

TRADEMARK ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

ETAS ID: TM390897

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	SECURITY INTEREST IN UNITED STATES PATENTS AND TRADEMARKS

CONVEYING PARTY DATA

Name	Formerly	Execution Date	Entity Type
Form Factor, Inc.		06/24/2016	Corporation: DELAWARE
Astria Semiconductor Holdings, Inc. Corporation		06/24/2016	Corporation: DELAWARE
Cascade Microtech, Inc. Corporation		06/24/2016	Corporation: OREGON
Micro-Probe Incorporated Corporation California		06/24/2016	Corporation: CALIFORNIA

RECEIVING PARTY DATA

Name:	HSBC Bank USA, National Association
Street Address:	601 Montgomery Street, Suite 1500
City:	San Francisco
State/Country:	CALIFORNIA
Postal Code:	94111
Entity Type:	National Banking Association: VIRGINIA

PROPERTY NUMBERS Total: 21

Property Type	Number	Word Mark
Registration Number:	2560563	FORMFACTOR
Registration Number:	2714540	
Registration Number:	2605726	APOLLO
Registration Number:	4281541	MICROPROBE
Registration Number:	4178657	
Serial Number:	76132608	CASCADE MICROTECH
Serial Number:	85068975	
Serial Number:	76152671	ATTOGUARD
Serial Number:	74408794	EZ-PROBE
Serial Number:	76210697	EYE-PASS
Serial Number:	74656281	FEMTOGUARD
Serial Number:	74410576	MICROCHAMBER
Serial Number:	75684857	MICROSCRUB
Serial Number:	77386910	NANOSCRUB

TRADEMARK

Property Type	Number	Word Mark
Serial Number:	75701095	PYRAMID PROBE
Serial Number:	86389520	MEASUREONE
Serial Number:	86389451	T-WAVE
Serial Number:	86389510	SOURCEONE
Serial Number:	77661896	MEMUNITY
Serial Number:	78183356	INFINITY PROBE
Serial Number:	86692437	Z PROBE

CORRESPONDENCE DATA

Fax Number: 8004947512
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: 202-370-4750
Email: ipteam@nationalcorp.com
Correspondent Name: Stewart Walsh
Address Line 1: 1025 Vermont Ave NW, Suite 1130
Address Line 2: National Corporate Research, LTD
Address Line 4: Washington, D.C. 20005

ATTORNEY DOCKET NUMBER:	F164159
NAME OF SUBMITTER:	Theresa Volano
SIGNATURE:	/Theresa Volano/
DATE SIGNED:	07/11/2016

Total Attachments: 48
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SECURITY INTEREST**IN UNITED STATES PATENTS AND TRADEMARKS**

June 24, 2016

FOR GOOD AND VALUABLE CONSIDERATION, the receipt and sufficiency of which are hereby acknowledged, FormFactor, Inc., a Delaware corporation (the "Borrower"), Astria Semiconductor Holdings, Inc., a Delaware corporation, Cascade Microtech, Inc., an Oregon corporation, and Micro-Probe Incorporated, a California corporation (together with the Borrower, each a "Grantor" and collectively, the "Grantors"), hereby grants HSBC Bank USA, National Association, as Administrative Agent, for the Lenders (the "Administrative Agent"), pursuant to the Security Agreement (defined below), a security interest in all of the following property, whether now owned or hereafter acquired or existing:

(a) all such Grantor's right, title and interest in and to the following: (i) all trademarks (including service marks), trade names, trade dress, and trade styles owned by Grantor and the registrations and applications for registration thereof and the goodwill of the business symbolized by the foregoing, including those trademark registrations and applications set forth on Schedule A attached hereto; (ii) all renewals of the foregoing; (iii) all income, royalties, damages, and payments now or hereafter due or payable with respect thereto, including, without limitation, damages, claims, and payments for past and future infringements thereof; (iv) all rights to sue for past, present, and future infringements of the foregoing, including the right to settle suits involving claims and demands for royalties owing; and (v) all rights corresponding to any of the foregoing throughout the world (collectively, the "Trademarks"), but excluding any intent-to-use Trademark applications to the extent that, and solely during the period in which, the grant of a security interest therein would impair the validity or enforceability of such intent-to-use Trademark applications under applicable federal law; and

(b) all of such Grantor's right, title and interest in and to the following: (i) any and all patents and patent applications set forth on Schedule B attached hereto; (ii) all inventions and improvements described and claimed therein; (iii) all reissues, divisions, continuations, renewals, extensions, and continuations-in-part thereof; (iv) all income, royalties, damages, claims, and payments now or hereafter due or payable under and with respect thereto, including, without limitation, damages and payments for past and future infringements thereof; (v) all rights to sue for past, present, and future infringements thereof; and (vi) all rights corresponding to any of the foregoing throughout the world (collectively, the "Patents").

THIS SECURITY INTEREST IN UNITED STATES PATENTS AND TRADEMARKS (this "Agreement") is made to secure the satisfactory performance and payment of all of the Secured Obligations of such Grantor under the Credit Agreement and the other Loan Documents, as such terms are defined in that certain Security Agreement among each Grantor, certain affiliates of the Grantors that are party thereto from time to time, the Administrative Agent, the Lead Lender (as defined in the Credit Agreement), and the other lenders party thereto from time to time dated as of the date hereof (the "Security Agreement").

Capitalized terms used but not defined herein have the respective meanings assigned to such terms in the Security Agreement. Upon request of the Grantors when all Secured Obligations have been paid in full and the Termination Date has occurred, the Administrative Agent shall execute, acknowledge and deliver to the Grantors an instrument in writing releasing the security interest in the Trademarks and Patents acquired under this Agreement. This Agreement may be executed in any number of counterparts and by the different parties hereto on separate counterparts, each of which when so executed and delivered shall be an original, but all of which shall together constitute one and the same agreement.

Each Grantor authorizes and requests that the Commissioner for Trademark, the Commissioner for Patents and any other applicable government officer record the grant of security interest made pursuant to this Agreement.

This security interest has been made in conjunction with the security interest granted to the Administrative Agent for the benefit of the Secured Parties (as defined in the Credit Agreement) under the Security Agreement. The rights and remedies of the Administrative Agent with respect to the security interest granted herein are without prejudice to those set forth in the Security Agreement, the terms and provisions of which are incorporated herein by reference. If any provision of this Agreement conflicts with the Security Agreement, the provisions of the Security Agreement shall govern.

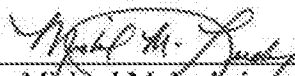
This Agreement and any claim, controversy, dispute or cause of action (whether in contract or tort or otherwise) based upon, arising out of or relating to this Agreement and the transactions contemplated hereby and thereby shall be governed by, and construed in accordance with, the law of the State of New York, without regard to conflicts of law principals except Title 14 of Article 5 of the New York General Obligations law.

[Remainder of page intentionally left blank]

IN WITNESS WHEREOF, the undersigned have executed this Agreement as of the date first written above.

GRANTORS:

FORMFACTOR, INC., a Delaware corporation

By: 
Name: Michael M. Ludwig
Title: Chief Financial Officer

ASTRIA SEMICONDUCTOR HOLDINGS, INC., a Delaware corporation

By: 
Name: Michael M. Ludwig
Title: Chief Financial Officer

CASCADE MICROTECH, INC., an Oregon corporation

By: 
Name: Michael M. Ludwig
Title: Chief Financial Officer

MICRO-PROBE INCORPORATED, a California corporation

By: 
Name: Michael M. Ludwig
Title: Chief Financial Officer

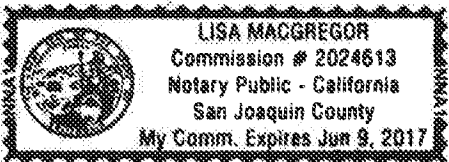
CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

CIVIL CODE § 1189

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California
County of Alameda

On June 24, 2016 before me, Lisa MacGregor, Notary Public, personally appeared Michael Ludwig, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.



I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature Lisa MacGregor
Signature of Notary Public

Place Notary Seal Above

OPTIONAL

Though this section is optional, completing this information can deter alteration of the document or fraudulent reattachment of this form to an unintended document.

Description of Attached Document

Title or Type of Document: Credit / Security Agreement & Appendices Document Date: June 24, 2016
Number of Pages: 119 Signer(s) Other Than Named Above: _____

Capacity(ies) Claimed by Signer(s)

Signer's Name: Michael Ludwig
 Corporate Officer — Title(s): CFO & Sr. VP
 Partner — Limited General
 Individual Attorney in Fact
 Trustee Guardian or Conservator
 Other: _____
Signer Is Representing: Form Factor, Inc

Signer's Name: _____
 Corporate Officer — Title(s): _____
 Partner — Limited General
 Individual Attorney in Fact
 Trustee Guardian or Conservator
 Other: _____
Signer Is Representing: _____

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

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Signature Lisa MacGregor
Signature of Notary Public

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Signer's Name: Michael Ludwig
 Corporate Officer — Title(s): CFO & Sr. VP
 Partner — Limited General
 Individual Attorney in Fact
 Trustee Guardian or Conservator
 Other: _____
Signer Is Representing: Actica Semiconductor

Signer's Name: _____
 Corporate Officer — Title(s): _____
 Partner — Limited General
 Individual Attorney in Fact
 Trustee Guardian or Conservator
 Other: _____
Signer Is Representing: _____

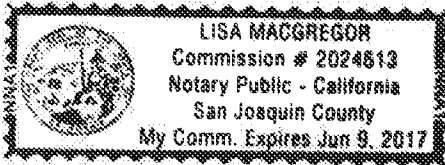
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Signature of Notary Public

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Signer's Name: Michael Ludwig
 Corporate Officer — Title(s): CFO & Sr. VP
 Partner — Limited General
 Individual Attorney in Fact
 Trustee Guardian or Conservator
 Other: _____
Signer Is Representing: Cascade Microtech

Signer's Name: _____
 Corporate Officer — Title(s): _____
 Partner — Limited General
 Individual Attorney in Fact
 Trustee Guardian or Conservator
 Other: _____
Signer Is Representing: _____

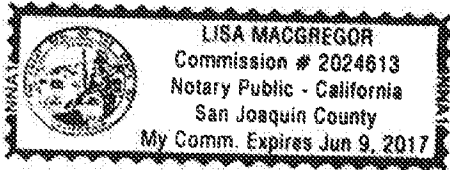
CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

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 Corporate Officer — Title(s): CFO & Sr. VP
 Partner — Limited General
 Individual Attorney in Fact
 Trustee Guardian or Conservator
 Other: _____
Signer Is Representing: Micro-Probe, Inc.

Signer's Name: _____
 Corporate Officer — Title(s): _____
 Partner — Limited General
 Individual Attorney in Fact
 Trustee Guardian or Conservator
 Other: _____
Signer Is Representing: _____

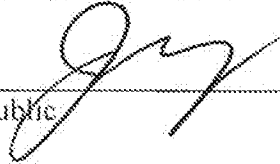
ADMINISTRATIVE AGENT:

HSBC BANK USA, NATIONAL
ASSOCIATION

By: 
Name: FERNANDO ACEBEDO
Title: VICE PRESIDENT

STATE OF New York)
COUNTY OF New York) ss.:

On this 24th day of June, 2016 before me personally came Fernando Acabado who, being by me duly sworn, did state as follows: that [s]he is Vice President of HSBC Bank USA, National Association and that [s]he is authorized to execute the foregoing Security Interest in United States Patents and Trademarks on behalf of and with the authority of said Person.

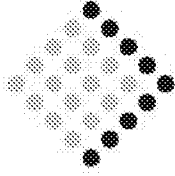
Notary Public 

JANE YANG
No. 01YA6263112
Notary Public, State of New York
Qualified in New York County
My Commission Expires 05/28/2017

SCHEDULE A

LIST OF TRADEMARKS

Trademark	Country	Owner	Filing Date	Serial/ Reg. No.	Reg. Date
FORMFACTOR	U.S.	FormFactor, Inc.	1-21-2000	2560563	4-9-2002
	U.S.	FormFactor, Inc.	5-21-2001	2714540	5-6-2003
CASCADE MICROTECH	U.S.	Cascade Microtech, Inc.	9-20-2000	76/132,608	11-20-2001
	U.S.	Cascade Microtech, Inc.	6-22-2010	85/068,975	5-17-2011
ATTOGUARD	U.S.	Cascade Microtech, Inc.	10-23-2000	76/152,671	12-11-2001
EZ-PROBE	U.S.	Cascade Microtech, Inc.	7-6-1993	74/408,794	4-11-1995
EYE-PASS	U.S.	Cascade Microtech, Inc.	2-13-2001	76/210,697	6-11-2002
FEMTOGUARD	U.S.	Cascade Microtech, Inc.	3-31-1995	74/656,281	9-24-1996
MICROCHAMBER	U.S.	Cascade Microtech, Inc.	7-9-1993	74/410,576	5-2-1995
MICROSCRUB	U.S.	Cascade Microtech, Inc.	4-19-1999	75/684,857	1-29-2002
NANOSCRUB	U.S.	Cascade Microtech, Inc.	2-1-2008	77/386,910	6-8-2010
PYRAMID PROBE	U.S.	Cascade Microtech, Inc.	5-7-1999	75/701,095	9-19-2000
MEASUREONE	U.S.	Cascade Microtech, Inc.	9-9-2014	86/389,520	Not yet assigned.
T-WAVE	U.S.	Cascade Microtech, Inc.	9-9-2014	86/389,451	11-10-2015
SOURCEONE	U.S.	Cascade Microtech, Inc.	9-9-2014	86/389,510	1-19-2016
MEMUNITY	U.S.	Cascade Microtech, Inc.	2-3-2009	77/661,896	9-21-2010
INFINITY PROBE	U.S.	Cascade Microtech, Inc.	11-8-2002	78/183,356	10-14-2003

<u>Trademark</u>	<u>Country</u>	<u>Owner</u>	<u>Filing Date</u>	<u>Serial/ Reg. No.</u>	<u>Reg. Date</u>
IZI PROBE	U.S.	Cascade Microtech, Inc.	7-14-2015	86/692,437	Not yet assigned.
APOLLO	U.S.	Micro-Probe Incorporated	12-15-2000	2605726	8-6-2002
MICROPROBE	U.S.	Micro-Probe Incorporated	11-18-2011	4281541	1-29-2013
	U.S.	Micro-Probe Incorporated	11-21-2011	4178657	7-24-2012

SCHEDULE B**LIST OF PATENTS**

Short Title	Owner	Country	Filing Date	Application/ Patent Number
Probe cards employing probes having retaining portions for potting in a potting region	Micro-Probe Incorporated	U.S.	8-31-2010	7,786,740
MEMBRANE PROBING SYSTEM WITH LOCAL CONTACT SCRUB (continuation of CMI 374D)	Cascade Microtech, Inc.	U.S.	5-25-2006	11/441,673
MEMBRANE PROBING SYSTEM WITH LOCAL CONTACT SCRUB (continuation of CMI 374E)	Cascade Microtech, Inc.	U.S.	8-27-2007	11/897,397
MEMBRANE PROBING STRUCTURE WITH LATERALLY SCRUBBING CONTACTS (continuation of CMI 374F)	Cascade Microtech, Inc.	U.S.	3-20-2009	12/383,209 (7,893,704)
PROBE HOLDER FOR LOW CURRENT MEASUREMENTS (quasi Kelvin connection holder for Cerprobe blade) (continuation of CMI 378)	Cascade Microtech, Inc.	U.S.	3-22-2001	09/815,182
PROBE HOLDER FOR TESTING OF A TEST DEVICE (continuation of CMI 378B)	Cascade Microtech, Inc.	U.S.	10-22-2002	10/278,313
PROBE HOLDER FOR TESTING OF A TEST DEVICE (continuation of CMI 378C)	Cascade Microtech, Inc.	U.S.	6-6-2006	10/954,496
PROBE HOLDER FOR TESTING OF A TEST DEVICE (continuation of CMI 378D)	Cascade Microtech, Inc.	U.S.	4-18-2006	11/406,737
PROBE HOLDER FOR TESTING OF A TEST DEVICE (continuation of CMI 378E)	Cascade Microtech, Inc.	U.S.	4-11-2007	11/786,633
PROBE STATION HAVING INNER AND OUTER SHIELDING (PS21)	Cascade Microtech, Inc.	U.S.	6-6-1997	08/870,335
PROBE STATION HAVING MULTIPLE ENCLOSURES (continuation of CMI 379C)	Cascade Microtech, Inc.	U.S.	10-17-2002	10/273,787
PROBE STATION HAVING MULTIPLE ENCLOSURES (continuation of CMI 379G)	Cascade Microtech, Inc.	U.S.	6-20-2007	11/820,519
PROBE STATION HAVING ENVIRONMENT CONTROL CHAMBERS WITH ORTHOGONALLY FLEXIBLE LATERAL WALL ASSEMBLY (PS21)	Cascade Microtech, Inc.	U.S.	6-6-1997	08/870,397

Short Title	Owner	Country	Filing Date	Application/ Patent Number
LOW-CURRENT POGO PROBE CARD (Suspended Guard)	Cascade Microtech, Inc.	U.S.	6-10-1997	08/871,609
LOW-CURRENT POGO PROBE CARD (continuation of CMI 381G)	Cascade Microtech, Inc.	U.S.	9-27-2006	11/528,808 (7,323,895)
PROBE STATION THERMAL CHUCK WITH SHIELDING FOR CAPACITIVE CURRENT (continuation of CMI 383)	Cascade Microtech, Inc.	U.S.	12-2-2002	10/308,847 (6,642,732)
PROBE STATION THERMAL CHUCK WITH SHIELDING FOR CAPACITIVE CURRENT (continuation of CMI 383C)	Cascade Microtech, Inc.	U.S.	10-11-2006	11/546,827
PROBE STATION THERMAL CHUCK WITH SHIELDING FOR CAPACITIVE CURRENT (continuation of CMI 383D)	Cascade Microtech, Inc.	U.S.	10-17-2007	11/975,221
MEMBRANE PROBING SYSTEM (Generation II) (membrane construction process)	Cascade Microtech, Inc.	U.S.	7-14-1998	09/115,571
MEMBRANE PROBING SYSTEM (Generation II) (membrane construction process) (continuation of CMI 384)	Cascade Microtech, Inc.	U.S.	3-22-2001	09/814,594
MEMBRANE PROBING METHOD USING IMPROVED CONTACT (continuation of CMI 384B)	Cascade Microtech, Inc.	U.S.	11-10-2003	10/705,014
MEMBRANE PROBING METHOD USING IMPROVED CONTACT (continuation of CMI 384D)	Cascade Microtech, Inc.	U.S.	6-18-2010	12/818,521
MEMBRANE PROBING SYSTEM (continuation of CMI 384A)	Cascade Microtech, Inc.	U.S.	2-3-2004	10/772,172
MEMBRANE PROBING SYSTEM (continuation of CMI 384C)	Cascade Microtech, Inc.	U.S.	1-14-2005	11/036,739
MEMBRANE PROBING SYSTEM (continuation of CMI 384G)	Cascade Microtech, Inc.	U.S.	7-31-2007	11/888,429
METHOD FOR CONSTRUCTING A MEMBRANE PROBE USING A DEPRESSION (Generation III) (additional membrane construction process)	Cascade Microtech, Inc.	U.S.	4-11-2000	09/546,927

<u>Short Title</u>	<u>Owner</u>	<u>Country</u>	<u>Filing Date</u>	<u>Application/ Patent Number</u>
METHOD FOR CONSTRUCTING A MEMBRANE PROBE USING A DEPRESSION (continuation of CMI 385)	Cascade Microtech, Inc.	U.S.	4-16-2003	10/418,510
MEMBRANE PROBING SYSTEM (Generation IV) (Guarded Membrane Assembly and Kelvin Connection)	Cascade Microtech, Inc.	U.S.	11-29-2000	09/637,527
MEMBRANE PROBING SYSTEM (continuation of CMI 387A)	Cascade Microtech, Inc.	U.S.	6-3-2005	11/144,852
MEMBRANE PROBING SYSTEM (continuation of CMI 391)	Cascade Microtech, Inc.	U.S.	1-20-2008	12/008,594
CHUCK FOR HOLDING A DEVICE UNDER TEST (divisional of CMI 392A)	Cascade Microtech, Inc.	U.S.	10-23-2007	11/977,050
CHUCK FOR HOLDING A DEVICE UNDER TEST (divisional of CMI 392A)	Cascade Microtech, Inc.	U.S.	10-23-2007	11/977,134
PROBE STATION (300 mm Probe Station)	Cascade Microtech, Inc.	U.S.	6-12-2001	6,914,423
PROBE STATION (continuation of CMI 393)	Cascade Microtech, Inc.	U.S.	3-16-2005	11/083,677
WAFER PROBE (Eye Pass Probe)	Cascade Microtech, Inc.	U.S.	11-19-2001	09/997,501
WAFER PROBE (continuation of CMI 396)	Cascade Microtech, Inc.	U.S.	4-26-2007	11/796,237
OPTICAL TESTING DEVICE (continuation of CMI 397)	Cascade Microtech, Inc.	U.S.	8-6-2004	10/912,789
GUARDED TUB ENCLOSURE	Cascade Microtech, Inc.	U.S.	12-13-2002	10/319,287
GUARDED TUB ENCLOSURE (continuation of CMI 398)	Cascade Microtech, Inc.	U.S.	1-14-2005	11/035,543
GUARDED TUB ENCLOSURE (continuation of CMI 398A)	Cascade Microtech, Inc.	U.S.	4-11-2007	11/786,641
PROBE STATION WITH LOW INDUCTANCE PATH	Cascade Microtech, Inc.	U.S.	9-25-2003	10/672,655
PROBE STATION WITH LOW INDUCTANCE PATH (continuation of CMI 399)	Cascade Microtech, Inc.	U.S.	6-20-2007	11/820,518
PROBE FOR TESTING A DEVICE UNDER TEST (continuation of CMI 3A4)	Cascade Microtech, Inc.	U.S.	5-18-2004	10/848,777
SHIELDED PROBE FOR TESTING A DEVICE UNDER TEST (continuation of CMI 3A4C)	Cascade Microtech, Inc.	U.S.	10-24-2007	11/977,282
SHIELDED PROBE FOR TESTING A DEVICE UNDER TEST (continuation of CMI 3A4C)	Cascade Microtech, Inc.	U.S.	10-24-2007	11/977,280

<u>Short Title</u>	<u>Owner</u>	<u>Country</u>	<u>Filing Date</u>	<u>Application/ Patent Number</u>
LOCALIZING A TEMPERATURE OF A DEVICE FOR TESTING	Cascade Microtech, Inc.	U.S.	3-21-2005	11/086,126
PROBE FOR COMBINED SIGNALS (continuation of CMI 3A7D)	Cascade Microtech, Inc.	U.S.	3-5-2007	11/714,003
SHIELDED PROBE FOR TESTING A DEVICE UNDER TEST (continuation of CMI 3A9)	Cascade Microtech, Inc.	U.S.	3-28-2006	11/391,895
PROBE FOR TESTING A DEVICE UNDER TEST (continuation of CMI 3A9A)	Cascade Microtech, Inc.	U.S.	8-3-2007	11/888,957
PROBE STATION WITH LOW NOISE CHARACTERISTICS (Super Cable Application) (Guarded guard, double guard)	Cascade Microtech, Inc.	U.S.	9-18-2003	10/666,219
ACTIVE WAFER PROBE	Cascade Microtech, Inc.	U.S.	12-21-2004	11/019,440
PROBE TESTING STRUCTURE	Cascade Microtech, Inc.	U.S.	3-5-2004	10/794,246
PROBE HEAD HAVING A MEMBRANE SUSPENDED PROBE	Cascade Microtech, Inc.	U.S.	7-5-2005	11/175,600
PROBE HEAD HAVING A MEMBRANE SUSPENDED PROBE (continuation of CMI 3B5)	Cascade Microtech, Inc.	U.S.	3-10-2008	12/075,341
PROBE FOR HIGH FREQUENCY SIGNALS	Cascade Microtech, Inc.	U.S.	4-24-2006	11/410,783
DOUBLE SIDED PROBING STRUCTURES (Vertical Probing) (continuation of CMI 3C2)	Cascade Microtech, Inc.	U.S.	7-3-2008	12/217,359
SYSTEM FOR TESTING SEMICONDUCTORS	Cascade Microtech, Inc.	U.S.	1-18-2006	11/335,069
SYSTEM FOR TESTING SEMICONDUCTORS (continuation of CMI 3C4)	Cascade Microtech, Inc.	U.S.	12-15-2009	12/653,574
INTERFACE FOR TESTING SEMICONDUCTORS	Cascade Microtech, Inc.	U.S.	1-18-2006	11/335,037
INTERFACE FOR TESTING SEMICONDUCTORS (continuation of CMI 3C5)	Cascade Microtech, Inc.	U.S.	12-12-2008	12/316,511
WIDEBAND HYBRID ACTIVE-PASSIVE DIFFERENTIAL SIGNAL PROBE	Cascade Microtech, Inc.	U.S.	4-28-2006	11/413,738
LINE-REFLECT-REFLECT MATCH CALIBRATION (continuation-in-part of CMI 3C9)	Cascade Microtech, Inc.	U.S.	7-18-2007	11/879,865

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ON-WAFER TEST STRUCTURES FOR DIFFERENTIAL SIGNALS	Cascade Microtech, Inc.	U.S.	3-9-2007	11/716,428
TEST STRUCTURE AND PROBE FOR DIFFERENTIAL SIGNALS (continuation of CMI 3D6)	Cascade Microtech, Inc.	U.S.	6-11-2008	12/157,658
PROBING APPARATUS WITH IMPEDANCE OPTIMIZED INTERFACE	Cascade Microtech, Inc.	U.S.	10-6-2008	12/287,213
REPLACEABLE COUPON FOR A PROBING APPARATUS	Cascade Microtech, Inc.	U.S.	11-20-2009	12/592,186
TEST APPARATUS FOR MEASURING A CHARACTERISTIC OF A DEVICE UNDER TEST	Cascade Microtech, Inc.	U.S.	11-16-2009	12/590,955
SYSTEMS AND METHODS FOR SIMULTANEOUS OPTICAL TESTING OF A PLURALITY OF DEVICES UNDER TEST	Cascade Microtech, Inc.	U.S.	10-17-2011	13/275,107
SYSTEM FOR TESTING SEMICONDUCTORS	Cascade Microtech, Inc.	U.S.	9-11-2012	13/634,009
LOW NOISE CONNECTOR WITH CABLES HAVING A CENTER, MIDDLE AND OUTER CONDUCTORS	Cascade Microtech, Inc.	U.S.	2-18-2011	13/030,961
HIGH VOLTAGE CHUCK FOR A PROBE STATION	Cascade Microtech, Inc.	U.S.	12-4-2012	13/702,054
HIGH FREQUENCY INTERCONNECT STRUCTURES, ELECTRONIC ASSEMBLIES THAT UTILIZE HIGH FREQUENCY INTERCONNECT STRUCTURES, AND METHODS OF OPERATING THE SAME	Cascade Microtech, Inc.	U.S.	5-31-2012	13/484,548
ARRANGEMENT AND METHOD FOR FOCUSING A MULTIPLANE IMAGE ACQUISITION ON A PROBER	Cascade Microtech, Inc.	U.S.	7-30-2010	12/847,723
PROBER FOR TESTING DEVICES IN A REPEAT STRUCTURE ON A SUBSTRATE	Cascade Microtech, Inc.	U.S.	12-30-2008	12/345,980
PROBER FOR TESTING DEVICES IN A REPEAT STRUCTURE ON A SUBSTRATE (continuation of CMI 3G1)	Cascade Microtech, Inc.	U.S.	4-26-2011	13/094,604

<u>Short Title</u>	<u>Owner</u>	<u>Country</u>	<u>Filing Date</u>	<u>Application/ Patent Number</u>
PROBER FOR TESTING DEVICES IN A REPEAT STRUCTURE ON A SUBSTRATE (divisional of CMI 3G1A)	Cascade Microtech, Inc.	U.S.	9-19-2015	14/491,606
METHOD FOR INCREASING THE ACCURACY OF THE POSITIONING OF A FIRST OBJECT RELATIVE TO A SECOND OBJECT (continuation of CMI 3G3A)	Cascade Microtech, Inc.	U.S.	11-16-2009	12/619,327
PROCEDURE FOR REPRODUCTION OF A CALIBRATION POSITION OF AN ALIGNED AND AFTERWARDS DISPLACED CALIBRATION SUBSTRATE IN A PROBE STATION	Cascade Microtech, Inc.	U.S.	3-1-2006	11/365,424
DEVICE FOR TESTING THIN ELEMENTS	Cascade Microtech, Inc.	U.S.	12-21-2005	11/314,624
METHOD AND APPARATUS FOR SUB-MICRON IMAGING AND PROBING ON PROBE STATION	Cascade Microtech, Inc.	U.S.	7-6-2000	09/610,668
METHOD AND APPARATUS FOR SUB-MICRON IMAGING AND PROBING ON PROBE STATION	Cascade Microtech, Inc.	U.S.	5-2-2005	09/610,668
SUBSTRATE-HOLDING DEVICE FOR TESTING CIRCUIT ARRANGEMENTS ON SUBSTRATES	Cascade Microtech, Inc.	U.S.	5-6-2002	10/139,735
TEST APPARATUS FOR TESTING SUBSTRATES AT LOW TEMPERATURES	Cascade Microtech, Inc.	U.S.	10-2-2003	10/677,178
TEST APPARATUS WITH LOADING DEVICE	Cascade Microtech, Inc.	U.S.	10-2-2003	10/677,524
METHOD AND PROBER FOR CONTACTING A CONTACT AREA WITH A CONTACT TIP	Cascade Microtech, Inc.	U.S.	6-29-2004	10/879,622
APPARATUS FOR TESTING SUBSTRATES	Cascade Microtech, Inc.	U.S.	8-27-2004	10/928,975
PROBE STATION COMPRISING A BELLOWS WITH EMI SHIELDING CAPABILITIES	Cascade Microtech, Inc.	U.S.	12-12-2005	11/299,487
ADAPTER FOR POSITIONING OF CONTACT TIPS	Cascade Microtech, Inc.	U.S.	9-12-2006	11/531,092
PROBE HOLDER FOR A PROBE FOR TESTING SEMICONDUCTOR COMPONENTS	Cascade Microtech, Inc.	U.S.	2-13-2007	11/674,205

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PROBE HOLDER FOR A PROBE FOR TESTING SEMICONDUCTOR COMPONENTS	Cascade Microtech, Inc.	U.S.	2-13-2007	11/674,430
METHOD FOR MEASUREMENT OF A DEVICE UNDER TEST	Cascade Microtech, Inc.	U.S.	6-19-2007	11/765,019
METHOD AND APPARATUS FOR CONTROLLING THE TEMPERATURE OF ELECTRONIC COMPONENTS	Cascade Microtech, Inc.	U.S.	8-16-2007	11/839,899
PROBE STATION FOR TESTING SEMICONDUCTOR SUBSTRATES AND COMPRISING EMI SHIELDING	Cascade Microtech, Inc.	U.S.	11-15-2007	11/940,355
PROBE SUPPORT WITH SHIELD FOR THE EXAMINATION OF TEST SUBSTRATES UNDER USE OF PROBE SUPPORTS	Cascade Microtech, Inc.	U.S.	11-15-2007	11/940,354
PROBE STATION AND METHOD FOR MEASUREMENTS OF SEMICONDUCTOR DEVICES UNDER DEFINED ATMOSPHERE	Cascade Microtech, Inc.	U.S.	11-21-2007	11/943,975
METHOD AND APPARATUS FOR TESTING ELECTRONIC COMPONENTS WITHIN HORIZONTAL AND VERTICAL BOUNDARY LINES OF A WAFER	Cascade Microtech, Inc.	U.S.	11-29-2007	11/947,206
DEVICE FOR RAPIDLY CHANGING OBJECTIVES WITH THE AID OF THREADED FASTENING	Cascade Microtech, Inc.	U.S.	11-29-2007	11/947,163
CHUCK WITH TRIAXIAL CONSTRUCTION	Cascade Microtech, Inc.	U.S.	3-14-2008	12/048,323
PROBER FOR TESTING MAGNETICALLY SENSITIVE COMPONENTS	Cascade Microtech, Inc.	U.S.	6-24-2008	12/145,090
METHOD FOR TESTING A TEST SUBSTRATE UNDER DEFINED THERMAL CONDITIONS AND THERMALLY CONDITIONABLE PROBER	Cascade Microtech, Inc.	U.S.	7-29-2013	13/953,545
METHOD AND ARRANGEMENT FOR POSITIONING A PROBE CARD (continuation of CMI 3K2)	Cascade Microtech, Inc.	U.S.	12-8-2008	12/329,968

<u>Short Title</u>	<u>Owner</u>	<u>Country</u>	<u>Filing Date</u>	<u>Application/ Patent Number</u>
CHUCK FOR SUPPORTING AND RETAINING A TEST SUBSTRATE AND A CALIBRATION SUBSTRATE	Cascade Microtech, Inc.	U.S.	6-23-2009	12/489,913
CHUCK FOR SUPPORTING AND RETAINING A TEST SUBSTRATE AND A CALIBRATION SUBSTRATE (continuation of CMI 3K4)	Cascade Microtech, Inc.	U.S.	8-12-2011	13/209,171
PROBE STATION FOR ON-WAFER-MEASUREMENT UNDER EMI-SHIELDING	Cascade Microtech, Inc.	U.S.	6-18-2010	12/818,442
METHOD FOR TESTING ELECTRONIC COMPONENTS OF A REPETITIVE PATTERN UNDER DEFINED THERMAL CONDITIONS	Cascade Microtech, Inc.	U.S.	5-26-2011	13/119,916
METHOD FOR VERIFYING A TEST SUBSTRATE IN A PROBER UNDER DEFINED THERMAL CONDITIONS	Cascade Microtech, Inc.	U.S.	6-20-2011	13/119,145
METHOD FOR VERIFYING A TEST SUBSTRATE IN A PROBER UNDER DEFINED THERMAL CONDITIONS (Continuation of CMI 3L2US)	Cascade Microtech, Inc.	U.S.	4-2-2014	14/243,640
SYSTEMS AND METHODS FOR NON-CONTACT POWER AND DATA TRANSFER IN ELECTRONIC DEVICES	Cascade Microtech, Inc.	U.S.	3-12-2013	13/822,611
RESILIENT ELECTRICAL INTERPOSERS, SYSTEMS THAT INCLUDE THE INTERPOSERS, AND METHODS FOR USING AND FORMING THE SAME	Cascade Microtech, Inc.	U.S.	11-2-2011	13/287,794
RESILIENT ELECTRICAL INTERPOSERS, SYSTEMS THAT INCLUDE THE INTERPOSERS, AND METHODS FOR USING AND FORMING THE SAME (Continuation of CMI 3L7)	Cascade Microtech, Inc.	U.S.	1-8-2015	14/592,749
RESILIENT ELECTRICAL INTERPOSERS, SYSTEMS THAT INCLUDE THE INTERPOSERS, AND METHODS FOR USING AND FORMING THE SAME (Continuation of CMI 3L7A)	Cascade Microtech, Inc.	U.S.	6-30-2015	14/788,288

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PROBE HEAD ASSEMBLIES, COMPONENTS THEREOF, TEST SYSTEMS INCLUDING THE SAME, AND METHODS OF OPERATING THE SAME (P10K)	Cascade Microtech, Inc.	U.S.	5-3-2012	13/463,712
PROBE HEAD ASSEMBLIES, COMPONENTS THEREOF, TEST SYSTEMS INCLUDING THE SAME, AND METHODS OF OPERATING THE SAME (P10K) (Continuation of CMI 3L8)	Cascade Microtech, Inc.	U.S.	12-17-2015	14/972,705
METHOD FOR MEASUREMENT OF A POWER DEVICE	Cascade Microtech, Inc.	U.S.	12-22-2011	13/380,484
METHOD AND DEVICE FOR CONTACTING A ROW OF CONTACT AREAS WITH PROBE TIPS	Cascade Microtech, Inc.	U.S.	10-10-2012	13/640,432
SYSTEMS AND METHODS FOR TESTING ELECTRONIC DEVICES THAT INCLUDE LOW POWER OUTPUT DRIVERS	Cascade Microtech, Inc.	U.S.	11-4-2013	14/071,388
SYSTEMS AND METHODS FOR HANDLING SUBSTRATES AT BELOW DEW POINT TEMPERATURES	Cascade Microtech, Inc.	U.S.	12-27-2013	14/141,781
SYSTEMS AND METHODS FOR PROVIDING WAFER ACCESS IN A WAFER PROCESSING SYSTEM	Cascade Microtech, Inc.	U.S.	12-27-2013	14/141,812
MODULAR PROBER AND METHOD FOR OPERATING SAME	Inventors – No Assignments Exist	U.S.	2-28-2013	13/820,098
SYSTEMS AND METHODS FOR ON-WAFER DYNAMIC TESTING OF ELECTRONIC DEVICES	Cascade Microtech, Inc.	U.S.	2-18-2015	14/625,385
MODULAR, SEMICONDUCTOR RELIABILITY TEST SYSTEM (Not filed by DIPL; patent purchased by CMI in September 2013)	Cascade Microtech, Inc.	U.S.	10-7-1996	08/725,935
WAFER-HANDLING END EFFECTORS	Cascade Microtech, Inc.	U.S.	2-25-2015	14/631,131
Probe card assembly and kit, and methods of making same	FormFactor, Inc.	U.S.	12-27-2001	10/034528

Short Title	Owner	Country	Filing Date	Application/ Patent Number
Contact tip structure for microelectronic interconnection elements and method of making same	FormFactor, Inc.	U.S.	9-14-2001	09/953666
Microelectronic contact structures, and methods of making same	FormFactor, Inc.	U.S.	10-23-2003	10/692174
Forming tool for forming a contoured microelectronic spring mold	FormFactor, Inc.	U.S.	8-16-2004	10/919151
Special contact points for accessing internal circuitry of an integrated circuit	FormFactor, Inc.	U.S.	9-6-2005	11/221231
Method for forming microelectronic spring structures on a substrate	FormFactor, Inc.	U.S.	7-25-2005	11/189954
Fiducial alignment masks on microelectronic spring contacts	FormFactor, Inc.	U.S.	8-22-2005	11/209221
Assembly with a detachable member	FormFactor, Inc.	U.S.	12-22-2004	11/021412
Layered microelectronic contact and method for fabricating same	FormFactor, Inc.	U.S.	2-27-2006	11/362632
Re-assembly process for MEMS structures	FormFactor, Inc.	U.S.	3-14-2006	11/374761
Method Of Making Microelectronic Spring Contact Array	FormFactor, Inc.	U.S.	5-11-2006	11/382756
Active diagnostic interface for wafer probe applications	FormFactor, Inc.	U.S.	3-28-2005	11/091069
SOCKETS FOR "SPRINGED" SEMICONDUCTOR DEVICES	FormFactor, Inc.	U.S.	6-13-2006	11/423767
Contact Structures Comprising A Core Structure And An Overcoat	FormFactor, Inc.	U.S.	8-1-2006	11/461749
Mounting Spring Elements on Semiconductor Devices, and Wafer-Level Testing Methodology	FormFactor, Inc.	U.S.	10-25-2006	11/552856
METHODS OF FABRICATING AND USING SHAPED SPRINGS	FormFactor, Inc.	U.S.	10-30-2006	11/554485
Inductive Heating of Microelectronic Components	FormFactor, Inc.	U.S.	1-30-2007	11/668975
Method of Manufacturing A Probe Card	FormFactor, Inc.	U.S.	1-30-2007	11/669010
Semiconductor Fuse Covering	FormFactor, Inc.	U.S.	2-20-2007	11/676930
A PROBE ARRAY STRUCTURE AND A METHOD OF MAKING A PROBE ARRAY STRUCTURE	FormFactor, Inc.	U.S.	1-3-2006	11/306574
Probe For Semiconductor Devices	FormFactor, Inc.	U.S.	4-6-2007	11/697643

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Method Of Wirebonding That Utilizes A Gas Flow Within A Capillary From Which A Wire Is Played Out	FormFactor, Inc.	U.S.	6-5-2007	11/758479
PROGRAMMABLE DEVICES TO ROUTE SIGNALS ON PROBE CARDS	FormFactor, Inc.	U.S.	7-17-2007	11/779145
METHOD FOR PROCESSING AN INTEGRATED CIRCUIT	FormFactor, Inc.	U.S.	5-15-2007	11/749084
TESTER CHANNEL TO MULTIPLE IC TERMINALS	FormFactor, Inc.	U.S.	7-17-2007	11/779163
RHODIUM SULFATE PRODUCTION FOR RHODIUM PLATING	FormFactor, Inc.	U.S.	9-13-2006	11/531558
ATTACHING AND INTERCONNECTING DIES TO A SUBSTRATE	FormFactor, Inc.	U.S.	9-28-2007	11/863443
Intelligent probe card architecture	FormFactor, Inc.	U.S.	12-11-2007	12/001281
CONTACT TIP STRUCTURE FOR MICROELECTRONIC INTERCONNECTION ELEMENTS AND METHODS OF MAKING SAME	FormFactor, Inc.	U.S.	1-25-2008	12/020380
Interconnect For Microelectronic Structures With Enhanced Spring Characteristics	FormFactor, Inc.	U.S.	2-5-2008	12/026466
METHOD OF MAKING A SOCKET TO PERFORM TESTING ON INTEGRATED CIRCUITS AND SOCKET MADE	FormFactor, Inc.	U.S.	2-12-2008	12/030037
ADJUSTMENT MECHANISM	FormFactor, Inc.	U.S.	5-6-2008	12/116032
STIFFENING CONNECTOR AND PROBE CARD ASSEMBLY INCORPORATING SAME	FormFactor, Inc.	U.S.	3-23-2007	11/690139
RHODIUM ELECTROPLATED STRUCTURES AND METHODS OF MAKING SAME	FormFactor, Inc.	U.S.	2-5-2008	12/026471
INTERCONNECT ASSEMBLIES AND METHODS	FormFactor, Inc.	U.S.	10-14-2008	12/251217
REDUCED SCRUB CONTACT ELEMENT	FormFactor, Inc.	U.S.	9-26-2007	11/862172
APPARATUS AND METHOD FOR LIMITING OVER TRAVEL IN A PROBE CARD ASSEMBLY	FormFactor, Inc.	U.S.	1-27-2009	12/360433

<u>Short Title</u>	<u>Owner</u>	<u>Country</u>	<u>Filing Date</u>	<u>Application/ Patent Number</u>
APPARATUSES AND METHODS FOR CLEANING TEST PROBES	FormFactor, Inc.	U.S.	12-2-2008	12/326521
PROBE ARRAY AND METHOD OF ITS MANUFACTURE	FormFactor, Inc.	U.S.	2-10-2009	12/368531
Method and Apparatus for Managing Test Result Data Generated by a Semiconductor Test System	FormFactor, Inc.	U.S.	12-19-2007	11/960396
CLOSED-GRID BUS ARCHITECTURE FOR WAFER INTERCONNECT STRUCTURE	FormFactor, Inc.	U.S.	3-24-2009	12/409690
METHOD OF ESTIMATING CHANNEL BANDWIDTH FROM A TIME DOMAIN REFLECTOMETER (TDR) MEASUREMENT	FormFactor, Inc.	U.S.	4-28-2009	12/431037
Method And Apparatus For Designing A Custom Test System	FormFactor, Inc.	U.S.	3-7-2008	12/044600
APPARATUS AND METHOD FOR MANAGING THERMALLY INDUCED MOTION OF A PROBE CARD ASSEMBLY	FormFactor, Inc.	U.S.	6-3-2009	12/477748
PROBE HEAD CONTROLLING MECHANISM FOR PROBE CARD ASSEMBLIES	FormFactor, Inc.	U.S.	8-13-2008	12/191083
VOLTAGE FAULT DETECTION AND PROTECTION	FormFactor, Inc.	U.S.	10-27-2009	12/606788
METHOD OF WIREBONDING THAT UTILIZES A GAS FLOW WITHIN A CAPILLARY FROM WHICH A WIRE IS PLAYED OUT	FormFactor, Inc.	U.S.	7-9-2009	12/500495
LITHOGRAPHIC CONTACT ELEMENTS	FormFactor, Inc.	U.S.	7-7-2009	12/498886
APPARATUS AND METHOD FOR MAKING AND USING A TOOLING DIE	FormFactor, Inc.	U.S.	10-28-2008	12/259915
WAFER LEVEL INTERPOSER	FormFactor, Inc.	U.S.	1-19-2010	12/689397
Process For Manufacturing Contact Elements For Probe Card Assemblies	FormFactor, Inc.	U.S.	5-22-2009	12/470971
PRINTED SOLAR PANEL	FormFactor, Inc.	U.S.	12-23-2008	12/343135

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CARBON NANOTUBE CONTACT STRUCTURES FOR USE WITH SEMICONDUCTOR DIES AND OTHER ELECTRONIC DEVICES	FormFactor, Inc.	U.S.	4-3-2009	12/418368
METHODS FOR PLANARIZING A SEMICONDUCTOR CONTACTOR	FormFactor, Inc.	U.S.	4-23-2010	12/766101
FLEXURE BAND AND USE THEREOF IN A PROBE CARD ASSEMBLY	FormFactor, Inc.	U.S.	4-15-2009	12/423927
Integrated circuit tester with high bandwidth probe assembly	FormFactor, Inc.	U.S.	7-12-2005	11/180247
SEGMENTED CONTACTOR	FormFactor, Inc.	U.S.	3-28-2011	13/073585
Non-Linear Vertical Leaf Spring	FormFactor, Inc.	U.S.	11-3-2011	13/288925
Method And Apparatus For Designing A Custom Test System	FormFactor, Inc.	U.S.	12-4-2012	13/693338
Probes With Programmable Motion	FormFactor, Inc.	U.S.	1-2-2013	13/732922
Wiring Substrate With Filled Vias To Accommodate Custom Terminals	FormFactor, Inc.	U.S.	4-3-2013	13/856091
VERTICAL PROBES FOR MULTI-PITCH FULL GRID CONTACT ARRAY	FormFactor, Inc.	U.S.	8-9-2013	13/963567
PROBE FABRICATION USING COMBINED LASER AND MICRO-FABRICATION TECHNOLOGIES	FormFactor, Inc.	U.S.	8-9-2013	13/963402
Probes With Spring Mechanisms For Impeding Unwanted Movement In Guide Holes	FormFactor, Inc.	U.S.	10-31-2012	13/665247
Contactors Devices With Carbon Nanotube Probes Embedded In A Flexible Film And Processes Of Making Such	FormFactor, Inc.	U.S.	11-20-2012	13/681967
Probe Card Assembly For Testing Electronic Devices	FormFactor, Inc.	U.S.	5-5-2014	14/270235
Automated Attaching And Detaching Of An Interchangeable Probe Head	FormFactor, Inc., but licensed to NIH	U.S.	5-12-2014	14/274889
Multipath Electrical Probe And Probe Assemblies With Signal Paths Through Secondary Paths Between Electrically Conductive Guide Plates	FormFactor, Inc.	U.S.	7-9-2014	14/327254
Test head assembly having paired contact structures	FormFactor, Inc., but licensed to NIH	U.S.	7-17-2007	7,245,137
Tester channel to multiple IC terminals	FormFactor, Inc.	U.S.	7-17-2007	7,245,139

<u>Short Title</u>	<u>Owner</u>	<u>Country</u>	<u>Filing Date</u>	<u>Application/ Patent Number</u>
Method to build robust mechanical structures on substrate surfaces	FormFactor, Inc.	U.S.	8-7-2007	7,251,884
Remote test facility with wireless interface to local test facilities	FormFactor, Inc.	U.S.	8-7-2007	7,253,651
Method of incorporating interconnect systems into an integrated circuit process flow	FormFactor, Inc.	U.S.	8-14-2007	7,257,796
Apparatuses and methods for planarizing a semiconductor contactor	FormFactor, Inc.	U.S.	8-28-2007	7,262,611
Bi-directional buffer for interfacing test system channel	FormFactor, Inc.	U.S.	8-28-2007	7,262,624
Closed-grid bus architecture for wafer interconnect structure	FormFactor, Inc.	U.S.	10-2-2007	7,276,922
Probe head arrays	FormFactor, Inc.	U.S.	10-16-2007	7,282,933
Apparatus and method for managing thermally induced motion of a probe card assembly	FormFactor, Inc.	U.S.	10-23-2007	7,285,968
Lithographic contact elements	FormFactor, Inc.	U.S.	10-30-2007	7,287,322
Method and device to clean probes	FormFactor, Inc.	U.S.	12-11-2007	7,306,849
Intelligent probe card architecture	FormFactor, Inc.	U.S.	12-11-2007	7,307,433
Method and system for compensating thermally induced motion of probe cards	FormFactor, Inc.	U.S.	12-25-2007	7,312,618
Method of forming an interconnection element	FormFactor, Inc.	U.S.	2-5-2008	7,325,302
Rhodium electroplated structures and methods of making same	FormFactor, Inc.	U.S.	2-5-2008	7,326,327
Method for making a socket to perform testing on integrated circuits	FormFactor, Inc.	U.S.	2-12-2008	7,330,039
High density planar electrical interface	FormFactor, Inc.	U.S.	2-26-2008	7,335,057
Method of probing a device using captured image of probe structure in which probe tips comprise alignment features	FormFactor, Inc.	U.S.	3-11-2008	7,342,402
Apparatus for reducing power supply noise in an integrated circuit	FormFactor, Inc.	U.S.	3-11-2008	7,342,405
Wafer-level burn-in and test	FormFactor, Inc.	U.S.	3-18-2008	7,345,493
Contact carriers (tiles) for populating larger substrates with spring contacts	FormFactor, Inc.	U.S.	3-25-2008	7,347,702
Probe card assembly and kit	FormFactor, Inc.	U.S.	4-1-2008	7,352,196
Isolation buffers with controlled equal time delays	FormFactor, Inc.	U.S.	4-22-2008	7,362,092
Adjustment mechanism	FormFactor, Inc.	U.S.	5-6-2008	7,368,930
Spring interconnect structures	FormFactor, Inc.	U.S.	5-13-2008	7,371,072

Short Title	Owner	Country	Filing Date	Application/ Patent Number
Reinforced contact elements	FormFactor, Inc.	U.S.	6-10-2008	7,384,277
Method of designing a probe card apparatus with desired compliance characteristics	FormFactor, Inc.	U.S.	6-10-2008	7,385,411
Apparatus for providing a high frequency loop back with a DC path for a parametric test	FormFactor, Inc.	U.S.	6-17-2008	7,388,424
Wafer level interposer	FormFactor, Inc.	U.S.	7-8-2008	7,396,236
Composite wiring structure having a wiring block and an insulating layer with electrical connections to probes	FormFactor, Inc.	U.S.	7-15-2008	7,400,157
Method and apparatus for increasing operating frequency of a system for testing electronic devices	FormFactor, Inc.	U.S.	8-19-2008	7,414,418
Electronic package with direct cooling of active electronic components	FormFactor, Inc.	U.S.	10-7-2008	7,433,188
Variable width resilient conductive contact structures	FormFactor, Inc.	U.S.	10-14-2008	7,435,108
High performance probe system	FormFactor, Inc.	U.S.	10-28-2008	7,443,181
Air bridge structures and methods of making and using air bridge structures	FormFactor, Inc.	U.S.	10-28-2008	7,444,253
Process and apparatus for adjusting traces	FormFactor, Inc.	U.S.	10-28-2008	7,444,623
Method and apparatus for remotely buffering test channels	FormFactor, Inc.	U.S.	11-18-2008	7,453,258
Electrical contactor, especially wafer level contactor, using fluid pressure	FormFactor, Inc.	U.S.	11-25-2008	7,455,540
Apparatuses and methods for cleaning test probes	FormFactor, Inc.	U.S.	12-2-2008	7,458,123
Shaped spring	FormFactor, Inc.	U.S.	12-2-2008	7,458,816
Method to build a wirebond probe card in a many at a time fashion	FormFactor, Inc.	U.S.	12-2-2008	7,459,795
Methods of probing an electronic device	FormFactor, Inc.	U.S.	12-9-2008	7,463,043
Contactless interfacing of test signals with a device under test	FormFactor, Inc.	U.S.	12-16-2008	7,466,157
Stiffener assembly for use with testing devices	FormFactor, Inc.	U.S.	12-30-2008	7,471,078
Method and apparatus for adjusting a multi-substrate probe structure	FormFactor, Inc.	U.S.	12-30-2008	7,471,094
Methods for making plated through holes usable as interconnection wire or probe attachments	FormFactor, Inc.	U.S.	1-20-2009	7,479,792

<u>Short Title</u>	<u>Owner</u>	<u>Country</u>	<u>Filing Date</u>	<u>Application/ Patent Number</u>
Apparatus and method for limiting over travel in a probe card assembly	FormFactor, Inc.	U.S.	1-27-2009	7,482,822
System for measuring signal path resistance for an integrated circuit tester interconnect structure	FormFactor, Inc.	U.S.	2-3-2009	7,486,095
Electric discharge machining of a probe array	FormFactor, Inc.	U.S.	2-10-2009	7,488,917
Method and apparatus for making a determination relating to resistance of probes	FormFactor, Inc.	U.S.	3-3-2009	7,498,824
Probe card assembly with an interchangeable probe insert	FormFactor, Inc.	U.S.	3-3-2009	7,498,825
Closed-grid bus architecture for wafer interconnect structure	FormFactor, Inc.	U.S.	3-24-2009	7,508,227
Lithographic type microelectronic spring structures with improved contours	FormFactor, Inc.	U.S.	4-28-2009	7,524,194
Method of estimating channel bandwidth from a time domain reflectometer (TDR) measurement using rise time and maximum slope	FormFactor, Inc.	U.S.	4-28-2009	7,525,302
Extended probe tips	FormFactor, Inc.	U.S.	5-5-2009	7,528,618
Socket for making with electronic component, particularly semiconductor device with spring packaging, for fixturing, testing, burning-in or operating such a component	FormFactor, Inc.	U.S.	5-19-2009	7,534,654
Testing an electronic device using test data from a plurality of testers	FormFactor, Inc.	U.S.	6-16-2009	7,548,055
Integrated circuit assembly	FormFactor, Inc.	U.S.	6-23-2009	7,550,842
Spring interconnect structures	FormFactor, Inc.	U.S.	6-30-2009	7,553,165
Method of making lithographic contact elements	FormFactor, Inc.	U.S.	7-7-2009	7,555,836
Method of expanding tester drive and measurement capability	FormFactor, Inc.	U.S.	7-7-2009	7,557,592
Test assembly including a test die for testing a semiconductor product die	FormFactor, Inc.	U.S.	7-7-2009	7,557,596
Method and system for compensating thermally induced motion of probe cards	FormFactor, Inc.	U.S.	7-14-2009	7,560,941
Alignment features in a probing device	FormFactor, Inc.	U.S.	7-14-2009	7,560,943
Photoresist formulation for high aspect ratio plating	FormFactor, Inc.	U.S.	7-21-2009	7,563,559
Method of fabricating segmented contactor	FormFactor, Inc.	U.S.	8-25-2009	7,578,057

Short Title	Owner	Country	Filing Date	Application/ Patent Number
Microelectronic spring contact elements	FormFactor, Inc.	U.S.	8-25-2009	7,579,269
Probe card cooling assembly with direct cooling of active electronic components	FormFactor, Inc.	U.S.	8-25-2009	7,579,847
Probe structures with physically suspended electronic components	FormFactor, Inc.	U.S.	8-25-2009	7,579,856
Probing structure with fine pitch probes	FormFactor, Inc.	U.S.	9-1-2009	7,583,101
Isolation buffers with controlled equal time delays	FormFactor, Inc.	U.S.	9-8-2009	7,586,300
Apparatus and method for managing thermally induced motion of a probe card assembly	FormFactor, Inc.	U.S.	9-22-2009	7,592,821
Method and system for designing a probe card	FormFactor, Inc.	U.S.	9-22-2009	7,593,872
Method and apparatus for calibrating and/or deskewing communications channels	FormFactor, Inc.	U.S.	9-29-2009	7,595,629
Microelectronic contact structure and method of making same	FormFactor, Inc.	U.S.	10-13-2009	7,601,039
Voltage fault detection and protection	FormFactor, Inc.	U.S.	10-27-2009	7,609,080
System for measuring signal path resistance for an integrated circuit tester interconnect structure	FormFactor, Inc.	U.S.	11-3-2009	7,609,082
Electromagnetically coupled interconnect system architecture	FormFactor, Inc.	U.S.	11-3-2009	7,612,630
Remote test facility with wireless interface to local facilities	FormFactor, Inc.	U.S.	11-3-2009	7,613,591
Probe card assembly and kit	FormFactor, Inc.	U.S.	11-10-2009	7,616,016
Interconnect assemblies and methods	FormFactor, Inc.	U.S.	11-17-2009	7,618,281
Method of manufacturing a resilient contact	FormFactor, Inc.	U.S.	11-24-2009	7,621,044
Probe card assembly with a mechanically decoupled wiring substrate	FormFactor, Inc.	U.S.	11-24-2009	7,622,935
Reinforced contact elements	FormFactor, Inc.	U.S.	12-8-2009	7,628,620
Method of assembling and testing an electronics module	FormFactor, Inc.	U.S.	12-22-2009	7,634,849
Method and system for compensating thermally induced motion of probe cards	FormFactor, Inc.	U.S.	1-5-2010	7,642,794
Method and apparatus for switching tester resources	FormFactor, Inc.	U.S.	1-19-2010	7,649,366
Wafer level interposer	FormFactor, Inc.	U.S.	1-19-2010	7,649,368

<u>Short Title</u>	<u>Owner</u>	<u>Country</u>	<u>Filing Date</u>	<u>Application/ Patent Number</u>
Three dimensional microstructures and methods for making three dimensional microstructures	FormFactor, Inc.	U.S.	2-9-2010	7,658,831
Mechanically reconfigurable vertical tester interface for IC probing	FormFactor, Inc.	U.S.	2-9-2010	7,659,736
Apparatus and method for adjusting an orientation of probes	FormFactor, Inc.	U.S.	3-2-2010	7,671,614
Resilient contact element and methods of fabrication	FormFactor, Inc.	U.S.	3-9-2010	7,674,112
Method and apparatus for making a determination relating to resistance of probes	FormFactor, Inc.	U.S.	3-9-2010	7,675,299
Electronic components with plurality of contoured microelectronic spring contacts	FormFactor, Inc., but licensed to NIH	U.S.	3-9-2010	7,675,301
Wireless test system	FormFactor, Inc.	U.S.	3-9-2010	7,675,311
Method for interconnecting an integrated circuit multiple die assembly	FormFactor, Inc.	U.S.	3-23-2010	7,681,309
Adjustable delay transmission line	FormFactor, Inc.	U.S.	3-23-2010	7,683,738
Apparatus and method for adjusting thermally induced movement of electro-mechanical assemblies	FormFactor, Inc.	U.S.	3-30-2010	7,688,063
Contactors having a global spring structure and methods of making and using the contactors	FormFactor, Inc.	U.S.	3-30-2010	7,688,085
Wafer-level burn-in and test	FormFactor, Inc.	U.S.	3-30-2010	7,688,090
Sawing tile corners on probe card substrates	FormFactor, Inc.	U.S.	4-6-2010	7,692,433
Test method for yielding a known good die	FormFactor, Inc.	U.S.	4-6-2010	7,694,246
High density planar electrical interface	FormFactor, Inc.	U.S.	4-20-2010	7,699,616
Electronic device testing using a probe tip having multiple contact features	FormFactor, Inc.	U.S.	4-20-2010	7,701,243
Lithographically defined microelectronic contact structures	FormFactor, Inc.	U.S.	5-11-2010	7,714,235
Contact carriers (tiles) for populating larger substrates with spring contacts	FormFactor, Inc.	U.S.	5-11-2010	7,714,598
Predictive, adaptive power supply for an integrated circuit under test	FormFactor, Inc.	U.S.	5-11-2010	7,714,603
Electrical contactor, especially wafer level contactor, using fluid pressure	FormFactor, Inc.	U.S.	5-25-2010	7,722,371

Short Title	Owner	Country	Filing Date	Application/ Patent Number
Probing apparatus with guarded signal traces	FormFactor, Inc.	U.S.	5-25-2010	7,724,004
Air bridge structures and methods of making and using air bridge structures	FormFactor, Inc.	U.S.	6-1-2010	7,729,878
Carbon nanotube contact structures	FormFactor, Inc.	U.S.	6-8-2010	7,731,503
Microelectronic contact structure	FormFactor, Inc.	U.S.	6-8-2010	7,731,546
Method to build robust mechanical structures on substrate surfaces	FormFactor, Inc.	U.S.	6-8-2010	7,732,713
Biased gap-closing actuator	FormFactor, Inc.	U.S.	6-8-2010	7,732,975
Apparatus and method of testing singulated dies	FormFactor, Inc.	U.S.	6-8-2010	7,733,106
Methods for planarizing a semiconductor contactor	FormFactor, Inc.	U.S.	6-15-2010	7,737,709
Method and apparatus for indirect planarization	FormFactor, Inc.	U.S.	6-29-2010	7,746,089
Efficient wired interface for differential signals	FormFactor, Inc.	U.S.	6-29-2010	7,746,937
High performance probe system	FormFactor, Inc.	U.S.	7-27-2010	7,764,075
Electronic package with direct cooling of active electronic components	FormFactor, Inc.	U.S.	8-3-2010	7,768,777
Mechanical decoupling of a probe card assembly to improve thermal response	FormFactor, Inc.	U.S.	8-10-2010	7,772,863
Single support structure probe group with staggered mounting pattern	FormFactor, Inc.	U.S.	8-24-2010	7,782,072
Microelectronic contact structures	FormFactor, Inc.	U.S.	9-21-2010	7,798,822
Component assembly and alignment	FormFactor, Inc.	U.S.	10-5-2010	7,808,259
Process and apparatus for finding paths through a routing space	FormFactor, Inc.	U.S.	10-12-2010	7,814,453
Test system with wireless communications	FormFactor, Inc.	U.S.	10-26-2010	7,821,255
Method and apparatus for remotely buffering test channels	FormFactor, Inc.	U.S.	11-2-2010	7,825,652
Probe card configuration for low mechanical flexural strength electrical routing substrates	FormFactor, Inc.	U.S.	11-2-2010	7,825,674
Method and apparatus for providing active compliance in a probe card assembly	FormFactor, Inc.	U.S.	11-2-2010	7,825,675
Alignment features in a probing device	FormFactor, Inc.	U.S.	11-16-2010	7,834,647
Method of repairing a contactor apparatus	FormFactor, Inc.	U.S.	11-23-2010	7,836,587
Spring interconnect structures	FormFactor, Inc.	U.S.	11-30-2010	7,841,863
Apparatus for testing devices	FormFactor, Inc.	U.S.	11-30-2010	7,843,202

Short Title	Owner	Country	Filing Date	Application/ Patent Number
Method and apparatus for adjusting a multi-substrate probe structure	FormFactor, Inc.	U.S.	12-7-2010	7,845,072
Rotating contact element and methods of fabrication	FormFactor, Inc.	U.S.	12-14-2010	7,851,794
Sharing resources in a system for testing semiconductor devices	FormFactor, Inc.	U.S.	12-14-2010	7,852,094
Probe card cooling assembly with direct cooling of active electronic components	FormFactor, Inc.	U.S.	1-4-2011	7,863,915
Composite motion probing	FormFactor, Inc.	U.S.	1-11-2011	7,868,632
Method and apparatus for increasing operating frequency of a system for testing electronic devices	FormFactor, Inc.	U.S.	2-1-2011	7,880,486
Printing of redistribution traces on electronic component	FormFactor, Inc.	U.S.	2-1-2011	7,880,489
Method to build a wirebond probe card in a many at a time fashion	FormFactor, Inc.	U.S.	2-8-2011	7,884,006
Stiffener assembly for use with testing devices	FormFactor, Inc.	U.S.	2-8-2011	7,884,627
Method and apparatus for testing devices using serially controlled resources	FormFactor, Inc.	U.S.	2-15-2011	7,888,955
Electromagnetically coupled interconnect system architecture	FormFactor, Inc.	U.S.	2-15-2011	7,889,022
Configuration of shared tester channels to avoid electrical connections across die area boundary on a wafer	FormFactor, Inc.	U.S.	2-22-2011	7,893,700
Method and apparatus for enhanced probe card architecture	FormFactor, Inc.	U.S.	2-22-2011	7,893,701
Re-assembly process for MEMS structures	FormFactor, Inc.	U.S.	3-1-2011	7,897,435
Probe card assembly with an interchangeable probe insert	FormFactor, Inc.	U.S.	3-1-2011	7,898,242
Remote test facility with wireless interface to local test facilities	FormFactor, Inc.	U.S.	4-5-2011	7,920,989
Probe card assembly for electronic device testing with DC test resource sharing	FormFactor, Inc.	U.S.	4-12-2011	7,924,035
Contactless interfacing of test signals with a device under test	FormFactor, Inc.	U.S.	4-19-2011	7,928,750
Method and system for designing a probe card	FormFactor, Inc.	U.S.	4-19-2011	7,930,219
Providing an electrically conductive wall structure adjacent a contact structure of an electronic device	FormFactor, Inc.	U.S.	5-3-2011	7,936,177

Short Title	Owner	Country	Filing Date	Application/ Patent Number
Method and apparatus for providing a tester integrated circuit for testing a semiconductor device under test	FormFactor, Inc.	U.S.	5-17-2011	7,944,225
Multilayered probe card	FormFactor, Inc.	U.S.	5-24-2011	7,948,252
AC coupled parameteric test probe	FormFactor, Inc.	U.S.	5-31-2011	7,952,375
Stacked guard structures	FormFactor, Inc.	U.S.	6-7-2011	7,956,633
Stiffener assembly for use with testing devices	FormFactor, Inc.	U.S.	6-7-2011	7,956,635
Mechanical decoupling of a probe card assembly to improve thermal response	FormFactor, Inc.	U.S.	6-14-2011	7,960,989
Closed-grid bus architecture for wafer interconnect structure	FormFactor, Inc.	U.S.	6-14-2011	7,960,990
Self-monitoring switch	FormFactor, Inc.	U.S.	6-21-2011	7,965,084
Electrical contactor, especially wafer level contactor, using fluid pressure	FormFactor, Inc.	U.S.	6-28-2011	7,967,621
Method and apparatus for probe card alignment in a test system	FormFactor, Inc.	U.S.	7-12-2011	7,977,956
Bi-directional buffer for interfacing test system channel	FormFactor, Inc.	U.S.	7-12-2011	7,977,958
Method and apparatus for testing devices using serially controlled intelligent switches	FormFactor, Inc.	U.S.	7-12-2011	7,977,959
Method of designing a probe card apparatus with desired compliance characteristics	FormFactor, Inc.	U.S.	8-2-2011	7,990,164
Calibration substrate	FormFactor, Inc.	U.S.	8-9-2011	7,994,803
Electronic device with integrated micromechanical contacts and cooling system	FormFactor, Inc.	U.S.	8-16-2011	7,999,375
Method of repairing segmented contactor	FormFactor, Inc.	U.S.	9-6-2011	8,011,089
Process and apparatus for adjusting traces	FormFactor, Inc.	U.S.	9-6-2011	8,015,536
Microelectronic contact structure	FormFactor, Inc.	U.S.	10-11-2011	8,033,838
Method of expanding tester drive and measurement capability	FormFactor, Inc.	U.S.	11-29-2011	8,067,951
Method and apparatus for testing semiconductor devices with autonomous expected value generation	FormFactor, Inc.	U.S.	1-10-2012	8,095,841
Method and apparatus for terminating a test signal applied to multiple semiconductor loads under test	FormFactor, Inc.	U.S.	1-17-2012	8,098,076
Microspring array having reduced pitch contact elements	FormFactor, Inc.	U.S.	2-14-2012	8,115,504
Stiffener assembly for use with testing devices	FormFactor, Inc.	U.S.	2-21-2012	8,120,373

<u>Short Title</u>	<u>Owner</u>	<u>Country</u>	<u>Filing Date</u>	<u>Application/ Patent Number</u>
Method and apparatus for processing failures during semiconductor device testing	FormFactor, Inc.	U.S.	2-21-2012	8,122,309
Electrical guard structures for protecting a signal trace from electrical interference	FormFactor, Inc.	U.S.	3-6-2012	8,130,005
Probe card assembly with carbon nanotube probes having a spring mechanism therein	FormFactor, Inc.	U.S.	3-6-2012	8,130,007
Switch for use in microelectromechanical systems (MEMS) and MEMS devices incorporating same	FormFactor, Inc.	U.S.	3-20-2012	8,138,859
Pre-aligner search	FormFactor, Inc.	U.S.	3-27-2012	8,145,349
Process of positioning groups of contact structures	FormFactor, Inc.	U.S.	4-3-2012	8,148,646
Carbon nanotube spring contact structures with mechanical and electrical components	FormFactor, Inc.	U.S.	4-3-2012	8,149,007
Self-referencing voltage regulator	FormFactor, Inc.	U.S.	4-10-2012	8,154,315
Probing apparatus with guarded signal traces	FormFactor, Inc.	U.S.	6-19-2012	8,203,351
Single support structure probe group with staggered mounting pattern	FormFactor, Inc.	U.S.	6-19-2012	8,203,352
Method and apparatus for multilayer support substrate	FormFactor, Inc.	U.S.	9-18-2012	8,269,514
Anchoring carbon nanotube columns	FormFactor, Inc.	U.S.	9-25-2012	8,272,124
Stacked die module	FormFactor, Inc.	U.S.	12-4-2012	8,324,725
Increasing thermal isolation of a probe card assembly	FormFactor, Inc.	U.S.	12-4-2012	8,324,915
Thin wafer chuck	FormFactor, Inc.	U.S.	12-25-2012	8,336,188
Probe card thermal conditioning system	FormFactor, Inc.	U.S.	1-8-2013	8,350,191
Carbon nanotube columns and methods of making and using carbon nanotube columns as probes	FormFactor, Inc.	U.S.	1-15-2013	8,354,855
Probe card assembly and kit, and methods of making same	FormFactor, Inc.	U.S.	2-12-2013	8,373,428
Method to build robust mechanical structures on substrate surfaces	FormFactor, Inc.	U.S.	2-26-2013	8,383,958
Method and apparatus for thermally conditioning probe cards	FormFactor, Inc.	U.S.	3-19-2013	8,400,173
Wafer level contactor	FormFactor, Inc.	U.S.	3-19-2013	8,400,176
Probe card assembly having an actuator for bending the probe substrate	FormFactor, Inc.	U.S.	4-23-2013	8,427,183

<u>Short Title</u>	<u>Owner</u>	<u>Country</u>	<u>Filing Date</u>	<u>Application/ Patent Number</u>
Probe element having a substantially zero stiffness and applications thereof	FormFactor, Inc.	U.S.	4-23-2013	8,427,186
Wiring substrate with customization layers	FormFactor, Inc.	U.S.	7-2-2013	8,476,538
Method of wirebonding that utilizes a gas flow within a capillary from which a wire is played out	FormFactor, Inc.	U.S.	7-16-2013	8,485,418
Method of forming a probe substrate by layering probe row structures and probe substrates formed thereby	FormFactor, Inc.	U.S.	8-20-2013	8,513,942
Method and apparatus for providing active compliance in a probe card assembly	FormFactor, Inc.	U.S.	8-20-2013	8,513,965
Apparatus and method of testing singulated dies	FormFactor, Inc.	U.S.	8-20-2013	8,513,969
Multi-stage spring system	FormFactor, Inc.	U.S.	9-10-2013	8,528,885
Temporary planar electrical contact device and method using vertically- compressible nanotube contact structures	FormFactor, Inc.	U.S.	1-28-2014	8,638,113
Fuel cell using carbon nanotubes	FormFactor, Inc.	U.S.	4-15-2014	8,697,301
Pre-aligner search	FormFactor, Inc.	U.S.	4-22-2014	8,706,289
Probe card stiffener with decoupling	FormFactor, Inc.	U.S.	5-27-2014	8,736,294
Carbon nanotube contact structures for use with semiconductor dies and other electronic devices	FormFactor, Inc.	U.S.	6-24-2014	8,756,802
Fine pitch guided vertical probe array having enclosed probe flexures	Microprobe	U.S.	9-9-2014	8,829,937
Elastic encapsulated carbon nanotube based electrical contacts	FormFactor, Inc.	U.S.	10-28-2014	8,872,176
Wafer test cassette system	FormFactor, Inc.	U.S.	10-28-2014	8,872,532
Method and apparatus for testing devices using serially controlled intelligent switches	FormFactor, Inc.	U.S.	10-28-2014	8,872,534
Testing techniques for through-device vias	FormFactor, Inc.	U.S.	11-25-2014	8,896,336
Sharpened, oriented contact tip structures	FormFactor, Inc.	U.S.	5-12-2015	9,030,222
Wireless probe card verification system and method	FormFactor, Inc.	U.S.	5-19-2015	9,037,432
Probe with cantilevered beam having solid and hollow sections	FormFactor, Inc.	U.S.	6-9-2015	9,052,342
Attachment of an electrical element to an electronic device using a conductive material	FormFactor, Inc.	U.S.	7-14-2015	9,081,037
Layered probes with core	Microprobe	U.S.	8-4-2015	9,097,740

Short Title	Owner	Country	Filing Date	Application/ Patent Number
Probes with offset arm and suspension structure	Microprobe	U.S.	9-1-2015	9,121,868
Hybrid electrical contactor	FormFactor, Inc.	U.S.	1-5-2016	9,229,029
Vertical probe array arranged to provide space transformation	Microprobe	U.S.	3-1-2016	9,274,143
Probe retention arrangement	FormFactor, Inc.	U.S.	4-12-2016	9,310,428
Multiple contact probes	Microprobe	U.S.	4-19-2016	9,316,670
Space transformers employing wire bonds for interconnections with fine pitch contacts	Microprobe	U.S.	8-6-2013	RE44,407
Method of manufacturing electrical contacts, using a sacrificial member	FormFactor, Inc.	U.S.	12-19-1995	5,476,211
Method and apparatus for wirebonding, for severing bond wires, and for forming balls on the ends of bond wires	FormFactor, Inc.	U.S.	2-11-1997	5,601,740
Sockets for electronic components and methods of connecting to electronic components	FormFactor, Inc.	U.S.	6-30-1998	5,772,451
Method of severing bond wires and forming balls at their ends	FormFactor, Inc.	U.S.	6-30-1998	5,773,780
Contact carriers (tiles) for populating larger substrates with spring contacts	FormFactor, Inc.	U.S.	9-15-1998	5,806,181
Solder preforms	FormFactor, Inc.	U.S.	10-13-1998	5,820,014
Method of mounting resilient contact structures to semiconductor devices	FormFactor, Inc.	U.S.	11-3-1998	5,829,128
Method of making temporary connections between electronic components	FormFactor, Inc.	U.S.	11-10-1998	5,832,601
Method of making raised contacts on electronic components	FormFactor, Inc.	U.S.	12-29-1998	5,852,871
Method of making contact tip structures	FormFactor, Inc.	U.S.	2-2-1999	5,864,946
Method of burning-in semiconductor devices	FormFactor, Inc.	U.S.	3-9-1999	5,878,486
Mounting spring elements on semiconductor devices	FormFactor, Inc.	U.S.	3-23-1999	5,884,398
Contact structure device for interconnections, interposer, semiconductor assembly and package using the same and method	FormFactor, Inc.	U.S.	5-4-1999	5,900,738
Method and apparatus for applying a layer of flowable coating material to a surface of an electronic component	FormFactor, Inc.	U.S.	6-15-1999	5,912,046
Flexible contact structure with an electrically conductive shell	FormFactor, Inc.	U.S.	6-29-1999	5,917,707

Short Title	Owner	Country	Filing Date	Application/ Patent Number
Method of stacking electronic components	FormFactor, Inc.	U.S.	7-27-1999	5,926,951
Method of planarizing tips of probe elements of a probe card assembly	FormFactor, Inc.	U.S.	11-2-1999	5,974,662
Method of temporarily, then permanently, connecting to a semiconductor device	FormFactor, Inc.	U.S.	11-16-1999	5,983,493
Fabricating interconnects and tips using sacrificial substrates	FormFactor, Inc.	U.S.	11-30-1999	5,994,152
Method of testing semiconductor	FormFactor, Inc.	U.S.	12-7-1999	5,998,228
Stacking semiconductor devices, particularly memory chips	FormFactor, Inc.	U.S.	12-7-1999	5,998,864
Chip-scale carrier for semiconductor devices including mounted spring contacts	FormFactor, Inc.	U.S.	2-8-2000	6,023,103
Composite interconnection element for microelectronic components, and method of making same	FormFactor, Inc.	U.S.	2-29-2000	6,029,344
Wafer-level test and burn-in, and semiconductor process	FormFactor, Inc.	U.S.	3-7-2000	6,032,356
Sockets for "springed" semiconductor devices	FormFactor, Inc.	U.S.	3-7-2000	6,033,935
Apparatus for controlling plating over a face of a substrate	FormFactor, Inc.	U.S.	3-28-2000	6,042,712
Electronic components with terminals and spring contact elements extending from areas which are remote from the terminals	FormFactor, Inc.	U.S.	3-28-2000	6,043,563
Method of mounting free-standing resilient electrical contact structures to electronic components	FormFactor, Inc.	U.S.	4-18-2000	6,049,976
Making discrete power connections to a space transformer of a probe card assembly	FormFactor, Inc.	U.S.	4-18-2000	6,050,829
Wafer-level burn-in and test	FormFactor, Inc.	U.S.	5-16-2000	6,064,213
Method and apparatus for controlling plating over a face of a substrate	FormFactor, Inc.	U.S.	7-18-2000	6,090,261
Method of modifying the thickness of a plating on a member by creating a temperature gradient on the member, applications for employing such a method, and structures resulting from such a method	FormFactor, Inc.	U.S.	8-29-2000	6,110,823

Short Title	Owner	Country	Filing Date	Application/ Patent Number
Method of making a product with improved material properties by moderate heat-treatment of a metal incorporating a dilute additive	FormFactor, Inc.	U.S.	11-21-2000	6,150,186
Process of mounting spring contacts to semiconductor devices	FormFactor, Inc.	U.S.	1-2-2001	6,168,974
Method of making microelectronic spring contact elements	FormFactor, Inc.	U.S.	2-6-2001	6,184,053
Resilient contact structures, electronic interconnection component, and method of mounting resilient contact structures to electronic components	FormFactor, Inc.	U.S.	2-6-2001	6,184,587
Filter structures for integrated circuit interfaces	FormFactor, Inc.	U.S.	3-27-2001	6,208,225
Electronic component with terminals and spring contact elements extending from areas which are remote from the terminals	Micro-Probe Incorporated	U.S.	4-10-2001	6,215,196
Method for manufacturing raised electrical contact pattern of controlled geometry	FormFactor, Inc.	U.S.	4-10-2001	6,215,670
High bandwidth passive integrated circuit tester probe card assembly	Micro-Probe Incorporated	U.S.	4-17-2001	6,218,910
Sockets for "springed" semiconductor devices	Micro-Probe Incorporated.	U.S.	5-15-2001	6,232,149
Semiconductor devices with integral contact structures	FormFactor, Inc.	U.S.	6-5-2001	6,242,803
Probe card assembly and kit, and methods of using same	FormFactor, Inc.	U.S.	6-12-2001	6,246,247
Lithographic contact elements	FormFactor, Inc.	U.S.	7-3-2001	6,255,126
Method of making and using lithographic contact springs	FormFactor, Inc.	U.S.	7-31-2001	6,268,015
Interconnection substrates with resilient contact structures on both sides	FormFactor, Inc.	U.S.	8-14-2001	6,274,823
Partially-overcoated elongate contact structures	FormFactor, Inc.	U.S.	10-23-2001	6,307,161
Interconnect assemblies and methods including ancillary electronic component connected in immediate proximity of semiconductor device	FormFactor, Inc.	U.S.	12-11-2001	6,330,164
Apparatus for reducing power supply noise in an integrated circuit	FormFactor, Inc.	U.S.	1-15-2002	6,339,338

<u>Short Title</u>	<u>Owner</u>	<u>Country</u>	<u>Filing Date</u>	<u>Application/ Patent Number</u>
Concurrent design and subsequent partitioning of product and test die	FormFactor, Inc.	U.S.	8-6-2002	6,429,029
Contact structures with blades having a wiping motion	FormFactor, Inc.	U.S.	8-27-2002	6,441,315
Method for shaping spring elements	FormFactor, Inc.	U.S.	9-3-2002	6,442,831
Integrated circuit interconnect system	FormFactor, Inc.	U.S.	9-10-2002	6,448,865
Efficient parallel testing of integrated circuit devices using a known good device to generate expected responses	FormFactor, Inc.	U.S.	9-17-2002	6,452,411
Special contact points for accessing internal circuitry of an integrated circuit	FormFactor, Inc.	U.S.	9-24-2002	6,456,099
Apparatus for reducing power supply noise in an integrated circuit	FormFactor, Inc.	U.S.	9-24-2002	6,456,103
Integrated circuit interconnect system forming a multi-pole filter	FormFactor, Inc.	U.S.	10-1-2002	6,459,343
Electrical contactor especially wafer level contactor using fluid pressure	FormFactor, Inc.	U.S.	10-22-2002	6,468,098
Method of making microelectronic contact structures	FormFactor, Inc.	U.S.	11-5-2002	6,475,822
Raised contact structures (solder columns)	FormFactor, Inc.	U.S.	11-5-2002	6,476,333
Method for testing signal paths between an integrated circuit wafer and a wafer tester	FormFactor, Inc.	U.S.	11-5-2002	6,476,630
Semiconductor fuse covering	FormFactor, Inc.	U.S.	11-12-2002	6,479,308
Parallel testing of integrated circuit devices using cross-DUT and within- DUT comparisons	FormFactor, Inc.	U.S.	11-12-2002	6,480,978
Microelectronic spring contact element and electronic component having a plurality of spring contact elements	FormFactor, Inc.	U.S.	11-19-2002	6,482,013
Probe card for probing wafers with raised contact elements	FormFactor, Inc.	U.S.	11-19-2002	6,483,328
Methods for making spring interconnect structures	FormFactor, Inc.	U.S.	12-10-2002	6,491,968
Distributed interface for parallel testing of multiple devices using a single tester channel	FormFactor, Inc.	U.S.	12-24-2002	6,499,121
Integrated circuit tester with high bandwidth probe assembly	FormFactor, Inc.	U.S.	12-31-2002	6,501,343
Planarizer for a semiconductor contactor	FormFactor, Inc.	U.S.	1-21-2003	6,509,751

Short Title	Owner	Country	Filing Date	Application/ Patent Number
Microelectronic contact structures, and methods of making same	FormFactor, Inc.	U.S.	2-18-2003	6,520,778
Wafer-level burn-in and test	FormFactor, Inc.	U.S.	2-25-2003	6,525,555
Sockets for "springed" semiconductor devices	FormFactor, Inc.	U.S.	3-18-2003	6,534,856
Method for manufacturing raised electrical contact pattern of controlled geometry	FormFactor, Inc.	U.S.	3-25-2003	6,538,214
High frequency printed circuit board via	FormFactor, Inc.	U.S.	3-25-2003	6,538,538
Method of designing, fabricating, testing and interconnecting an IC to external circuit nodes	FormFactor, Inc.	U.S.	3-25-2003	6,539,531
Test assembly including a test die for testing a semiconductor product die	FormFactor, Inc.	U.S.	4-22-2003	6,551,844
Efficient parallel testing of semiconductor devices using a known good device to generate expected responses	FormFactor, Inc.	U.S.	5-6-2003	6,559,671
Special contact points for accessing internal circuitry of an integrated circuit	FormFactor, Inc.	U.S.	7-22-2003	6,597,187
Closed-grid bus architecture for wafer interconnect structure	FormFactor, Inc.	U.S.	8-5-2003	6,603,323
Special contact points for accessing internal circuitry of an integrated circuit	FormFactor, Inc.	U.S.	8-5-2003	6,603,324
Filter structures for integrated circuit interfaces	FormFactor, Inc.	U.S.	8-12-2003	6,606,014
Cross-correlation timing calibration for wafer-level IC tester interconnect systems	FormFactor, Inc.	U.S.	8-12-2003	6,606,575
Probe card assembly and kit	FormFactor, Inc.	U.S.	9-9-2003	6,615,485
Method of making lithographic contact springs	FormFactor, Inc.	U.S.	9-9-2003	6,616,966
Special contact points for accessing internal circuitry of an integrated circuit	FormFactor, Inc.	U.S.	9-16-2003	6,621,260
System for calibrating timing of an integrated circuit wafer tester	FormFactor, Inc.	U.S.	9-16-2003	6,622,103
Probe card assembly	FormFactor, Inc.	U.S.	9-23-2003	6,624,648
Method for mounting an electronic component	FormFactor, Inc.	U.S.	9-30-2003	6,627,483
Stacked semiconductor device assembly with microelectronic spring contacts	FormFactor, Inc.	U.S.	9-30-2003	6,627,980
Segmented contactor	FormFactor, Inc.	U.S.	11-4-2003	6,640,415
Method of fabricating shaped springs	FormFactor, Inc.	U.S.	11-4-2003	6,640,432

Short Title	Owner	Country	Filing Date	Application/ Patent Number
Sockets for "springed" semiconductor devices	FormFactor, Inc.	U.S.	11-4-2003	6,642,625
Method and apparatus for the transport and tracking of an electronic component	FormFactor, Inc.	U.S.	11-11-2003	6,644,982
Integrated circuit interconnect system	FormFactor, Inc.	U.S.	11-11-2003	6,646,520
Method and apparatus for burning-in semiconductor devices in wafer form	FormFactor, Inc.	U.S.	12-2-2003	6,655,023
Predictive, adaptive power supply for an integrated circuit under test	FormFactor, Inc.	U.S.	12-2-2003	6,657,455
High frequency printed circuit board via	FormFactor, Inc.	U.S.	12-9-2003	6,661,316
Electronic component overlapping dice of unsingulated semiconductor wafer	FormFactor, Inc.	U.S.	12-16-2003	6,664,628
Interposer, socket and assembly for socketing an electronic component and method of making and using same	FormFactor, Inc.	U.S.	12-30-2003	6,669,489
Spring interconnect structures	FormFactor, Inc.	U.S.	1-6-2004	6,672,875
System for measuring signal path resistance for an integrated circuit tester interconnect structure	FormFactor, Inc.	U.S.	1-13-2004	6,677,744
Distributed interface for parallel testing of multiple devices using a single tester channel	FormFactor, Inc.	U.S.	1-13-2004	6,678,850
Process and apparatus for finding paths through a routing space	FormFactor, Inc.	U.S.	1-13-2004	6,678,876
Integrated circuit interconnect system	FormFactor, Inc.	U.S.	1-20-2004	6,680,659
Method and apparatus for controlling plating over a face of a substrate	FormFactor, Inc.	U.S.	2-3-2004	6,685,817
Integrated circuit tester with high bandwidth probe assembly	FormFactor, Inc.	U.S.	2-3-2004	6,686,754
Large contactor with multiple, aligned contactor units	FormFactor, Inc.	U.S.	2-10-2004	6,690,185
Method and apparatus for shaping spring elements	FormFactor, Inc.	U.S.	3-9-2004	6,701,612
Electrical interconnect assemblies and methods	FormFactor, Inc.	U.S.	3-16-2004	6,705,876
Interconnect assemblies and methods	FormFactor, Inc.	U.S.	3-30-2004	6,713,374
Method and system for designing a probe card	FormFactor, Inc.	U.S.	3-30-2004	6,714,828
PC board having clustered blind vias	FormFactor, Inc.	U.S.	4-13-2004	6,720,501

<u>Short Title</u>	<u>Owner</u>	<u>Country</u>	<u>Filing Date</u>	<u>Application/ Patent Number</u>
ELECTRICAL CONTACT STRUCTURES FORMED BY CONFIGURING A FLEXIBLE WIRE TO HAVE A SPRINGABLE SHAPE AND OVERCOATING THE WIRE WITH AT LEAST ONE LAYER OF A RESILIENT CONDUCTIVE MATERIAL, METHODS OF MOUNTING THE CONTACT STRUCTURES TO ELECTRONIC COMPONENTS, AND APPLICATIONS FOR EMPLOYING THE CONTACT STRUCTURES	FormFactor, Inc.	U.S.	4-27-2004	6,727,579
Microelectronic spring contact elements	FormFactor, Inc.	U.S.	4-27-2004	6,727,580
Method of manufacturing a probe card	FormFactor, Inc.	U.S.	5-4-2004	6,729,019
Contact carriers (tiles) for populating larger substrates with spring contacts	FormFactor, Inc.	U.S.	5-25-2004	6,741,085
Method and system for detecting an arc condition	FormFactor, Inc.	U.S.	5-25-2004	6,741,092
Fan out of interconnect elements attached to semiconductor wafer	FormFactor, Inc.	U.S.	7-6-2004	6,759,311
Method of assembling and testing an electronics module	FormFactor, Inc.	U.S.	7-20-2004	6,764,869
Microelectronic spring contact repair	FormFactor, Inc.	U.S.	8-17-2004	6,777,319
Resilient contact structures for interconnecting electronic devices	FormFactor, Inc.	U.S.	8-17-2004	6,778,406
Forming tool for forming a contoured microelectronic spring mold	FormFactor, Inc.	U.S.	8-24-2004	6,780,001
Test signal distribution system for IC tester	FormFactor, Inc.	U.S.	8-31-2004	6,784,674
Closed-grid bus architecture for wafer interconnect structure	FormFactor, Inc.	U.S.	8-31-2004	6,784,677
Wafer-level burn-in and test	FormFactor, Inc.	U.S.	9-7-2004	6,788,094
Lithographic contact elements	FormFactor, Inc.	U.S.	9-14-2004	6,791,176
Tester channel to multiple IC terminals	FormFactor, Inc.	U.S.	9-28-2004	6,798,225
Microelectronic contact structures, and methods of making same	FormFactor, Inc.	U.S.	10-26-2004	6,807,734
Microelectronic spring with additional protruding member	FormFactor, Inc.	U.S.	11-2-2004	6,811,406
Compensation for test signal degradation due to DUT fault	FormFactor, Inc.	U.S.	11-2-2004	6,812,691

<u>Short Title</u>	<u>Owner</u>	<u>Country</u>	<u>Filing Date</u>	<u>Application/ Patent Number</u>
Adjustable delay transmission line	FormFactor, Inc.	U.S.	11-9-2004	6,816,031
Apparatuses and methods for cleaning test probes	FormFactor, Inc.	U.S.	11-16-2004	6,817,052
Method for manufacturing raised electrical contact pattern of controlled geometry	FormFactor, Inc.	U.S.	11-16-2004	6,818,840
Integrated circuit interconnect system	FormFactor, Inc.	U.S.	11-23-2004	6,822,529
Test assembly including a test die for testing a semiconductor product die	FormFactor, Inc.	U.S.	11-30-2004	6,825,052
Interconnection element with contact blade	FormFactor, Inc.	U.S.	11-30-2004	6,825,422
Interconnect for microelectronic structures with enhanced spring characteristics	FormFactor, Inc.	U.S.	12-7-2004	6,827,584
ELECTRICAL CONTACT STRUCTURES FORMED BY CONFIGURING A FLEXIBLE WIRE TO HAVE A SPRINGABLE SHAPE AND OVERCOATING THE WIRE WITH AT LEAST ONE LAYER OF A RESILIENT CONDUCTIVE MATERIAL, METHODS OF MOUNTING THE CONTACT STRUCTURES TO ELECTRONIC COMPONENTS, AND APPLICATIONS FOR EMPLOYING THE CONTACT STRUCTURES	FormFactor, Inc.	U.S.	12-28-2004	6,835,898
Method and apparatus for shaping spring elements	FormFactor, Inc.	U.S.	1-4-2005	6,836,962
Probe card assembly	FormFactor, Inc.	U.S.	1-4-2005	6,838,893
Method for manufacturing a multi-layer printed circuit board	FormFactor, Inc.	U.S.	1-11-2005	6,839,964
Method of designing, fabricating, testing and interconnecting an IC to external circuit nodes	FormFactor, Inc.	U.S.	1-18-2005	6,845,491
Probe card with coplanar daughter card	FormFactor, Inc.	U.S.	2-15-2005	6,856,150
Process and apparatus for adjusting traces	FormFactor, Inc.	U.S.	3-1-2005	6,862,727
Method of manufacturing a probe card	FormFactor, Inc.	U.S.	3-8-2005	6,864,105
Insulative covering of probe tips	FormFactor, Inc.	U.S.	3-22-2005	6,870,381
Electromagnetically coupled interconnect system	FormFactor, Inc.	U.S.	4-19-2005	6,882,239
Multiple die interconnect system	FormFactor, Inc.	U.S.	4-19-2005	6,882,546

Short Title	Owner	Country	Filing Date	Application/ Patent Number
Method for processing an integrated circuit including placing dice into a carrier and testing	FormFactor, Inc.	U.S.	5-3-2005	6,887,723
Electric components with plurality of contoured microelectric spring contacts	FormFactor, Inc., but licensed to NIH	U.S.	5-3-2005	6,888,362
Probe card cooling assembly with direct cooling of active electronic components	FormFactor, Inc.	U.S.	5-10-2005	6,891,385
Method for fabricating an IC interconnect system including an in-street integrated circuit wafer via	FormFactor, Inc.	U.S.	6-28-2005	6,910,268
Apparatus and method for electromechanical testing and validation of probe cards	FormFactor, Inc.	U.S.	6-28-2005	6,911,814
High performance probe system	FormFactor, Inc.	U.S.	6-28-2005	6,911,835
Methods of removably mounting electronic components to a circuit board, and sockets formed by the methods	FormFactor, Inc.	U.S.	7-5-2005	6,913,468
Integrated circuit tester with high bandwidth probe assembly	FormFactor, Inc.	U.S.	7-12-2005	6,917,210
Method for making a socket to perform testing on integrated circuits	FormFactor, Inc.	U.S.	7-26-2005	6,920,689
Fiducial alignment marks on microelectronic spring contacts	FormFactor, Inc.	U.S.	8-23-2005	6,933,738
Probe card assembly for contacting a device with raised contact elements	FormFactor, Inc.	U.S.	8-30-2005	6,937,037
Method for forming microelectronic spring structures on a substrate	FormFactor, Inc.	U.S.	9-6-2005	6,939,474
Special contact points for accessing internal circuitry of an integrated circuit	FormFactor, Inc.	U.S.	9-6-2005	6,940,093
Microelectronic contact structure	FormFactor, Inc.	U.S.	9-20-2005	6,945,827
Helical microelectronic contact and method for fabricating same	FormFactor, Inc.	U.S.	9-27-2005	6,948,940
Interconnect assemblies and methods	FormFactor, Inc.	U.S.	9-27-2005	6,948,941
Predictive, adaptive power supply for an integrated circuit under test	FormFactor, Inc.	U.S.	9-27-2005	6,949,942
Tip structures	FormFactor, Inc.	U.S.	10-18-2005	6,956,174
Probe card covering system and method	FormFactor, Inc.	U.S.	11-1-2005	6,960,923
High performance probe system	FormFactor, Inc.	U.S.	11-15-2005	6,965,244
Compensation for test signal degradation due to DUT fault	FormFactor, Inc.	U.S.	11-15-2005	6,965,248

<u>Short Title</u>	<u>Owner</u>	<u>Country</u>	<u>Filing Date</u>	<u>Application/ Patent Number</u>
Method and system for compensating thermally induced motion of probe cards	FormFactor, Inc.	U.S.	12-6-2005	6,972,578
Method and system for compensating thermally induced motion of probe cards	FormFactor, Inc.	U.S.	2-21-2006	7,002,363
Photoresist formulation for high aspect ratio plating	FormFactor, Inc.	U.S.	2-28-2006	7,005,233
Layered microelectronic contact and method for fabricating same	FormFactor, Inc.	U.S.	2-28-2006	7,005,751
Re-assembly process for MEMS structures	FormFactor, Inc.	U.S.	3-14-2006	7,010,854
Test signal distribution system for IC tester	FormFactor, Inc.	U.S.	3-14-2006	7,012,442
Methods for making plated through holes usable as interconnection wire or probe attachments	FormFactor, Inc.	U.S.	4-11-2006	7,024,763
Method of making microelectronic spring contact array	FormFactor, Inc.	U.S.	5-23-2006	7,047,638
Interconnect for microelectronic structures with enhanced spring characteristics	FormFactor, Inc.	U.S.	5-23-2006	7,048,548
Method for testing signal paths between an integrated circuit wafer and a wafer tester	FormFactor, Inc.	U.S.	5-23-2006	7,053,637
Adjustable delay transmission lines	FormFactor, Inc.	U.S.	6-6-2006	7,057,474
Sockets for "springed" semiconductor devices	FormFactor, Inc.	U.S.	6-13-2006	7,059,047
Probe card assembly	FormFactor, Inc.	U.S.	6-13-2006	7,061,257
Composite microelectronic spring structure and method for making same	FormFactor, Inc.	U.S.	6-20-2006	7,063,541
Probe card assembly and kit	FormFactor, Inc.	U.S.	6-20-2006	7,064,566
Electronic package with direct cooling of active electronic components	FormFactor, Inc.	U.S.	6-20-2006	7,064,953
Segmented contactor	FormFactor, Inc.	U.S.	6-27-2006	7,065,870
Method and system for compensating for thermally induced motion of probe cards	FormFactor, Inc.	U.S.	7-4-2006	7,071,714
Probe card configuration for low mechanical flexural strength electrical routing substrates	FormFactor, Inc.	U.S.	7-4-2006	7,071,715
Method for mounting a plurality of spring contact elements	FormFactor, Inc.	U.S.	7-11-2006	7,073,254
Wafer-level burn-in and test	FormFactor, Inc.	U.S.	7-18-2006	7,078,926
Contact structures and methods for making same	FormFactor, Inc.	U.S.	8-1-2006	7,082,682

Short Title	Owner	Country	Filing Date	Application/ Patent Number
Apparatus and method for limiting over travel in a probe card assembly	FormFactor, Inc.	U.S.	8-1-2006	7,084,650
Probe for semiconductor devices	FormFactor, Inc.	U.S.	8-1-2006	7,084,656
Method of making a contact structure with a distinctly formed tip structure	FormFactor, Inc.	U.S.	8-8-2006	7,086,149
Automated system for designing and testing a probe card	FormFactor, Inc.	U.S.	8-15-2006	7,092,902
High density planar electrical interface	FormFactor, Inc.	U.S.	9-19-2006	7,108,546
System for measuring signal path resistance for an integrated circuit tester interconnect structure	FormFactor, Inc.	U.S.	9-19-2006	7,109,736
Probe card with coplanar daughter card	FormFactor, Inc.	U.S.	10-3-2006	7,116,119
Method and system for compensating thermally induced motion of probe cards	FormFactor, Inc.	U.S.	10-10-2006	7,119,564
Using electric discharge machining to manufacture probes	FormFactor, Inc.	U.S.	10-17-2006	7,122,760
Methods of fabricating and using shaped springs	FormFactor, Inc.	U.S.	10-31-2006	7,127,811
Probe card covering system and method	FormFactor, Inc.	U.S.	10-31-2006	7,128,587
Helical microelectronic contact and method for fabricating same	FormFactor, Inc.	U.S.	11-7-2006	7,131,848
Contact carriers (tiles) for populating larger substrates with spring contacts	FormFactor, Inc.	U.S.	11-28-2006	7,140,883
Mounting spring elements on semiconductor devices, and wafer-level testing methodology	FormFactor, Inc.	U.S.	11-28-2006	7,142,000
Isolation buffers with controlled equal time delays	FormFactor, Inc.	U.S.	12-26-2006	7,154,259
Method for mounting and heating a plurality of microelectronic components	FormFactor, Inc.	U.S.	1-30-2007	7,168,160
Method of manufacturing a probe card	FormFactor, Inc.	U.S.	1-30-2007	7,168,162
Interconnect assemblies and methods	FormFactor, Inc.	U.S.	1-30-2007	7,169,646
Semiconductor fuse covering	FormFactor, Inc.	U.S.	2-20-2007	7,179,662
Lithographic type microelectronic spring structures with improved contours	FormFactor, Inc.	U.S.	3-13-2007	7,189,077
Electrical contactor, especially wafer level contactor, using fluid pressure	FormFactor, Inc.	U.S.	3-27-2007	7,195,503
Method of manufacturing a probe card	FormFactor, Inc.	U.S.	3-27-2007	7,196,531

Short Title	Owner	Country	Filing Date	Application/ Patent Number
Probe for semiconductor devices	FormFactor, Inc.	U.S.	4-10-2007	7,200,930
Socket for mating with electronic component, particularly semiconductor device with spring packaging, for fixturing, testing, burning-in or operating such a component	FormFactor, Inc.	U.S.	4-10-2007	7,202,677
Composite motion probing	FormFactor, Inc.	U.S.	4-10-2007	7,202,682
Systems and methods for wireless semiconductor device testing	FormFactor, Inc.	U.S.	4-10-2007	7,202,687
Method of making an electronics module	FormFactor, Inc.	U.S.	4-17-2007	7,204,008
Apparatuses and methods for cleaning test probes	FormFactor, Inc.	U.S.	5-1-2007	7,211,155
Segmented contactor	FormFactor, Inc.	U.S.	5-8-2007	7,215,131
Method for processing an integrated circuit	FormFactor, Inc.	U.S.	5-15-2007	7,217,580
Wireless test system	FormFactor, Inc.	U.S.	5-15-2007	7,218,094
Method and apparatus for probing an electronic device in which movement of probes and/or the electronic device includes a lateral component	FormFactor, Inc.	U.S.	5-15-2007	7,218,127
Resilient contact structures formed and then attached to a substrate	FormFactor, Inc.	U.S.	6-5-2007	7,225,538
High performance probe system	FormFactor, Inc.	U.S.	6-5-2007	7,227,371
Mechanically reconfigurable vertical tester interface for IC probing	FormFactor, Inc.	U.S.	6-12-2007	7,230,437
Photoresist formulation for high aspect ratio plating	FormFactor, Inc.	U.S.	7-3-2007	7,238,464
Method and apparatus for verifying planarity in a probing system	FormFactor, Inc.	U.S.	7-3-2007	7,239,159
Adjustable delay transmission line	FormFactor, Inc.	U.S.	7-3-2007	7,239,220
Method and apparatus for calibrating communications channels	FormFactor, Inc.	U.S.	7-3-2007	7,239,971
Predictive, adaptive power supply for an integrated circuit under test	FormFactor, Inc.	U.S.	7-17-2007	7,245,120
Probe card assembly including a programmable device to selectively route signals from channels of a test system controller to probes	FormFactor, Inc.	U.S.	7-17-2007	7,245,134
High density probe card	Micro-Probe Incorporated	U.S.	7-12-1988	4,757,256
High density probe card	Micro-Probe Incorporated	U.S.	6-6-1989	4,837,622

<u>Short Title</u>	<u>Owner</u>	<u>Country</u>	<u>Filing Date</u>	<u>Application/ Patent Number</u>
Non-corrosive compositions and methods useful for the extraction of nucleic acids	Micro-Probe Incorporated, but licensed to NIH	U.S.	7-14-1992	5,130,423
Peptide linkers for improved oligonucleotide delivery	Micro-Probe Incorporated	U.S.	11-12-1996	5,574,142
Double acting spring probe	Micro-Probe Incorporated	U.S.	5-16-2006	7,046,021
Cantilever probe with dual plane fixture and probe apparatus therewith	Micro-Probe Incorporated	U.S.	8-15-2006	7,091,729
Freely deflecting knee probe with controlled scrub motion	Micro-Probe Incorporated	U.S.	12-12-2006	7,148,709
Space transformers employing wire bonds for interconnections with fine pitch contacts	Micro-Probe Incorporated	U.S.	12-25-2007	7,312,617
Probe cards employing probes having retaining portions for potting in a retention arrangement	Micro-Probe Incorporated	U.S.	3-18-2008	7,345,492
Probe cards employing probes having retaining portions for potting in a retention arrangement	Micro-Probe Incorporated	U.S.	8-26-2008	7,417,447
Probe skates for electrical testing of convex pad topologies	Micro-Probe Incorporated	U.S.	10-14-2008	7,436,192
Vertical probe array arranged to provide space transformation	Micro-Probe Incorporated	U.S.	4-7-2009	7,514,948
Low profile probe having improved mechanical scrub and reduced contact inductance	Micro-Probe Incorporated	U.S.	1-19-2010	7,649,367
Vertical guided probe array providing sideways scrub motion	Micro-Probe Incorporated	U.S.	3-2-2010	7,671,610
Knee probe having increased scrub motion	Micro-Probe Incorporated	U.S.	6-8-2010	7,733,101
Probes with self-cleaning blunt skates for contacting conductive pads	Micro-Probe Incorporated	U.S.	7-20-2010	7,759,949
Low profile probe having improved mechanical scrub and reduced contact inductance	Micro-Probe Incorporated	U.S.	3-17-2011	7,944,224
Vertical probe array arranged to provide space transformation	Micro-Probe Incorporated	U.S.	5-31-2011	7,952,377
Knee probe having reduced thickness section for control of scrub motion	Micro-Probe Incorporated	U.S.	2-7-2012	8,111,080
Probes with offset arm and suspension structure	Micro-Probe Incorporated	U.S.	6-19-2012	8,203,353
Probe bonding method having improved control of bonding material	Micro-Probe Incorporated	U.S.	7-31-2012	8,230,593
Vertical probe array arranged to provide space transformation	Micro-Probe Incorporated	U.S.	12-4-2012	8,324,923

Short Title	Owner	Country	Filing Date	Application/ Patent Number
Low profile probe having improved mechanical scrub and reduced contact inductance	Micro-Probe Incorporated	U.S.	4-9-2013	8,415,963
Vertical guided layered probe	Micro-Probe Incorporated	U.S.	5-13-2014	8,723,546
Probe retention arrangement	Micro-Probe Incorporated	U.S.	12-9-2014	8,907,689
Multiple contact probes	Micro-Probe Incorporated	U.S.	3-24-2015	8,988,091
Probe bonding method having improved control of bonding material	Micro-Probe Incorporated	U.S.	2-2-2016	9,250,266
Probe skates for electrical testing of convex pad topologies	Micro-Probe Incorporated	U.S.	7-10-2012	RE43,503
Probes with high current carrying capability and laser machining methods	Micro-Probe Incorporated	U.S.	3-19-2012	13/424031