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PXIe-5601

Manufacturer: National Instruments

Board Assembly Part Numbers (Refer to Procedure 1 for identification procedure):

Part Number and Revision	Description
199080A-01L or later	**PXIe-5601**

Volatile Memory

Target Data	Type	Size	Battery Backup	User[1] Accessible	System Accessible	Sanitization Procedure
List Mode Instruction Storage	FPGA Block RAM	576 Kbit	No	No	Yes	Cycle Power
FPGA Distributed RAM	FPGA LUTRAM	96 Kbit	No	No	No	Cycle Power

Non-Volatile Memory (*incl. Media Storage*)

Target Data	Type	Size	Battery Backup	User Accessible	System Accessible	Sanitization Procedure
Calibration information	Flash	4 Mbits				
• Calibration data[2]			No	Yes	Yes	Procedure 2
• Calibration metadata			No	Yes	Yes	Procedure 3
Device configuration	Flash	4 Mbits				
• Device configuration and info			No	No	Yes	None
• FPGA bitstream			No	No	Yes	None

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[1] Refer to *Terms and Definitions* section for clarification of *User* and *System Accessible*

[2] Calibration constants that are stored on the device include information for the device's full operating range. Any implications resulting from partial self-calibration can be eliminated by running the full self-calibration procedure.

Sanitization Procedures

Procedure 1 – Board Assembly Part Number Identification:
To determine the Board Assembly Part Number and Revision, refer to the label applied to the surface of your product. The Assembly Part Number should be formatted as "PART NO: 199080#-01L" or alternately "P/N: 199080#-01L" where "#" is the letter module revision.

Procedure 2 – Device Calibration Flash (Calibration Data):
The PXIe-5601 has a user-accessible calibration API (Application Programming Interface) for LabVIEW. This API allows the user to perform the following calibrations manually, which re-write the stored calibration constants:

1. Reference Level Calibration
2. IF Response Calibration
3. IF Attenuation Calibration
4. Temperature Calibration

Documentation for the use of this API is listed in the *NI RF Vector Signal Analyzers Help* file.

Procedure 3 – Device Calibration Flash (Calibration Metadata):
The user-accessible areas of the Device Configuration Flash are exposed through a calibration Applications Programming Interface (API). To clear the calibration metadata area, complete the following steps in an empty VI and run in LabVIEW.
1. Open a calibration session using the niRFSA Initialize External Calibration VI.
2. To clear the user-defined information:
    a. Wire the output of the niRFSA Get Cal User Defined Info VI to a String Length function.
    b. Wire the output of the String Length function to a For Loop's counter variable N.
    c. Within the For Loop, use a Concatenate Strings function and Shift Register to build a character string of N "0" characters.
    d. Wire the final output of the Shift Register to the input of the niRFSA Set Cal User Defined Info VI.
3. To clear the calibration password:
    a. Specify the current password in the "old password" input of the niRFSA Change External Calibration Password VI.
    b. Wire a string of 32 "0" characters to the "new password" input of niRFSA Change External Calibration Password VI.
4. Close the calibration session using the niRFSA Close External Calibration VI.

April 2017
377110A-01 Rev 001

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Terms and Definitions

Cycle Power:
The process of completely removing power from the device and its components and allowing for adequate discharge. This process includes a complete shutdown of the PC and/or chassis containing the device; a reboot is not sufficient for the completion of this process.

Volatile Memory:
Requires power to maintain the stored information. When power is removed from this memory, its contents are lost. This type of memory typically contains application specific data such as capture waveforms.

Non-Volatile Memory:
Power is not required to maintain the stored information. Device retains its contents when power is removed. This type of memory typically contains information necessary to boot, configure, or calibrate the product or may include device power up states.

User Accessible:
The component is read and/or write addressable such that a user can store arbitrary information to the component from the host using a publicly distributed NI tool, such as a Driver API, the System Configuration API, or MAX.

System Accessible:
The component is read and/or write addressable from the host without the need to physically alter the product.

Clearing:
Per *NIST Special Publication 800-88 Revision 1*, "clearing" is a logical technique to sanitize data in all User Accessible storage locations for protection against simple non-invasive data recovery techniques using the same interface available to the user; typically applied through the standard read and write commands to the storage device.

Sanitization:
Per *NIST Special Publication 800-88 Revision 1*, "sanitization" is a process to render access to "Target Data" on the media infeasible for a given level of effort. In this document, clearing is the degree of sanitization described.