**Manufacturer:** National Instruments

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

| Part Number and Revision | Description |
|---|---|
| 158396A-xxL or later | PXIe-5820 |

## Volatile Memory

| Target Data | Type | Size | Battery Backup | User[1] 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 |
| IQ Input Control PLD | Block RAM | 48 KB | No | No | No | Cycle Power |
| IQ 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 | Flash | 128 MB | No | | | |
| • Device configuration and info | | | | No | Yes | None |
| • FPGA bitstream | | | | No | Yes | None |
| • Calibration metadata | | | | Yes | Yes | Procedure 2 |
| • Calibration data[2] | | | | No | Yes | None |
| Spread Spectrum Clock | On-chip EEPROM | 48 Bytes | No | No | Yes | None |
| FPGA Configuration PLD | | | | | | |
| • User Flash Memory | Flash | 8 KB | No | No | Yes | None |
| • Configuration Image | Flash | 42 KB | No | No | Yes | None |
| Baseband Control PLD | | | | | | |
| • User Flash Memory | Flash | 1 KB | No | No | Yes | None |
| • Configuration Image | Flash | 1270 LEs | No | No | Yes | None |
| IQ Input Control PLD | | | | | | |
| • User Flash Memory | Flash | 114 KB | No | No | Yes | None |
| • Configuration Image | Flash | 198 KB | 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.

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

| Target Data | Type | Size | Battery Backup | User Accessible | System Accessible | Sanitization Procedure |
|---|---|---|---|---|---|---|
| IQ Output Control PLD | | | | | | |
| • User Flash Memory | Flash | 114 KB | No | No | Yes | None |
| • Configuration Image | Flash | 198 KB | No | No | Yes | None |

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## 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: 158396#-xxL" where "#" is the letter module revision and "xx" is the variant information.

**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.