

## PATENT ASSIGNMENT COVER SHEET

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 Stylesheet Version v1.2

EPAS ID: PAT3851122

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	PARTIAL RELEASE OF SECURITY INTEREST IN PATENTS
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
MORGAN STANLEY SENIOR FUNDING, INC.	04/28/2016
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	MICROSEMI STORAGE SOLUTIONS (U.S.), INC. (FORMERLY KNOW AS PMC-SIERRA US, INC.)
<b>Street Address:</b>	ONE ENTERPRISE
<b>City:</b>	ALISO VIEJO
<b>State/Country:</b>	CALIFORNIA
<b>Postal Code:</b>	92656
<b>Name:</b>	MICROSEMI STORAGE SOLUTIONS, INC. (FORMERLY KNOW AS PMC-SIERRA, INC.)
<b>Street Address:</b>	ONE ENTERPRISE
<b>City:</b>	ALISO VIEJO
<b>State/Country:</b>	CALIFORNIA
<b>Postal Code:</b>	92656
<b>PROPERTY NUMBERS Total: 77</b>	
<b>Property Type</b>	<b>Number</b>
Patent Number:	8989250
Patent Number:	8948325
Patent Number:	8687723
Patent Number:	8396149
Patent Number:	8023588
Patent Number:	7936835
Patent Number:	7904033
Patent Number:	7844650
Patent Number:	7515650
Patent Number:	7471739
Patent Number:	7453954
Patent Number:	7409011
Patent Number:	7340223
Patent Number:	7295815

PATENT

Property Type	Number
Patent Number:	7260365
Patent Number:	7200367
Patent Number:	7177603
Patent Number:	7061991
Patent Number:	7061990
Patent Number:	7058369
Patent Number:	6973138
Patent Number:	6940916
Patent Number:	8446979
Patent Number:	6313703
Patent Number:	6697436
Patent Number:	6798843
Patent Number:	6570444
Patent Number:	6587514
Patent Number:	6356146
Patent Number:	6342810
Patent Number:	6054896
Patent Number:	6054894
Patent Number:	5990738
Patent Number:	7979041
Patent Number:	7679448
Patent Number:	9231600
Patent Number:	9229433
Patent Number:	9225508
Patent Number:	9225507
Patent Number:	9215062
Patent Number:	9124287
Patent Number:	9112517
Patent Number:	9094033
Patent Number:	9071194
Patent Number:	9020011
Patent Number:	8952835
Patent Number:	8866519
Patent Number:	8816886
Patent Number:	8779952
Patent Number:	8773296
Patent Number:	8692597
Patent Number:	8428203

Property Type	Number
Patent Number:	8396441
Patent Number:	8134410
Patent Number:	8019028
Patent Number:	7982651
Patent Number:	7916671
Patent Number:	7760122
Patent Number:	7656227
Patent Number:	7161523
Patent Number:	9271163
Application Number:	14696113
Application Number:	14838022
Application Number:	14335842
Application Number:	14881700
Application Number:	15000666
Application Number:	13795742
Application Number:	14662845
Application Number:	14464275
Application Number:	14570640
Patent Number:	8989316
Application Number:	14578311
Application Number:	14736763
Application Number:	14676142
Application Number:	62232688
Application Number:	14835244
Application Number:	14814201

#### **CORRESPONDENCE DATA**

**Fax Number:** (650)838-5109

*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:** 650-838-3743

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**Correspondent Name:** BENJAMIN PETERSEN

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**Address Line 2:** SHEARMAN & STERLING LLP

**Address Line 4:** MENLO PARK, CALIFORNIA 94025

<b>ATTORNEY DOCKET NUMBER:</b>	35613/102
<b>NAME OF SUBMITTER:</b>	BENJAMIN PETERSEN
<b>SIGNATURE:</b>	/BENJAMIN PETERSEN/

<b>DATE SIGNED:</b>	04/28/2016
<b>Total Attachments: 13</b> source=0 - Project Bayberry Patent Release#page1.tif source=0 - Project Bayberry Patent Release#page2.tif source=0 - Project Bayberry Patent Release#page3.tif source=0 - Project Bayberry Patent Release#page4.tif source=0 - Project Bayberry Patent Release#page5.tif source=0 - Project Bayberry Patent Release#page6.tif source=0 - Project Bayberry Patent Release#page7.tif source=0 - Project Bayberry Patent Release#page8.tif source=0 - Project Bayberry Patent Release#page9.tif source=0 - Project Bayberry Patent Release#page10.tif source=0 - Project Bayberry Patent Release#page11.tif source=0 - Project Bayberry Patent Release#page12.tif source=0 - Project Bayberry Patent Release#page13.tif	

## PARTIAL RELEASE OF SECURITY INTEREST IN PATENTS

This PARTIAL RELEASE OF SECURITY INTEREST IN PATENTS (this “Release”), dated as of April 28, 2016 (the “Effective Date”), is made by MORGAN STANLEY SENIOR FUNDING, INC., in its capacity as Collateral Agent (in such capacity, the “Collateral Agent”), in favor of Microsemi Storage Solutions, Inc., a Delaware corporation (formerly known as PMC-Sierra, Inc., a Delaware corporation) (“MSSI”) and Microsemi Storage Solutions (U.S.), Inc., a Delaware corporation (formerly known as PMC-Sierra US, Inc., a Delaware corporation) (“MSSUS”, and together with MSSI, collectively, the “Grantors” and each, individually, a “Grantor”).

WHEREAS, the Grantors entered into that certain Assumption Agreement, dated as of January 15, 2016, by and among the Collateral Agent, the Grantors and certain other parties thereto (the “Assumption Agreement”) pursuant to which the Grantors became parties to that certain Guarantee and Collateral Agreement, dated as of January 15, 2016, by and among the Collateral Agent and the grantors parties thereto (as amended, amended and restated, or otherwise modified from time to time, the “Guarantee and Collateral Agreement”),

WHEREAS, pursuant to the Guarantee and Collateral Agreement and the Assumption Agreement, the Grantors granted to the Collateral Agent a security interest in certain collateral;

WHEREAS, pursuant to the Guarantee and Collateral Agreement and the Assumption Agreement, the Grantors and certain other parties thereto executed and delivered a Patent Security Agreement, dated as of January 15, 2016 (the “Patent Security Agreement”), for recordal with the United States Patent and Trademark Office;

WHEREAS, the Patent Security Agreement was recorded with the United States Patent and Trademark Office on February 3, 2016 at Reel/Frame 037689/0719;

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Collateral Agent hereby agrees as follows:

1. Defined Terms. All capitalized terms used, but not otherwise defined herein, shall have the respective meanings ascribed in or otherwise referenced in the Guarantee and Collateral Agreement, the Assumption Agreement or the Patent Security Agreement, as applicable.
2. Release. The Collateral Agent, without representation or warranty of any kind, hereby releases, discharges, terminates and cancels all of its security interest in the patent registrations and patent applications set forth on Schedule A attached hereto and all Proceeds of the foregoing, arising under the Guarantee and Collateral Agreement, the Assumption Agreement and the Patent Security Agreement (the “Released Patent Collateral”). If and to the extent that the Collateral Agent has acquired any right, title or interest in and to the Released Patent Collateral under the Patent Security Agreement, the Collateral Agent, without representation or warranty of any kind, hereby re-transfers, re-conveys and re-assigns such right, title or interest to the Grantors.
3. Termination. The Collateral Agent, without representation or warranty of any kind, terminates and cancels the Patent Security Agreement solely with respect to the Released Patent Collateral. The Patent Security Agreement shall remain in full force and effect as to all other Patent Collateral except as expressly set forth herein and the Collateral Agent hereby confirms its lien on and security interest in all right, title and interest in and to such Patent Collateral pledged to it under the Patent Security Agreement.

4. Further Assurances. The Collateral Agent agrees to take all further actions, and provide to the Grantors and their successors, assigns or other legal representatives, all such cooperation and assistance (including, without limitation, the execution and delivery of any and all documents or other instruments), reasonably requested by the Grantors, at the Grantors' sole cost and expense, to more fully and effectively effectuate the purposes of this Release.

5. Governing Law. This Release shall be governed exclusively under the laws of New York.

[Remainder of Page Intentionally Left Blank.]

IN WITNESS WHEREOF, the Collateral Agent has caused this Release to be executed by its duly authorized representative as of the Effective Date:

**MORGAN STANLEY SENIOR FUNDING,  
INC., acting in its capacity as Collateral Agent  
for the Secured Parties**

By: 

Name: *STEPHEN B. KING*

Title: *VP*

*Patent Release*

**PATENT  
REEL: 038557 FRAME: 0242**

Agreed and Acknowledged by:

**MICROSEMI STORAGE SOLUTIONS, INC.**  
**(f/k/a PMC-SIERRA, INC.)**

By: 

Name: John W. Hohener

Title: Chief Financial Officer

**MICROSEMI STORAGE SOLUTIONS (U.S.), INC.**  
**(f/k/a PMC-SIERRA US, INC.)**

By: 

Name: John W. Hohener

Title: Chief Financial Officer

*Patent Release*

**PATENT**  
**REEL: 038557 FRAME: 0243**



# SCHEDULE A

<b>Title</b>	<b>Owner of Record</b>	<b>Jurisdiction</b>	<b>App. / Reg. #</b>	<b>Filing Date</b>	<b>Reg. Date</b>
Method and apparatus for equalizing distortion in a digital pre-distortion observation path	Microsemi Storage Solutions (U.S.), Inc.	United States	8989250	3/15/13	3/24/15
Method and apparatus for digital post-distortion compensation of signal non-linearities	Microsemi Storage Solutions (U.S.), Inc.	United States	8948325	3/15/13	2/3/15
Adaptive signal decompression	PMC-Sierra, Inc. <sup>1</sup>	United States	8687723	1/11/13	4/1/14
Adaptive signal decompression	PMC-Sierra, Inc.	United States	8396149	4/4/11	3/12/13
Adaptive predistortion of non-linear amplifiers with burst data	PMC-Sierra, Inc.	United States	8023588	4/8/08	9/20/11
Adaptive signal decompression	PMC-Sierra, Inc.	United States	7936835	7/13/07	5/3/11
Constant gain digital predistortion controller for linearization of non-linear amplifiers	PMC-Sierra, Inc.	United States	7904033	2/26/07	3/8/11
Pulse output direct digital synthesis circuit	PMC Sierra, Inc.	United States	7844650	5/28/07	11/30/10
Quadrature modulation compensation	PMC-Sierra, Inc.	United States	7515650	4/5/05	4/7/09
Advanced adaptive pre-distortion in a radio frequency transmitter	PMC-Sierra, Inc.	United States	7471739	9/20/05	12/30/08

<sup>1</sup> Now known as Microsemi Storage Solutions, Inc.

<b>Title</b>	<b>Owner of Record</b>	<b>Jurisdiction</b>	<b>App. / Reg. #</b>	<b>Filing Date</b>	<b>Reg. Date</b>
Systems and methods for the reduction of peak to average signal levels of multi-bearer single-carrier and multi-carrier waveforms	PMC-Sierra, Inc.	United States	7453954	4/26/06	11/18/08
Systems and methods for the dynamic range compression of multi-bearer single-carrier and multi-carrier waveforms	PMC-Sierra, Inc.	United States	7409011	4/26/06	8/5/08
Constant gain digital predistortion controller for linearization of non-linear amplifiers	PMC-Sierra, Inc.	United States	7340223	3/29/06	3/4/08
Constant gain digital predistortion controller for linearization of non-linear amplifiers	PMC-Sierra, Inc.	United States	7295815	3/29/06	11/13/07
Constant gain digital predistortion controller for linearization of non-linear amplifiers	PMC-Sierra, Inc.	United States	7260365	3/29/06	8/21/07
Constant gain digital predistortion controller for linearization of non-linear amplifiers	PMC-Sierra, Inc.	United States	7200367	3/29/06	4/3/07
Constant gain digital predistortion controller for linearization of non-linear amplifiers	PMC-Sierra, Inc.	United States	7177603	3/29/06	2/13/07
Systems and methods for the reduction of peak to average signal levels of multi-bearer single-carrier and multi-carrier waveforms	PMC-Sierra, Inc.	United States	7061991	7/20/01	6/13/06

<b>Title</b>	<b>Owner of Record</b>	<b>Jurisdiction</b>	<b>App. / Reg. #</b>	<b>Filing Date</b>	<b>Reg. Date</b>
Systems and methods for the dynamic range compression of multi-bearer single-carrier and multi-carrier waveforms	PMC-Sierra, Inc.	United States	7061990	7/20/01	6/13/06
Constant gain digital predistortion controller for linearization of non-linear amplifiers	PMC-Sierra, Inc.	United States	7058369	11/21/02	6/6/06
Advanced adaptive pre-distortion in a radio frequency transmitter	PMC-Sierra, Inc.	United States	6973138	1/18/01	12/6/05
Wideband analog quadrature modulator/demodulator with pre-compensation/post-compensation correction	PMC-Sierra, Inc.	United States	6940916	1/26/01	9/6/05
Predistortion with integral crest-factor reduction and reduced observation bandwidth	PMC-Sierra, Inc.	United States	8446979	3/2/10	5/21/013
Use of antiphase signals for predistortion training within an amplifier system	PMC-Sierra, Inc.	United States	6313703	3/2/00	11/16/01
Transmission antenna array system with predistortion	PMC-Sierra, Inc.	United States	6697436	6/19/00	2/24/04
Wideband digital predistortion linearizer for nonlinear amplifiers	PMC-Sierra, Inc.	United States	6798843	6/16/00	9/28/04
Low noise wideband digital predistortion amplifier	PMC-Sierra, Inc.	United States	6570444	1/26/01	5/27/03

<b>Title</b>	<b>Owner of Record</b>	<b>Jurisdiction</b>	<b>App. / Reg. #</b>	<b>Filing Date</b>	<b>Reg. Date</b>
Digital predistortion methods for wideband amplifiers	PMC-Sierra, Inc.	United States	6587514	6/16/00	7/1/03
Amplifier measurement and modeling processes for use in generating predistortion parameters	PMC-Sierra, Inc.	United States	6356146	6/19/00	3/12/02
Predistortion amplifier system with separately controllable amplifiers	PMC-Sierra, Inc.	United States	6342810	6/19/00	1/29/02
Controller and associated methods for a line linear power amplifier	PMC-Sierra, Inc.	United States	6054896	12/17/98	4/25/00
Digital control of a line linear power amplifier	Inventors: Andrew S. Wright Steven J. Bennett	United States	6054894	6/19/98	4/25/00
Compensation system and methods for a linear power amplifier	PMC-Sierra, Inc.	United States	5990738	12/17/98	11/23/99
Digital RF Out-of-Channel Receive Signal Strength Indicator	PMC-Sierra, Inc.	United States	7979041	12/7/07	7/12/11
Continuous wave based bias method and apparatus for minimizing MOS transistor distortion	Microsemi Storage Solutions, Inc.	United States	7679448	8/30/07	3/16/10
Low-noise flexible frequency clock generation from two fixed-frequency references	Microsemi Storage Solutions (U.S.), Inc.	United States	9231600	7/3/05	1/5/16

<b>Title</b>	<b>Owner of Record</b>	<b>Jurisdiction</b>	<b>App. / Reg. #</b>	<b>Filing Date</b>	<b>Reg. Date</b>
System and method for synchronizing local oscillators	Microsemi Storage Solutions (U.S.), Inc.	United States	9229433	11/24/14	1/5/16
Low-noise flexible frequency clock generation from two fixed-frequency references	Microsemi Storage Solutions (U.S.), Inc.	United States	9225508	7/3/15	12/29/15
System and method for synchronizing local oscillators	Microsemi Storage Solutions (U.S.), Inc.	United States	9225507	6/4/13	12/29/15
Low-noise flexible frequency clock generation from two fixed-frequency references	Microsemi Storage Solutions (U.S.), Inc.	United States	9215062	7/3/15	12/15/15
Scrambler with built in test capabilities for unary DAC	Microsemi Storage Solutions (U.S.), Inc.	United States	9124287	12/22/14	9/1/15
Low-noise flexible frequency clock generation from two fixed-frequency references	Microsemi Storage Solutions (U.S.), Inc.	United States	9112517	6/4/14	8/18/15
Quantization noise-shaping device	Microsemi Storage Solutions (U.S.), Inc.	United States	9094033	1/23/15	7/28/15
Electro-mechanical oscillator and method for generating a signal	Microsemi Storage Solutions (U.S.), Inc.	United States	9071194	6/4/13	6/30/15
Enabling RX signal path synchronization and alignment signals in a highly integrated TX RFIC	Microsemi Storage Solutions (U.S.), Inc.	United States	9020011	5/24/13	4/28/15

<b>Title</b>	<b>Owner of Record</b>	<b>Jurisdiction</b>	<b>App. / Reg. #</b>	<b>Filing Date</b>	<b>Reg. Date</b>
Background calibration of aperture center errors in analog to digital converters	Microsemi Storage Solutions (U.S.), Inc.	United States	8952835	7/21/14	2/10/15
System and method for reducing spectral pollution in a signal	Microsemi Storage Solutions (U.S.), Inc.	United States	8866519	2/28/13	10/21/14
Method and apparatus to control the effective gain of a statistically calibrated analog to digital converter	Microsemi Storage Solutions (U.S.), Inc.	United States	8816886	3/15/13	8/26/14
Background calibration of threshold errors in analog to digital converters	Microsemi Storage Solutions (U.S.), Inc.	United States	8779952	2/14/13	7/15/14
Interleaved digital to analog conversion	Microsemi Storage Solutions (U.S.), Inc.	United States	8773296	9/21/12	7/8/14
Phase-locked loop based clock generator and method for operating same	Microsemi Storage Solutions (U.S.), Inc.	United States	8692597	3/13/13	4/8/14
Integrated tunable RF notch filter	PMC-Sierra, Inc.	United States	8428203	1/6/09	4/23/13
Wideband mixer	PMC-Sierra, Inc.	United States	8396441	7/9/08	3/12/13
Transceiver gain calibration	PMC-Sierra, Inc.	United States	8134410	6/22/09	3/13/12
Run-length based spectral analysis	PMC-Sierra, Inc.	United States	8019028	3/26/08	9/13/11
Power optimized ADC for wireless transceivers	PMC-Sierra, Inc.	United States	7982651	3/29/10	7/19/11

<b>Title</b>	<b>Owner of Record</b>	<b>Jurisdiction</b>	<b>App. / Reg. #</b>	<b>Filing Date</b>	<b>Reg. Date</b>
Out-of-channel received signal strength indication (RSSI) for RF front end	PMC-Sierra, Inc.	United States	7979041	12/7/07	7/12/11
Echo cancellation for duplex radios	PMC-Sierra, Inc.	United States	7916671	7/16/09	3/29/11
Power optimized ADC for wireless transceivers	PMC-Sierra, Inc.	United States	7760122	5/2/08	7/20/10
Techniques to control amplifier gain over process, voltage, and/or temperature (PVT) variations	PMC-Sierra, Inc.	United States	7656227	2/26/08	2/2/10
Systems and methods for a self-organizing analog-to-digital converter	PMC-Sierra, Inc.	United States	7161523	9/2/05	1/9/07
Sampling Threshold Detector for Direct Monitoring of RF Signals	Microsemi Storage Solutions (U.S.), Inc.	United States	9271163	6/4/13	2/23/16
Method and Apparatus for Controlling MisMatch in a Voltage Controlled Oscillator Array	Microsemi Storage Solutions (U.S.), Inc.	United States	14696113	4/24/15	n/a
Voltage-Controlled Oscillator and Method for Tuning Oscillations	Microsemi Storage Solutions (U.S.), Inc.	United States	14838022	8/27/15	n/a
Electro-Mechanical Voltage-Controlled Oscillator and a Method for Generating Tunable Balanced Oscillations	Microsemi Storage Solutions (U.S.), Inc.	United States	14335842	7/18/14	n/a

<b>Title</b>	<b>Owner of Record</b>	<b>Jurisdiction</b>	<b>App. / Reg. #</b>	<b>Filing Date</b>	<b>Reg. Date</b>
Apparatus and Method for Command Processing for a Fast Block Input/Output Device	Microsemi Storage Solutions (U.S.), Inc.	United States	14881700	10/13/15	n/a
Sampling Threshold Detector for Direct Monitoring of RF Signals	Microsemi Storage Solutions (U.S.), Inc.	United States	15000666	1/19/16	n/a
Method and apparatus for Changing the Gain of a Radio Frequency Signal	Microsemi Storage Solutions (U.S.), Inc.	United States	13795742	3/12/13	n/a
Automatic compression detection and Gain Control for Analog Front-End with Nonlinear Distortion	Microsemi Storage Solutions (U.S.), Inc.	United States	14662845	3/19/15	n/a
Smart Power allocation for wideband and multiband Wireless transceiver systems	Microsemi Storage Solutions (U.S.), Inc.	United States	14464275	8/20/14	n/a
Method and Apparatus for Converting Analog Radio Frequency (RF) Signals to the Digital Domain in a Multiband and Multicarrier Wireless Communication System	Microsemi Storage Solutions (U.S.), Inc.	United States	14570640	12/15/14	n/a
Method for Estimating and Correcting a Carrier Frequency Offset Over Dispersive but Spectrally Flat Channels	PMC-Sierra US, Inc. <sup>2</sup>	United States	8989316	1/21/13	3/24/15

<sup>2</sup> Now known as Microsemi Storage Solutions (U.S.), Inc.



<b>Title</b>	<b>Owner of Record</b>	<b>Jurisdiction</b>	<b>App. / Reg. #</b>	<b>Filing Date</b>	<b>Reg. Date</b>
Electro-Mechanical Oscillator and Method for Generating a Signal	Microsemi Storage Solutions (U.S.), Inc.	United States	14578311	6/11/15	n/a
Method and Apparatus for Baseband Processing an Analog Signal in a Direct Conversion Radio Receiver	Microsemi Storage Solutions (U.S.), Inc.	United States	14736763	12/19/14	n/a
Digital to Analog Converter System and Method	Microsemi Storage Solutions (U.S.), Inc.	United States	14/676,142	4/1/15	n/a
LC VCO Calibration Method	PMC-Sierra US, Inc.	United States	62/232,688	9/25/15	n/a
Variable Gain Electro-Mechanical Oscillator and Method for Starting Balanced Oscillations	Microsemi Storage Solutions (U.S.), Inc.	United States	14/835,244	8/25/15	n/a
Electro-Mechanical Oscillator and Method for Generating a Signal	Microsemi Storage Solutions (U.S.), Inc.	United States	14/814,201	7/30/15	n/a