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NATIONAL INSTRUMENTS PXIe-5840 Vector Signal Transceiver User Guide

NATIONAL INSTRUMENTS PXIe-5840 Vector Signal Transceiver

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Manufacturer

National Instruments

Board Assembly Part Numbers

Part Number and Revision	Description
158395E-01L or later	**PXIe-5840**

Volatile Memory

Target Data	Type	Size	Battery Back up	User1 Accessible	System Accessible	Sanitization Procedure
Waveform storage – Bank 1	DRAM	2 GB	No	Yes	Yes	Cycle Power
Waveform storage – Bank 2	DRAM	2 GB	No	Yes	Yes	Cycle Power
FPGA Image Memory	SDRAM	32 MB	No	Yes	Yes	Cycle Power
FPGA Configuration PLD	RAM	10 KB	No	No	No	Cycle Power
FPGA General User Memory	Block RAM	6,615 KB	No	Yes	Yes	Cycle Power
FPGA Distributed User Memory	LUTRAM	1,361 KB	No	Yes	Yes	Cycle Power
Instruction Storage	SRAM	2 MB	No	Yes	Yes	Cycle Power
RF Input Control PLD	Block RAM	48 KB	No	No	No	Cycle Power
RF Output Control PLD	Block RAM	48 KB	No	No	No	Cycle Power

Non-Volatile Memory (incl. Media Storage)

Target Data	Type	Size	Battery Backup	User Accessible	System Accessible	Sanitization Procedure
Device configuration • Device configuration and info • FPGA bitstream • Calibration metadata • Calibration data2	Flash	128 MB	No	No No Yes No	Yes Yes Yes Yes	None None Procedure 2 None
Spread Spectrum Clock	On-chip EEPROM	48 Bytes	No	No No	Yes	None
FPGA Configuration PLD • User Flash Memory • Configuration Image	Flash Flash	8 KB 42 KB	No	No No	Yes Yes	None None
Baseband Control PLD • User Flash Memory • Configuration Image	Flash Flash	1 KB 1270 LEs	No	No No	Yes Yes	None None
RF Input Control PLD • User Flash Memory • Configuration Image	Flash Flash	114 KB 198 KB	No	No No	Yes Yes	None None

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.

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

Target Data	Type	Size	Battery Back up	User Accessible	System Accessible	Sanitization Procedure
RF Output Control PLD • User Flash Memory • Configuration Image	Flash Flash	114 KB 198 KB	No No	No No	Yes Yes	None None

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 "P/N: 158395#-01L" where "#" is the letter module revision.

Procedure 2 – Device Configuration Flash (Calibration Metadata):

The user-accessible portion of the Device Calibration Flash is limited to a programmable calibration password which is exposed through an NI-RFSG attribute that can be programmed in LabVIEW. To clear this metadata, complete the following steps in an empty VI and run in LabVIEW:

1. Open an RFSG session using the niRFSG Initialize VI.
2. To clear/reset the calibration password:
    a. Add the niRFSG Change External Calibration Password VI after the niRFSG Initialize VI.
    b. Specify the current password in the "password" input of the niRFSG Change External Calibration Password VI.
    c. Wire a string of 32 "0" characters to the "new password" input of the niRFSG Change External Calibration Password VI.
3. Close the RFSG session using the niRFSG Close VI.

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.

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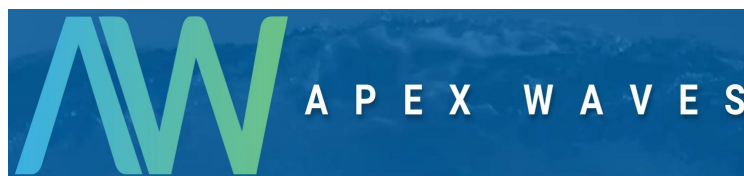## Customers Support

Contact: 866-275-6964
support@ni.com

1-800-915-6216

www.apexwaves.com

sales@apexwaves.com

Documents / Resources

	NATIONAL INSTRUMENTS PXIe-5840 Vector Signal Transceiver [pdf] User Guide 158395E-01L or later, PXIe-5840, PXIe-5840 Vector Signal Transceiver, Vector Signal Transceiver, Signal Transceiver, Transceiver

References

- **Product Documentation - NI**
- **PXIe-5840 National Instruments PXI Vector Signal Transceiver | Apex Waves**

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