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VXI-USB

INSTALLATION GUIDE

VXI-USB

This document describes how to set up and configure the VXI-USB interface kit.

What You Need to Get Started

To set up and use the VXI-USB interface kit, you need the following items:

- Computer running the Windows 2000 or Windows XP operating system, with a USB 2.0 port or plug-in card (USB 2.0 plug-in cards may not have the same level of performance as an integrated USB 2.0 port)
- VXIbus mainframe
- VXI-USB interface module that plugs directly into a VXI mainframe
- USB 2.0-compliant cable
- National Instruments software CD
- The *VXI-USB User Manual*, which is in PDF format on the software CD

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 50 MB of free space on your hard drive to accommodate the NI-VXI and NI-VISA software.

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 and WIN95/GWIN95 frameworks. With NI-VISA installed on your computer, you can run any *VXIplug&play* software that is compatible with these frameworks. 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-USB. Complete the following steps to perform the installation:

1. For the CD, select **Start>Run** and enter the following text, where *X* is your CD drive (usually D):
`X:\setup.exe`
Press <Enter>. Typically, this setup program runs automatically when you insert the CD.
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 type of installation from the Installation Options screen.
 - *Typical* setup installs runtime support and NI-VISA development support.
 - *Complete* setup installs everything including NI-VXI API development support. For more information about the NI-VXI API, refer to Chapter 3, *Developing Your Application*, in the *VXI-USB User Manual*. The manual is in PDF format on the CD.
 - *Custom* setup gives you more control over which driver components you want installed on your system. This option is recommended for advanced users.
4. Click the **Next** button. Confirm that you are ready to install and click **Next** again to begin the installation.
5. 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-USB hardware. Your kit contains a VXI-USB interface module.



Caution To guard against electrostatic discharge, touch the antistatic plastic packages to an unpainted 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.

Figure 1-1 shows a system that includes a USB 2.0-equipped computer, a VXI-USB, and USB devices.

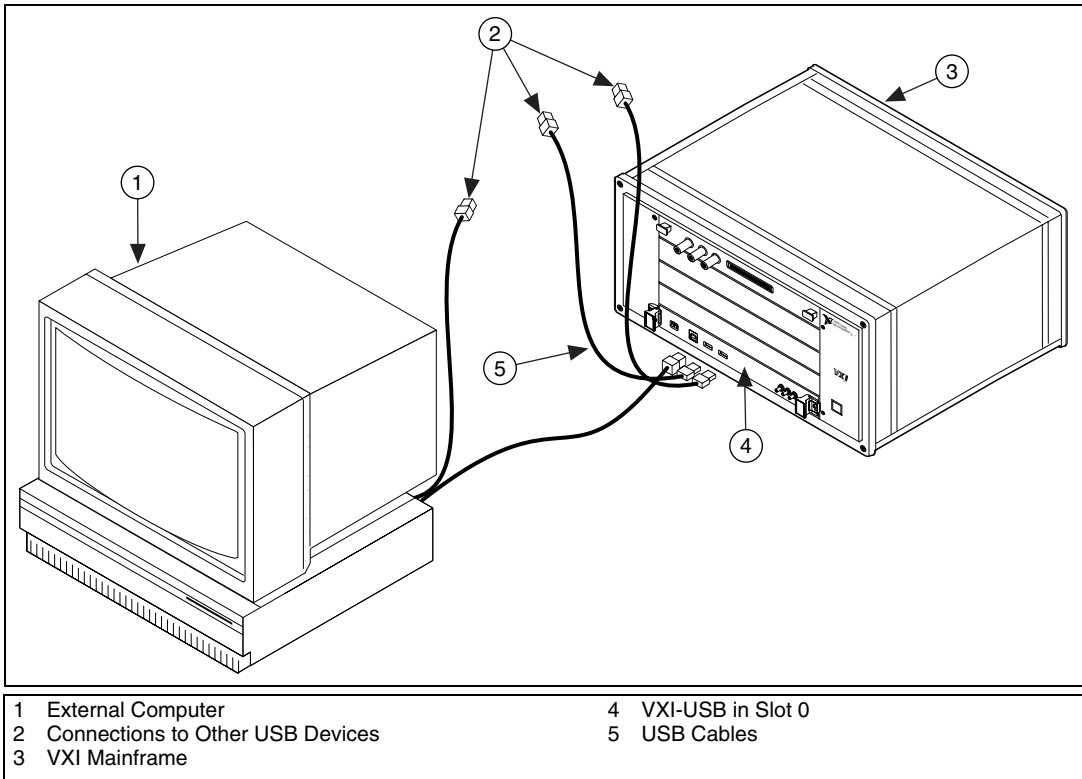


Figure 1-1. USB System

Installing Your VXI-USB Interface Module

All kits contain a VXI-USB interface module.

To install the VXI-USB 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 module.
3. Insert the VXI-USB into the chassis in Slot 0, as shown in Figure 1-1.
4. 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.



Caution 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-USB also uses this region for this purpose.



Note Also ensure that no VXI devices in your system are configured for logical address 0. This is the VXI-USB logical address, which you cannot change.

Connecting Cables

Connect the USB cable to a USB connection in your host PC and to the VXI-USB, as shown in Figure 1-1. You can use any available USB port on the computer for each device. The VXI-USB has two external ports for devices. You can connect any other USB devices to any available port on a VXI-USB, but for best performance, minimize the number of USB devices/hubs in the system. Adding to the number of devices in the tree degrades system performance.



Note Your VXI-USB controller is a Hi-Speed USB device, which means it performs much faster when connected to a Hi-Speed USB port as described in the USB 2.0 specification. USB 2.0 ports are often integrated on the motherboard of current computers. National Instruments recommends using an integrated USB 2.0 port, if available, for optimal performance. Plug-in boards with USB 2.0 ports are also supported but may not provide the highest performance. Full-speed (USB 1.x) ports are supported as well, but provide much lower performance. The LINK light (refer to Chapter 1, *Introduction*, in the *VXI-USB User Manual*) on the front panel of your VXI-USB controller indicates your connection speed.

Software Configuration and Verification

To configure the software and verify the configuration, follow these steps:

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** 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-USB User Manual*.

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