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PXI-8156

PXI™-8150 SERIES FOR WINDOWS 95/NT

This document contains information to help you understand the components of your kit, determine where to start setting up your kit, and learn about the NI-VISA features.

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What Do You Have?

Your kit contains hardware, software, and documentation. You may also have ordered some optional equipment or software.

Hardware

Your hardware includes either the PXI-8155 Series or the PXI-8156 Series controller, which you install in your PXI mainframe, and an AT-PS/2 cable.

Software

Your PXI-8150 Series controller comes with National Instruments software already installed on its hard drive.

Windows 95 Kit

The Windows 95 kit contains the following software:

- Windows 95 CD-ROM
- *NI-VISA for Windows 95/NT*
- *NI-488.2M Software for Windows 95* (PXI-8156 Series only)
- Diskette containing PXI System Initialization File for PXI-8155/8156 and PXI-1000/1010

Windows NT Kit

The Windows NT kit contains the following software:

- Windows NT CD-ROM with boot disk
- *NI-VISA for Windows 95/NT*
- *NI-488.2M Software for Windows NT* (PXI-8156 Series only)
- Diskette containing PXI System Initialization File for PXI-8155/8156 and PXI-1000/1010

Additional Installed Software

Your PXI controller's hard drive contains the National Instruments LabVIEW and LabWindows™/CVI software. The National Instruments NI-DAQ software is also pre-installed on all PXI controllers to support the National Instruments data acquisition boards. A copy of all software media, excluding LabVIEW and LabWindows/CVI, is available in the `c:\images` directory for immediate access.

Both LabVIEW and LabWindows/CVI integrate the VISA library interfaces that are required to support your PXI embedded controller. You also get hundreds of complete instrument drivers, which are modular, source-code programs that handle the communication with your instrument to speed your application development.

Available Options

You may have ordered the following optional software:

- LabVIEW Development software (CD-ROM). You also receive the LabVIEW Configuration Disk so you can activate LabVIEW.
- LabWindows/CVI Development software (CD-ROM). You also receive the LabWindows/CVI Configuration Disk so you can activate LabWindows/CVI.

Printed Documentation

Aside from this document, your kit contains the following printed manuals:

- *Getting Started with Your PXI-8150 Series for Windows 95/NT* contains an overview of the PXI hardware and the NI-VISA software, guides you through setting up your kit, and helps you get started with application development. You can also use this manual as a reference for the hardware and software default settings, to find the answers for commonly asked questions, and for information on reinstalling the software, if necessary.
- The *PXI-8150 Series User Manual* contains information on configuring and installing your PXI controller. You may not require this manual if you are performing a simple hardware installation that uses the standard default settings. However, you should keep this manual handy in case you decide to try a different switch or jumper setting at a later time. The user manual also contains information on BIOS, the front panel and connectors, LEDs, and system resources.
- NI-488.2M documentation includes the following manuals (PXI-8156 Series only):
 - *NI-488.2M User Manual for Windows 95 and Windows NT*
 - *NI-488.2M Function Reference Manual for Win32*
- Declaration of Conformity document concerning FCC and CE compliance
- Hardware registration card

Acrobat (Online) Documentation

Your kit includes manuals that are not in printed form. These other manuals are available as Adobe Acrobat version 3.0 portable document format (PDF) files. You can view these manuals online, navigate through them, and print them from your computer. Adobe Acrobat Reader 3.0 is installed on your PXI controller's hard drive. In the event of an upgrade, or if you need to reinstall the Reader, you can obtain the latest Adobe Acrobat Reader directly from Adobe.

Adobe maintains a Bulletin Board Service (BBS), which you can use to upload files to Adobe Technical Support and download certain Adobe files. The number for the Adobe BBS is 206-623-6984. It is located in Seattle, Washington, which is in the Pacific time zone. If you live outside the United States or Canada, you are welcome to connect to the BBS, but may first want to try Adobe's Web site (<http://www.adobe.com/>) or FTP site (<ftp://ftp.adobe.com/>), which may be accessible at a significantly lower connection cost.

The following list shows the path and filenames of the Acrobat manuals that are available on your hard drive (where Winxx is either Win95 or WinNT):

- c:\VXIpn\Winxx\NIvisa\Manuals\NI-VISAUsersMan.pdf

This is the *NI-VISA User Manual*, which describes how to program using VISA.

- c:\VXIpn\Winxx\NIvisa\Manuals
NI-VISAProgrammersMan.pdf

This is the *NI-VISA Programmer Reference Manual*, which describes in detail the attributes, events, and operations you use in NI-VISA.

- c:\Images\pxi815x\Manuals\5446TRM.pdf

This is the *CL-GD5446 Technical Reference Manual* provided by Cirrus Logic describing their software utilities.

Here are some tips on using PDF files efficiently:

- To view and print the online documentation, launch the Acrobat Reader and open the PDF documents. You can assemble your own printed documentation by printing out either the entire document or only the sections relevant to your application.
- To use hypertext links, click on any entry in the table of contents to jump directly to that topic's page. You can jump to major sections within each manual quickly and easily by clicking on the bookmarks. When you open your PDF documents, the bookmarks show. A bookmark with a triangle in front of it has bookmarks within it. To reveal the next level, click on the triangle. To collapse to a higher level, click on the triangle.
- You can change the magnification of the documents either by selecting the magnifying glass tool in the toolbar and clicking anywhere on the manual page or by using the various options in the **View** menu.
- You can quickly find and go to every occurrence of any word or phrase in the entire document. Select the **Tools>Find...** option and type in the key word or phrase you want to find.
- The PDF file assigns consecutive numbers to each page throughout the document and displays this page number in the lower-left corner of the Acrobat window. When you choose the **View>Go To Page...** option or are printing pages, you must use the page numbers in the lower-left corner of the window, not the number displayed at the bottom center of each manual page or listed in the contents and index. The number shown in the bottom center of the page is for printed documents only.

Important Information for Windows NT Users

This section contains information about preparing your Windows NT system and where to find a copy of the Windows NT installer should you need to reinstall it.

Logon and Password

You must provide a logon name to receive Windows NT administrator privileges. Log on as *Administrator*. The password is not configured on your unit at this point, so you can just press the <RETURN> key.

After you have successfully logged on to Windows NT, you need to immediately change the password to ensure a secure Windows NT system.

Reinstalling Windows NT

Your PXI embedded controller comes with a copy of the Windows NT installation disks on your hard drive in case you need to reinstall Windows NT. To begin installation, boot from a DOS floppy disk and then type `WINNT /B` from the `C:\IMAGES\OS\NT40\i386` directory.

The Windows NT operating system on your hard drive has been pre-installed with the latest Windows NT Service Pack. National Instruments recommends you use the latest version available. You can find a copy of the installation disks on your hard drive in the `C:\IMAGES\OS\NT40\NT4_SPx` directory.

Should it be necessary to reinstall the Service Pack, you can either reinstall from the copy on your hard drive or you can download the latest Service Pack version from the Microsoft Corporation World Wide Web site at www.microsoft.com.

Where Do You Start?

1. Compare your kit contents with the description in the preceding [What Do You Have?](#) section. Contact National Instruments regarding any discrepancies.
2. If you ordered the LabVIEW or LabWindows/CVI software option, your kit includes either a LabVIEW or LabWindows/CVI configuration disk. Because both LabVIEW and LabWindows/CVI are pre-installed on your hard drive in a nonfunctional mode, you need to insert the configuration disk when prompted to activate the installed software.



Note: *If you do not insert the configuration disks when prompted, Setup deletes the pre-installed LabVIEW and LabWindows/CVI software from your hard drive. However, you can reinstall them from disk, as described in the next section.*

Otherwise, if you ordered a kit that does not contain the configuration disks, install LabVIEW or LabWindows/CVI from disk if you want to use either programming environment. Then reinstall the NI-VISA software from disk or from the copy located in the `c:\images` directory. The NI-VISA installer updates necessary files in the LabVIEW and LabWindows/CVI directories to ensure that the latest development files are being used.

3. If you require peripheral support for Ethernet, video, or IDE, refer to the file `c:\images\pxi815x\drivers.txt`. The `drivers.txt` file contains the following information:
 - Section 1 explains the procedure for recreating the hard drive image should the operating system crash.
 - Section 2 describes how to access the online documentation.
 - Section 3 explains how to install the software drivers for the various peripherals on your PXI controller.
 - Section 4 describes how to install NI-DAQ for use with the National Instruments PXI data acquisition boards.
 - Section 5 includes important information for Windows NT 4.0 users.
 - Section 6 describes how to install USB under Windows 95.
4. Please refer to the file `c:\VXI\pn\Winxx\README.TXT` for important information that may affect your application program, including known issues and software corrections with this release, and additional information relevant for NI-VISA API development.

You can also reference the National Instruments www.natinst.com or [ftp.natinst.com](ftp://ftp.natinst.com) sites for driver updates, examples, and product news.

What Is VISA?

VISA is a standard I/O Application Programming Interface (API) for instrumentation programming. VISA by itself does not provide instrumentation programming functionality for interfaces other than Serial. VISA is a high-level API that calls into system-level drivers. As an example, the NI-VISA implementation of VISA uses the NI-VXI system-level driver for National Instruments VXI controllers. If you are a GPIB or GPIB-VXI user, you must also install the NI-488.2 system-level driver for National Instruments GPIB controllers.

VISA can control VXI, PXI, GPIB, or Serial instruments, making the appropriate driver calls depending on the type of instrument being used. VISA uses the same operations to communicate with instruments regardless of the interface type. For example, the VISA command to write an ASCII string to a message-based instrument is the same whether the instrument is Serial, GPIB, VXI, or PXI. As a result, VISA gives you interface independence. This makes it easier to switch bus interfaces and means that users who must program instruments for multiple interfaces need learn only one API.

Another advantage of VISA is that it is an object-oriented API that will easily adapt to new instrumentation interfaces as they evolve, making application migration to the new interfaces easy.

Because VISA is the industry standard for developing instrument drivers, most instrument drivers currently written by National Instruments use VISA and therefore support Macintosh, Windows 3.x, Windows 95, Windows NT, Solaris 1, Solaris 2, and HP-UX, if the system-level drivers are available for that platform.

NI-VISA Release Notes

This section describes the new utilities and features in this release of NI-VISA for Windows 95/NT.

New Utilities

This release of NI-VISA for Windows 95/NT includes two new utilities to help you configure, develop, and debug your system quickly: T&M Explorer and NI Spy.

You can use T&M Explorer to view your entire T&M system and configure various components. When you launch T&M Explorer, a list of your PXI, VXI, GPIB, and Serial devices appears on your screen. To view the properties of each device (such as logical address, address space used, primary address), right-click on the device in the list. When you view the properties of a National Instruments device, you can configure the hardware settings directly from the properties list.

T&M Explorer replaces many earlier utilities, such as VISAconf, and integrates with the NI-DAQ Configuration Utility. T&M Explorer also has new features, such as an option to launch VISAIC from T&M Explorer, and troubleshooting to guide you through configuration conflicts and errors.

NI Spy tracks the calls your application makes to National Instruments T&M drivers, including NI-VISA and NI-488.2. It highlights functions that

return errors, so you can quickly determine which functions failed during your development. NI Spy can also log your program's calls to these drivers, so you can check them for errors at your convenience.

Supported Application Development Environments

This release of NI-VISA for Windows 95/NT supports the following Application Development Environments (ADEs):

- LabVIEW version 4.x
- LabWindows/CVI version 4.x
- Borland C/C++ version 4.5.x
- Microsoft Visual C/C++ version 4.x, 5.x
- Microsoft Visual Basic version 4.x, 5.x



Note:

Although NI-VISA has been tested and found to work with these ADEs, other ADEs or higher versions of the ADEs listed above may also work.

