

INSTALLATION GUIDE

VXI-MXI-Express Series

This document describes how to set up and configure the VXI-MXI-Express Series controller.

What You Need to Get Started

To set up and use the VXI-MXI-Express Series controller interface kit, you need the following items:

- A host computer with an available PCI Express slot¹ running the Windows 2000 or Windows XP operating system
- A PCI Express or ExpressCard to MXI-Express interface card
- A VXIbus mainframe
- A VXI-MXI-Express Series controller
- A x1 MXI-Express cable
- The National Instruments NI-VXI driver software CD
- This document

Installing the Software

Use the Setup program that came with your NI-VXI/NI-VISA software to install the entire software package or a software update, or to reinstall software in the event that your files were accidentally erased. Some of the utilities rely on the LabWindows™/CVI™ Run-Time Engine. This software is installed, if necessary, during the NI-VXI/NI-VISA installation.

Depending on the type of installation you choose, you may need up to 500 MB of free space on your hard drive to accommodate the NI-VXI and NI-VISA software.

¹ Some x16 slots may not work correctly with MXI-Express adapters.

To be compliant with *VXIplug&play* specifications, a VXI controller must provide the VISA I/O driver library standardized by *VXIplug&play*. VISA ensures that your controller can run all *VXIplug&play*-compatible software now and in the future.

The NI-VISA software in this kit is compatible with the WINNT/GWINNT framework. With NI-VISA installed on your computer, you can run any *VXIplug&play* software that is compatible with this framework. This includes instrument drivers and executable soft front panel software included with *VXIplug&play*-compatible instruments from a variety of vendors.

Installing the NI-VXI and NI-VISA Software

This section describes how to install the NI-VXI and NI-VISA software.

Carefully read these directions along with any messages on the screen before making your selections. You can quit the Setup program at any time by clicking the **Cancel** button.



Caution To keep the manufacturer/model name tables or the VME device configuration from a previous installation, be sure to back them up before starting Setup. They are in the TBL subdirectory of your NI-VXI directory, usually `Program Files\National Instruments\VXI`.

Setup is an interactive, self-guiding program that installs the NI-VXI and NI-VISA software and configures your system to use the software with the VXI-MXI-Express. Complete the following steps to perform the installation.

1. Insert the CD. When prompted, select Install NI-VXI from the menu.
If no menu appears when the CD is inserted:
 - a. Select **Start>Run** and enter the following text, where *x* is your CD drive (usually D):
`X:\setup.exe`
 - b. Click the **OK** button to begin installing NI-VXI.
2. Click the **Next** button at the Welcome screen to start the installation and accept the license agreement.



Note If you have a previous version of the NI-VXI software installed, Setup installs the new version over the previous version.

3. Select the installation features from the **Features** screen.

Tip For more information about the NI-VXI API, refer to Chapter 3, *Developing Your Application*, in the *VXI-MXI-Express Series User Manual*.

4. Click the **Next** button. After reading the license agreement(s), confirm your acceptance.
5. Click the **Next** button. Confirm that you are ready to install and click **Next** again to begin the installation.
6. Setup now copies the necessary files to your hard drive and creates program icons.

Completing the Software Installation

Review the information in any README files that Setup prompts you to read.

When the installation process completes, reboot the system for the changes to take effect. If you backed up the manufacturer and model name files, restore them to the TBL subdirectory of your NI-VXI directory before running MAX.



Note If you save and restore the TBL files from an older version of NI-VXI, the software will use TBL files that do not have the latest updates from National Instruments and may not include recent hardware releases. If you added additional manufacturer or model names to your TBL files, we recommend merging those changes with the latest updates included with this version of NI-VXI, so that all your devices are properly identified.

Installing the Hardware

This section summarizes how to install your VXI-MXI-Express Series controller hardware.



Caution To guard against electrostatic discharge, touch the antistatic plastic packages to a metal part of your computer or chassis before removing the boards from their packages. Your computer or chassis should be plugged in but powered off.

Installing Your VXI-MXI-Express Series Controller



Note Although the VXI-MXI-Express Series controllers are typically installed in Slot 0 of the VXI chassis, they may operate in other slots of the chassis. If you choose to install the controller in a slot other than Slot 0, the automatic detection circuitry on the controller will detect the slot and configure the controller appropriately, if the J2 jumper is set to Auto-detect.



Cautions Having more than one device configured as system controller can damage the VXI system. For VXI systems that include VME devices, ensure that the VME devices are not configured in the upper 16 KB (starting from 0xC000) of the A16 address space. This region is reserved for VXI device configuration registers, which are used for initializing, configuring, and interacting with VXI devices. The VXI-MXI-Express Series controller also uses this region for this purpose.

Also ensure that no other VXI devices in your system are manually configured for the same logical address as your controller. The default shipping configuration is that the card auto-detects if it is in Slot 0.

To install the VXI-MXI-Express Series controller in Slot 0 of your VXI chassis, complete the following steps.

1. Power off the chassis.
2. Verify that the backplane connector is intact and that there are no bent or missing pins on the controller.
3. Insert the VXI-MXI-Express Series controller into the chassis in Slot 0, as shown in Figure 2.
4. Firmly press the VXI-MXI-Express Series controller into the mating connectors to ensure the module is fully inserted and seated in the connector.
5. Tighten the two ejector handle screws.
6. Power on the chassis.

The VXI system controllers operate certain VXI lines as required for VXI systems. Verify that any other VXI devices with system controller capability that are in the same chassis are not configured as system controller.

Installing Your NI PCIe-8361/NI PCIe-8362 x1 PCI Express to MXI-Express Interface Card

To install your NI PCIe-8361/NI PCIe-8362 x1 PCI Express to MXI-Express module, complete the following steps.

1. Power off your computer, but leave it plugged in while installing the NI PCIe-8361/NI PCIe-8362. The power cord grounds the chassis and protects it from electrical damage while you install the card.



Caution To protect both yourself and the computer from electrical hazards, your computer should remain off until you finish installing the NI PCIe-8361/NI PCIe-8362.

2. Open the host computer or remove the top cover to gain access to the host computer PCIe expansion slots.

3. Select any available PCI Express expansion slot.



Note The BIOS or motherboard may not support the NI PCIe-8361/NI PCIe-8362 in a slot intended for a graphics card.

4. Locate the slot. Remove any slot and back panel covers and hardware (for example, screws).
5. Touch the metal part of the power supply case inside the computer to discharge any static electricity that might be on your clothes or body.
6. Line up the NI PCIe-8361/NI PCIe-8362 with the slot on the back panel. Slowly push down on the top of the NI PCIe-8361/NI PCIe-8362 until its card-edge connector is resting on the expansion slot receptacle. Using slow, evenly distributed pressure, press the NI PCIe-8361/NI PCIe-8362 straight down until it seats completely in the expansion slot, as shown in Figure 1.
7. Reinstall the bracket-retaining mechanism to secure the NI PCIe-8361/NI PCIe-8362 to the back panel rail.
8. Replace the computer cover.

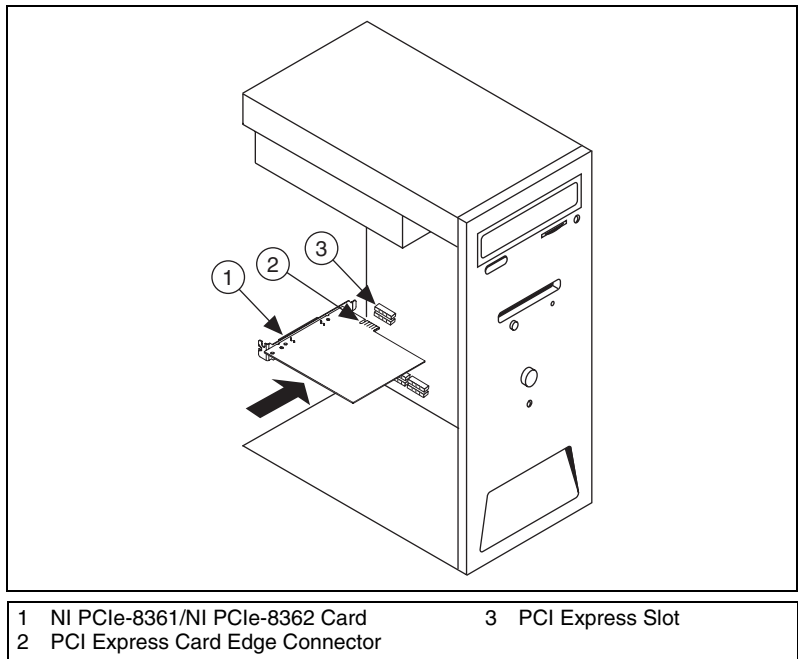


Figure 1. Installing the NI PCIe-8361/NI PCIe-8362

Installing Your NI ExpressCard-8360 ExpressCard MXI Interface

Complete the following steps to install the ExpressCard interface card.

1. Power off your computer.



Note You may want to connect one end of the x1 MXI-Express cable to the ExpressCard-8360 prior to installing it into the host computer.

2. Insert the ExpressCard-8360 in any available ExpressCard/34 or ExpressCard/54 slot.

Connecting Cables

Connect the x1 MXI-Express cable to the VXI-MXI-Express Series controller and then to the x1 MXI-Express host adapter in the host computer.

Figure 2 shows a system that includes a PCI Express-based host computer and a VXI-MXI-Express Series controller.

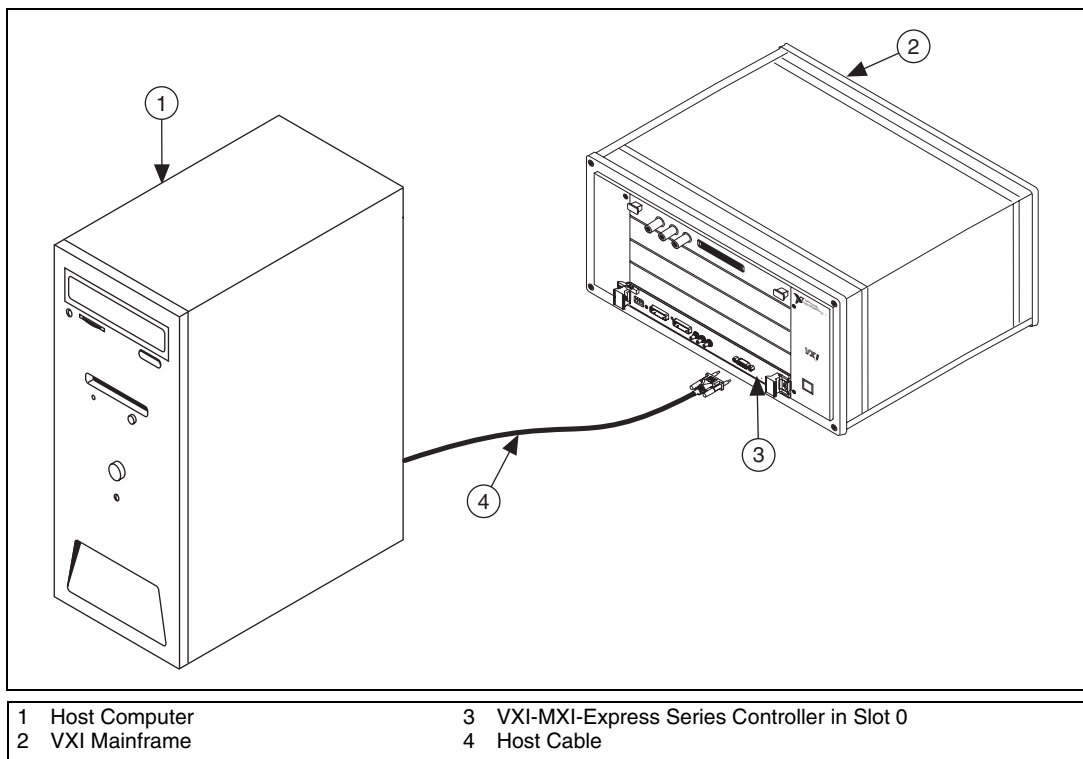


Figure 2. Host System with VXI-MXI-Express Series Controller

For information on connecting cables to TRIG/CLK PORT A(B) on the NI VXI-8360T, refer to the *Connecting The Cables* section of Appendix D, *VXI-8360T Hardware Configuration Settings*, in the *VXI-MXI-Express Series User Manual*.

Powering Up the MXI-Express System

Complete the following steps to power up the system.



Notes All VXI expansion chassis must be fully powered before turning on the host computer, otherwise the expansion chassis will not be detected by the host.

There are no requirements on how VXI-MXI-Express-based expansion chassis are powered up relative to each other as long as they are all on before the host computer is powered on.

1. Power on all of the VXI expansion chassis in any order you choose.
2. Power on the host computer.

Powering Down the MXI-Express System

Because operating systems and drivers commonly make the assumption that PCI devices will be present in the system from power-up to power-down, it is important not to power off the expansion chassis until after the host PC is powered off. Powering off the expansion chassis while the host is still on can cause crashes or hangs. The order in which expansion chassis are powered off, relative to each other, is not important.

Software Configuration and Verification

Complete the following steps to configure the software and verify the configuration.

1. Run MAX. You must run the Resource Manager (Resman) every time the chassis or computer power is cycled, so that your application can access devices in the VXI chassis. You can also configure MAX to run Resman automatically at every computer startup by selecting **Tools»NI-VXI»VXI Options** from the menu and selecting the appropriate checkbox.

2. You can also use MAX to interactively configure the National Instruments hardware in your system. Use the right-click help for information about the various configuration options. After you finish configuring the system through MAX, verify the configuration through the interactive control utility, VISAIC (**Start»Programs»National Instruments»VISA»VISA Interactive Control**), as described in Chapter 3, *Developing Your Application*, in the *VXI-MXI-Express Series User Manual*.



Note If you are using extenders such as MXI-2 to create a multichassis system, you may need to run Resman before configuring some of your devices.