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PXIe-8285

PXIe-8285
Getting
Started Guide

Contents

PXIe-8285 Getting Started

This document provides reference information and instructions for installing and configuring your PXIe-8285 module.

Unpacking

The PXIe-8285 ships in an antistatic package to prevent electrostatic discharge from damaging device components. To prevent such damage when handling the device, ground yourself using a grounding strap or by holding a grounded object, such as your computer chassis, and complete the following steps:

1. Touch the antistatic package to a metal part of the chassis before removing the device from the package.

   ⚠️ **Caution** Never touch the exposed pins of connectors.

2. Remove the device from the package and inspect the device for loose components or any other sign of damage.
3. Notify NI if the device appears damaged in any way. Do **not** install a damaged device into your chassis.

What You Need to Get Started

To set up and use your module, you need the items shown in the following figure.

Figure 1. PXIe-8285 Installation Supply List
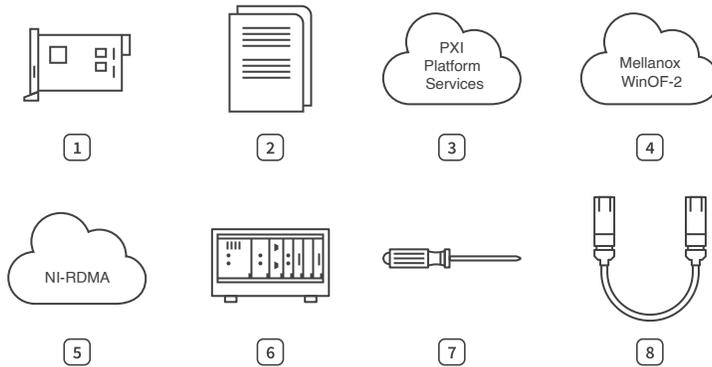
1. PXIe-8285 Module (Included in Kit)
2. Documentation (Included in Kit and Online)
3. PXI Platform Services Driver
4. Mellanox WinOF-2 Driver
5. NI-RDMA Driver
6. PXI Express Chassis and Controller
7. Screwdriver
8. Mellanox-Compatible Active Optical or Passive Direct Attach Copper SFP28 Cable(s)

> **Note** The PXIe-8285 requires a chassis with slot cooling capacity ≥58 W. Not all chassis with slot cooling capacity ≥58 W can achieve the rated ambient temperature range. Refer to PXI chassis specifications to determine the ambient temperature ranges your chassis can achieve.

Software Installation and Configuration

The PXIe-8285 requires driver software to enable its features. NI recommends that you install the latest driver software for your module on your system controller.

Table 1. PXIe-8285 Windows Driver Support

Driver	Earliest Version Support
PXI Platform Services	21.5

Driver	Earliest Version Support
Mellanox WinOF-2	2.70.51000
NI-RDMA	21.5

Table 2. PXIe-8285 Linux Real-Time Driver Support

Driver	Earliest Version Support
PXI Platform Services	21.5
NI-RDMA	21.5

Note Visit www.mellanox.com to download the Mellanox WinOF-2 driver package.

You must be an Administrator to install NI software on your system controller.

1. (Optional) Install an ADE, such as LabVIEW or LabWindows™/CVI™.

2. Download the driver software installer from ni.com/downloads.
   NI Package Manager downloads with the driver software to handle the installation. Refer to the NI Package Manager Manual for more information about installing, removing, and upgrading NI software using NI Package Manager.

3. Follow the instructions in the installation prompts.

   Note Windows users may see access and security messages during installation. Accept the prompts to complete the installation.

4. When the installer completes, select **Restart** in the dialog box that prompts you to restart, shut down, or restart later.

5. Download the Mellanox WinOF-2 driver package from www.mellanox.com and follow the instructions in the installation prompts.

Installing the PXIe-8285

> ⓘ **Notice** To prevent damage to the PXIe-8285 caused by ESD or contamination, handle the module using the edges or the metal bracket.

1. Ensure the AC power source is connected to the chassis before installing the module.
   The AC power cord grounds the chassis and protects it from electrical damage while you install the module.
2. Power off the chassis.
3. Inspect the slot pins on the chassis backplane for any bends or damage prior to installation. Do not install a module if the backplane is damaged.
4. Remove the black plastic covers from all the captive screws on the module front panel.
5. Identify a supported slot in the chassis. The following table shows the symbols that indicate the slot types.

   Table 3. PXIe-8285 Slot Type Compatibility

NI PXI Express Product	PXI Express Chassis Markings		
	Controller ▲	Peripheral ●	Hybrid ●"
PXIe-8285	—	✓	✓

6. Touch any metal part of the chassis to discharge static electricity.
7. Place the module edges into the module guides at the top and bottom of the chassis. Slide the module into the slot until it is fully inserted.
8. Secure the module front panel to the chassis using the front-panel mounting screws.

   > ✎ **Note** Tightening the top and bottom mounting screws increases mechanical stability and also electrically connects the front panel to the chassis, which can improve the signal quality and electromagnetic performance.

9. Cover all empty slots using either filler panels (standard or EMC) or slot blockers with filler panels, depending on your application.

> ✏️ **Note** For more information about installing slot blockers and filler panels, go to ni.com/r/pxiblocker.

10. Power on the chassis.

Powering On the PXIe-8285

The PXIe-8285 powers on automatically when the chassis is powered on. To power on the PXIe-8285, turn on the chassis.

Functional Overview

The PXIe-8285 is a peripheral module in a 1-slot 3U PXI Express form factor. The RDMA-enabled Ethernet module provides up to 25 Gigabit Ethernet (GbE) connectivity on two SFP28 ports for a PXI Express system. It can attach to a PXI Express system through a high-bandwidth, low-latency PXI Express backplane Gen3 x8 link.

With the two 25 Gb Ethernet ports, it allows offloading data from a PXI Express system to an external storage solution or a server for further analysis. It also allows data exchange and aggregation across two or more PXI Express systems.

The following figure is a functional block diagram of the PXIe-8285. Following the diagram is a description of each logic block shown.

Figure 2. PXIe-8285 Block Diagram
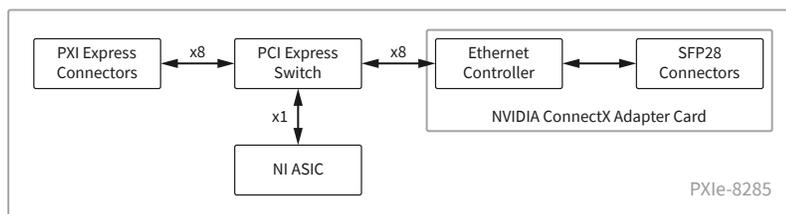
The PXIe-8285 consists of the following logic blocks on two circuit card assemblies (CCA):

- **PXI Express Connectors**—Connects the module to the PXI Express/CompactPCI Express backplane.

- **PCI Express Switch**—Links the PXI Express backplane to the Ethernet controller on the NVIDIA ConnectX Ethernet adapter card with PCI Express x8 links.

- **NVIDIA ConnectX Ethernet Adapter Card**—Consists of the Ethernet controller and the two SFP28 connectors that provides the 25 GbE connectivity per port and efficient low-latency RDMA over Converged Ethernet (RoCE) v2 technology.

Front Panel

Figure 3. Front Panel
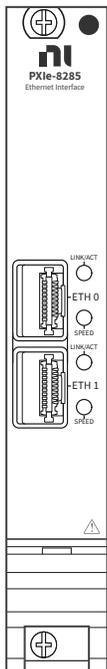
ETH 0 and ETH 1 Connectors

The PXIe-8285 front panel features two SFP28 Ethernet ports, which support up to 25 GbE per connector. You can connect Mellanox-compatible active optical SFP28 or passive direct attach copper SFP28 cables to the ETH 0/1 connectors.

LEDs

The front panel features two LEDs on each connector.

Table 4. LED Status

LED	Status	Description
LINK/ACT	Off	No link
	Blinking, Green	Linked, Activity
	Lit, Green	Linked, No activity
SPEED	Off	Link is not established
	Lit, Green	25 GbE (maximum) link speed
	Lit, Amber	<25 GbE link speed

Powering Off the PXIe-8285

The PXIe-8285 powers off automatically when the chassis is powered off. You can power off the chassis by shutting down the system controller or by pressing the chassis power button.

Removing the PXIe-8285 from a PXI Express Chassis

To remove the PXIe-8285 from a PXI Express chassis, complete the following steps.

1. Power off the chassis.
2. Remove any cables that may be attached to the module front panel.
3. Unscrew the two bracket-retaining screws in the front panel.
4. Press the injector/ejector handle down.
5. Slide the module out of the chassis.

Maintenance

Use a dry, low-velocity stream of air to clean the PXIe-8285 module. If needed, use a soft, nonmetallic brush for cleaning around components.

Make sure the module is completely dry and free from contaminants before returning it to service.

Where to Go Next

The following documents contain information that you might find helpful as you read this document. You can find all publications for your module by going to ni.com/docs and searching for PXIe-8285.

- **PXIe-8285 Safety, Environmental, and Regulatory Information** — Packaged with your module, includes important compliance precautions and connection information for your module.
- **PXIe-8285 Specifications** —Lists all specifications for your module.
- **NI-RDMA API Reference**
- **NI-RDMA Readme**
- Your chassis documentation
- **PXI Express Hardware Specification**, Revision 2.0
- **PXI-6 PXI Express Software Specification**
- **PICMG CompactPCI Express EXP.0 R1.0 Specification**
- **PCI Express Base Specification**, Revision 3.0, PCI Special Interest Group