISHING PAD FOR POLISHING A SEMICONDUCTOR SUBSTRATE Reference 100641 SG DIV	1/11/11	10201505004 Q			Pending	Singapore
POLISHING PAD WITH CONCENTRIC OR APPROXIMATELY CONCENTRIC POLYGON GROOVE PATTERN Reference 100646 SG DIV	1/20/12	10201404027T			Pending	Singapore
POLISHING PAD WITH FOUNDATION LAYER AND POLISHING SURFACE LAYER Reference 100650 SG	5/16/12	11201402224W			Pending	Singapore
POLISHING PAD WITH FOUNDATION LAYER AND POLISHING SURFACE LAYER Reference 100650 SG DIV	5/16/12	10201508090W			Pending	Singapore
POLISHING PAD WITH POLISHING SURFACE LAYER HAVING AN APERTURE OR OPENING ABOVE A TRANSPARENT FOUNDATION LAYER Reference 100653 SG	5/29/13	11201407839P			Pending	Singapore

TITLE REFERENCE #	FILED	SERIAL#	ISSUED	PATENT#	STATUS	COUNTRY
POLISHING PAD HAVING POLISHING SURFACE WITH CONTINUOUS PROTRUSIONS HAVING TAPERED SIDEWALLS Reference 100655 SG	3/5/14	11201507373V			Pending	Singapore
POLISHING PAD WITH APERTURE Reference 100649 TW	7/13/12	101125451			Allowed	Taiwan
POLISHING PAD WITH FOUNDATION LAYER AND POLISHING SURFACE LAYER Reference 100650 TW	5/22/12	101118246			Allowed	Taiwan
CUSTOMIZED POLISH PADS FOR CHEMICAL MECHANICAL PLANARIZATION Reference 100634 TW	3/25/04	093108134	9/21/07	I 286964	Issued	Taiwan
CUSTOMIZED POLISH PADS FOR CMP AND METHODS OF FABRICATION AND USE THEREOF Reference 100634X TW	2/17/06	095105518	2/11/13	I 385050	Issued	Taiwan
CMP PAD WITH LOCAL AREA TRANSPARENCY Reference 100640 TW	1/13/11	100101301	7/1/15	I490083	Issued	Taiwan
POLISHING PAD FOR EDDY CURRENT END-POINT DETECTION Reference 100642 TW	9/30/11	100135659	1/21/15	I470714	Issued	Taiwan
POLISHING PAD FOR EDDY CURRENT END-POINT DETECTION Reference 100642 TW DIV	9/30/11	103123861	9/21/15	I501335	Issued	Taiwan
POLISHING PAD WITH ALIGNMENT FEATURE Reference 100647 TW	5/4/12	101116093	5/11/15	I483810	Issued	Taiwan
POLISHING PAD WITH HOMOGENEOUS BODY HAVING DISCRETE PROTRUSIONS THEREON Reference 100648 TW	5/22/12	101118247	10/21/15	I504479	Issued	Taiwan

TITLE REFERENCE #	FILED	SERIAL#	ISSUED	PATENT#	STATUS	COUNTRY
SOFT POLISHING PAD FOR POLISHING A SEMICONDUCTOR SUBSTRATE Reference 100641 TW	1/13/11	100101304			Pending	Taiwan
POLISHING PAD WITH MULTI-MODAL DISTRIBUTION OF PORE DIAMETERS Reference 100643 TW	10/14/11	100137387			Pending	Taiwan
POLISHING PAD WITH CONCENTRIC OR APPROXIMATELY CONCENTRIC POLYGON GROOVE PATTERN Reference 100646 TW	1/20/12	101102753			Pending	Taiwan
POLISHING PAD WITH ALIGNMENT FEATURE Reference 100647 TW DIV	5/4/12	104110571			Pending	Taiwan
POLISHING PAD WITH HOMOGENEOUS BODY HAVING DISCRETE PROTRUSIONS THEREON Reference 100648 TW DIV	5/22/12	104123294			Pending	Taiwan
POLISHING PAD WITH APERTURE Reference 100649 TW DIV	7/13/12	104129817			Pending	Taiwan
POLISHING PAD WITH FOUNDATION LAYER AND POLISHING SURFACE LAYER Reference 100650 TW DIV	5/22/12	104119891			Pending	Taiwan
POLISHING PAD WITH POLISHING SURFACE LAYER HAVING AN APERTURE OR OPENING ABOVE A TRANSPARENT FOUNDATION LAYER Reference 100653 TW	6/3/13	102119630			Pending	Taiwan
POLISHING PAD HAVING POLISHING SURFACE WITH CONTINUOUS PROTRUSIONS Reference 100654 TW	1/21/14	103102159			Pending	Taiwan

TITLE REFERENCE #	FILED	SERIAL#	ISSUED	PATENT#	STATUS	COUNTRY
POLISHING PAD HAVING POLISHING SURFACE WITH CONTINUOUS PROTRUSIONS HAVING TAPERED SIDEWALLS Reference 100655 TW	3/13/14	103108870			Pending	Taiwan
LOW DENSITY POLISHING PAD Reference 100656 TW	7/30/14	103126073			Pending	Taiwan
POLISHING PAD HAVING POROGENS WITH LIQUID FILLER Reference 100657 TW	6/17/15	104119621			Pending	Taiwan
COATED COMPRESSIVE SUBPAD FOR CHEMICAL MECHANICAL POLISHING Reference 100658 TW	11/20/15				Pending	Taiwan
CUSTOMIZED POLISHING PADS FOR CMP AND METHODS OF FABRICATION AND USE THEREOF Reference 100634XDIVCON	9/17/14	14/489,177			Allowed	US
POLISHING SYSTEMS Reference 100639DIV	2/1/13	13/757,163			Allowed	US
POLISHING PAD WITH CONCENTRIC OR APPROXIMATELY CONCENTRIC POLYGON GROOVE PATTERN Reference 100646	1/26/11	13/014,630	12/15/15	9,211,628	Allowed	US
POLISHING PAD WITH ALIGNMENT FEATURE Reference 100647DIV	1/30/15	14/610,991			Allowed	US
POLISHING PAD HAVING POROGENS WITH LIQUID FILLER Reference 100657	6/18/14	14/307,846			Allowed	US
CUSTOMIZED POLISH PADS FOR CHEMICAL MECHANICAL PLANARIZATION Reference 100634	3/25/04	10/810,070	9/16/08	7,425,172	Issued	US

TITLE REFERENCE #	FILED	SERIAL#	ISSUED	PATENT#	STATUS	COUNTRY
CUSTOMIZED POLISH PADS FOR CHEMICAL MECHANICAL PLANARIZATION Reference 100634CON	11/28/07	11/998,196	4/27/10	7,704,122	Issued	US
CUSTOMIZED POLISH PADS FOR CHEMICAL MECHANICAL PLANARIZATION Reference 100634CON2	4/26/10	12/767,712	2/19/13	8,380,339	Issued	US
CUSTOMIZED POLISH PADS FOR CMP AND METHODS OF FABRICATION AND USE THEREOF Reference 100634X	10/14/05	11/251,547	4/27/10	7,704,125	Issued	US
CUSTOMIZED POLISH PADS FOR CMP AND METHODS OF FABRICATION AND USE THEREOF Reference 100634XDIV	11/28/07	11/998,319	10/21/14	8,864,859	Issued	US
METHODS FOR PRODUCING IN-SITU GROOVES IN CHEMICAL MECHANICAL PLANARIZATION (CMP) PADS, AND NOVEL CMP PAD DESIGNS Reference 100636	7/21/04	10/897,192	5/27/08	7,377,840	Issued	US
METHODS FOR PRODUCING IN-SITU GROOVES IN CHEMICAL MECHANICAL PLANARIZATION (CMP) PADS, AND NOVEL CMP PAD DESIGNS Reference 100636DIV	11/28/07	11/998,212	10/16/12	8,287,793	Issued	US
METHODS FOR PRODUCING IN-SITU GROOVES IN CHEMICAL MECHANICAL PLANARIZATION (CMP) PADS, AND NOVEL CMP PAD DESIGNS Reference 100636DIV2	9/12/12	13/612,135	1/13/15	8,932,116	Issued	US

TITLE REFERENCE #	FILED	SERIAL#	ISSUED	PATENT#	STATUS	COUNTRY
CUSTOMIZED POLISHING PADS FOR CMP AND METHODS OF FABRICATION AND USE THEREOF Reference 100637	10/16/08	11/884,829	5/6/14	8,715,035	Issued	US
GROOVED CMP PAD Reference 100638	3/16/09	12/381,709	11/10/15	9,180,570	Issued	US
POLISHING SYSTEMS Reference 100639	6/18/09	12/456,546	2/26/13	8,383,003	Issued	US
CMP PAD WITH LOCAL AREA TRANSPARENCY Reference 100640	1/13/10	12/657,135	4/28/15	9,017,140	Issued	US
SOFT POLISHING PAD FOR POLISHING A SEMICONDUCTOR SUBSTRATE Reference 100641	7/8/10	12/832,908	10/13/15	9,156,124	Issued	US
POLISHING PAD FOR EDDY CURRENT END-POINT DETECTION Reference 100642	9/30/10	12/895,465	1/14/14	8,628,384	Issued	US
POLISHING PAD FOR EDDY CURRENT END-POINT DETECTION Reference 100642CON	12/6/13	14/099,655	5/12/15	9,028,302	Issued	US
POLISHING PAD WITH MULTI-MODAL DISTRIBUTION OF PORE DIAMETERS Reference 100643	12/27/10	12/979,123	4/22/14	8,702,479	Issued	US
HOMOGENEOUS POLISHING PAD FOR EDDY CURRENT END-POINT DETECTION Reference 100644	9/30/10	12/895,479	2/25/14	8,657,653	Issued	US
METHOD OF FABRICATING A POLISHING PAD WITH AN END-POINT DETECTION REGION FOR EDDY CURRENT END-POINT DETECTION Reference 100645	9/30/10	12/895,529	5/14/13	8,439,994	Issued	US

TITLE REFERENCE #	FILED	SERIAL#	ISSUED	PATENT#	STATUS	COUNTRY
POLISHING PAD WITH ALIGNMENT FEATURE Reference 100647	5/5/11	13/101,826	3/3/15	8,968,058	Issued	US
POLISHING PAD WITH ALIGNMENT APERTURE Reference 100649	7/15/11	13/184,395	12/30/14	8,920,219	Issued	US
POLISHING PAD WITH FOUNDATION LAYER AND POLISHING SURFACE LAYER Reference 100650	11/29/11	13/306,845	6/30/15	9,067,297	Issued	US
POLISHING PAD WITH GROOVED FOUNDATION LAYER AND POLISHING SURFACE LAYER Reference 100652	11/29/11	13/306,849	6/30/15	9,067,298	Issued	US
METHODS FOR PRODUCING IN-SITU GROOVES IN CHEMICAL MECHANICAL PLANARIZATION (CMP) PADS, AND NOVEL CMP PAD DESIGNS Reference 100636DIV2	12/5/14	14/562,589			Pending	US
GROOVED CMP PADS Reference 100638DIV	10/2/15	14/874,179			Pending	US
SOFT POLISHING PAD FOR POLISHING A SEMICONDUCTOR SUBSTRATE Reference 100641CON	8/11/15	14/823,956			Pending	US
POLISHING PAD WITH MULTI-MODAL DISTRIBUTION OF PORE DIAMETERS Reference 100643DIV	2/19/14	14/183,894			Pending	US
HOMOGENEOUS POLISHING PAD FOR EDDY CURRENT END-POINT DETECTION Reference 100644DIV	1/10/14	14/152,792			Pending	US

TITLE REFERENCE #	FILED	SERIAL#	ISSUED	PATENT#	STATUS	COUNTRY
POLISHING PAD WITH CONCENTRIC OR APPROXIMATELY CONCENTRIC POLYGON GROOVE PATTERN Reference 100646DIV	10/5/15	14/875,513			Pending	US
POLISHING PAD WITH HOMOGENEOUS BODY HAVING DISCRETE PROTRUSIONS THEREON Reference 100648	5/23/11	13/113,655			Pending	US
POLISHING PAD WITH HOMOGENEOUS BODY HAVING DISCRETE PROTRUSIONS THEREON Reference 100648DIV	10/31/14	14/530,534			Pending	US
POLISHING PAD WITH APERTURE Reference 100649DIV	11/21/14	14/550,129			Pending	US
POLISHING PAD WITH FOUNDATION LAYER AND POLISHING SURFACE LAYER Reference 100650CON	6/11/15	14/736,568			Pending	US
POLISHING PAD WITH FOUNDATION LAYER AND POLISHING SURFACE LAYER Reference 100650DIV	6/5/15	14/732,497			Pending	US
POLISHING PAD WITH GROOVED FOUNDATION LAYER AND POLISHING SURFACE LAYER Reference 100652DIV	6/1/15	14/727,586			Pending	US
POLISHING PAD WITH POLISHING SURFACE LAYER HAVING AN APERTURE OR OPENING ABOVE A TRANSPARENT FOUNDATION LAYER Reference 100653	6/4/12	13/488,149			Pending	US
POLISHING PAD HAVING POLISHING SURFACE WITH CONTINUOUS PROTRUSIONS Reference 100654	1/22/13	13/747,139			Pending	US

TITLE REFERENCE #	FILED	SERIAL#	ISSUED	PATENT#	STATUS	COUNTRY
POLISHING PAD HAVING POLISHING SURFACE WITH CONTINUOUS PROTRUSIONS HAVING TAPERED SIDEWALLS Reference 100655	3/14/13	13/829,990			Pending	US
LOW DENSITY POLISHING PAD Reference 100656	7/31/13	13/955,398			Pending	US
COATED COMPRESSIVE SUBPAD FOR CHEMICAL MECHANICAL POLISHING Reference 100658	3/2/15	14/635,973			Pending	US
DOUBLE COATED COMPRESSIVE FOAM SUBPAD Reference 100658Z	11/21/14	62/083,101			Pending	US
MESH SUBPAD FOR CHEMICAL MECHANICAL POLISHING Reference 100659Z	3/3/15	62/127,734			Pending	US
LOW DENSITY POLISHING PAD Reference 100660	1/30/15	14/611,064			Pending	US
POLISHING PAD WITH FOUNDATION LAYER AND WINDOW ATTACHED THERETO Reference 100661	11/3/15	14/931,737			Pending	US
CMP PAD WITH LOCAL AREA TRANSPARENCY Reference 100640 PCT	1/11/11	PCT/US2011/020870			Pending	PCT
SOFT POLISHING PAD FOR POLISHING A SEMICONDUCTOR SUBSTRATE Reference 100641 PCT	1/11/11	PCT/US2011/020840			Pending	PCT
POLISHING PAD FOR EDDY CURRENT END-POINT DETECTION Reference 100642 PCT	9/28/11	PCT/US2011/053678			Pending	PCT

TITLE REFERENCE #	FILED	SERIAL#	ISSUED	PATENT#	STATUS	COUNTRY
POLISHING PAD WITH MULTI-MODAL DISTRIBUTION OF PORE DIAMETERS Reference 100643 PCT	10/11/11	PCT/US2011/055796			Pending	PCT
POLISHING PAD WITH CONCENTRIC OR APPROXIMATELY CONCENTRIC POLYGON GROOVE PATTERN Reference 100646 PCT	1/19/12	PCT/US2012/021899			Pending	PCT
POLISHING PAD WITH ALIGNMENT FEATURE Reference 100647 PCT	4/23/12	PCT/US12/34717			Pending	PCT
POLISHING PAD WITH HOMOGENEOUS BODY HAVING DISCRETE PROTRUSIONS THEREON Reference 100648 PCT	5/16/12	PCT/US2012/038212			Pending	PCT
POLISHING PAD WITH APERTURE Reference 100649 PCT	7/10/12	PCT/US2012/046037			Pending	PCT
POLISHING PAD WITH FOUNDATION LAYER AND POLISHING SURFACE LAYER Reference 100650 PCT	5/16/12	PCT/US2012/038211			Pending	PCT
POLISHING PAD WITH POLISHING SURFACE LAYER HAVING AN APERTURE OR OPENING ABOVE A TRANSPARENT FOUNDATION LAYER Reference 100653 PCT	5/29/13	PCT/US2013/043126			Pending	PCT
POLISHING PAD HAVING POLISHING SURFACE WITH CONTINUOUS PROTRUSIONS Reference 100654 PCT	1/16/14	PCT/US2014/011792			Pending	PCT
POLISHING PAD HAVING POLISHING SURFACE WITH CONTINUOUS PROTRUSIONS HAVING TAPERED SIDEWALLS Reference 100655 PCT	3/5/14	PCT/US2014/020754			Pending	PCT

TITLE REFERENCE #	FILED	SERIAL#	ISSUED	PATENT#	STATUS	COUNTRY
LOW DENSITY POLISHING PAD Reference 100656 PCT	7/17/14	PCT/US2014/047065			Pending	PCT
POLISHING PAD HAVING POROGENS WITH LIQUID FILLER Reference 100657 PCT	6/12/15	PCT/US2015/035662			Pending	PCT
COATED COMPRESSIVE SUBPAD FOR CHEMICAL MECHANICAL POLISHING Reference 100658 PCT	11/12/15	PCT/US2015/060343			Pending	PCT

SUPPLEMENTAL SCHEDULE II

Trademarks and Trademark Applications

TRADEMARK	COUNTRY	APPLICATION NUMBER	APPLICATION DATE	REGISTRATION NUMBER	REGISTRATION DATE
ELEMENT	United States of America	77869721	11/10/2009	4372801	7/23/2013
NEXPLANAR	United States of America	77509846	6/27/2008	3702810	10/27/2009

SUPPLEMENTAL CHEDULE III

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None.

SUPPLEMENTAL SCHEDULE IV

License Agreements

None.