



Manufacturer: National Instruments

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

Part Number and Revision	Description
153374F-01L or later	cDAQ-9138 RT
153374F-02L or later	cDAQ-9139 RT

Volatile Memory

<i>Target Data</i>	<i>Type</i>	<i>Size</i>	<i>Battery Backup</i>	<i>User¹ Accessible</i>	<i>System Accessible</i>	<i>Sanitization Procedure</i>
System memory	DDR3-SDRAM	2 GB	No	Yes	Yes	Cycle Power
Real-time clock data	SoC RTC RAM	256 B	Yes	Yes	Yes	Procedure 2

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

<i>Target Data</i>	<i>Type</i>	<i>Size</i>	<i>Battery Backup</i>	<i>User Accessible</i>	<i>System Accessible</i>	<i>Sanitization Procedure</i>
Primary storage	Flash	32 GB				
<ul style="list-style-type: none"> • Firmware • Operating system • User Data 			No	No	Yes	None
			No	No	Yes	Procedure 3
			No	Yes	Yes	Procedure 3
BIOS firmware	Flash	8 MB	No	No	Yes	Procedure 4
DDR3 memory	SPD EEPROM	2 MB	No	No	No	None
Ethernet firmware	Flash	1 MB	No	No	No	None
Controller firmware	Flash	1 MB	No	No	Yes	None

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



Procedures

Procedure 1 –Board Assembly Part Number Identification:

To determine the Board Assembly Part Number and Revision, check the top left corner of the white label on the bottom of the module. The Assembly Part Number should be formatted as “P/N: 153374f-01L” for the cDAQ-9138 or “P/N: 153374f-02L” for the cDAQ-9139 where “f” is the letter revision of the assembly (e.g. C, D, E...).

Procedure 2 - CMOS Reset:

To optimize boot time system specific information and BIOS settings are saved to memory backed up by a CMOS battery. Complete the following steps to restore this information to factory default values:

1. Disconnect power from the device.
2. Press and hold the CMOS reset button for 1 second or longer. On 8-slot chassis, this button is located between slots 4 and 5. On 4-slot chassis, this button is located between slots 2 and 3.
3. Reconnect power to the device. The *BIOS Reset Detected* warning message will appear onscreen to indicate a successful reset.

If the CMOS battery is dead, the CMOS reset button will not work. Complete the following alternative steps to reset the CMOS and restore the BIOS settings to factory default values:

1. Disconnect power from the device.
2. Configure the front-panel DIP switches as follows:
DISABLE RT: ON
SAFE MODE: ON
CONSOLE OUT: OFF
IP RESET: OFF
NO APP: ON
USER1: ON
3. Reconnect power to the device. The *BIOS Reset Detected* warning message will appear onscreen to indicate a successful reset.
4. Reset the DIP switches to their normal position.

Procedure 3 - Format Disk in NI MAX (NI Linux RT):

For a NI Linux RT target, the run-mode operating system and user data can be cleared by formatting the disk in NI Measurement & Automation Explorer (MAX). Complete the following steps to initiate the format process:

1. Open NI Measurement & Automation Explorer (MAX) and expand the *Remote Systems* configuration tree.
2. Right-click on the device and select *Format Disk*
3. Log in to the device if prompted. The default user name is *admin* with a blank password.
4. Select *Attempt to restart in safe mode and reset all of the network adapter to their default settings* when prompted.
5. Select *Format* to restart the device in safe mode and begin the formatting process.

Procedure 4 - Restore BIOS to factory default:

The controller's BIOS firmware can be restored to factory default settings with the BIOS Setup Utility. Complete the following steps to access this utility:

1. Connect a video monitor to the mini DisplayPort connector on the cDAQ controller.
2. Connect a USB keyboard to one of the USB host ports on the cDAQ controller.
3. Power on or reboot the cDAQ controller.



4. Hold down either the <F10> key or the key until the message *Please select boot device:* appears onscreen.
5. Use the Down Arrow key to select *Enter Setup* and press <Enter>. The setup utility loads after a short delay.
6. Navigate to the *Save & Exit* Menu and select *Restore Factory Defaults*.



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.